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BOOK OF ABSTRACTS

The 6th International Congress of Exercise and Sport Sciences

The Academic College at Wingate

In collaboration with The Olympic Committee of Israel

and

The United States Embassy in Israel

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Prof. Ann MacPhail, Ireland

Prof. Jörg Schorer, Germany

Prof. David Thivel, France

Pat Summit Seminar Special Guest

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A Message from the Editors

Dear Readers,

This issue of *Movement: Journal of Physical Education and Sport Sciences* is a special issue in many ways. It is a publication of the *Book of Abstracts from the 6th International Congress of Exercise and Sport Sciences (ICESS) – The Academic College at Wingate*. As COVID-19 emerged in the midst of preparations for a physical Congress at the Academic College at Wingate in Israel, it was finally decided after some deliberation to conduct the Congress online. This 6th ICESS is the first time the Congress has been conducted online, and while the global situation prevented physical participation, it opened up new opportunities for participants from around the world who otherwise might not have been able to take part. The pandemic that plagued our world this year is also reflected in the research conducted and presented in the Congress, as experts and researchers grappled with and attempted to provide solutions for the challenges posed by the diverse effects of COVID-19 on physical activity and public health.

In addition, research presented and knowledge shared in this year's Congress focus on diverse themes in Exercise and Sport Sciences and Physical Education – from the physical sciences of Exercise Physiology, Coaching Developments, Competitive Sport, Sport Nutrition, Genetic Aspects of Sport, Sports Biomechanics, Sports Medicine, and Adapted Physical Activity, to the human sciences of Physical Education and Sport Pedagogy, Sport Psychology, Sport Sociology, Sport History, and Sport Philosophy.

The Congress also features the Olympic Day celebrating this year's Tokyo Games. The Olympic Day program presents and discusses theoretical aspects of Olympism and Olympic Education and its implementation around the world, as well as historical aspects of the Games. Within the framework of the Congress and as part of the Olympic Day, the Congress is also hosting the seminar 'Making a Difference: Pat Summit, Basketball and a Better Society' honoring the legendary basketball player and coach, Pat Summit, as well as groundbreaking women in sport.

We are proud to present this collection of 213 abstracts by scholars and professionals from 26 countries around the world. A rich program has been designed that includes four keynote addresses delivered by the most notable authorities in their particular domain, setting the tone for a fascinating program. We would like to sincerely thank all the authors who submitted abstracts, as well as those who participated and contributed to the conference program. We particularly wish to thank The Olympic Committee of Israel and the United States Embassy in Israel for their significant support, contribution, and collaboration.

Yours Sincerely,

Prof. Nili Steinberg
Chairperson, Scientific Committee

Dr. Devora Hellerstein
English Editor

Book of Abstracts

I. KEYNOTE PRESENTATIONS

Data Visualization and Data Analytics in Sports

Ramy Elitzur

The Edward Kernaghan Professor in Financial Analysis, Rotman School of Management, University of Toronto, Toronto, Canada

Since the publication of *Moneyball* in 2003 the use of data analytics has surged in professional sports and other fields. *Moneyball* told the story of the use of advanced baseball analytics by the Oakland Athletics, a Major League Baseball (MLB) team, and how it has resulted in improved player selection and game management. Moreover, it changed managerial vocabulary, as the term "Moneyballing" now commonly describes organizations that use data analytics. By using available information technology, we can utilize machine learning algorithms both for player selection and game management. The first part of the session will discuss the use of data visualization in professional sports and how it can be used strategically for game management. Examples will use real-time examples from the National Basketball Association (NBA) and MLB. The second part of the session will illustrate how machine learning tools can help us make decisions in the NBA both for game management and player selection.

The Positioning of Physical Education and Sport Pedagogy and the Potential for Engagement with Other (Sub)Disciplines

Ann MacPhail

Physical Education and Sport Sciences, University of Limerick, Limerick, Ireland

The presentation is concerned with the positioning of Physical Education and Sport Pedagogy (PESP) and the potential for engagement with other (sub)disciplines. Kirk and Haerens (2014) note a concern about the extent to which research in PESP appears to be less frequently cited, having less impact in the field of school physical education and, more broadly, sport. Acknowledging differences in contexts, the purpose of this presentation is to consider how PESP, while maintaining a collective identity, can most effectively develop a capacity to engage with academic and institutional changes in productive, proactive ways. This entails considering extending the groups or communities in which PESP is represented to increase the potential to access substructures with other academic communities. That is, 'adjoining territories' (Becher & Trowler, 2001) that afford us access to opportunities that we would be unlikely to secure as a freestanding international community. There would be an anticipation of making connections that allow collaboration with colleagues in other disciplines and related professions. This could result in a 'give and take' if you will; a reciprocated relationship that would increase the meaningfulness, visibility and credibility of PESP and, in turn, PESP doing the same for other disciplines.

We need to remain mindful of how credibility may be measured completely differently by a PESP researcher than it might by 'the corporate University'. Credibility from a University perspective, linked to today's audit-type culture, is often focused around accountability measures that pertain to research and grant money. While this is not a new phenomenon, it has certainly intensified over the past decades (Acker & Webber, 2016). Credibility from the PESP community perspective might be measured more around the impact a project has on the effectiveness of a physical education programme, or perhaps the enhancement of a teacher education programme. What we are arguing here is that for better or worse PESP researchers are to be credible in both worlds, and that a reciprocated relationship with other related professions may enhance credibility on both fronts. Such reciprocation could result in increased opportunities to secure external funding and, in turn, increase opportunities for interdisciplinary collaboration and therefore overall impact. A consequence of this may be the extent to which PESP can maintain its (preferred) identity while at the same time traversing disciplines.

Talent Selections in Sport Are Decisions

Jörg Schorer

Institute of Sport Science, University of Oldenburg, Oldenburg, Germany

One of the most prominent problems in sport is ensuring accurate talent selection. On the one hand, every selection means the deselection of many athletes from the high performance developmental system they have chosen. On the other hand, there are often very limited spots for the national talent developmental system for those selected, that might be necessary to develop them into elite athletes. While this is a foundational topic for sport science, our understanding is still rather limited. In this presentation, we will first provide some insight into why talent selections are so difficult. Second, we will present an overview of our research with the German handball federation. In the last two decades, we have explored several ideas on what should and could be done in cooperation with this sport organization. Finally, we will present a new perspective on selections in sport. The current idea behind most talent research is to find a formula that might be able to explain most of the variance of later success in young athletes. While the rationale for this approach is understandable, and at first sight logical, decision-making research in the last decades suggests an alternative approach may be more appropriate. Gigerenzer and colleagues have argued for a "bounded rationality" perspective in decision making and forecasting (Gigerenzer et al., 1999). They suggest simple heuristics might make us smart, and might be as, or probably more, accurate than all the "talent formulas" that exist. This presentation will discuss both approaches, and present findings of two studies that seem to support the bounded rationality approach (Schorer et al., 2017). Together, both approaches might provide a fruitful avenue for future research on talent selection in sport.

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Physiological and Neurocognitive Pathways Involved in the Nutritional Adaptation to Physical Exercise and Energy Deficits

David Thivel

Clermont-Auvergne University, Clermont-Ferrand, France

While energy intake and energy expenditure have long been studied independently, the alarming progression of obesity has led to a more integrative approach of energy balance considering their potential interactions. Since Mayer and Edholm (year) **[?]** in the fifties who first questioned the relationship between daily energy expenditure and daily energy intake, there has been a growing interest to better understand how daily activities (physical activities and sedentary behaviors) can alter food intake and appetite, and to identify the potential involved mechanisms. We will first review and summarize the available results regarding the effect of physical exercise on energy intake and appetite control, trying to identify the physiological and neurocognitive signals and pathways involved. Although most of the available evidence concerns acute exercise, we will also discuss the nutritional adaptations to chronic physical activity. Secondly, we will question whether these pathways and nutritional responses are specific to exercise, or if similar adaptations are observed in response to iso-caloric energy deficits induced by dietary restrictions. Overall, this presentation will give an overview of the compensatory mechanisms to exercise and physical activity that control and determine our energy balance.

II. ORAL PRESENTATIONS

PARALLEL SESSION A1: NEW TIMES – NEW PEDAGOGIES IN PHYSICAL EDUCATION

Is "Physical Education and Computational Thinking" an Oxymoron?

Eyal Weissblueth

School of Physical Education, Tel-Hai College, Katzrin, Israel

The term computational thinking (CT) was proposed in 2006 by Jeannette M. Wing, and it refers to a system of thinking skills, processes and approaches to solving complex problems, using concepts from computer science. These skills are important to teachers in solving problems they encounter regularly and for being able to teach them to their young students, with the hope that they will apply them in their adulthood. In most instances where CT is taught, teachers use computers and teach some sort of programming language such as Scratch, which enables their students to learn various problem-solving strategies. However, these thinking skills can be used in non-computer science disciplines and contexts.

One such discipline is Physical Education (PE). Although it seems contrary to its essence of being physically active, the objective of this presentation is to show that CT can and should be embedded within PE classes and the PE teachers should be trained accordingly. During the last several years our college developed a unique approach to preparing pre-service teachers for the K12 education system in Israel. One of the foundations of this approach is a cross-discipline and cross-faculty mandatory course in CT. However, the one teacher preparatory discipline that repeatedly exhibited a need to adapt the way the course is taught was PE. In the last two years, CT was taught with a vast emphasis on PE peer teaching experiences, where CT was embedded in an unplugged mode. The presentation will describe this unique course in detail and provide reflections of the course participants pertaining to the integration of CT into the PE classroom and the work of the physical educator.

ICT Tools and Motivational Training: A New Study of a Pedagogical Model for Physical Education Teachers

Alon Hirsh

Ohalo Campus of Education and Sports, Tel-Hai College, Katzrin, Israel

Exercise is declining among teens, and there is alarming disregard for physical education. On the one hand, physical education teachers are reluctant to use progressive technological tools, but on the other hand, their teaching style is influenced by the technological, social and cultural changes they face these days. Physical education in the 21st century faces new challenges based on different needs and previously unfamiliar innovative teaching methods that could potentially enrich the teaching experience. Pedagogical methods that integrate information, communication technology (ICT) tools that focus on organization, adaptation and teaching are necessary to meet the educational needs of the 21st century.

This study examined innovative teaching methods and their impact on teachers` motivation to teach with them. The program included in-service training (intervention program) comprised of virtual and frontal sessions in which participants were asked to learn teaching methods that included pedagogical use of technological tools. The intervention program was implemented in five different courses in which 107 teachers – consisting of teachers with rich teaching experience and teachers with about one year of teaching experience, took part in the research.

Teaching Acrobatic Gymnastics in Covid-19 Days

Hagit Diskin-Zaif

The Academic College at Wingate, Netanya, Israel

Over the past year the entire education system in Israel, including teacher training institutions, has been forced to reinvent itself.

As a lecturer in Pedagogy and Gymnastics I had to invent new teaching methodologies that would allow me to teach both acrobatics and pedagogy skills, while observing the constraints imposed by the pandemic.

How does one teach skills of balancing on top of another athlete in these times? How to teach a skill based on contact with other athletes, while 'social distancing'? Is there a way to teach physical cooperation and teamwork while observing the restrictions and safety rules of COVID times, and will the students be well prepared and ready for post-pandemic times?

The presentation will provide possibilities for re-inventing teaching methodologies for Acrobatic-Gymnastics, while maintaining the enjoyment factor and accentuating the acquisition of life-skills (e.g., cooperation, coordination, decision-making, responsibility, performance).

Online Courses for Preparing Physical Education Teachers for Inclusion of Children with Disabilities in Their Classes: A Systematic Review

Noa Choresh
Yeshayahu Hutzler

The Academic College at Wingate, Netanya, Israel

Inclusive education has spread worldwide during the two first decades of the 21st century. While in Israel about 40% of children with disabilities are still maintained within the special education system, legislation from 2018 attempted to increase the number of these children attending school within the regular school system. One of the major challenges facing the education system is the lack of teachers` knowledge about teaching students with various disabilities in the school system. This has led to reduced self-efficacy, and subsequently to a lack of willingness to find proper adaptations for including these children in the regular classes. This situation has been reported in numerous studies describing teachers` and students` perspectives within the physical education (PE) system. Nevertheless, in many countries only one course in the curriculum addresses this issue, often in a theoretical manner, and as a result student teachers are not acquiring inclusion strategies and skills. The outcome of this is diminished participation of the students with disability in PE practice.

Twenty-first century pedagogy addresses students born into a society that intensively applies media and communication technology. Current pedagogies claim that students should be involved in active and self-directed learning processes (McLoughlin & Lee, 2010). Three domains of skill acquisition are emphasized: (1) creativity and innovation skills; (2) critical thinking and problem solving skills; and (3) communication and collaborative skills (Ministry of Education, 2013). One way of addressing knowledge and skills to large student communities is online education, which has also been applied within PE teacher education programs.

The purpose of the current paper is to review online course practices and outcomes as presented in the scientific literature pertaining to inclusion preparation of PE teachers, and to propose a concept for the further development of this teaching modality. The search was conducted within Google Scholar, Sport Discus (via EBSCO host) and Pubmed data-bases, using the terms inclusion, physical education, teachers, online, web, course. Inclusion criteria were articles in English or Hebrew including data collection and published in either scientific journal or congress proceedings.

Results of the search included four journal articles and one congress proceeding. Two articles included controlled group designs and the other two qualitative inquiries. One article included a retrospective analysis of study outcomes. The outcomes support the potential of online courses to supplement and partially replace traditional frontal knowledge-based courses.

Associations of Technological, Pedagogical and Content Knowledge with Perceived Stress of Adapted Physical Educators in Europe During the COVID-19 Lockdown

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Background: Many schools around the world were rapidly closed to prevent the spread of COVID-19. This led to most school-aged children reducing their levels of physical activity. Face-to-face learning opportunities were converted to remote teaching, causing issues among students with special educational needs. For teachers to deliver remote teaching competently requires enhanced technological, pedagogical and content knowledge (TPACK). This is more so with delivering adapted physical education (APE). APE teachers may not have had opportunities to learn how to use technologies for remote teaching, which leads to more stress, and may affect the high quality APE needed to keep children with special educational needs to remain physically active.
Aim: The aim of this study was to investigate the associations of perceived stress of European APE teachers with their TPACK for physical education.
Methods: A standardised survey was made available online and available in English, French, Latvian, Lithuanian, and Portuguese. Language was checked through back translation methods and distributed through national distribution lists between May-June 2020. Survey items included school type, gender and teaching experience. All items from the TPACK-21-PE were included, consisting of 48 items on a 6-point scale evaluating the teachers` knowledge in using technology for delivering physical education. There are seven subscales in TPACK-21-PE, and scores were averaged. Perceived stress was measured from a single item with a scale from 0-10 and was treated as the dependent variable in a multivariate linear regression analysis.
Results: The majority of the respondents (n=122) were female (57%), over the age of 40 (71%), and taught in mainstream schools (59%) rather than in special schools (41%). The overall mean stress score was 5.24 (SD=2.45). Technological content knowledge had the lowest score (mean=3.2, SD=1.27) and pedagogical knowledge (mean=4.3, SD=.94) was scored the highest among the teachers. The combination of technological pedagogical content knowledge (TPACK) was positively associated with perceived stress (F=2.68, p=.015). Technological knowledge (t=-2.86, p=0.005) and pedagogical content knowledge (t=-2.74, p=.008) were negatively associated with perceived stress. The associations between the other TPACK domains and stress were not statistically significant.
Discussion: The restrictions in schooling due to COVID-19 have placed a greater workload on APE teachers, as well as stress. Areas of technological knowledge and pedagogical content knowledge were negatively associated with stress. In other words, teachers with more knowledge in using technology and using pedagogical content knowledge had lower levels of stress. These findings highlight the APE teachers` stress and its moderators during COVID-19.
Conclusions: The provisions for 21st-Century skills among APE teachers to engage in technological knowledge and pedagogical content knowledge may assist with perceived work stress, and further research in these possible relationships is needed.

PARALLEL SESSION A2: OLYMPIC HISTORY

The Olympic Games: The Organisation, History, Committee, and Projects – Rome 1960-Barcelona 1992: From A Dream to the Olympic Model

Valerio Della Sala

Geography, Sport Research Institute (IRE), Autonoma University of Barcelona, Barcelona, Spain

The choice of analysing the Olympic Games of Rome 1960 and Barcelona 1992 belongs to the conflicting and diverse impact generated on the two cities. These two events created a big urban transformation, which allows for a new critical perspective concerning public services and management measures. I will examine how management models either prevent or increase the exploitation of the intangible benefits, necessarily associated with the Olympic event. Olympic venues are at the heart of Olympic planning, as they constitute the citizens' Olympic legacy. In fact, these venues' sitting capacity and their technology determine their future use and value among the citizens, possibly enhancing the sportive practice within the local community. The Olympic venues` design, supported by a strong public transportation system, is therefore of pivotal importance in order to develop a new and stable city economically able to apply its own resources and to limit the environmental impact, like cost instability. My critical analysis regarding these two mega-events is carried out through the development of 13 guidelines, aiming to offer effective criteria in order to guarantee not only an economic revenue but also intangible, future benefits. This investigation shows how cities should gain from these intangible benefits, which develop as a consequence of both the Olympic bid's success and the infrastructural evolution. Only thanks to these new philosophies, cities and regions, as a consequence, could profit from the intangible benefits belonging to the Olympic Games, including employment, structure and infrastructure use, tourism, job offers, SME, cultural development, decision making, and trade.

Sport-Oriented Schools as a "Legacy" of Mega-Sporting Events: The Case of the Ginásio Experimental Olímpico (GEO) Inspired by the Rio 2016 Games

Juan Chong

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The perception of what a sport-related event legacy is has been changing over time, and defining it has always been a complex task. When huge investment is required to produce these events, there is a public controversy of those in favour and against. For that reason, a careful planning of a mega-sporting event's legacy is relevant to demonstrate that the investment to be made is not in vain; instead, it could have a major positive impact in developing strategic sectors, and even help to change the direction of a nation for the better. One of these key sectors is education – including physical literacy. The planning of the education legacy of mega-sporting events – the Olympic and Paralympic Games – for the purposes of this research, has been historically based mainly on the creation and implementation of educational programs related to Olympic Education. These programs take place mainly before and during the sporting event, and once the event is over the funding decreases without ensuring its future sustainability or the possibility to scale up its impact.

This research aims to explore new perspectives when the education legacy of mega-sporting events is planned and executed by analysing the case of the Ginásio Experimental Olímpico (GEO) – Experimental Olympic School, a sport-oriented educational project led by local authorities inspired by the Rio 2016 Olympic and Paralympic Games.

Through the analysis of data collected from primary sources (interviews/field visits) and secondary sources (historical documents/reports), findings were contrasted with the IOC's Legacy Guidelines, to determine that the GEO can be an innovative education legacy initiative showing tangible positive results and proven sustainability for the benefit of Rio de Janeiro's population, as well as a potential initiative of application in future sport mega-events.

The Cold War and the Olympic Games: The 1980 Moscow Olympics Boycott

Elana Ostrovsky

The Academic College at Wingate, Netanya, Israel

The Olympics have always been accompanied by political problems, and despite its many attempts, the Olympic movement has never succeeded in separating sports from political issues. One of the primary ways taken in this context is a boycott. The article provides a detailed analysis of the 1980 Moscow Olympics boycott and examines the causes and consequences in various aspects, exploring whether each party to the conflict saw failure or success in this case, and evaluates the attitude of the IOC. The Soviet invasion of Afghanistan in December 1979 ended the period of détente, and a new Cold War resumed. While this was the official reason that the United States boycotted the Games, this analysis shows other possible reasons: Carter`s weakening position, and the US administration`s desire to cause a decrease in the propaganda value of the Olympics, which were being held for the first time in a Communist country. On the other hand, the Soviet side saw success in the Games as a sporting event and as a propaganda tool for boasting about the Communist ideology. The fact that the United States is an influential power has been an example to many other countries, and it can be seen that the independence of the National Olympic Committees, as it should be demonstrated according to the Olympic Charter rules, did not take place in practice. The Soviet reaction was a boycott against the Olympics in 1984, and not necessarily the withdrawal of forces from Afghanistan as required. The lack of efficiency in achieving a specific goal may indicate that boycotting a sporting event could be an effective strategy if it is part of a more comprehensive general political movement, and not as a means in itself.

The Olympic Motto *Citius, Altius, Fortius* Does Not Mean That Records Have Been Broken, but Rather How Records Continue To Be Broken

Raymond Stefani

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It is understandable that a person might conclude that the Olympic Motto, *Citius, Altius, Fortius*, means that records have been broken, indicating athletes are running faster, jumping higher and demonstrating greater feats of strength. Actually, such feats are the cumulative effect of the real meaning of that motto. On March 7, 1891, at an Arcueil College sports assembly in France, Father Henri Didon, a Dominican Priest, told the students that their goal in sport should be to take the skills each had and do their best to improve, that is, to run a bit faster, to jump a bit higher and to become a bit stronger than they had been before. He didn`t say anything about competing on a team, beating anyone or setting a record. When a young person gets interested in physical activity, they choose the methods of that day and age, not thinking about the past or wondering if anyone in the future will do better. While the young athletes are doing their best, others are working to improve nutrition, training, equipment, coaching and technique. Those improvements elevate what the athlete can achieve. The best of those athletes will be on sports teams. The best of them will be on Olympic teams. The best of them will win medals. The best of them will set records. Winning performances keep getting better, simply due the self-improvement across the spectrum of competition. For example, in 1924, American Olympic swimming champion Johnny Weissmuller broke the one-minute barrier at 100m and Australian Olympic swimming champion Andrew Charlton took two minutes off the world record at 1500m. Were those remarkable records out-of-reach for the next few Olympic winners? No! As we examine the velocity of Olympic champions for those two events from 1908 to the present, we see that winning performances just kept improving right through 1924. In fact, since 2004, the velocity of Olympic 1500m champions have been faster than Weissmuller swam in just a single 100m, a feat that would have been deemed physically impossible in 1924, yet happened as athletes just kept trying to better themselves, not thinking of such records. A similar plotting of the accumulated improvements for Olympic champions, both for men and women, in throwing, swimming, jumping and running occasionally exhibits the effects imposed on athletes by international events, yet shows steady improvements from one Olympics to the next, as generations of young athletes entered sport and observed Father Didon`s mantra.

PARALLEL SESSION A3: GENETICS AND CREATIVITY IN SPORT

Creativity as a Means for Performance and Psychological Optimisation

Veronique Richard

Center for Research Innovation and Transfer in Circus Art, Montreal, Canada

Creativity is amongst the differentiating skills leading to success. Are performance environments suited to develop that skill? With slight modifications, they could be. Building on embodied cognition, movement can become a powerful tool to enhance creativity in performers. This presentation covers the main principles underlying the development of creativity through movement. It aims at providing strategies to develop training activities and transform the daily training environment into a creativity-supportive one. Applied and research examples implemented at different performance developmental levels will be associated with every principle. Finally, creativity will not only be considered as a point to reach, but as a means for people to reach their full psychological potential.

Motor Creativity Among Young Elite Basketball Players

Bosmat Sky
Shir-Raz Shachar
Hadar Levi
Sigal Ben-Zaken

The Academic College at the Wingate, Netanya, Israel

Basketball is classified as an invasion game, since players move constantly from offense to defense while confronting their opponents in order to create scoring opportunities and win the game. These game interactions create situations that are hard to predict since there are countless possible outcomes. A basketball player needs both cognitive and physical abilities to perform. Each player has a set of skills that are acquired through training and represent the mode of action and system of action for completing work and tasks successfully. Creativity is defined as the ability to create motor solutions to the familiar and unfamiliar "on court" game situations, which enforces a fast decision-making process. Creativity relies on two main cognitive processes: “divergent thinking” and “convergent thinking”. Divergent thinking is defined as the generation of many alternative ideas that are meant to be useful and meaningful, whereas convergent thinking refers to the ability to find the ideal solution to a given problem. In basketball, divergent thinking relates to tactical creativity, that is, varying, rare, and flexible decisions in different kinds of situations. In order to evaluate motor creativity in sports three facets should be measured: fluency, flexibility and originality. The purpose of the current study is to explore creativity indexes among young elite basketball players. Forty-eight young elite basketball players were recruited for the current study. Participants were tested for motor creativity and divergent thinking. Coaches were asked to assess their players` creativity. A moderate correlation was found between coach assessment and motor creativity flexibility. No correlation was found between coach assessment and motor creativity fluency and originality. Moreover, when dividing participants into positions, a moderate to high correlation was found between coach assessment and motor correlation flexibility for guards but not for forwards/centers or point guards.

Gender Differences in Creativity Among Young Elite Judoka Athletes

Shani (Refael) Baicher
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Creativity is a multidimensional concept that can be described as a cognitive ability that leads to the production of an original and valuable product. This ability relies on divergent thinking, which enables multi-dimensional and multi-directional thinking, thus enabling the creation of new ideas/new ways of dealing with different situations. Motor creativity is the ability to select and execute diverse and different motor solutions for a given situation, and is an important feature of daily life, especially for performance in sports. The aim of the present study is to explore gender differences in creativity among elite athletes in judo. Judo is a popular and accomplished sport in Israeli sports. Seventy-seven elite judo athletes (32 females and 45 males) aged 16-25 participated in the current study. Participants performed a divergent thinking test and motor creativity test. It was found that self-esteem of creativity among males was higher than self-esteem among girls. However, coaches evaluated both males and females as moderately creative. Females scored higher on all divergent thinking dimensions compared to males. These differences were significant for the flexibility dimension ($p = .016$) and approach significance for the flexibility dimension ($p = .090$) in motor creativity. In verbal divergent thinking, these differences were significant for fluency ($p=.05$) and flexibility ($p = .020$), and approached the significance for originality ($p = .098$).

An Exploratory Study on Motor Interventions Effect on Divergent Thinking: The Role of the DRD2 C/T rs6277 Polymorphism

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The aim of the current study was to examine the gene-motor intervention interaction effect, i.e., DRD2 C/T rs6277 genetic polymorphism and motor intervention, on divergent thinking indices. Ninety healthy students (45 females, 45 males, age 25.35+2.69) were recruited and randomly allocated to 3 conditions: control, aerobic dance, and movement improvisation, which lasted 5 weeks, 10 sessions each. Buccal epithelial cells were collected from all participants using cytology brushes. DNA was extracted from buccal swab specimens and genotyped for DRD2 C/T rs6277. Results revealed that figural fluency and flexibility scores of participants carrying DRD2 rs6277 CC and CT genotypes remained somewhat stable under all conditions, while DRD2 rs6277 TT carrier scores increased for the participants in the aerobic dance and movement improvisation conditions and decreased under the control condition. A similar trend was observed for figural originality. TT carriers' verbal fluency and flexibility also benefited from aerobic dancing and movement improvisation. These results highlight complex interactions between genotypes and motor intervention conditions.

Coordination – A Combination of Creativity and Systematization

Mark Wertheim

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Sports science is, on the one hand, an interdisciplinary and integrative science, and on the other hand, an implemented science. Today more than ever there is an effort in sports training to be more systematic without losing the creativity of the players. The main question is what is the basis of creative thinking in movement? And how can classical scientific thinking (aiming for generalization) not prevent or reduce creative thinking and movement in sport (individual creativity – " in his/her own way").

There is much progress in the sciences due to the advancement of brain and neurosciences that enables the search and better understanding of the brain, and especially the small brain (cerebellum) functions and activity. It has recently been found that the cerebellum is not a "stupid organ" as we thought some years ago, and it can be trained to improve its functions. Coordination means organizing the order of actions.

The question is, which components of coordination are needed to develop such creativity? The connection between modern coordination training and creativity is necessary to encourage the abilities needed to deal with unaccepted situations and complicated situations in ballgames.

The trainer/teacher is committed to learning and knowing more deeply the contents of coordination and creative thinking during movement and how to combine them in his/her training/lessons in order to develop a modern player/pupil.

Rating of Perceived Effort: Methodological Concerns and Future Directions

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Rating of perceived effort (RPE) scales are the most frequently used single-item scales in exercise science. They offer an easy and useful way to monitor and prescribe exercise intensity. However, RPE scales suffer from methodological limitations stemming from multiple perceived effort definitions and measurement strategies. In the present review, we attend to these issues by covering (1) popular perceived effort definitions, (2) the terms included within these definitions and the reasons they can impede validity, and (3) the problems associated with using different effort scales and instructions. We pose that the large number of interactions between definitions, scales, instructions and application strategies, threatens measurement validity of RPE. We suggest overcoming these limitations by narrowing the number of definitions of perceived effort, the number of terms included within them, and the number of scales and instructions used. By following these recommendations, we expect the field will increase measurement validity and become more comprehensive.

The Effects of Lifting Lighter and Heavier Loads on Subjective Measures

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Background: Despite the progress made in the study of subjective measures in resistance-training, some questions remain unanswered. Here we investigated if ratings of perceived effort (RPE) can predict task-failure and bar-velocity across exercises and loads as a primary outcome, and whether a battery of subjective measures differs as a function of the lifted loads as a secondary outcome.

Methods: In this preregistered study, twenty resistance-trained subjects (50% females) first completed one repetition-maximum (RM) test of the barbell-squat and bench-press. In the second and third sessions, subjects completed two sets of squats followed by two sets of bench-press to task-failure, using 70% or 83% of 1RM, while bar-velocity was recorded. RPE scores were recorded after every repetition. In addition to RPE, rating-of-fatigue, affective-valence, enjoyment, and load-preferences were collected after sets- and sessions-completion.

Results: Across conditions, RPE was strongly correlated with reaching task-failure (r= .86) and moderately correlated with bar-velocity (r= -.58). Our model indicates that an increase in one RPE unit is associated with an 11% shift towards task-failure, and a 4% reduction in bar-velocity, with steeper slopes observed in the heavier condition. Negligible differences were observed between the load-conditions in rating-of-fatigue, affective-valence, enjoyment, and load-preference.

Conclusion: RPE scores, collected on a repetition-by-repetition basis, accurately reflected reaching task-failure across loads and conditions. Hence, RPE can be used to prescribe repetition numbers during ongoing sets. The negligible differences between load conditions in rating-of-fatigue, affective-valence, enjoyment, and load-preference indicate that when sets are taken to task-failure, loads can be selected based on individual preferences.

Staying Physically Active During the COVID-19 Quarantine: Exploring the Feasibility of Live, Online, Group Training Sessions Among Older Adults

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Background: The COVID-19 outbreak has led to recurring quarantines, resulting in drastic reductions in physical activity (PA) levels. Given its health benefits, there is a need to explore strategies to increase PA rates during this period. Video-conferencing platforms can be used to deliver live, online, group PA sessions. However, there are only few established PA protocols on how to use such platforms. Hence, the purposes of this study were: 1) to design an online PA protocol and 2) to explore its feasibility among older adults during a quarantine.

Methods: A group of exercise specialists developed a PA protocol while accounting for challenges that may arise when using a video-conferencing platform ("Zoom"). A special focus was placed on safety, individualization, and motivational aspects. Then, 31 community dwelling older adults (71.5±4 years) were recruited via social media to follow this protocol twice a week for eight weeks. Outcome measures included adverse events, adherence rates, and satisfaction with the protocol, its delivery, and technological aspects.

Results: Twenty-eight participants completed the protocol. No adverse events occurred, and adherence rates were high (90%). Most participants (97%) indicated they would participate in such a program in the future and highly rated all aspects of the protocol (median score of 6 in 1-7 Likert scales).

Conclusions: The PA protocol delivered live via a video-conferencing platform was found to be safe and feasible with this cohort. It can therefore be implemented in practice, and in future studies planning to utilize home-based PA sessions for older adults.

Accuracy Rates in Estimating Repetitions to Failure in Resistance Exercises: A Scoping Review and Exploratory Meta-Analysis

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Background: In resistance training, the number of repetitions performed in a training session is traditionally prescribed using a predetermined approach (e.g., three sets of 10 repetitions). An alternative is the repetitions in reserve (RIR) approach, in which the number of repetitions per set is determining by the trainee's estimation of proximity to muscular failure. Despite the growing number of studies on this approach, the accuracy rates in predicting the number of repetitions to failure are not clear. Since reasonable prediction rates are a prerequisite for the successful implementation of this approach, the purpose of this study is to evaluate the accuracy rates of a trainee's estimation of repetitions to failure.

Methods: The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines were followed. Three databases were searched until January 2021. Studies were included when written in English and fulfilled the three following criteria: 1) trainees completed resistance training exercise, 2) they provided an estimation before or during the set when they will reach failure, and 3) they reached failure in the set. Random-effects meta-analyses and meta-regressions were performed where possible.

Results: Will be presented at the conference.

Exploring the Affective Responses to Resistance Training: A Comparison of the Predetermined and the Estimated Repetitions to Failure Approaches

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In resistance training, the number of repetitions is traditionally prescribed using a predetermined approach (e.g., three sets of 10 repetitions). An alternative is the estimated repetitions to failure (ERF) approach (e.g., terminate sets two repetitions from failure). The latter may be a more enjoyable way to train as it allows trainees to better regulate their efforts. Accordingly, here we compared the affective responses and repetition numbers performed under both conditions among women (range: 23-45 years) inexperienced in resistance-training. Initially, one Repetition Maximum (1RM) prediction tests were conducted in four exercises. In the next two counterbalanced sessions, participants completed three sets of either ten repetitions (predetermined), or terminated sets two repetitions before reaching task-failure (ERF) using 70%1RM across exercises. Affective responses and approach-preference were collected during and after the sessions. We observed trivial differences in the affective responses and an approximately even approach-preferences split. Repetition numbers were mostly similar under both conditions in the chest-press, knee-extension and lat-pulldown (difference of ~1 repetition). However, under the ERF condition participants completed more repetitions in the leg-press (17 vs. 10, p0.01). While the ERF approach may allow trainees to better regulate their efforts, the comparable affective responses in both approaches, suggests that trainees preferences should be considered prior to implementing either one.

Hemodynamics Responses to "Time Under Tension": RM10 vs. RM20 Among Young Adults

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Hemodynamic responses to resistance training are of utmost importance in a population to whom these variables, especially high blood pressure, can be harmful. On the other hand, proper dosing will improve their health. Therefore, the current study aimed at comparing hemodynamic responses of the cardiovascular system to a high load with few repetitions (RM10) versus a low load and many repetitions (RM20).

Eleven females and thirteen males took part in the study. All were trained, their mean age was 24.9±3.3 years, and BMI level was 22.7±2.6, 23.7± 2.6, respectively. In the first phase, RM1 was calculated and accordingly the load at RM10 and RM20 per person tested. In the second phase, each subject performed 4 sets of 10 and 20 repetitions randomly with 3 minutes of recovery between each set. Blood pressure, heart rate, and lactate measurements were taken at rest, at the beginning and end of each set and 3 and 5 minutes during recovery.

Data analysis showed that values of systolic blood pressure, diastolic blood pressure, mean blood pressure, and double product were significantly higher at RM20 than in RM10 (p0.001, p=0.028). The findings indicated that the time under pressure has a greater effect than the absolute and relative loads on the hemodynamic responses during resistance training. This assumption is particularly significant for hypertensive patients. Future studies are needed to confirm this assumption.

Keywords: blood pressure, double product, lactate, hemodynamic responses.

The Effects of Long-Lasting Exercise Involvement on the Physiological Profile of Moderately Active Women of Varying Age

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Background: To explore the rate of adjustment of the exercising muscle oxidative metabolism – the on-transient exercise model widely used in general, clinical and aging populations. Although a large number of studies using a step-transition exercise model were performed on men, less is known regarding changes in the rate of muscle oxidative metabolism for the active female population, in part due to the technical limitations of measuring near infrared spectroscopy (NIRS) in ageing women. Moreover, data on the cardiovascular response during on-transient exercise in women are also sparse, and this is especially important since the previous work of Hart et al. (2009) showed sex specifics in both blood pressure regulation and muscle sympathetic nerve activity. Taken together, the application of the above-mentioned integrative model, combined with tensiomyography (TMG) evaluation, could provide a more comprehensive insight into the prognostic role of different factors attributed to the cardiopulmonary exercise testing (CPET) performance in women.

Aim: We studied the effects of age on different physiological parameters, including those derived from the i) maximal (CPET), ii) moderate-intensity step-transitions, and iii) (TMG)-derived variables, in moderately active women of varying age.

Methods: Twenty-eight women (age range from 19 to 53 y), completed three laboratory visits, including baseline data collection, TMG assessment, V̇O2 max test via CPET, and a step-transition test from 20 W to a moderate-intensity cycling power output (PO), corresponding to V̇O2 at a 90% gas exchange threshold. Following preliminary measurements, these women were then divided into young (age range 19-30 y) and middle-aged (age range 36-53 y) groups. During the step-transitions breath-by-breath pulmonary oxygen uptake (V̇O2p), near infrared spectroscopy derived muscle deoxygenation (ΔHHb), and beat-by-beat cardiovascular response (Finapres) were continuously monitored.

Results: There were no differences observed between the young and middle-aged women in their V̇O2 max and peak PO, while the HR max was 12 bpm lower in middle-aged compared to young women (p=.016). In addition, no differences were observed between the age groups in τV̇O2p, ΔHHb, and τHR during on-transients. The first regression model showed that age did not attenuate the maximal CPET capacity in the studied population (p=.638), while in the second model a faster τV̇O2p, combined with shorter TMG-derived contraction time (Tc) of the vastus lateralis (VL) were associated with a higher V̇O2 max (~30% of explained variance, p=.039).

Conclusion: We found that long-lasting exercise involvement protects against V̇O2 max and τV̇O2p deterioration in moderately active women. More specifically, no differences between age groups were found in τV̇O2p, τΔHHb, τHR, during on-transients, while faster pulmonary τV̇O2p and shorter contraction time (Tc) of the VL explain 33% of the variance in superior V̇O2 max attainment.

Why Do COPD Patients Get So Breathless Walking Uphill? A Physiological Study

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Background: COPD patients often complain of severe dyspnea when walking uphill, even with a mild incline. We aimed to study the effect of incline on Borg dyspnea score during treadmill walking in COPD patients and healthy controls. We hypothesized that this dyspnea is out of proportion to the increased work necessary to overcome gravity when walking uphill.

Methods: Fourteen (f=4) COPD patients (median FEV1 48% predicted, range 30-73%), and nine (f=2) matched healthy control performed 3 symptom-limited exercise tests on a treadmill, each at a fixed grade: 1%, 2.5% and 4%. Treadmill speed was increased stepwise (3'/stage). Subjects reported dyspnea according to the Borg scale (1-10 points) at each stage. Cardiac, respiratory and gas exchange response were continuously recorded. An inspiratory capacity (IC) maneuver was performed during the last minute of each stage. Peak oxygen consumption (pVO2) was determined for each test. Borg score reported by each subject at a uniform level of oxygen consumption (isoV'O2), corresponding to the lowest pVO2 attained in the 3 tests performed by the subject, was compared across tests by repeated-measure ANOVA post-hoc Bonferroni. Parameter values were linearly interpolated as necessary.

Results: COPD patients were more dyspneic when walking at higher grades, despite correction for level of oxygen consumption: at iso-VO2, dyspnea increased with treadmill grade for 1% vs. 4% grade and 2.5 vs. 4% grade. The median increase in Borg score, at iso-VO2, from 1% to 4% grade, was 4 points (median Borg score was 4 and 8, respectively, p0.01), and from 2.5% to 4% grade, was 3 points (median Borg score was 5 and 8, respectively, p0.01).

Severity of dynamic hyperinflation, at isoVO2, increased with grade, as reflected by a decrease in inspiratory reserve volume (IRV) during exercise from 900 ml (400-1400), at 1% grade to 600 ml (50 -1400) at 4% and from 750 ml (300-1400), at 2.5% grade to 600 ml (50 -1400) at 4%. There was no difference in dyspnea score and IRV with higher grades in the healthy control group.

Conclusions: Walking uphill per se increases breathlessness of COPD patients, even at isoVO2, suggesting that the increased dyspnea cannot be explained simply by the increased work. This finding may be a result of the dynamic hyperinflation, which is worse at steeper inclines. Further studies will be necessary to determine the mechanism of this phenomenon. Possibilities include an effect of posture or of gait, perhaps altering afferent output from leg muscles to the respiratory centers in the brain.

Associations between Individuals` Emotional Anxiety, Depression and Physical Functioning After Myocardial Infarction: A Comparative Study at Two Points of Time

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Previous studies have indicated that cardiac rehabilitation programs have had an improved effect in the quality of life of patients. Only a few studies, to date, have reported the differences between the physical and psychological data – more specifically in older and younger individuals participating in physical rehabilitation after a myocardial infarction. Keeping this in mind, the goal of the current study was to distinguish the changes in older and younger members` physical fitness as it relates to anxiety and depression results from Time1 (at the inception of the study) and T2 (3 months later).

Participants consisted of 67 individuals ranging in age of 36-65 years, and 33 between the ages of 66-84 years. The study comprised both men and women, all of whom have had myocardial infarctions for the first time. The study participants completed a questionnaire examining anxiety and depression levels at T1 and T2. The data included medical information, demographics, heart rates and fitness levels using MET (Metabolic Equivalent Task) scores, collected throughout the study.

Decreased levels of anxiety and depression were noticeable in the two groups; fitness levels among both groups were average. Both groups had significant improvement in physical fitness as well as decreased reported anxiety between the T1 and T2. Furthermore, regression tests exhibited low anxiety levels yielding improved physical fitness.

As a result, the findings conclude that rehabilitation programs are beneficial in the geriatric as well as younger age groups. It is therefore necessary to encourage adults to commit to a cardiac rehabilitation program post-MI. The findings also suggest the value of professional guidance in reducing anxiety levels to improve patients` physical function.

Differences in Return to Routine and Physical Activity After Cardiac Surgery

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Background: Return to routine and physical activity are important aspects of recovery from cardiac surgery. The purpose of this study was to examine the differences between patients with different levels of physical activity and their delay in returning to work and daily routine.

Methods: A prospective study of 100 participants was conducted to assess differences between patients with different physical activity levels. Levels were measured by volume of physical activity as None, 1-2 hours, 3-5 hours, 6-10 hours, or More than 10 hours at 2 weeks and 6 weeks post-discharge. Volume of physical activity and return to daily routine were measured via questionnaires. Return to daily routine was defined as return to independent status, work, hobbies, and social participation. The scale used for return to daily routine was: (1) Regular Return; (2) Almost Returning; (3) Moderate; (4) Little; (5) Not at all.

Results: One way repeated measure analysis of variance (ANOVA) revealed that patients who had increased volume of exercise had a significantly decreased delay in returning to daily routine, at 2 weeks (Independence status p 0.004, work, p 0.003, hobbies p 0.014, social participation p 0.001) and 6 weeks (Independent status p 0.001, work, p 0.001, hobbies p 0.001, social participation p 0.001).

Conclusion: Patients who participate in an exercise activity are more likely to return to routine faster than patients who do not.

PARALLEL SESSION B1: PERCEPTIONS AND IDENTITIES IN PHYSICAL EDUCATION AND SPORT PEDAGOGY

Physical Educators' Stands Regarding the Meaning of Gender in Physical Education: Reflections Towards Change

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Issues related to gender equality and women's and girls' rights are at the heart of current public discourse in Israel. As part of this discourse, the education system has also found itself under critical scrutiny. As a result, new policies are being formulated and innovative programs are being implemented, aiming to reduce gender gaps. This paper examines physical education (PE) in secondary schools in Israel, focusing on girls. We aim to answer the question: What meaning do physical educators attribute to gender and to girls in PE? In the study, 29 physical educators were interviewed, of which 19 were teachers and the rest were supervisors and instructors of future teachers. The paper reveals that the stands taken in the field represent the various stages in the development of feminist criticism in PE. It can be seen that perceptions have been retained in this field that are similar to those in the period prior to the development of feminist thinking. They represent the different waves of feminist criticism, as well as the perceptions that represent complex views of society and of girls, that can identify an opportunity in PE to shape a new social order. Hence, our argument is that feminist thinking has not yet been institutionally integrated into the training programs of PE teachers, nor into the curricula that shape the field. In the last section of the paper we propose several directions for change in the curriculum, as well as in the pedagogical practices and the training programs of PE teachers, and suggest further research on the theory of PE.

Inconsistencies in Health Behavior and Attitudes of Physical Education Student Teachers – Focus on Stimulant Treatment for ADHD

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Aim: To evaluate the attitude of physical education student teachers (PEST) towards stimulant therapy (ST) for ADHD and harmful substances versus those of non-PEST.

Methods: A questionnaire regarding the prevalence of stimulant use and of harmful substances was sent to PEST and non-PEST.

Results: 438 PEST and 214 non-PEST answered. More PEST reported they were not using harmful substances and fewer reported smoking than non-PEST. Nevertheless, more PEST reported to using marijuana and alcohol. There was no difference regarding present use of stimulants, however more PEST reported to be currently using non-prescribed stimulants, and more often on not taking their prescribed medication. Furthermore, PEST were more decisive against encouraging their future students to comply with ST.

Discussion: Our results suggest that these inconsistencies in behavior may indicate a self-sufficient attitude of PEST regarding ST. We suggest that health promotors such as PEST should be more educated about ST.

Alignment Between Instructors' Intentions and Students' Perceptions in Online Kinesiology Courses

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According to the Community of Inquiry (COI) model, the online learning experience is enhanced when the course instructors address three key components throughout their teaching: teaching presence (TP), cognitive presence (CP), and social presence (SP). The TP represents the instructor`s role in the course design, facilitation, and integration of the cognitive and social aspects within the specific learning environment. The CP reflects the extent to which students construct and confirm meaning through systematic reflection and discourse that focuses on students` development of critical and higher-order thinking. The third key component, SP, represents the development of positive and supportive social interactions among students within a specific learning group while maintaining a productive social climate. Considering the COI framework, the current study investigated the following questions: (a) What are instructors' intentions? (b) What are students' perceptions? and (c) What is the alignment between the instructor's intentions and students' perceptions? Four instructors teaching different Kinesiology online courses and 44 students completed the COI surveys. Results indicated that TP received the highest score among instructors ($M = 4.05$, $SD = 0.32$) and students ($M = 4.01$, $SD = 0.65$) whereas SP was the lowest among instructors ($M = 2.64$, $SD = 0.69$) and students ($M = 3.60$, $SD = 0.59$). Results also identified two courses with weaker alignments than other courses. A discussion regarding the social presence misalignment between instructors and students concludes the study. Results of this study support earlier studies (Gilbert & Moore, 1989; Moore, 1989) emphasizing the importance of social presence as a key component supporting the cognitive and motivational aspects within higher education settings. A recommendation was made for instructors to remember that the social connection among students is not embedded in their online course (as it would be in the face-to-face courses) and that they should reconsider the value of the social presence component for the learning process in online settings.

We Just Have to Listen to Them: Preschool Children Can Express Feelings About Their Bodies Pertaining to the "Expending Energy" Result of Physical Exercise

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Aim: To identify and understand what children think and feel about their bodies after intense physical exercise.

Methods: Individual interviews were held with 679 preschool children following intensive physical exercise in order to examine their reactions to intentional physical exercise. An analysis of what the children had to say facilitated drawing conclusions regarding their ability to grasp the feelings that accompany expending energy and the way they make use of expressions and concepts that suggest physical changes following the activities.

Results: Children are able to express and describe feelings relating to four different aspects of physical exercise after engaging in it: (1) physical aspect: 80% of the children made reference to the physical aspect (e.g. cardiac activity, perspiration, breathing, heat, fatigue); (2) emotional aspect: 47% of the children expressed themselves in emotional terms; most of them expressed enjoyment, fun and capability; (3) cognitive aspect: 47% of the children made cognitive references that included use of mathematical-logical concepts and images, such as "many times it was hard to go up and go down" or "my heart beats two times as fast"; sound arguments such as "I had fun because I jumped a lot"; and, cause-effect relationships such as "if I jump, then my feet hurt"; (4) `energy expenditure` aspects: 71% of the children offered a scientific explanation of energy expenditure processes resulting from intense physical exercise; 20% of the children also noted the sense of enjoyment that accompanied it.

Conclusions: This early exposure to phenomena occurring in the child`s body in the course of exercise, and the child's drawing preliminary conclusions regarding the pace of the activity and the amount of energy needed to perform it, are likely to enhance the future understanding of the balance between energy intake and expenditure. The fact that 71% of the children expressed feelings and physical changes when exerting themselves, and made use of scientific concepts that describe "expending energy", suggests that it may be possible to address the subject of energy using the thing closest to the child – his/her body.

Physical Education Teachers As High School Classroom Educators

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Aim: To examine the perceptions of students, principals, parents and educators of the education profession in high schools in Israel, and their recommendations for teaching methods and contents.

Method: This is a combined study of two-step methods, and will focus on presenting the perceptions of physical education teachers who serve as class educators. One-hundred physical education teachers who are also high school classroom educators answered questionnaires. In addition, 12 teachers participated in two focus groups. For the purpose of the study, a questionnaire was constructed that examines the teachers` perceptions regarding the importance of the profession, its contribution and the ways in which it is taught. The questionnaire contains 14 open-ended questions and 22 closed-ended questions. The questionnaire was distributed online.

Results and Conclusions: Findings that emerged from the questionnaire and the focus groups indicate a high importance attached to the role of the class educator in general, and to the education lesson in particular.

According to the participants, this lesson regularly deals with topics that are not part of the school curriculum, but have the potential to address the students` social and emotional needs. We found a gap between this perception and the teachers` report, claiming that it is rarely the students who propose the lesson topics and/or are partners in its design, meaning that they are not sufficiently involved in the lesson at any stage. Moreover, often the education lesson becomes a place to deal with problems of the class as a learning group, instead of applying the vision to create lessons with added value.

PARALLEL SESSION B2: OLYMPIC EDUCATION

Olympic Education and the Surprising Range of Extrapolation of the Subject-Matter into Other Fields of the Educational Endeavour

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"Olympic Education" embraces a surprising range of both intuitive subject matter and possible extrapolation into other fields of the educational endeavour.

Games-by-Games Focus

The Olympic Games ("Games"), as a phenomenon, have become the world`s foremost international sports-related event, well into the second century of their existence, with that existence spread over three centuries of extraordinary change on every continent. How the Modern Games were conceived, born and nurtured, how they have adapted and persisted, and the ongoing challenges they face are, in themselves, rich opportunities for the advancement of knowledge.

Each edition of the Games provides a convenient backdrop against which changes across the full spectrum of the human condition can be assessed. Current social, economic and political dynamics are radically different from those in place when the Modern Games were established. Technical and scientific advances have "shrunk" the planet and made instantaneous worldwide communications all but a commodity. Games audiences now measure in the billions.

Olympic Values-based Education

The concept of Olympism, highlighted in the Olympic Charter, presents unique opportunities to provide values-based education, especially for youth. There are vast Olympic-related resources available, many of them accessible through the Olympic Studies Centre, to provide motivating examples of such values and the related universal principles on which they are grounded. In times (such as the present) when fundamental and sustainable lifestyle choices are often difficult for youth to identify and articulate, such educational activities can provide a reassuring focus for making good decisions.

Extrapolation of Olympic Education to Other Educational Activities

This perspective of Olympic education is completely open-ended. The Olympic perspective and experience can be used to enrich education in matters completely unrelated to the Games themselves.

Examples (with topics and questions included for each identified subject) include:

History, Geography, Economics, Mathematics, Physics, Politics, Sociology, Psychology, Chemistry, Cinematography, Ethics

From Games Skills to Life Skills

Many life skills that can be taught using Olympic examples:

· Aspiration, goal-setting, conceptualization and planning

· Preparation, motivation, self-discipline, self-confidence [The only place where success comes before work is in the dictionary.]

· Focusing on maximum performance at the right moments

· Dealing healthily with both success and failure

· Value of good (and bad) examples – overcoming adversity, resilience, persistence, technological innovation

· Respect for the rules of play and fellow competitors (e.g., 1936 Jesse Owens and Lutz Long; 1960 decathlon: Rafer Johnson and C.K.Yang; 2026 athletics: Usain Bolt and Andre deGrasse, the "old" and the "new" generations)

· Transferability of the Games' values (including freedom from discrimination), skill sets and disciplines into every field of endeavour

· Being able to move on from sport to the rest of one`s life with the benefit of lessons learned from and through sport.

Olympic Games in Children`s Imagination

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Olympic Games in Children`s Imagination is an Olympic education program conducted for more than 20 years by the Romanian Olympic Academy. In all these years, thousands of works of art made by young people between the ages of 6 and 18 were entered in the competition. Talent, inspiration, courage and fair play are among the chosen themes for the little ones. Art and sports are complemented by offering young people a chance to understand the values of the Olympic movement with the help of works of art. The Olympic Games in Children`s Imagination competition has a history and cultural heritage that can become an example of good practice for other Olympic education programs. In this paper we will analyze the transformations created by this contest over time. A number of these works have become known throughout the world, with some being transformed into postage stamps that are still used by the Romanian Post.

This Olympic education program has local, regional and national phases. The works that reach the national phase are exhibited for a year in the Sports Museum within the Olympic House, which contributes to raising the self-esteem for the participants. The paper involves a quantitative analysis represented by graphs and data on the number of works from a region, the number of schools enrolled in this program, the number of children participating in more than one edition, and the number of works exhibited. Also, the quality of the awarded works, other national or international awards, and the young artists are discussed.

Olympic education is a priority for the Olympic movement, so any exchange of experience or presentation of national projects and programs on this subject is important. We consider that examples of good practices such as the Olympic Games in Children`s Imagination will help to link new collaborations and will intensify development programs through art and sports.

Fair Play: Knowledge, Skills and Attitudes of 5th-6th Grade Lithuanian Pupils

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Background: Sport is associated with a broad range of positive psychosocial, physical health, and educational benefits (Andermo et al., 2020; García-Hermoso et al., 2020). Sport can also teach values such as team building, equality, discipline, inclusion, perseverance, and respect (UNESCO, 2021). However, sport is also confronted with new threats and challenges which have emerged in European society, such as commercial pressure, exploitation of young players, doping, racism, violence, corruption, and money laundering (White Paper on Sport, 2007). In the process of education, children must be directed towards the internalization of fair play so that it becomes an integral part of their being, motivating and regulating their behavior and activities.

Aim: The aim of this study was to examine the knowledge, skills, and attitudes towards the Olympic value of fair play in 5th-6th grade pupils.

Methods: The survey was conducted online from February to June 2020 (http://www.manoapklausa.lt/surveys). Pupils in grades 5–6 (aged 11–13) participated in the study. The research sample consisted of 4412 respondents. Some questionnaires were incomplete; therefore, they were nullified. Data from 3378 participants (45.9% girls) were analyzed; 48.3% (n = 1633) were 5th graders and 51.7% (n = 1745) were 6th graders.

The Olympic Values Survey Questionnaire consisted of two parts: demographics and the Olympic values knowledge, skills and attitudes. In the latter part, five core Olympic values were singled out: Excellence, Respect, Friendship, Joy of Effort, and Fair Play. Six questions were assigned to assess each value, with the first two reflecting the pupils' knowledge, followed by two questions about skills, and the remaining questions concerning attitudes.

Results: Most pupils correctly identified the definition of fair play (94.2%) and the example of noble behavior (88.4%) from the presented options. More than half (62.7%) of the survey participants chose the answer "strongly agree" when answering the question, almost a third (31.8%) "agree". The results regarding attitudes were not as good. The children were given a situation: "Imagine that your opponent has a torn sneaker. You have spare shoes you can lend. Would you help your opponent?" 34.0 percent chose the statement "strongly agree", 38.6 percent – "agree", 20.9 percent – "undecided". If a teammate was cheating, 37.8 percent of children claimed they would report his/her misconduct, 54.4 percent "would talk to the teammate [themselves] and warn him/her", 7.8 percent would say nothing as they are teammates.

Conclusion: Most pupils know what the Olympic value of fair play is, but their skills and attitudes towards it are insufficient.

Educating the USA through Olympism: A Public Health Imperative

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Physical activity is a public health imperative, especially since it is well documented that sedentary behaviors and physical inactivity are the most critical risk factors for CVD (Cardiovascular Disease). Inasmuch as Olympism might not be a panacea for everything, the education of the values and way of life that promotes personal and social responsibility certainly has the potential to influence communities towards more active and healthier lifestyles. This will be an overview of the results stemming from a phenomenological study conducted between 2012-2016, analyzing and interpreting the status of Olympic Education in the United States of America, and blending those through the prism of the public health connotations of today's society within the USA and globally.

Perception and Application of Olympic Values among Multi-Level Athletes in Sri Lanka

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Olympic Values reflect the core essence of Olympism, the philosophical base of the Olympic Movement, and act as an integral component to discover and practice the holistic nature of developing humankind. The study is aimed at discovering the perception and application of three Core Olympic Values: Respect, Excellence and Friendship, among multi-level athletes in Sri Lanka. Furthermore, the study highlights the most practiced Olympic values in each level and focuses on the challenges of the practice and application of Core Olympic values in Sri Lanka. An extensive literature review assessment was carried out to build up the conceptual framework for the study.

A qualitative research design with semi-structured in-depth interviews was conducted to examine the perception and application of Core Olympic Values. The study population was identified from Olympic, National, University and School-level athletes in Sri Lanka. Ten athletes were selected from each level (N=40) by using purposive sampling method. In addition to the biographical narrative, a research method was used to highlight the athletes` personal observation towards the practice of values.

The results revealed that the most perceptive and applicable value practiced by these athletes is Friendship. Though they practice Friendship, Excellence and Respect, most athletes didn't know these values as Olympic values. Most of them have little knowledge about the values. In particular, the school-level athletes did not know these values. The recommendation of the study is to hold more programmes, workshops and activities about Olympic values for the athletes, coaches and other relevant staff. It is recommended to start this educational programme from the school level to obtain better results.

An Online Olympic Education Program – The Case of the IOA 60th International Session for Young Participants

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An important aspect of the Olympic Movement is related to education, and more specifically to Olympic education. Coubertin`s fundamental principles of Olympism, stated in the Olympic Charter, define tasks and objectives that contain essential elements used as the pedagogical foundation of Olympic education. Over the last 60 years, the International Olympic Academy (IOA) has functioned as a supreme educational and cultural institution of the International Olympic Committee (IOC) for studying, enriching and promoting Olympism. One of its main educational programs physically brings together a large international group of young people in order to motivate them to use their experiences and knowledge for spreading the Olympic ideals in their own countries. Due to the spread of Covid-19, the IOA reached a decision to hold the first ever online International Session for Young Participants. The purpose of this presentation is to demonstrate how young people from all five continents can benefit from online Olympic education by taking an example from the 60th International Session for Young Participants. While taking full advantage of today's technologies to deliver the Olympic spirit from a distance, the program included academic lectures on the topic "Olympism and Humanism", followed by discussion groups in both English and French. In addition, the program was enriched with a variety of extracurricular activities which require mutual understanding, respect and solidarity.

Repeated Jump Ability of Young Basketball Players at Different Game Stages and Its Relationship to Aerobic Capacity

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The aim of the study was to determine the performance indices of a repeated jumping test (RJT) over three different stages of a basketball game, and to examine their relationships with the aerobic capacity of young basketball players. Sixteen young (17.2 ± 0.4 yrs) trained basketball players performed an RJT (six sets of six consecutive vertical jumps) after warm-up, at halftime, and after completing a full game, as well as an aerobic power test (shuttle run test for 20m), each test taking place on a different day. Performance indices for each of the RJTs were the ideal jump height (IJ), the total jump height (TJ) of all the jumps, and the performance decrement (PD) throughout the tests. The IJ and TJ were significantly higher at halftime compared with both after warm-up and after a full-time game ($p=0.01$). No major variations were noted in IJ and TJ in the full-time game compared to the warm-up. During the three game stages, there were no significant differences in the PD. No significant relationships were found between the aerobic capacity and any of the RJT performance indices at the different game stages. Given the present findings, coaches and players may consider the use of a more intense warm-up protocol, one that will efficiently prepare players for the early stages of a basketball game. The results also suggest that the aerobic energy system`s involvement with repeated jumping activity is only minor when young players play basketball.

Relationships between Soccer Teams` Fitness Level and League Standing at Different Stages of the Season

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Soccer is a complex sport that requires many qualities from the players. The purpose of the study was to find relationships between the players' physical fitness and the team standing at four stages of the season in a professional soccer league. One hundred and eighty-two trained male players from 12 teams of the first Israeli soccer division during the 2016-17 season participated in the study. All teams took part in four identical fitness testing sessions at four different stages of the season, including: 10 and 20m sprint run, vertical jump, agility, and aerobic power assessment.

Jump height was found to be significantly related to team standing in the league, either when scores were calculated as the percent of team players in the upper quarter of scores (significant at all four stages – r= -0.639 – -0.758), or when scores were calculated as team averages (significant only at the second stage – r= -0.603). No other fitness variable was found to be significantly related to the teams' standing at any of the season's stages.

The results indicate that anaerobic-type training, which improves players' legs power, should be given priority throughout the season. The findings may also indicate that the players' physical fitness alone is probably not a sufficient factor to reliably predict a soccer team's success.

The Physiology of Basketball – The Need for a Specific Field Test (Aerobic and Anaerobic)

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The game of basketball is characterized by short and intense bouts of activity at medium to high frequency. Basketball entails specific types of movements, physiological requirements and energy sources. The duration of physiological responses involving adenosine triphosphate (ATP), creatine phosphate (CP) and glycolysis responses to this type of activity is 5-6 seconds for a single sprint, and a contribution of less than 10% of the aerobic system. Recovery periods in basketball, as a rule, are not long enough to fill the gap for such high intensity activities. It is hard to achieve the same level of performance consistently over time in a repeated sprint. This means that basketball players need great athletic ability in order to demonstrate the speed, strength, and power required to produce a successful performance most proficiently. Therefore, tests are needed to help coaches to monitor their players and ensure that they have the physiological capacity required for the game. The aim of fitness tests is to assess the condition of athletes in terms of each fitness component, in order to determine what needs to be improved through the training program, and to conduct retests at set times to assess whether their condition has changed. These tests are especially important among children and teenagers so that coaches can see whether players are developing in terms of physical fitness as they get older. The literature offers a number of widely used tests to measure aerobic and anaerobic fitness. This article reviews the physiological demands of basketball and analyzes the field tests commonly used at present. The article emphasizes the need for a specific test that will serve coaches and physical fitness trainers in monitoring their players.

A Unique Aerobic Field Test to Estimate V02max for Basketball Players: Validity and Reliability

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Ball games in general, and basketball in particular, are characterized by carrying out short and intense activity at a medium to high frequency (Meckel, 2009). This type of activity requires the development of aerobic and anaerobic capabilities, which are imperative to anaerobic ability, but are also significant for the development of aerobic capacity (Meckel, 2009). It is recommended that better aerobic capacity is important to a player`s performance in games and practices (Castagna et. al 2008).

The requirement for field testing by professionals is growing, because of its importance and necessity in evaluating and measuring a pre-planned player`s training program. This study determined the validity and reliability of a new specific field test that could optimally predict V02max for a basketball player.

Twenty-one basketballers participated in this study (age:16.4±0.5 years; height: 180±5.5 cm; body mass: 72 ±4.9 kg; fat % 10.8±1.9 %; 8-year experience in basketball), belonging to a group of elite youth league in Israel. Their daily routine consists of 5 basketball practices, 2 fitness practices and 1 weekly league game.
Participants performed four tests including three field tests and one laboratory test, in increments, within three days of each other, and avoided strenuous activity for at least 24 hours before the test.

The tests that were conducted included: maximum oxygen consumption, Yo-yo endurance test (YYEND), Yo-yo recovery level 1 test (YYREC1), and new basketball specific test (YYRECB). Test–retest results showed the YYRECB to be reliable. Heart rate (HRMAX), distance at the end of the tests, the final time taken for each test and rating of perceived exertion (RPE) did not display a difference between the test and the retest (All Variables; r=0.971). Significant correlations were found between VO2max (mL · kg−1 · min−1) and YYRECB (r = 0.769, 95% CI; p.0001). There also was a significant difference between YYRECB measured distance to YYREC1 and YYEND (r =0.748, r =0.723, respectively; 95% CI; p.0001). A high correlation was found of 55 ml/kg/min (Bland Altman, mean=0: complete agreement between YYRECB and VO2max. CI 95% -1:+1, CI mean -3.5:+3.5). This study showed that the new version of the Yo-Yo (YYRECB) test, with effort patterns replicating real basketball sessions, can be considered a valid and reliable basketball-specific field test for assessing basketball players` endurance fitness. The target of VO2max in basketball for sufficient aerobic capacity is around 55 ml/kg/min, so the players that reach 1600 meters can stop the test but need to keep this aerobic conditioning in basketball practice. In addition, to reach the target, it takes less time, which is a big advantage to the players and the demands of the test.

The Isometric Horizontal Push Test: Test-Retest Reliability and Validation Study

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Background: The planning of training programs is regularly based on assessments of force production tests. Two examples of such tests are the isometric mid-thigh pull (IMTP) and the isometric squat (IS) tests (Comfort et al., 2019). Both require subjects to stand on a force plate and either pull or push a locked in-place barbell as hard and as fast as they can. These tests are valid and reliable, correlated with performance indices, can distinguish between the levels of athletes, and are easy to administer. Although both are extensively implemented, they have two limitations. First, they require a force plate that many cannot afford, and a unique setup to be administered, including a robust weight-lifting cage. Second, they solely measure forces produced vertically, which may limit carryover to forces applied horizontally such as during sprinting activities. Considering these limitations, we designed a new isometric test – the Isometric Horizontal Push Test (IHPT) – that quantifies peak force outputs using a strain gauge. This test does not depend on a force plate, can be easily administered without a complex set up, and assesses the horizontal forces component.

Aims: Our aims were to examine the test-retest reliability of the IHPT peak force outputs across two days, and to establish criterion validity by comparing the results derived from the strain gauge cell to those from a force plate.

Methods: Twenty-four active males with ≥ 3 years of resistance training experience performed two testing sessions of the IHPT, separated by 3-4 days of rest. In each session, subjects performed three maximal trials of the IHPT with 3-min of rest between them. The peak force outputs were collected simultaneously using a strain gauge, and the criterion equipment consisting of a floor-embedded force plate.

Results: The test-retest reliability of peak force values was nearly perfect (ICC ~0.99). Bland-Altman analysis showed excellent agreement between days with nearly no bias for strain gauge 1.2N (95% CI: -3, 6N) and force plate 0.8N (95% CI: -4, 6N). A nearly perfect correlation was observed between the strain gauge and force plate (r= 0.98, p 0.001), with a small bias of 8N (95% CI: 1.2, 15N) in favor of the force plate. The sensitivity of the IHPT was also good, with SWC SEM for both the strain gauge (SWC: 29N; SEM: 17N [95% CI: 14, 20N]) and the force plate (SWC: 29N; SEM: 18N [95% CI: 14, 19N]) devices.

Discussion and Conclusions: The validity, reliability, and sensitivity of the IHPT, coupled with its affordability, portability, ease of use, and time efficacy, point to the potential of the test for monitoring the effects of training interventions, time-course effects of detraining, effects of fatigue on force production capabilities, and preparedness before competition

Delayed Onset Muscle Soreness (DOMS) Responders: Can We Predict Who They Are?

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Background: Delayed onset muscle soreness (DOMS) is an acute muscle pain condition occurring after eccentric muscular activity. Certain individuals experience greater pain than others.

Aim: To investigate whether individual pain sensitivity and psychological variables predict DOMS.

Methods: Thirty-two healthy participants completed pain-related psychological questionnaires and quantitative sensory testing (QST) before a DOMS protocol for the upper extremity was carried out. 24h later, participants completed the DOMS-related interference questionnaire and then QST was reapplied. In order to compare QST parameters and psychological variables between those developing DOMS and those who did not, independent sample t-tests were conducted. Multiple regression analyses were used to determine the predictive role of QST and psychological variables on DOMS intensity.

Results: Fifty-three percent of participants developed DOMS and were classified as DOMS responders. The DOMS responders had higher trait anxiety ($p=0.010$), depression ($p=0.025$), and stress ($p=0.034$) scores, compared to those who did not develop DOMS. Trait anxiety predicted the intensity of DOMS ($r=0.63$, P0.000). Additionally, those who developed DOMS demonstrated a higher systemic pain sensitivity at baseline, expressed by a lower pressure pain threshold in the muscle that was exercised and in a remote muscle, and by a lower pain inhibition efficiency (P0.02). No correlation was found between the level of pain sensitivity at baseline and the intensity of DOMS.

Discussion: Participants with lower mechanical pain thresholds and less efficient inhibitory pain modulation developed DOMS. However, only the baseline psychological factors were predictive of DOMS intensity.

PARALLEL SESSION B4: PHYSICAL ACTIVITY AND QUALITY OF LIFE AMONG OLDER ADULTS

Barriers and Facilitators to Adherence to Walking Group Exercise in Older People Living with Dementia in the Community

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Background: Evidence suggests that targeted exercise is important for people living with dementia, especially those living in residential care. The aim of this presentation is to show evidence on the known barriers to and facilitators of adherence to walking group exercise of older people living with dementia in the community.

Methods: We have searched appropriate electronic databases between January 1990 until September 2019, in any language. Additionally, we will search trial registries (clinicaltrial.gov, and WHO ICTRP) for ongoing studies. We included all study designs. Studies were excluded when participants were either healthy older people or people suffering from dementia but living in an institution.

Results: Ten papers met the inclusion criteria. The narrative analysis focused on barriers, facilitators, and adherence. All studies reported on barriers and facilitators. Barriers included: bio-medical reasons (including mental well-being and physical ability); relationship dynamics; and socio-economic reasons and environmental issues. Facilitators included: bio-medical benefits and benefits related to physical ability; staff and group relationship dynamics and social aspects of the walking group; environmental issues and individual tailoring; and participants` perceptions about the walks and the programme. Most studies did not provide data about adherence or attendance; where reported, adherence ranged from 47-89%.

Conclusions: Walking in groups can have positive benefits for those with dementia and their carers. Carers' willingness to engage, their circumstances, perspectives and previous experiences of exercise seem to play a key role in facilitating adherence, but there is little research that explores these factors. Also, the design, location and organisation of walking groups facilitate adherence. This reflects the need for such activities to be part of a wider 'programme of care', tailored to the needs of the individual, flexible and convenient. Knowledgeable and well-trained instructors or healthcare professionals are recommended as group exercise leaders.

The Contribution of an Intervention Program for Improving Quality of Life of Older Adults

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The purpose of this study was to assess the contribution of a new intervention program for older adults (FORCE). The FORCE Program represents an innovative approach to health promotion with older adults integrating psycho-education and exercising core muscles, for improving daily quality of life (QOL). The research conceptual framework was based on the Whole Person Wellness Model and the Trans Theoretical Model – Stages of Change. Ninety-five women and 11 men aged 60-90 participated in the program for 12 months. Three groups took part in the study: (1) core muscle workout (CM: n=28), (2) core muscle workout with home equipment (CMI: n=59), and (3) a control group (CG): n=19). The effect of the intervention was assessed by the SF-36 Health Survey Quality of Life Questionnaire before and after the intervention program. Eight parameters of QOL were examined: physical functioning, limited physical health, limited emotional health, energy, emotional well-being, social functioning, general health, and pain. The results show significant improvement following the program on 7 out of the 8 parameters related to QOL in both experimental groups compared to the control group. These finding were further supported in the research when participants reported undergoing improvement in their quality of life and their capabilities in everyday activities. The conclusions indicate the potential for developing new methods to substantially improve the quality of life and well-being of the growing aging population.

The Effect of a Single Bout of Aerobic Exercise Versus a Single Bout of Balance and Coordination Exercise on Cognitive Function Among Older Adults

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The cognitive decline that characterizes aging has led researchers to examine ways to improve cognitive functions, both in the long and short term. One of the ways examined by many researchers is physical activity and its impact on cognitive functioning in older adults. The purpose of this study was to investigate the possibility that a single session of aerobic or balance and coordination training may improve cognitive functions among older adults. The study involved 30 physically active participants of an average age of 73. Participants performed computerized cognitive tests to assess attention and executive functions in five sessions: two without intervention, and three following three experimental conditions: single aerobic training, single balance and coordination training and a control (reading while sitting) condition. The interval between sessions was at least two weeks. The order of the intervention between participants was random. The main findings of the study indicate that a single session of aerobic training, as well as balance and coordination training, led to a higher score in the attention test in comparison to the control condition. However, in the executive function category, the score after aerobic training or after the balance and coordination training was not significantly different from the control condition. This finding suggests that older adults may perform aerobic or balance and coordination exercises for 30 minutes for improved performance of an attentional- based task.

Effect of 10-Week Mind-Body Practices on Cognitive Functions, Psychoemotional State and Psychomotor Skills in Older Adults

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Background: The increasing number of older people presents challenges in retaining their high functioning level and quality of life (Sander et al., 2015; WHO, 2018). Recently, mind-body practices have gained popularity in the older population. Tai Chi (TC) and Yoga both are considered beneficial in promoting independence in older age, as they impact both physical and mental health (Cramer et al., 2019; Yang et al., 2020); however, comparison of the effectiveness between these practices remains unclear.

Aim: The aim of the study was to compare the effectiveness of 10 weeks of TC and Yoga practice on cognitive functions, psychoemotional state and psychomotor skills in older adults.

Methods: The subjects were 48 untrained older men and women (age 67.3 ± 5.7 years), who were randomly assigned one of the three groups for a 10-week period. In the first group subjects had to take TC practice 2 times per week, 1 hour per session; in the second group subjects had to take Yoga practice 2 times per week, 1.5 hour per session; and in the third group subjects were asked to maintain their daily habits. Changes in the psychoemotional state on the Perceived Stress Scale-14 and Hospital Anxiety and Depression Scale and cognitive and psychomotor performance on the Automated Neuropsychological Assessment Metrics-4 battery were assessed.

Results: The study demonstrated no significant time × group interactions on the psychoemotional state. However, a significant time × group interaction was observed for response time in Procedural, Choice and Simple Reaction Time Tasks (p0.05), but not for GoNoGo, Matching Grids and Pursuit Tracking tasks. Further analysis revealed that TC decreased response time in Procedural and Choice Reaction Time Tasks, whereas Yoga increased response time in Simple Reaction Time.

Discussion and Conclusion: 10-week TC practice is more effective than Yoga practice for improving cognitive flexibility in older adults, whereas no differences on perceived stress, anxiety, depressive symptoms or other cognitive domains (i.e., inhibitory control and visuospatial processing) were observed. Additional research is required to determine the mechanisms related to the observed differences between these mind-body practices.

Whole-Body Hyperthermia Decreases Short-Term Memory and Visual Recognition Memory Functioning but Increases Executive Functioning in Healthy Ageing

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Background and Aim: Mammalian homeothermy maintains a consistent core body temperature (rectal; Tre), and it differs depending on different species. Of note, human body temperature is approximately 37 °C, and plays an important role in keeping physiological homeostasis. However, age-related loss of muscle mass decreases the firing rate and results in a lower resting core, muscle and Tre. Physically, temperature-based conduction of velocity of nerves decreases and age-related neural excitability attenuates in older men. Age-related cognitive functioning response to heat stress might be delayed in aged adults. We hypothesized that acute whole-body hyperthermia (Tre increased about 2.5°C) may lead to a greater depression in cognitive functioning in older men than in young men.

Materials and Methods: Eleven young (19–21 years) and nine older (61–80 years) healthy subjects participated in this study. They were immersed in waistline hot water (HW, approximately 43° C) until the young men Tre up to 39.5 °C, and older men Tre reached 39°C, respectively. To access cognitive performance (short-term memory, visual recognition memory and executive function), the Automated Neuropsychological Assessment Metric (ANAM4, Oklahoma, USA) was used.

Results: Although no significant hyperthermia-induced test durations and memorable figures in the forced-choice recognition memory test were found, a decrease in the number of memorable figures was observed to be greater among older men than among young men. Among older men, whole-body hyperthermia was accompanied by a significant decrease in mean reaction time in unpredictable task switching of the odd/even numbers, in parallel with a greater increase in repeating numbers. Among young men, mean digit length significantly dropped in the forward digit-span task, whereas there was no significant difference in the older men.

Conclusion: Age-related delayed and weakened thermoregulation led to a decline in the short-term memory and visual recognition memory functioning. Paradoxically, executive functioning was increased in whole-body acute hyperthermia.

The Effect of Balance and Coordination Exercises on Quality of Life in Older Adults: A Mini-Review

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The ability to control balance during activities of daily living (ADL) is impaired in older adults as a result of deterioration in the sensory systems (i.e., vestibular, visual, somatosensory), the cognitive system (central nervous system), and the musculoskeletal system. Consequently, many older adults face a risk of falling during their ADL. In most cases, falls and related injuries impair the quality of life and result in physical limitations, anxiety, loss of confidence, and fear of falling. Among a variety of fall-prevention interventions, adapted physical activity programs have been suggested for improving balance control during ADL. These programs challenge the sensory, cognitive, and musculoskeletal systems, while addressing balance constraints such as orientation in space, changes in direction, and the speed or height of the center of mass during static and dynamic situations resembling ADL. The above-mentioned elements can be dealt with through a combination of balance and coordination exercises that challenge the postural control systems in multiple dimensions – including vertical and horizontal changes of the center of mass, standing on unstable surfaces with a reduced base of support, and changing body directions. Consequently, such exercises require environmental information-processing. The combination of dual-task, function-oriented challenges while controlling balance stimulates the sensory and neuromuscular control mechanisms. Among older adults, these programs have been found to improve static and dynamic stability, as well as a number of aspects in the quality of life. Recently, they have also been found to improve cognitive functions such as memory and spatial cognition.

Achilles and Patella Tendons Tissue Structure in Overweight and Obese Children

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Background: Overweight and obesity among children, which increased dramatically in the last decade, is related to a significant number of metabolic and physiological diseases. Among obese adults, a direct connection was found between increasing physical load activity and/or heavy weight, and the appearance of structural changes in the tendons. The aim of this study was to investigate the differences in Achilles and Patella tendon structure between overweight/obese and normal-weight children.

Methods: Twenty-two children with obesity, ten overweight children, and forty-four children of normal weight, participated in this study. BMI (Body Mass Index) % was calculated. The Achilles and Patella tendons were examined by using the Ultrasound Tissue Characterization (UTC). The Achilles tendon was examined in one point and the Patella tendon was examined at 24-week follow-up.

Results: A significantly higher percentile of echo-types II, a lower percentile of echo-types III and IV, and a lower cross-sectional area were found for the normal-weight children compared with the obese and over-weight children (p.05), both in the Achilles and the Patella tendons. Following a piecewise linear regression model according to the Achilles tendon structure, a BMI percentile of 75% was found to be the most accurate cut-off point of the children in the 'unaffected' (BMI%75%) and 'affected' tendon structure. Children (BMI% ≥ 75%) already had an Achilles tendon structure similar to that of children with overweight/obesity. The follow-up of the Patella tendon had shown differences after 12 weeks of physical training in obese and overweight children compared to normal weight children.

Conclusions: Tendon integrity as examined with UTC differs between obese and non-obese children. Children with a BMI percentile of ≥ 75% already demonstrate a different tendon structure pattern compared to lean children, and only after a 12-week program of physical training showed differences, which may indicate a greater risk of injury for obese children, and therefore should be addressed when applying an exercise program for obese and overweight children.

The Role of Forward Head Posture in Neck Pain: A Cross-Sectional Study

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Poor posture is traditionally associated with various musculoskeletal disorders. Consequently, postural evaluation has become an integral part of the musculoskeletal assessment. Forward head posture (FHP) is often assessed in individuals with neck pain, however evidence in support of this relationship remains scarce. This study investigated the relationship between FHP and pain intensity, disability, and kinematics in 43 volunteers aged 19-62.

FHP was assessed by measuring cranio-vertebral angle on profile photographs. Secondary outcome measures included pain intensity (VAS), Neck disability index (NDI), neck motion velocity and accuracy, quantified using a neck virtual-reality system.

There were no significant differences in FHP between participants with and without neck pain. FHP was not correlated to kinematics, NDI, or VAS. In contrast, participants with neck pain demonstrated slower and jerkier cervical motion.

Our results suggest that FHP does not play a central role in neck pain.

The Effect of Different Types of Exercise Programs on Knee Joint Pain Among Adolescent Dancers

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Patellofemoral pain (PPF) is a common problem experienced by young dancers. Currently, there is no clear indication as to the optimal intervention programme for reducing the level of pain and improving functional abilities in young dancers with PFP. Our aim was to examine the efficacy of two intervention programmes compared with controls in relation to PFP symptoms (shown by pain level, Grinding test and patellar inhibition test – PIT) and functional abilities of dancers with PFP. Ninety-eight young dancers (mean age 13.4 ± .97) with PFP were assessed for clinical parameters and functional abilities pre and post an intervention programme lasting 12 weeks. Using cluster sampling controlling for grade and school, the dancers were divided into three groups: isometric exercises (IE), somatosensory training (ST), and control (CO). Post-intervention, significantly lower pain levels upon patellar provocation testing were reported for the two treatment groups compared with controls. There was a significantly lower rate of legs recovered in the CO group compared with both intervention groups on the Grinding test and on the PIT. Postural balance ability and proprioception abilities were significantly better post-treatment for the two treatment groups compared with controls. A significant interaction showed that hip abduction muscle strength improved more in the IE group. In conclusion, both isometric exercises and somatosensory training were effective for decreasing clinical symptoms and improving some functional abilities in young dancers with PFP. Further studies on these types of interventions could determine the most effective training protocol for prevention and treatment of PFP in young dancers.

Backward Running on a Negative Slope as a Treatment for Achilles Tendinopathy in Runners: A Feasibility Study

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Background: Achilles tendinopathy (AT) is a common musculoskeletal injury among runners. Eccentric exercises are considered to be the first-line treatment. However, during the early stages of rehabilitation patients are usually instructed to stop running. Backward running (BR) on a negative slope provides a similar eccentric load while enabling ongoing physical-activity; thus, it may be suggested as an alternative treatment.

Aims: To determine the feasibility of a BR program as a treatment option for AT in runners.

Methods:

Design: Prospective, single-arm feasibility study.

Setting: Outpatient clinic.

Patients: Recreational runners diagnosed with AT and referred to the Meuchedet Health Services Physical Therapy Clinic in Givat Shaul, Israel from September 2019 to February 2020.

Intervention: Patients completed a 5-week (9 sessions) rehabilitation program of supervised BR on a negatively inclined treadmill.

Main Outcome Measures: Compliance with the program was evaluated by calculating the percentage of patients who completed the full protocol with no adverse events. Personal running-related goals were set before the program and were assessed following rehabilitation using the goal attainment scaling (GAS) method. Forward running time (FRT) until the onset of relevant Achilles tendon pain, and the Victorian Institute of Sports Assessment Scale-Achilles (VISA-A) were measured at baseline (T0), before treatment session six (T1), and after the last session (T2).

Results: Among the 15 patients recruited, 14 (93%), average age 48.8 [10.4] years (86% males) completed the full protocol with no adverse events. Almost all participants (85.7%) achieved their running-related functional goals. Post-intervention, FRT increased by 314% from 158.5 [251.7] sec to 656.4 [319.2] sec ($p=0.008$, effect size 0.858), and the VISA-A score improved by 24.1 points ($p=0.003$, effect size 0.881).

Conclusion: BR on a negative slope may be a feasible treatment method for runners suffering from AT. Future randomized control trials are required to further validate the efficacy of this method.

Visual Feedback Gait Retraining to Reduce Lower Extremity Loading During Running in Obese Children

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Repeated bouts of dynamic activity comprising high foot-ground reaction forces and loading rates can be beneficial to bone health. However, this may be compromised in the obese population, which has shown to have significant peak ground reaction forces during comfortable and fast walking. Tibial stress fractures are associated with increased lower extremity loading at initial foot-ground contact that can be measured using inertial sensors. The aim of the present study was to determine the effect of visual feedback on reducing lower extremity loading in obese children in running. Sixteen children without known gait pathology, aged 8.8 ± 1.3 years, were randomly assigned to either a control or a feedback group. Participants were asked to attend nine treadmill running sessions with two sessions per week, with the last session (retention) as a 1-month follow-up. In each running session the inertial sensor attached to the right anteromedial aspect of the distal tibia captured the acceleration along the tibia at each foot-strike. From the 2nd to the 8th session the feedback group received real-time visual feedback of the tibia acceleration displayed on a monitor in front of the treadmill. Participants were instructed to “run softer”, make their footfalls quieter, and to keep the acceleration peaks below the line. Significant session X group interaction was found (p0.05), indicating a significant 18% reduction in PPA in the feedback group compared to a plateau no change in the control group. This was maintained one month post-training, with significantly lower acceleration in the feedback group at the 9th session. Wearable inertial sensors can be useful for real-time feedback gait retraining to reduce tibia impact loading during running in children.

Force Biomechanical Evaluation of a Back Handspring of a Patient in a SLAP Type II Injury Rehabilitation

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Introduction: Back Handspring is one of the most important backward elements in gymnastics. The technique can be divided into 3 phases: (1) unbalanced take-off, (2) flight, and (3) maximal acceleration (Gutiérrez Vélez & Estapé Tous, 2001). At phase 1, both arms generate a humeral flexion at maximum velocity, from the sides of the trunk to above the head. The shoulder becomes vulnerable due to the ground impact and the excessive range of movement above the head.

Superior labral anterior to posterior (SLAP) lesion is usually found in athletes with high arm overhead activity (Valero González & Inzunza Enríquez, 2016). SLAP injuries are classified into several types depending on the place where the tear occurs. However, type II has been reported to be the most common injury of overhead athletes (Manske & Prohaska, 2010).

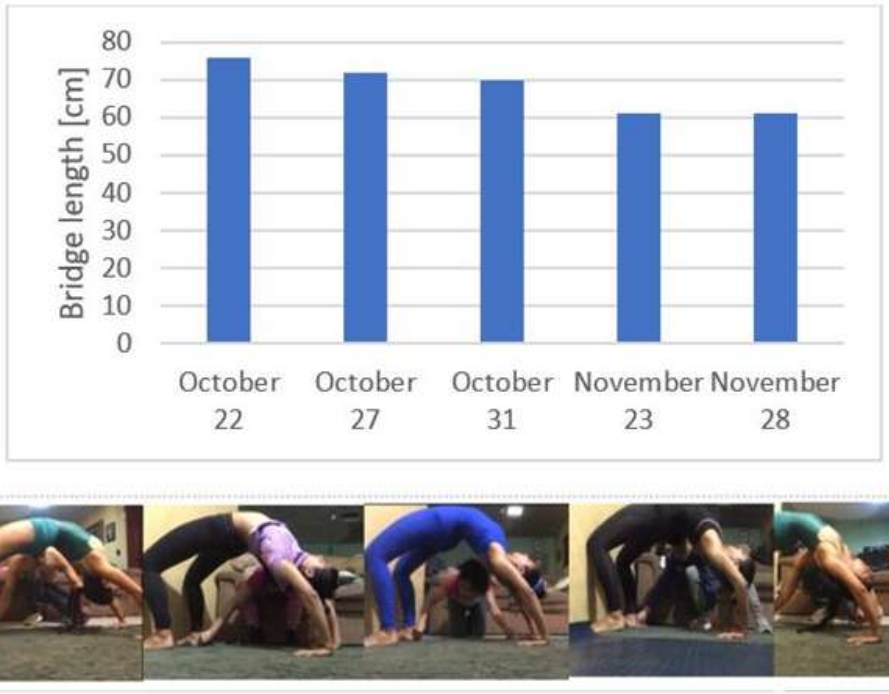
There are no quantitative criteria to monitor the relation between force generated by the athlete during shoulder flexion and back handspring, and therefore no criteria to indicate when the athlete is ready to start training.

Aims: To develop a biomechanical exercise protocol for monitoring maximal isometric and explosive force of a patient suffering SLAP II tear, and to improve movement symmetry of both arms during a back handspring.

Methodology

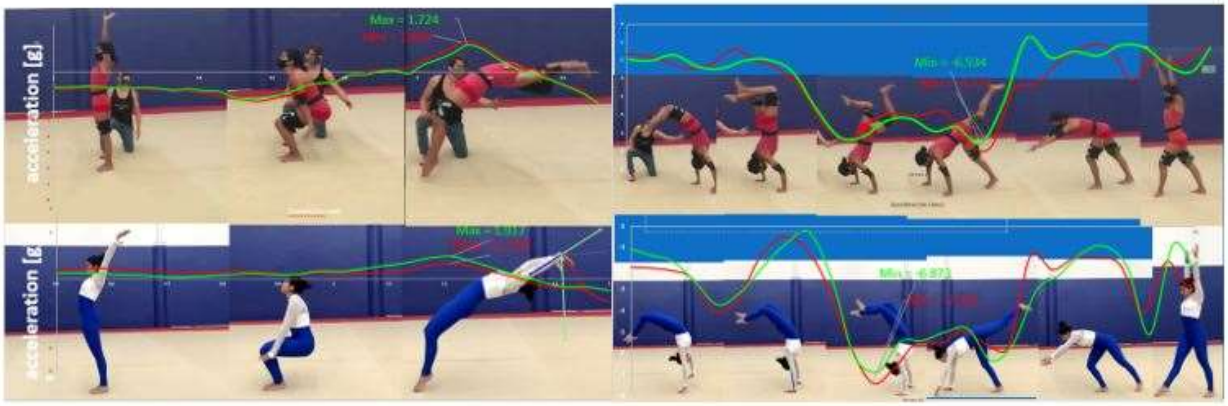
Methods: A patient diagnosed with SLAP II tear was treated for a year (from January 2020 to November 2020) to recuperate shoulder range of movement and humeral flexion from 0 to 180 degrees. After recovering glenohumeral stability, a physical preparation program was developed. All exercises were initially done with no or low weight, with progressively added weight and repetitions. Articular biomechanics evaluations were done to detect differences of force generated by the injured and healthy shoulders. The duration of the physical preparation program was 10

months. Motion capture data of back handspring was collected using three inertial sensors (mBientLab MMR).



Results: At the beginning the patient was unable to do a 180° shoulder flexion, and therefore was unable to perform an arch or a back handspring (Figure 2). At the end of the program the patient recovered full range of movement of the shoulder and was able to perform a back handspring again.

Discussion: During a full year of rehabilitation, the patient recovered enough shoulder range of movement and stability to perform a back handspring again. The protocol used in this research was successful in taking the athlete back to normal sport activity. Due to Covid-19 circumstances, the patient was not able to use specialized equipment for the rehabilitation. It is concluded that the progress would be faster if specialized equipment, such as a variety of weights, could be used.


acceleration (g)
Max = 1.724
acceleration (g)

Predilection for Physical Activity and Body Mass Index Z-Score Can Quickly Identify Children Needing Support for a Physically Active Lifestyle

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Comprehensive physical literacy assessments can be time-consuming and require a gymnasium space and examiner training. This project sought to identify easy-to-administer tasks, suitable for all physical activity and healthcare settings, which could quickly screen a group of children to identify those most likely to benefit from an in-depth assessment or additional physical literacy support. The 40 potential screening tasks were compared to the Canadian Assessment of Physical Literacy among 226 children (57% female) 8 to 12 years of age. Absolute body mass index z-score above 0.67 or predilection for physical activity less than 31.5/36 points had the highest sensitivity (81% and 83%, respectively) and specificity (45% and 52%, respectively). Predilection less than 31.5 combined with absolute body mass index z-scores achieved 81% sensitivity and 64% sensitivity. When the selected tasks were repeated on a different sample of 71 children (50% female) results were similar, with the combination of predilection and absolute body mass index achieving 92% sensitivity and 53% specificity. Predilection for physical activity, alone or in combination with absolute body mass index z-score, are quick and easy screening tasks suitable for all physical activity settings that can identify children likely to need additional support for a physically active lifestyle.

Exercise Habits, Motives, and Barriers of Mothers from the Jewish State Religious Sector

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The purpose of the current study was to explore the exercise habits, motives, and barriers of mothers from the Jewish state religious sector and to examine whether the number of children is related to these variables.

Participants were 356 mothers from the Jewish state religious sector, aged 20-45 (*M* = 35; *S.D* = 6.07), 64% with more than four children. A questionnaire was used to collect data regarding the participants` physical activity habits, motives for physical activity, and barriers. Results indicated a positive relationship between the number of children and physical activity. That is to say, as the number of children increased, the number of weekly activities increased. In addition, a positive relationship appeared between maternal age and number of children and between maternal age and physical activity. The main barrier for both inactive women and active women who feel that they are less active than they would like to be is a "busy day" of regular household and parenting activities, with no difference between the groups. "I have no power" and "requires too much self-discipline" appeared as stronger barriers among inactive women than among their active counterparts. The main motive for the activity – to "feel better mentally" – was reported among 97.4% of the participants. 79.5% of them take part in at least one weekly physical activity for which they have to pay in order to participate, and 71.5% regularly perform at least one weekly physical activity We conclude that paying for the activity most likely produces a feeling of commitment to be active. In addition, this may lead to incorporating the activity regularly into the individual`s schedule. Encouraging women to be physically active should focus on setting goals, planning and managing time for activities, and fostering feelings of commitment.

Healthy Eating Habits Education: The Difference between Traditional Pedagogy and Game Pedagogy Combined with Movement among First-Grade Children

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Health-promoting schools in Israel have engraved on their banner to be agents of change for a healthy lifestyle habits among their students. As part of the school curriculum, time is devoted to learning healthy eating habits combined with physical activity from the first grade. This study wanted to examine whether there are differences in the level of knowledge and application of healthy eating habits among students who study healthy eating education in traditional pedagogy compared to those who study this education in play pedagogy combined with movement. First-graders students filled out a Healthy Eating Habits Questionnaire and a Knowledge Questionnaire on Healthy Nutrition before and after the intervention program, which included 6 one-week classes on this topic. In the experimental group (N = 29) the lessons were learned using play pedagogy combined with movement, while in the control group the lessons were taught in traditional pedagogy (N = 33). The results of the study indicate that the eating habits of both groups were worse at the end of the intervention program in comparison to before. In contrast, there was a significant improvement in the level of knowledge of the students who learned in play pedagogy combined with movement compared to those who studied in traditional pedagogy. The lack of improvement in habits can be attributed to the short time of the intervention program and the fact that the results of the study were collected during baseline in school, compared to post-intervention during Covid-19, when the children were at home and their daily routine was disrupted.

Judo as a Form of Bullying Prevention Among Teenagers

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From the point of view of modern society, the 21st century is characterized as an era of higher technologies, rapidly changing social, economic, ecological conditions, as well as technical progress, which has led to a number of negative changes. These include a sedentary lifestyle, disorder of leisure and working regime, emphasis on individuality, absence of space and time limits, etc., which determine the manifestation of a negative emotional state. These changes have an impact on various age, gender, social, and professional aspects, promoting negative emotional states as well as deviant behavior. Bullying behavior is among them. In spite of the fact that many studies have been made on the problem of bullying since the 1970s, the problem has not been solved, but rather it has spread to different and larger age groups. Bullying carries physical, psychological, and social characteristics. It can be manifested in the format of brawls, fights, isolation, or money embezzlement, among others. Bullying is characterized by systematization and continuousness. Bullying is executed by three sides: aggressor, victim and observer, each with his/her own psychological characteristics.

The aim of this research was to study the role of structural and functional elements of judo, as a sport discipline, in the system of bullying prevention and correction. The Bullying Structure method, which provides an opportunity to identify the five roles of the bullying system: aggressor (provocateur), victim, assistant, defender, observer, was used. The study involved 60 adolescent alumni from secondary and sports schools. Thirty-five teenagers from the public secondary school and 25 judokas of sports schools practicing judo for more than three years were randomly selected.

It was found that among the teenagers' bullying system all types of roles are present: bullies, victims, helpers, defenders, and observers. Significant differences were identified in the structural and functional components of bullying among teenagers in secondary schools and Judokas. The results of the intergroup analysis showed that the number of victims and helpers among teenagers in secondary schools not training in judo is significantly higher than among teenagers training in judo. The results of the comparative analysis indicate that judo plays a key role in bullying prevention among teenagers. Based on the research results it is proposed to include judo as an alternative to physical education in secondary schools, or to include technical elements from judo in the program of physical education.

PARALLEL SESSION C2: THE TOKYO OLYMPIC GAMES

The Path of the National Team of Israel in Show Jumping to Tokyo 2020

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The Israel Equestrian Federation created Team Israel in Show Jumping only in 2018, and less than a year since its debut the Team qualified for the 2020 Tokyo Olympic Games. This presentation will focus on the creation of the team, the path to Tokyo, the members and the new Olympic competition format.

For many years Israel had only one jumper who was ranked among the 100 best athletes in the world (Elad Yaniv), but during those years it was a motive to influence Jewish riders to make Aliya and represent Israel. Already in 2014 there were two unsuccessful events that included three jumpers who together formed Team Israel.

In 2016 the decisive moment arrived. Two former Olympic riders made Aliya and got the approval of the International Equestrian Federation (FEI) to represent Israel – Daniel Bluman (represented Colombia twice in the Olympic Games) and Alberto Michan (represented Mexico twice in the Olympic Games). They joined Dani G. Waldman (formerly Danielle Goldstein) and together Team Israel was born. The team competed in the World Equestrian Games (the World Championship) in 2018. Since its debut Team Israel has been structured as a high performance team, and has been considered one of the best in the world under the Chef d`Equipe Hans Horn and the team trainer Jeroen Dubbeldam (both Dutch Olympic Gold medalists).

In June 2019 it was the team to beat in the Olympic Qualifier event in Moscow. Only the winning team clinched the Olympic spot from that FEI Group C area (Middle and Eastern Europe and middle Asia). Israel handled the pressure and made history – its first Olympic participation. Since then, the team has grown and now has 16 riders who can jump at the Grand Prix level (1.60 meter fences) and compete in Nations Cup events its members win many classes in the international circuit.

Israel Baseball Olympic Team – The Road to Tokyo 2020

Peter Kurz

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This presentation discusses the success of the Israel Olympic Baseball Team, one of only six teams to qualify for the 2020 Olympics in Baseball. It will present how Team Israel rose in ten weeks from the European B Pool to become the European/African representative to the Olympic Games. I will show how a country that has only one true baseball field is able to field an Olympic team. In order to succeed, the American Jewish baseball community bought into the plan, and American Jewish baseball players immigrated to Israel and proudly play for their adopted country. These players have become Israeli Baseball Ambassadors, telling their story to the world and teaching baseball in Israel. This is a true Cinderella success story.

The Historic Mission of the Olympic Charter in the Context of COVID-19

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This presentation uses literature, history and logic analysis to examine the mission of the Olympic charter. It analyzes compliance with the Olympic Charter during the COVID-19 outbreak, in order to examine the special historical mission and function of the Olympic Charter in the context of the COVID-19. Studies have identified the special historical mission of the Olympic Charter in the context of COVID-19. It is mainly what is embodied in the Olympic Charter that awakens the basic principles and values of Olympism, ensures the regular holding of the Olympic Games, and guides the mission and role of the IOC.

Tokyo as a Host for the Olympic Games – 1940, 1964 and 2020/21

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The day before the opening of the 1936 Olympic Games in Berlin, the IOC awarded the hosting of the 1940 Games to the Japanese capital Tokyo. This decision was a gamble because the Japanese had no experience in organising international sporting events. Therefore, on the recommendation of the Secretary-General of the Berlin Games, Carl Diem, IOC President Henry de Baillat-Latour sent the German expert Werner Klingeberg to Tokyo as chief advisor. The formation of the organising committee and further preparations progressed very slowly due to the reluctance of the Japanese government and the lack of public support. Furthermore, in July 1937, the 2nd Japanese-Chinese War over Manchuria broke out. Under pressure from the military leadership, the funds for constructing the sports facilities were drastically cut. When a national shame threatened, the government cancelled the Games in July 1938. As a result, the IOC transferred the 1940 Games to the Finnish capital Helsinki within a few days.

Germany and Japan were excluded from the 1948 Olympic Games in London. As early as 1955, Tokyo applied for the 1960 Games, but in vain. At the 56th IOC Session in Munich in 1959, the city finally won the bid for 1964. In contrast to 1940, the preparations received massive support from the government, which wanted to demonstrate that Japan, only two decades after its total defeat in World War II, had developed into a democracy and a significant economic power. But in 1963, the Olympic movement was plunged into a severe crisis by the Games of the New Emerging Forces (GANEFO), founded by China and the states of the Bandung Conference, which also affected the organising committee in Tokyo. But after overcoming this crisis, the first Olympic Games on the Asian continent were a great success, with 5,100 athletes from 93 countries taking part from 10 to 24 October 1964 in Tokyo. State-of-the-art sports facilities and new communication channels with the help of satellite technology ensured a worldwide echo.

After an unsuccessful bid for the 2016 Olympic Games, the IOC awarded the 2020 Games to Tokyo again at its session in Buenos Aires on 7 September 2013. Due to the pandemic, the Games had to be postponed to 2021. Eleven thousand athletes from more than 200 countries are expected to compete for the medals.

The paper will focus mainly on political aspects.

Using Statistical Data from Competitions for Improving Training Quality among Elite Handball Players

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Background: Handball as a team sport is characterized by the execution of open skills in many different situations that may arise in the context of the game. Using statistical data and cross-evaluation are methods shown to be a support tool for sport teams management, in the context of assessment of the team game performance of handball players. Measuring the overall performance of the game allows relative strengths and weaknesses to be identified based on data analysis (Trninic & Papic, 2009; Gutierrez & Jose, 2013).

Aim: To optimize the quality of handball practices by using data analysis, and performing cross-evaluation based on data derived from the Men`s European Handball Federation (EHF) Euro 2020 (ECH).

Methods: Descriptive statistics were performed in order to evaluate the performance abilities (technical skills) of each national team in the tournament (Euro 2020). T-test (2 tailed) performed in order to compare the top six teams (T6T) (rank 1-6) instead of the bottom six teams (B6T) (rank 19-24). Significance was determined on 95% (p=0.05).

Results: Data analysis was carried out on two parameters – those related to the effectiveness of shots (concerning the players) and those related to set attacks (concerning the teams). T6T executed their 6m shots (6M), wing shots (WG) and Fastbreak (FB) shots more effectively compared to the B6T (70% Vs 61%, 63% Vs 55%, and 85% Vs 65%, p=0.05, respectively). In the attack category, the total attack effectiveness of the T6T teams was 57% compared to the B6T with 49% (p=0.00). Considering the attack with one more player, the T6T improved their efficiency in attack by 12% comparing the B6T (3%), the difference was significant (p=0.03). With one player less, the attack effectiveness of T6T was reduced by 3% compared to the B6T, reduced by 8%. The difference was significant (p=0.04).

Discussion: In 2014, Ashkenazi found significant differences between the top and the bottom national teams (NT) regarding shots from the WG position. The same trend was noted over seven major international events. The same was observed in the last ECH 2020, where the T6T exhibited more effective shots in zones closer to the goal (6m, WG position, FB), and these were more effective with one more and one less player compared to the B6T.

Conclusion and Recommendation: The training program must contain shooting from all positions, with specific shooting from 6m, the WG position, and Fastbreak. According to the effectiveness with one more/less player, it is clear that decision-making drills should be considered in every scenario in the practice, including situations with one more/less player.

Effects of Six-Week Resistance Training on Jumping Ability of Women Volleyball Players

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This paper aims to determine the relationship of an external resistance training intervention programme on horizontal and vertical jumping ability of women volleyball players. It was an experimental study, and twenty volleyball players with a national school participation level were selected as the study sample. The age of the subjects ranged from fifteen to eighteen years. A pretest-posttest design and quasi-experimental design were used for the research. Players were exposed to a six-week training programme comprising combinations of squat, bench-press, overhead press, dead lift, and barbell row. Tools for measuring horizontal and vertical jumping ability were the sargent jump test, approach spike jump test, three forward jumps tests, and standing broad jump test. After analysis of the data, it was found that the external resistance training intervention programme significantly affected the horizontal and vertical jumping ability of women volleyball players. This research is useful for coaches, trainers and physical education teachers for practical application.

Coaching Management of Lithuanian National Judo Team (Female) Athletes

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Athlete coaching is a multi-faceted activity centered around the educator (coach) and the learner (athlete). Successful athletes' performance in competitions is determined by their proper preparation (Callan, 2018; Warner & Kanamaru, 2018), which depends on the training program. Thus, effective management of athlete coaching is dependent on the synergy of preparation and performance models. A closed, feedback-based system of athlete coaching management (Adams, 1971; Schmidt, 1975) can ensure focused coaching management, so that the best results are achieved in the most important competitions (Burns et al., 2018; Calmet et al., 2010). It is essential to develop a proper training program that corresponds to athlete performance (Calmet et al., 2010; Del Vecchio et al., 2018).

A relevant problem of judo athlete coaching is the development of preparation programs, i.e. setting up workload volume, preparation content and intensity, and dividing all this into particular periods of athlete preparation (Junior & Drigo, 2017).

The research aim was to develop coaching management of high-performance female judo athletes. To achieve the aim, the following objectives were set: to select the criteria for systematic monitoring of preparation and performance of high-performance female athletes, and to develop an optimal training program of high-performance female judo athletes.

The experiment was conducted for more than one year: in total, 60 microcycles were divided into 4 separate blocks depending on the competition schedule. Internal (RPE, HR, TRIMP) and external (training and competition volume) workload indicators were registered and training content was recorded. On training days, Microsoft Excel 2003 application was used to register the content and time (in minutes). During the experiment, the data and training program workloads of the judo athletes were recorded in the Athlete Analyzer application.

The coaching program of the period under research consisted of 22 introductory sessions, 13 competitions, 13 recoveries, 8 loads, and 4 basic microcycles. Apart from the focused preparation of judo athletes in blocks, the crucial element of planning was structuring each microcycle content. This way, a four-block workload and content model for coaching high-performance judo athletes was developed. The blocks differed not only in their duration and load, but also in the number and importance of competitions.

When measuring the impact of the coaching program on the performance of female judo athletes, indicators before and after the experiment were compared. Comparative analysis of competition activity of elite or high-performance judo athletes, and the successfully applied coaching program, resulted in the development of combat models and coaching focus, as well as coaching models and indicators of change in criteria management.

PARALLEL SESSION C4: PHYSIOLOGICAL AND MEDICAL ASPECTS OF PHYSICAL ACTIVITY

A Comparison of Bioelectrical Impedance Analysis: Phase Angle Between Physically Active and Inactive Undergraduates of Sri Lanka – A Cross-Sectional Study

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The Phase angle (PhA) is the ratio of entire body reactance (XC) to the resistance that has been measured by Bioelectrical Impedance Analysis (BIA). PhA is a prognostic indicator of medical disorders of cellular health and cellular integrity. Lack of physical activity is a risk factor for many diseases among undergraduates. The objective of this study was to evaluate PhA between physically active and inactive undergraduates of the Faculty of Applied Sciences in Sabaragamuwa University of Sri Lanka. The cross-sectional study design was implemented and participants were selected using a stratified sampling method among undergraduates. Fifty-eight males (mean age 23.5±1.5 years, mean height 170.1±7.7 cm, mean weight 64.7±14.2kg) and 69 females (mean age 23.4±1.3 years, mean height 158.2±5.5cm, mean weight 51.9±8.9kg) were tested for Physical Activity Level by the International Physical Activity Questionnaire (IPAQ) and PhA by utilizing Multifrequency Tanita Body Composition Analyzer (MC-780). BIA was performed at a frequency of 50 kHz for two minutes. Statistical analysis was performed by Minitab version 18. Within this cohort, 23% (n =29) males and 29% (n =37) females were identified as physically inactive undergraduates. According to the two-sample t-test, the significantly different (P0.05) mean values of PhA between physically active and inactive undergraduates (6.10±0.6 and 5.80±0.7) were identified. Higher mean PhA values were observed in both physically active male (6.30±0.6) and female undergraduates (5.70±0.5) compared to physically inactive male (6.20±0.6) and female (5.30 ± 0.5) undergraduates. The mean of Total Body Water (TBW) percentage was higher in physically active undergraduates (51.9±8.1) than inactive undergraduates (49.0±5.2), and mean of Intracellular Water (ICW) in physically active undergraduates was higher (17.6±3.6kg) than inactive undergraduates (16.3±3.7kg). According to the Pearson correlation test, a significant (P0.05) positive relationship was observed of Fat-Free Mass, TBW, Extracellular Water, ICW in all participants despite their physical activity level with PhA value. Undergraduates were in the preferred PhA range. However, physically inactive undergraduates should be concerned about their physical activity level and hydration status which affects cellular health and integrity. Further prospective studies on similar areas are warranted.

Ron Feldman

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Background: Physical activity is a major health behavior strongly recommended for the prevention and treatment of several non-communicable diseases. The evidence concerning mental health effects is extensive, but still growing. Associations are clear, but more needs to be known about clinical effectiveness for some population groups and conditions.

Aims: To examine the current knowledge regarding physical activity and mental health and to review recommendations for the diagnosis and treatment of this population.

Methods: A cross-search was conducted in five databases, using the following keywords: physical activity and exercise. Each of these keywords was cross-referenced with mental health. Twelve suitable articles complying with the criteria were chosen.

Results: Physical activity and exercise improves mental health by reducing anxiety, depression and negative mood and by improving self-esteem and cognitive function. Exercise has also been found to alleviate symptoms such as low self-esteem and social withdrawal. Aerobic exercise including jogging, swimming, cycling, walking and dancing have been proven to reduce anxiety and depression. Physical activity is especially important in patients with schizophrenia, since these patients are already vulnerable to obesity and also because of the additional risk of weight gain associated with antipsychotic treatment.

Conclusion: There is a growing body of evidence that supports the use of exercise and sporting activities in the treatment of mental health problems. However, the evidence is variable due to the heterogeneity of intervention and patient factors, as well as poor-quality trials. There is a need for more robust trials and direct comparisons of exercise parameters to determine the optimal treatment program.

Physical Activity Changes in Patients with Parkinson's Disease during the COVID-19 Lockdown: The Future of Exercise?

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Exercise is increasingly recognized as an important element in the treatment of Parkinson's disease. The coronavirus disease 2019 (COVID-19) pandemic has disrupted the everyday life of Parkinson's disease (PD) patients. Patients lost their normal routine and their regular physical activity – either as physiotherapy or sport – was interrupted, with inevitable consequences to their daily-life and wellbeing. Nevertheless, patients adapted their habits to continue practicing physical activity, which resulted as a main determinant of their wellbeing; in addition, they successfully approached technology-based assistance.

In this lecture, I evaluate the changes in physical activity due to the COVID-19 emergency, including self-management strategies or technology-assisted activities, and the subsequent clinical implications in PD patients. I investigate the question of what is home-based and remotely supervised exercise targeting? What accounts for the benefits observed in Parkinson's disease workouts? Is a home-based and remotely supervised exercise program disease-modifying? Several modes of exercise programs have been studied in various doses across a heterogeneous Parkinson's population. Key areas relate to: (1) the physiological benefits of exercise with respect to disease modification; (2) the best type of exercise; (3) the optimal intensity of exercise; and (4) the implementation of strategies to increase exercise uptake.

A better understanding of these concepts would allow for a more effective, home-based personalized approach, rather than the current "one size fits all" method, and could most likely confer greater benefits. Education, communication, and networking emerge as critical for a constructive reaction to the emergency's challenges.

An Evolutionary Perspective of Spinal Pathology and Spinal Health

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Humans are the only living hominoid that habitually stands upright and walks on two legs. The adoption of an erect posture as habitual imposed substantial changes on spinal morphology and biomechanics. One of the major morphological changes is the increased curvatures found in the human spine. There is an ongoing debate about whether humans "pay" for becoming bipedal by suffering from a high prevalence of back pain and spinal pathology. To answer this question, we explored the relationship between sagittal spinal posture and spinal pathologies, back pain, and health-related quality of life. We found that spinal posture closely correlates with spinal pathology. Individuals with a well-aligned spine – within the neutral zone defined as moderate spinal curvatures and the line of gravity close to the acetabulum – have a better quality of life, less back pain, and less spinal pathology. Individuals out of the neutral zone, with accentuated or with decreased pelvic incidence and spinal curvatures, are at a higher risk for developing spinal pathology, back pain, and reduced quality of life. Moreover, we found that spinal pathologies such as spondylolysis and spondylolisthesis are associated with the accentuated human morphology (higher pelvic incidence and lumbar lordosis), in accordance with the "overshoot theory". At the same time, other pathologies such as disc herniation and Schmorl nodes are associate with the decreased human morphology (low pelvic incidence and hypolordosis), in accordance with the "undershoot theory".

If indeed evolution is a major contributor to spinal pathology, then we should also seek solutions to these problems considering evolution. Evolutionarily, the human body is built for bipedal walking. When compared to other mammals, the human gait is very efficient as it requires very little energy to move the body forward. In the paleoanthropological and archeological records, there is strong evidence to suggest that humans walked long distances as part of their habitual behaviors. Biomechanically, the human spine experiences a gentle rotational movement of the lower back while walking, together with mild oscillations of compression and distraction between adjunct vertebrae. Research suggests that mild exercise is beneficial for alleviating chronic low back pain. In this paper, we would like to argue that from an evolutionary point of view, walking should be one of the best exercises for low back pain.

PARALLEL SESSIONS D1 and E1: PHYSICAL ACTIVITY AND DEVELOPMENT IN CHILDREN

The Effect of Growth Hormone Treatment on Physical Performance Indices in Children with Idiopathic Short Stature

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Michal Pantanowitz
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Purpose: To examine the effect of growth hormone (GH) treatment on physical performance in children with idiopathic short stature and normal GH secretion.

Materials and Methods: A total of 24 children participated in the study (13 GH-treated, 11 non-treated, aged 8-13 y, 11 males and 13 females, Tanner stage 1-2). Participants performed a battery of motor skill performance tests (Eurofit), as well as the Wingate anaerobic test.

Results: No statistically significant differences in any of the Eurofit physical fitness test results (e.g., 20-m shuttle run 33.0 [15.1] vs 25.1 [21.0] laps in treated and nontreated participants, respectively, P = .25) or in the Wingate anaerobic test were found between the groups (e.g., peak power 5.0 [2.9] vs 3.9 [2.6] watts/kg in treated and nontreated participants, respectively, P = .2).

Conclusions: Therapeutic usage of exogenous GH for pre and early pubertal children with idiopathic short stature and normal GH secretion was not associated with beneficial effects on physical performance indices. This suggests that the use of GH as a potential performance enhancing agent in this age group – at least at commonly used doses, is not advantageous.

Exercise in ADHD – From the Theory to the Lab and the Field

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A leading pathophysiologic hypothesis of attention-deficit/hyperactivity disorder (ADHD) is based on the notion of a catecholamine [CA; norepinephrine (NE), epinephrine (EPI), and dopamine (DA)] dysfunction. This hypothesis suggests that the CA response to external stimuli is attenuated in ADHD and is derived primarily from observations that drugs such as methylphenidate and amphetamine— considered to be CA agonists—are effective in treating the symptoms of ADHD. Physical activity is widely known to be a powerful stimulus of the hypothalamic-pituitary-adrenal (HPA) and noradrenergic systems, as well as a powerful stimulus to the release of CA and growth hormone (GH). The objective of our study in progress is to examine differences in catecholamine (CA) response to exercise between children with ADHD and controls. To test this, all children performed the MOXO distractors- Continuous Performance Test (d-CPT) before and after exercise, and CA and GH response to exercise was measured. Children with ADHD performed the protocol twice, with and without treatment. Our initial data suggests different patterns of CA and GH excretion after exercise in children with ADHD. This deficiency may be detected using a minimally invasive, non-pharmacologic challenge. In some ADHD children exercise leads to an improvement in the MOXO test.

High-Intensity Interval Exercise Test Stimulates Growth Hormone Secretion in Children

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Background: Exercise stimulates growth hormone (GH) secretion and may serve as a promising physiological test for the diagnosis of GH deficiency. However, exercise standardization for a feasible GH test is still lacking. The aim of the present study was to examine the GH secretion to high intensity interval exercise.

Methods: Seventeen children (12.4 ± 2.6 years) with impaired growth rate performed a high-intensity interval exercise test (HIIE) that included 10 intervals of 15 s all-out pedaling against resistance determined by age, sex and weight on a cycle ergometer, with 1-min active rest between each interval. Power output measurements were collected during the test. Blood samples were collected before, immediately after, and 30, 45, and 60 min after the beginning of the exercise test. GH response was compared to pharmacological provocation test (clonidine or glucagon).

Results: HIIE led to a significant increase in GH levels ($p= 0.001$), with a high correlation to GH response following pharmacological stimulation ($r = 0.82$, $r = 0.80$ for clonidine and glucagon, respectively, $p=0.001$) A significant correlation was found between mean peak power to body weight and the GH response ($r = 0.50$, $p = 0.04$). 83% of the participants who reached peak power 10 watts/kg had normal GH secretion.

Conclusions: HIIE is a brief and individualized exercise protocol that may be used as a physiological provocation test for GH secretion. There might be a minimum of anaerobic power needed to induce adequate GH response during HIIE.

Significant Effects of Information Placebo on Exercise Tests: Results from Children with Normal Weight, Overweight and Obesity

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Aim: The aim of the study was to examine the effect of information placebo on fitness test results in normal weight, overweight and obese children.

Methods: Twenty-four pre-pubertal children with overweight or obesity and 24 age- and maturity-matched normal weight children performed a progressive treadmill exercise test, twice. Different types of information were randomly provided regarding a water drink consumed prior to testing; standard (water) versus deliberate positive (presumed energy drink, placebo) information.

Results: Following the placebo drink, both groups demonstrated a significantly higher peak heart rate (overweight 165.8 ±16.7 versus 174.2±14.8bpm and normal weight 177.9±13.6 versus 189.8±12.2bpm) and longer time to exhaustion (overweight 396.9±161.9 versus 521.5±182.5 sec; normal weight: 700.1±155.2 versus 893.3±150.1seconds). Despite the longer exercise duration and higher peak heart rate, the average and peak rate of perceived exertion were significantly lower after the placebo drink (overweight 14.1±2.5 versus 12.5±2.5; normal weight 12.1±1.4 versus 10.7±1.5), with a significantly shorter recovery time (overweight 132.2±28.5 versus 118.4±31.6; normal weight: 106.7±18.6 versus 96.7±17.8 seconds).

Conclusion: Our results demonstrate a significant effect of information placebo on fitness test results that is unrelated to body weight. Children with obesity may enhance their physical activity levels and energy expenditure if properly encouraged.

Reduced Growth Hormone Response to Anaerobic Exercise among Children with Overweight and Obesity

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Purpose: The aim of the present study was to examine the effect of an anaerobic exercise test on growth hormone (GH) secretion in children with overweight and obesity compared to children with normal weight.

Methods: Fifteen children with overweight (BMI%ile ≥8595) and obesity (BMI%ile ≥95) and 10 children with normal weight (BMI%ile 585) participated in the study. Participants performed a modification of the Wingate anaerobic test (WAnT), with 10 bouts of 15 sec cycling separated by one minute of rest. Blood samples for GH and lactate were collected before and 15, 30, 45 and 60 min after the beginning of the exercise test.

Results: There was a significant increase in GH levels following the modified repeated WAnT in both groups, but the increase in GH levels was significantly greater among the normal weight compared to participants with overweight and obesity (p0.003, d=1.45). Seven of the ten participants with normal weight had GH increase above the threshold for GH sufficiency, compared to only two participants with overweight and obesity.

Conclusion: GH response to the modified repeated WAnT was significantly reduced among children with overweight and obesity compared to children with normal weight. Anaerobic interval-type training may not be a sufficient exercise alternative to stimulate appropriate GH levels among children with obesity.

Long Term Effect of Prematurity and Respiratory Morbidity on Cardiopulmonary Exercise Testing in Childhood

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Background: Preterm birth is a major determinant of neonatal morbidity. Most of the studies focus on early preterm infants (born under 30 weeks of gestation age (WGA)) with significant morbidity such as bronchopulmonary dysplasia (BPD), a common complication in early preterm infants. In recent years, there has been a growing interest in late preterms born several weeks prematurely (weeks 34+0 - 36+6) and constituting the largest group among preterms. There is scarce data regarding the short- and long-term effects of this interesting group.

Aim: To evaluate the long-term effect of prematurity on exercise capacity in childhood.

Methods: We studied children aged 7-10 years in three groups: 1) "Early preterm" – infants born before 30 WGA with BPD, 2) "Late preterm" – preterm infants born between 34+0/7 and 36+6/7 WGA, and 3) Control group of healthy children born week 37+0 ("term"). All participants completed a comprehensive functional evaluation using a cardiopulmonary exercise test (CPET). The primary outcome was exercise capacity as measured by maximal oxygen uptake (VO2max); secondary outcomes included lung functions and other parameters from the CPET.

Results: Sixty-two children were recruited to our study, 22 "early preterm" children (age 9.77±1.07), 18 "late preterm" children (age 9.93±0.86), and 22 "term" children (age 8.86±0.97). Lung function in the early preterms was significantly lower (FEV1 = 78.4 ± 15.0% pred) compared to the late preterms (FEV1 = 89.6 ± 17.3% pred, p = 0.012) and the term group (FEV1=91.1 ± 12.4% pred, p=0.024). No difference in lung functions was found between the late preterm and the control groups. A statistically significant difference in the VO2 was found between the late preterm and the term groups (37.2 ± 7.10 ml/min/kg, p = 0.036 and 89.8 ± 15.6% of predicted p = 0.005 compared with 45.6 ± 7.4 ml/min/kg and 113.4 ± 17.0% of predicted, respectively). The term group had a higher oxygen pulse (120.3 ± 18.9%pred, p 0.005) than the early preterm (99.8 ± 25.2%pred) and late preterm groups (93.4 ± 15.2%pred). Low respiratory reserve was demonstrated to be slightly higher in the preterm groups compared to the term group. Oxygen saturation were normal and without differences between the different groups.

Conclusions: This study demonstrated a lower exercise capacity in children aged 7-10 years with a history of late prematurity compared to healthy term children and with no difference from children with a history of early prematurity and BPD. Data regarding morbidity and possible functional limitations may help in adapting a personalized approach to patients and their families of an active lifestyle, regular exercise, improving exercise capacity, and monitoring for possible exercise limitations. Further large studies are needed to better understand the specific characteristics of different preterm populations.

Recovered Covid-19 Patients: The Hidden and the Visible

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COVID-19, caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is a major public health challenge at this point in time. Severe COVID-19 illness affects the heart during acute infection through myocardial injury, myocarditis, conduction delay and arrhythmias. Cardiac involvement can also be subclinical. Post- COVID-19 inflammatory syndrome in children is also characterized by cardiac involvement. Some of the symptoms after recovery from acute COVID-19 infection or post-COVID-19 syndrome are chest pain, palpitations, weakness, myalgia and dyspnea. Several "return to play" guidelines exist for athletes, adults and children, due to concerns about long-term cardiorespiratory complications.

We evaluated adolescents and adults, athletes and non-athletes, who suffered from post-COVID-19 infection symptoms, using lung function tests, echocardiography, 6-min walk test and CPET in order to identify a long-term cardiac or pulmonary residual limitation which explains the symptoms or indicates long-term cardiopulmonary sequela of COVID-19 infection.

PARALLEL SESSIONS D2 and E2: MAKING A DIFFERENCE: PAT SUMMITT, BASKETBALL AND A BETTER SOCIETY

About *Coach Pat Summitt: A Legacy of Love*

Sarah Hillyer

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Much like women of the Yishuv prior to the establishment of the state of Israel, legendary women's basketball coach Pat Head Summitt grew up working difficult manual labor jobs alongside the men in her community due to economic hardships and the rural geography of where she was raised. Although young Pat witnessed no difference between the physical expectations of both genders while working on the farm, she did experience a stark contrast in terms of cultural norms when it came to playing girls' and women's sports in school and society at large.

Set against this historical and cultural backdrop, Coach Pat Summitt: A Legacy of Love tells the story of a young woman from west Tennessee, USA who later became the winningest American basketball coach of all time and a young woman, Khoshi, from northern Iraq who dreamed of playing basketball for her country and becoming the first woman coach in Kurdistan. Although separated by more than 50 years in age, thousands of miles, and a myriad of socio-political differences, Coach Summitt and Khoshi's paths crossed thanks to the game they both loved so much.

Told through the eyes and voices of young American girls' basketball players, this short documentary reveals the power of sport to connect individuals, inspire communities, and promote peace between nations. In this conference session, we will compare and contrast the history of women's basketball in the U.S., Israel, and northern Iraq; discuss the untapped potential of women's sports to promote peace, diplomacy, and gender equity; and analyze the power of storytelling as an effective strategy to influence minds and hearts in pursuit of justice for all people regardless of our differences and despite our similarities.

Lead, Educate, and Disseminate Women`s Basketball His-Herstsory

Anat Draigor

The Academic College at Wingate, Netanya, Israel

I served as the captain of the Israeli National Team, leading the team to international achievements, including qualification to the European Championship Finals in 1991. I played as a foreign player in Clermont-Ferrand (1980) in France for two seasons, and in Racing-Paris (1991). I also won the French Championship in 1980.

In Israel, with my team Elitzur Tel Aviv-Holon, I won 16 state championships and 14 state cups – one as a coach. In 1990, I won the title Basketballer of the Decade by the Basketball Association. In 2006 I set a Guinness World Record – 136 points scored in one league game.

I have 29 years of experience in basketball coaching – from children to adults. In the years 1981-1983, I established the Basketball School at Hapoel Jerusalem, as well as trained young talents in training camps at the Wingate Institute. Upon my retirement from professional competition in 1994, I turned to coaching teams at the achievement level. I coached the Cadet team and the Reserves team of Israel, and later coached four women`s teams in the Premier League: ASA Jerusalem, Hapoel Galil Elyon, Elitzur Holon and Elitzur Ramla.

Among my many other leadership projects, I worked in the Jerusalem Municipality as director of recreational games and society, managed and coached private sports and basketball classes for special and diverse populations, and produced mass sporting events. I initiated and implemented the Women`s Basketball Mobile project (2008) that operated for years in schools on behalf of the Basketball Association and the Council for the Advancement of Women`s Sports. I also initiated and built the My Basketball website and founded the project Hall of Fame – Women`s Basketball in Israel.

In addition to my professional, entrepreneurial and management achievements, I have been developing basketball pedagogy. I hold an honorary degree of Doctor of Philosophy from the Ben-Gurion University of the Negev (2018) for being an entrepreneur and visionary. As part of my pedagogical work, I have published two books: Basketball in the Color Zone (2007), co-authored with Moshe Rosenberg, and Basketball – Games and Movements (2017). During Covid-19, which posed a great deal of challenges for teaching the practical subject of basketball, I developed and taught a remote basketball teaching program.

In this presentation I discuss my career as a basketball player, coach, lecturer and entrepreneur in making the game of basketball popular and accessible to a wide range of ages and circles in Israel in diverse circumstances, including remote teaching.

Smooth Transition from Professional Athlete into Diversifying the Cabinets

Katri Mattsson

Football Association of Finland, Helsinki, Finland

Having represented Finland women's football national team in 100 games during 17 years and twice in the UEFA Women's European Championships, I've been loving the possibility to represent my country, only in a different setting – as the 1st Vice President.

The transformation from the pitch into the Cabinet turned out to be pretty natural. During my career, I was always either the team captain or one of the co-captains. So, being involved with decision making has been part of my role since I've been young, and I've never been afraid to voice my opinion. Towards the end of my career I served five years in the board for the Football Player's Association, and after finishing my career, four years as a board member in the biggest sporting club in Finland.

However, for a while I thought my career in football cabinets was over. This resulted from an incident where I, as the youngest and least experienced board member, stood up for something that did not follow good governance guidelines, and neither did it represent my values. However, standing up to my values and challenging the high authority figures turned out to be something people really valued in the end.

During my 15-year professional career abroad in the USA, Sweden, Germany and Norway, I was able to earn both my Bachelor's and Master`s degrees in Business and also to start my Ph.D studies. However, not everything can be learned in school. Football has taught me many things: perseverance, team work, adaptability, networking, and cross-cultural skills, to name a few.

No need to reiterate how masculine the World of football really is. Throughout history, most, if not all, positions of real power have been held by men in FIFA, UEFA, and also on a National Association level. Even in a progressive country such as Finland, for the first time in 2018, when I was elected as the 1st Vice President of the FA of Finland, there was a female among the Presidents.

I am also the first female member ever in the UEFA Football Committee, an overarching committee, and I've been asked to be a part of different UEFA working groups – even a strategic think tank, consisting of only eight people from all over Europe.

Whereas I feel like I want to achieve even greater things, at the same time I do feel like I need to step up to the plate. Not only for me, and for my personal aims and ambitions, but also for every girl who dreams of being a professional footballer one day. And every woman who feels their voice is not heard. I feel like I owe it to the women who never had this chance.

The Ingredients of One Olympian's Success

Laurel Brassey Iversen

World Olympians Association, Lausanne, Switzerland

By sharing my experiences, I hope to show others that their dreams are within reach and worth working and sacrificing for. I don't think you will have heard this story before, or anything quite similar. The stars that aligned for my success may never align exactly the same way again. The key ingredients for my success were all those who believed in me, supported, encouraged and pushed me and my own stubbornness, dedication and perseverance. Often, I analyze my athletic life and see so many places where my dreams could have been derailed and buried.

Who inspired and motivated me? Who pushed me and believed in me? Who supported and encouraged me?

In the early 1970's I became the first woman in the United States to play on a men's NCAA Division 1 Intercollegiate Team. This statement must evoke some questions. The story will reveal all of the answers.

And how does one follow such an achievement? Unfortunately, my road to the Olympics was not paved in gold but rather in bitter disappointment, and crushed dreams. My first Olympic dreams are still just dreams of what might have been. After a short stint playing professionally in Italy, I was offered a coaching job at a Division 1 University.

Just as I was beginning to finally let go of those Olympic dreams, the door opened again. You bet I was ready to jump through it. Because I had never lost my love of the Olympics, I did not hesitate when I got a second chance to be an Olympian. In my experience as an athlete and coach, time and again it is shown that athletic talent is not enough. The mental side of sport is where champions find their edge. This time I was older and wiser. The body kicked and screamed a bit along the way, but the mental aspects and years of experience could not be rivaled.

The Olympic Experience was so meaningful after studying Olympism for many years, attending and working at the International Olympic Academy in Greece. I knew the history of the Games and the organization of sports around the world, and I understood what it took to conduct an Olympic Games. I had a greater appreciation for everything I was to participate in. Also, my years of coaching had prepared me in a different way, looking at the game from different perspectives. It also helped me be a better teammate.

I hope my story will inspire and motivate the champion in you.

PARALLEL SESSION D3: EFFECTS OF PHYSICAL ACTIVITY ON DIVERSE POPULATIONS

Intensity Effect of Acute Aerobic Physical Activity on the Cognitive Ability of Physical Education Students at the Age of 20-40

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Although it is well known that physical activity has many proven benefits to the human body, the influence of physical activity on cognitive ability is not clear. The intensity of exercise should be considered before cognitive tasks, especially during school hours. The purpose of this study was to examine the difference between cognitive abilities after intense and moderate acute exercise.

Thirty-one college students participated in this study. They were asked to participate in two different types of acute physical activity – intense vs. moderate vs. rest (as control). Immediately after exercising, they took a cognitive test (Raven`s progressive matrices test). The difference between the cognitive abilities of the groups was measured using an independent t-test using SPSS software.

The students' achievement in the Raven's progressive matrices test was lower after acute intense exercise (80% HRR max) (p0.05, 3.19 ± 2.15), compared to acute moderate exercise (4.32 ±2.26) or rest (4.32 ±2.34). There was no difference in the cognitive ability after acute moderate physical activity and rest.

This study supports the approach that moderate but not intense acute exercise may be introduced during school hours without interfering with academic ability.

The Effect of Physical Activity on Learning and Memory Processes in Young Adults With and Without ADHD

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Attention deficit hyperactivity disorder (ADHD), characterized by age-inappropriate symptoms of hyperactivity, inattentiveness, and impulsivity, is one of the most common developmental disorders among young adults. ADHD is characterized by executive function deficits that may affect the ability to learn new skills as well as new information. Structural and functional neuroimaging studies of brains of individuals with ADHD have revealed differences compared to typical peers in multiple brain systems, including circuits implicated in skill learning. Evidence-based treatments for ADHD fall into two categories: pharmacological interventions and behavior-based psychosocial treatments. Pharmacologic treatments are quite effective for reducing the inattention and hyperactivity/impulsivity characteristic of ADHD. Psychosocial treatments have also been reported to improve behavior. However, treatment gains tend to be short-lived, with limited, if any, long-term beneficial effects.

One potential treatment approach for ADHD is the employment of physical exercise. Extensive evidence suggests that Physical Activity (PA) has powerful effects on brain function and structure. Although the physiological underpinnings are not clarified, a growing number of studies indicate the beneficial effects of PA on different cognitive functions, such as executive functions, attention, cognitive speed, and episodic memory.

Many researchers have examined PA's effect on cognitive functions, with only a few directly assessing PA's effects on learning or long-term memory. The differences between the immediate and the delayed effect of PA on cognitive function depend on learning and memory processes, which are usually separated into three main phases: the fast-learning phase, the consolidation phase, and the long-term retention phase. In cases of ineffective learning, consolidation phase gains may not occur. As deficits in the sustained engagement of attention resources and reduced inhibition of incorrect responses may lead to ineffective learning consolidation in ADHD, researchers tested the effect of strategies that may upregulate arousal levels, typically low in ADHD. Recently, PA's role in creating effective learning and affecting different phases of learning and memory has moved into the focus of research. This was mainly studied with participants without ADHD.

The type of PA being performed may differentially affect cognitive functions. To date, most researchers investigated changes in cognition after a single session of aerobic or resistance exercise. Other forms of exercise may also affect cognition. Postural stability and coordination exercises are known to involve activation of the cerebellum, which influences motor functions and a variety of neurobehavioral systems, including attention, working memory, and verbal learning and memory.

Health-Related Habits of Students at the Academic College at Wingate

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This survey was conducted on a population of students studying for a Bachelor's degree in physical education. The aim of the current survey was to assess the health knowledge and health-related habits of students during the first year of implementation of a health promotion program, as part of the college becoming a "health-promoting college". A total of 281 students (n=145 males and 136 females) from the 3rd and 4th year at the college (n=191 and n=90, respectively) filled out a self-administered online questionnaire, where they reported about their health habits and attitudes towards smoking, alcohol consumption, physical activity levels, sedentary behavior, and the quality of their diet. A total of 64.7% of the students implemented the recommended amount of physical activity of 150 minutes per week, however 43.7% felt that they don't perform enough and would like to increase the weekly amount. 80% and 87% of the students usually or always track their total energy intake and overall added sugar consumption, respectively. Smoking prevalence was lower among the students (16%) in comparison to the general public (25.2%). During the academic year the gym was enlarged and renewed; 86.4% of the students noted this in the questionnaire, however only 21% reported training there on a weekly basis. 58.7% of the students think that the accessible places provided at the college for storing and heating their food (refrigerator and microwaves) had a positive effect on their general eating habits and enabled them to consume more homemade food. Further, 59.4% of the students think they would benefit from scheduled physical activity and movement breaks during classes, in order to increase awareness and concentration. This survey, conducted in a physical education college, enabled us to assess the possible impact and changes that may occur in a health-promoting college. Future research will enable assessing additional possible changes as well as planning future programs to improve the students' health.

Family Lifestyle Patterns as a Factor in Promoting Physical Activity among Children and Youth in Israel

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Parents have a significant influence on their children's lifestyle habits, including physical activity and eating habits, in a way that may reduce obesity and sedentary behavior, which are major concerns for public health. The purpose of this study was to examine the relationship between: 1) family health habits, 2) physical activity among parents, and 3) eating meals together, and exercise patterns among children.

This was a quantitative cross-sectional study, based on the Health Behavior in School-Aged Children Survey that was conducted in Israel in 2015. The study involved 13,849 children and adolescents in grades 6, 8, 10, 11, and 12. Just over half were female (51%) and 76% were from the Jewish sector.

The survey results indicated that the chance of those children and adolescents who ate family meals with at least one parent exercising for at least 60 minutes per day was 1.4 times more than those who did not report eating family meals together. Mothers who regularly exercised increased their children`s chance of engaging in physical activity by 1.6 times, whereas a physically active father was not associated with physical activity of at least 60 minutes a day among his children.

The framework of the family was found to make a substantial contribution in predicting physical activity habits. Having breakfast and dinner every day with at least one parent was significantly associated with exercising for at least 60 minutes every day. Taking various actions, such as developing and operating intervention programs in cooperation with the parents in the community, could help ensure a healthier future generation.

The Association between Professional Nursing Rank and Physical Activity Level Among Nurses at the University College Hospital, Ibadan, Nigeria

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Background: Physical inactivity is a major leading risk factor for mortality. Studies have revealed that regular physical activity is effective in preventing several non-communicable diseases, such as cerebrovascular disease, diabetes, hypertension and obesity. Nurses represent the largest group of health care professionals.

Aims: The aim of this study was to investigate the physical activity level and association with professional rank among nurses at the University College Hospital, Ibadan.

Methods: This research was a cross-sectional survey design. A convenience sampling technique was used to select all available and willing nurses. The short form of the International Physical Activity Questionnaire (IPAQ-SF) was used to collect information on the physical activity levels (PAL) of the participants. Socio-demographic data was gathered on Professional Rank. Data were analysed using descriptive statistics (mean, standard deviation, frequencies and percentages), and inferential statistics (Chi-square test) were used to test the association between professional rank and physical activity level. The level of significance was set at 0.05.

Results: A total of 230 nurses participated in this study. The mean age of the participants was 40.4 ± 8.2 years. Out of the 230 participants, 174 (75.7%) participants had moderate and low physical activity levels, respectively, with only 56 (24.3%) participants having high PAL. There was no significant association between professional rank and PAL among the nurses (p= 0.447).

Discussion: Walking was the most common PA undertaken by the nurses. One-hundred and four nurses (45.2%) and 118 (51.3%) nurses had participated in vigorous and moderate PA, respectively, for at least 10 minutes in the previous week before the data collection. The various ranks of the nurses did not significantly affect their PAL.

Conclusion: Professional nursing rank did not affect the PAL among the Nurses. Though the rank did not affect the PAL of the participants, there is need for improvement of PAL among nurses, because aajority of the nurses had moderate and low PAL.

Goal-Setting and Momentum Theories – From 0:2 to 1:2 in Soccer

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The literature on goal-setting predicts that athletes respond to challenging but achievable goals with increased effort. Momentum implies that a significant precipitating event can induce a psychophysiological chain of reactions that facilitates subsequent performance. To test this premise, we examined if football teams increased their level of intensity once the possibility of getting at least a draw in the match became more attainable, namely, after scoring a goal that closes the score deficit from 0:2 to 1:2. We have scanned through four seasons of five leagues (Premier League, La Liga, Seria A, Bundesliga, and the Israeli Premier League), and examined the amount of actions that had the potential to account for intensity (e.g., tackles, fouls, challenges, ball recoveries) in a short period before and after the third goal was scored under this particular scenario (from 0:2 to 1:2), and compared the frequency of these actions to the same period after other third goals (e.g., from 1:1 to 1:2). We report on some increase in the amount of several specific actions after scoring the 0:2 to 1:2 goal, as compared to other instances of third goal. The current findings are discussed in the light of goal-setting and momentum theories.

Level of Symmetry in Team Formation and Ball Movement Flow in Soccer

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In the current study, we examined how football players` usage of space and the teams` ball movement flow throughout the match are associated with the quality of performance achieved in competition. We constructed two novel metrics that aimed at measuring spatial symmetry and passing flow on a team-wide scope. Our aim was to clarify whether the way players position themselves throughout the match, and the passing patterns they produce, can explain team success. An analysis of all matches played in the 2018-2019 English Premier League season (N = 380) revealed a positive relationship between the teams` spatiotemporal dynamics and team performance. Based on the findings of our analysis, we discuss the strengths and limitations of the newly-developed metrics, and stress the need for additional studies examining their effectiveness.

Integration of Young Soccer Players in Adult Teams: A Comparison between Four Top Leagues in Europe

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Although many young soccer players are determined to become professional adult players, only few actually succeed and reach such status. Such success is dependent on various factors but most importantly on the young players` soccer specific skills, as well as their personality and character. The main aim of the present study was to present the key points and criteria that characterize the transition of young soccer players from youth to adult teams in the four major soccer leagues in Europe – England, Spain, Italy and Germany. Data were collected from the football website www.transfermarket.com for young players in the four European major leagues of the 2018-2019 soccer season. Overall, 293 young players fulfilled the necessary conditions to qualify for participation as young integrated players. The findings indicated that the highest integration rate for young players in adult teams of the top four leagues in Europe was in the Serie A (19.3% of all players in the league) and in the Bundesliga (16.4%), while most of these players were playing in the midfield (39%). It was also found that most of the players joined teams from the top of the leagues (43%), while 28% and 29% of the players joined teams from the middle and the bottom of the table, respectively. In addition, 51% of the young players came from local youth teams, whereas 49% came from foreign countries, mainly European (60%) and South American (19%) countries. 35% of the players made the transition to adult teams at the age of 19, while 25%, 22% and 18% made the transition at the age of 18, 20 and 17 or lower, respectively. Given that the present findings ore only observational, conclusions as to the requirements for a successful transition to adult teams are not certain and should be made with great caution at present.

Young Players` Last Stage of Integration: Preliminary Data

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Many football clubs strive for reproducible successful integration of young players in their main professional squad. Such integration enables these clubs to bridge financial inferiority and create continuity in playing style elements. Certain clubs' success depends on their ability to integrate young players efficiently. Therefore, they aim to form a reproducible process that players undergo from the moment they set foot in the club to becoming an integral part of the club's first team. This study focuses on young players' last stage of integration, starting when they first join the first team and ending with them becoming regular first-team players. We analyzed data from the English Premier League (18/19), Italian Serie A (15/16, 16/17, 18/19), and the Israeli Premier League (15/16, 16/17, 18/19). A statistically significant relationship was found between young players' playing time/increase in playing time in the upcoming four games and environmental parameters (e.g., team, age, position), alongside their performance in the previous four games. Performance was represented by match "on-the-ball" metrics such as goals, shots, passes, and tackles. In addition, we implemented a cluster analysis to differentiate young players according to playing-time patterns. We focused on a cluster of non-playing squad members at the beginning of the season who became regular players. We sought differences in performance metrics between players who received consistent playing time from the point of first integration until the end of the season and those that at some point, relinquished their regular status. For this purpose, we used several machine learning algorithms, but were not able to form a significant separation between the two sub-groups based on such performance data.

A Five-Decade Analysis (1969-2019) of Free-Throw Shots in the NBA – Observations and Trends

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Describing, understanding, and predicting improvement of athletic performance are pivotal aspects of sport sciences. Longitudinal trends of achievements of elite performers, mainly in endurance (e.g., cycling, running, skiing, swimming) and explosive power sports (e.g., jumping, throwing, weightlifting), were examined in a series of studies. One of the observations of these studies was the significant improvement in performance in the above-mentioned sports, mainly during the 1960s, 1970s, and 1980s. In addition, a number of task-enhancement exogenous interventions that can account for the observed trends were discussed, among them the use of performance enhancing drugs. The current study contributes to this line of research by examining the rate of improvement in free throw (FT) shots performed by National Basketball Association (NBA) players in a four-decade period – 1969-2019. As opposed to analyzed power and endurance sporting events, the FT shot is a fine, closed, and self-paced motor task performed under a stable and predictable environment. Based on an analysis of more than 2.7 million FT shots performed by NBA players, we found that from 1969 to 2019, the FT shooting accuracy fluctuated around 75%, but did not show any steady trend of improvement. We discuss this finding from a skill acquisition perspective.

Neck Pain in Military Pilots and in Civilians – Is It Different?

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Background: Neck pain (NP) is prevalent in the general population and more so in fighter aircrews, whose fitness-to-flight may be compromised. Yet, a comparison reveals gaps of knowledge regarding flight-associated NP (FANP) characteristics.

Aims: To explore subjective and physical measures of NP and their inter-relations, within and between groups.

We expected pilots` Neck Disability Index (NDI) and Tampa scale of kinesiophobia (TSK) levels to be lower, and their physical performance to be higher compared to civilians.

Methods: Forty-five pilots and 40 civilians with NP participated in this cross-section study. Pain descriptive, NDI, TSK, and health-status were collected. Kinematics (velocity, accuracy, range) of cervical motion were measured using the Neck Virtual-Reality System, and isometric strength through dynamometry.

Results: Compared to civilians, pilots reported fewer headaches and arm pain, tracked moving targets more accurately, and their response-times were shorter. The logistic-regression model demonstrated that larger rotational accuracy errors (Odds-Ratio=0.91), headaches (OR=0.23), and forearm pain (OR=0.13), differentiated civilians from pilots with 43% accuracy. Of the weak inter-relations between subjective and physical measures, the strongest indicated that pilots' perception of health-status improved with shorter response time, and their disability level, with larger rotation motion (r=0.42, p0.01). Civilians' disability improved with larger acceleration-to-deceleration ratio (r=-0.41, p0.01) and with higher mean velocities (r=-0.36, p0.05).

Conclusion: Pilots' kinematic performance was partially better, and they reported less severe symptoms – which may reflect under-reporting due to fear of temporary medical disqualification. However, the subjective measures, neck muscles` isometric strength, and the little amount of physical activity reported, were similar between groups. To improve prevention and treatment, further research of FANP characteristics is needed, specifically of cervical kinematics amongst pilots with and without NP.

Self-Kinematic Training for Flight-Associated Neck Pain: A Randomized Controlled Trial

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Background: Flight-associated neck pain (FANP) is a serious problem in fighter pilots. Despite the high impact of FANP there is little evidence for effective management. However, self-kinematic training showed a positive effect in the general population.

Aim: The purpose of this study was to investigate the effectiveness of a self-kinematic training program using virtual reality in improving neck pain in fighter pilots.

Methods: There were 45 pilots with FANP who were randomized to a control group (N=23) or a training group (N=22). Training participants were instructed to exercise by a personalized self-training program, for 20 min/wk, for 4 weeks. Primary outcome measures were neck disability (NDI%) and mean velocity (° · s 2 1), and secondary were pain, health status, accuracy, and isometric strength. Assessments were conducted by a blinded assessor and intention-to-treat analysis by a blinded statistician.

Results: There were 40 pilots who completed the post-intervention assessments, and 35 completed the 6-month follow-up. Baseline measurements showed mild pain and disability (mean VAS 5 43 6 22.73, NDI 5 17.76 6 9.59%) and high kinematic performance. Compliance with self-training was poor. No differences were observed in self-reported measures and strength. Exercise duration was correlated with NDI% improvement.

Discussion: This self-kinematic training promoted kinematic performance, but was ineffective in engaging the pilots to exercise, and consequently did not improve pain and disability. Poor compliance was previously reported in self-training for FANP, suggesting further studies should prioritize supervised training. Considering the high baseline kinematic performance, kinematics does not seem to be a key factor in FANP, and future exercise research should aim for intense strengthening to increase endurance to the high Gz pilots' experience.

Injury Prevention Exercises for Reduced Incidence of Injuries in Combat Soldiers

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The aim of this study was to determine the influence of an "All-Cause Injury" prevention program, focused on static to dynamic transitions, on injury prevalence in a military commanders course. Two cohorts of male infantry commanders were recruited (intervention group, n=196; controls, n=169) and tracked by a physiotherapist, who recorded any injuries that occurred during the 14-week course. Soldiers were tested pre-, mid-, and post-course for anthropometrics, proprioception ability, and dynamic postural balance. The intervention group performed injury prevention exercises for five minutes, 3-times/week, and the control group continued with their routine physical fitness sessions. The prevalence of injuries reported to the physiotherapist during the course was significantly lower for the intervention group compared to the controls (14.8% and 34.3%, respectively, p.001). Similarly, rates of injury in the intervention group were significantly lower than in the control group (p=0.001; Hazard=2.53, 95% CI= 1.62-3.95). Pre-course proprioception ability was significantly lower in those that became injured during the commanders course, irrespective of group. Likewise, for dynamic postural balance parameters, the injured participants in both groups had significantly lower pre-course scores than the non-injured participants. From pre- to mid-testing, the injured soldiers in the intervention group improved their ability up to the level of the non-injured participants. A reduced prevalence of injuries was found for soldiers who completed the injury prevention program. Because the participant soldiers injured on the course had reduced somatosensory abilities at the outset, and as these abilities can be improved by static-to-dynamic exercises, identifying at-risk soldiers and providing them with appropriate strategies for improvement beforehand is indicated.

Practical applications: This study demonstrated the practical importance of "All-Cause Injury" prevention exercises for reduced prevalence of musculoskeletal injuries in soldiers during an infantry commanders course. The results indicated that the suggested static-to-dynamic somatosensory exercises enabled the injured soldiers who started the course with very low abilities to improve their scores up to the level of the non-injured soldiers. The findings have practical importance for military commanders, combat fitness officers, and military strength and conditioning professionals. Future guidelines should explain that in order to prevent injuries, recover quickly from injury, and fight effectively, combat soldiers should develop "injury readiness and resilience" strategies. The military forces should ensure that a multidisciplinary team (sports medicine physicians, physical therapists, and others) is accessible to all soldiers, since these professionals are instrumental to their military preparedness. Follow-up studies that examine the short-term and long-term effects of similar intervention programs are warranted, exploring different types of exercises, different doses of repetitions, and different exercise times per day. In addition, it is recommended that pre-service rehabilitation be implemented for participants with low dynamic postural balance and ankle proprioception scores who are about to undertake challenging physical training.

The Load Carriage Index (LCI) – Using Body Composition Measurements for Load Carriage Adjustment

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Background: Currently, backload is being distributed among soldiers based on their bodyweight (%BW), without addressing differences in lean body mass (LBM) and %fat. Fat mass, together with backload, are considered "dead mass" (DM) that reduces mobility and effectiveness. It was proposed that the ratio LBM to DM can indicate the ability to carry loads.

Aim: To study the ability to better distribute the loads to be carried by a team of soldiers by using a load carriage index (LCI=LBM/DM).

Methods: Fifteen subjects randomly performed two exercise protocols: (1) carrying 55% of their BW; (2) carrying backload according to their LCI. The oxygen consumption during exercise, BW, %fat, LBM, LCI and maximal aerobic capacity (VO2max), were compared between group MORE who carried more load after load re-distribution according to the LCI and group LESS who carried less load.

Results: There were no differences between both groups in BW, LBM, VO2max and the oxygen consumption during exercise in the 55%BW condition. However, the LCI, calculated before the re-distribution of loads, was significantly lower (p0.001) in group LESS as compared to group MORE (1.2±0.1 and 1.3±0.1, respectively). The oxygen consumption while carrying 55%BW, was significantly higher (p0.001) for group LESS as compared to group MORE (24.4±1.5 and 21.2±1.6, respectively). Participants in the LESS sub-group presented greater total double support percentage (mean difference of 2.1% with a standard error difference of 0.6, p0.01) and lower single support percentage (mean difference of 0.84% with a standard error difference of 0.3, p0.05), as compared to the those in the sub-group MORE. After load re-distribution (LCI condition), the differences in oxygen consumption and all tested gait spatiotemporal parameters were diminished, as no significant differences were found between sub-groups.

Conclusion: By using the LCI, the metabolic cost of load carriage was reduced for those with lower carrying ability, by "using" group members with a better LCI. We suggest the LCI as a helpful index for a better given load distribution among a group of soldiers, according to their body composition rather than relying on %BW, in regard to their physiological ability.

Cognitive Assessment during the Heat Tolerance Test (HTT)

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Each year, approximately 50 soldiers are referred to perform the heat tolerance test (HTT), to determine their readiness to return to duty after heat injury as combatants in field units. Nowadays, the criteria used in the HTT to determine heat tolerance are based solely on physiological parameters (i.e., thermoregulatory aspects of heart rate, core temperature and sweat response), with no cognitive evaluation. The extensive scientific literature on the influence of exposure to heat and physical effort on cognitive performance and psychological strain suggests monitoring cognitive functions post injury could provide important decisions supporting information and insight.

The purpose of the presented study is to add cognitive evaluation to the physiological parameters monitored in the HTT and to construct a new cognitive-physiological model for heat tolerance evaluation, suggesting a new criterion for the definition of heat tolerance or intolerance.

The cognitive evaluation is based on tests (PVT, POMS) used and validated in the research laboratories of the US Army Research Institute of Environmental Medicine (USARIEM). As this study is still ongoing, interim results will be presented and discussed. The discussion will also elaborate on the importance of adding cognitive evaluation when physical or physiological assessment is being made, especially among those who need to maintain peak performance involving cognitive aspects.

Nutritional Junction: A Multi Factor Nutrition Management Method for Military Combat Units

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Over the last decade, many nutritional improvements have been applied in the Israel Defense Forces (IDF). The variety of food was expanded, specific products were added to provide for special nutritional needs like in the vegan and celiac population, specific field ratios were added, and the mobilization of food and food equipment was improved. Moreover, specific guidelines were written and even dietitians were added to combat and commando units. However, these changes were not been fully assimilated into the dietary guidelines and common practical methods while dealing with the nutritional challenge mainly during basic and advanced training in combat units.

In order to close these gaps, it was clear that we needed to establish a method that would organize the nutritional support in combat units. In this presentation, the nutritional junction model will be presented, which was created to institutionalize nutrition management in combat units. This model links the nutritional guidelines, logistics, medical and command staff to nutrition management tools and techniques according to the different training weeks. Moreover, a novel digital platform designed to make the implementation easier will be presented.

The Effect of an Interval Training Program on the Fitness of Combat Soldiers

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Background: In this study we wanted to test the effectiveness of a training method on combat fighters that can replace running for maintaining aerobic and anaerobic capacity and normal body weight.

Such a training method is necessary to maintain combat fitness where and when running is not possible.

The study included 60 male subjects in mandatory service aged 20-23 (mean age 20.45 years). The subjects were divided into two groups: the control group (30 subjects) who trained regularly with training that combined running with strength training, and the intervention group (30 subjects) who performed only exercises – agility and strength training, and avoided long-distance runs (over 60 meters).

Aim: To examine how a six-week intervention program that includes high-intensity interval training as an alternative to running training, has an effect on maintaining the fighter`s physical fitness.

Methods: This study is a prospective intervention study using an unblinded randomly-controlled trial.

A. The intervention group: practiced three sessions per week that did not include duration runs, each training incorporating a wide range of muscle groups and was performed at short intervals with short recovery times between sets.

B. Control group: this group exercised according to the program of three workouts per week, with each workout including running (according to the training bar – 5-8 km) and strength training to be performed in sets with breaks, until a resting pulse.

The Formation and Development of Maccabi in Moravia Until 1938

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This paper deals with an integral part of the history of physical education in the Czech lands provided by Jewish sports organisations. The authors focus primarily on the formation and development of Maccabi – a physical training and sports organisation that became, during the time of its existence, the largest Jewish youth organisation in Bohemia, Moravia and Silesia. That is why the authors also addressed its organisational structure and international relations. For the sake of clarity, the paper is divided into two sections: the first one focuses on the development and characteristics of the Jewish community on the European continent; the second one follows the development of existential conditions of the Jewish community in Moravia.

From the very beginning, the European Jewish sports organisations had been requesting that the Jewish community obtain equal social status; later on, they often implemented the emancipatory efforts of the Jewish emancipation movement. Out of all Jewish sports and physical training organisations existing in the Czech lands back then, the Maccabi organisation had the largest number of members. However, its members were affected by World War II, during which the Jewish population was decimated. Even after this "failure of humanity", the Maccabi organisation, well-known for its blue and white colours, clearly had to face the remnants of antisemitism in the European society. This was also the reason why full recovery of Maccabi was no longer possible after the war.

Sephardic Jews and Sport: Sports in the Yishuv (Jewish Settlement) in Israel in Light of the Newspaper ‘Hed Hamizrach’

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During the Ottoman period, Sephardic Jews became very influential in Jewish society in the Yishuv. Their influence was manifested in Jewish society`s economic life. This situation changed after the government`s transition in Palestine from Ottoman Rule to British Rule, which included Military and later Mandate rule. During this period, the Yishuv`s leadership moved from Sephardic Jews to Ashkenazi Jews. Ashkenazi Jews were mainly identified with the Zionist movement, and they contributed to the establishment of a Jewish state in the Land of Israel. Their activity spread among the Diaspora Jews, even though the veteran Sephardim in the Yishuv participated and contributed to Zionist activity in Palestine.

The attitude of Sephardic Jews regarding their societal status change after the Ashkenazi Jews replaced their leadership in the Yishuv can be seen in a Sephardic newspaper that served as a communication tool for the Sephardic community in Israel. In the newspaper, discourse can be found on reducing social gaps between Ashkenazi and Sephardi Jews and preventing discrimination due to ethnic background.

Among the issues that were discussed in ‘Hed Hamizrach’ was sport in the Yishuv, as well as sport activity among Jewish communities abroad, in Europe and Islamic countries. The contribution of ‘Hed Hamizrach’ to the sport discourse among Jewish Sephardic scholars, who were responsible for sport information in ‘Hed Hamizrach’ articles, will be examined in the presentation.

Raphael Halperin`s Contribution to Israeli Body Culture

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The image of a Jew standing fit and tall was an answer to the anti-Semites and the Jews' aspirations for a national home. Muscular Judaism in practical terms translated into excellence in sports. As athletes, the Jews could make their mark and move from the fringes of society into the mainstream. This concept evolved over the years, reflecting changing times, shifts in global thinking, political developments and national needs. After the establishment of the State, Israeli society underwent a process of Americanization that brought with it a new perception of muscular Judaism and body image. This paper discusses three physical fitness trends that redefined the concept of muscular Judaism: gym training, bodybuilding and catch wrestling. These were rooted in the American aesthetic ideal, far from the ideology and collective socialist worldview prevalent in Israel. Raphael Halperin was the one who imported them to Israel. My principal argument is that muscular Judaism, as an aesthetic shaped in gyms and scripted catch wrestling, heralded the onset of Americanization in Israeli society earlier than is generally accepted in Israeli historiography.

Maccabi – From a Sports Association to a Political Party

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Amongst the lists that competed in the fourth assembly of the Jewish community in Palestine (1944) was the list of Maccabi. This presentation discusses the factors that led Maccabi to become a political party, using sports as an electoral mobilization mechanism. Much has been written about sports as a vehicle for class-based ideology, and about political organizations that established sports clubs. Maccabi traveled in the opposite direction: From a sports association, it underwent a process of politicization.

At first, it presented itself as a national non-political organization. The establishment of Hapoel made Maccabi affiliated with the bourgeois circles of society. Maccabi leaders, especially those from Germany and Austria who came during the 1930s, debated the transformation of the association to a political party. They joined the New Immigration Party, which in many ways expressed the worldview of Central European immigrants. Due to ideological disagreements with the party, Maccabi decided to run as an independent party at the assembly. The big question to follow this decision was whether the Maccabi members would show loyalty to the sports organization as a political party. Maccabi failed in the elections. Only 3 of its members were elected. In 1946, Maccabi again ran as a party in the elections for the 22nd Zionist Congress. The failure was complete. Maccabi failed to get even one seat. Joining the General Zionist Party after the establishment of the State of Israel put an end to Maccabi's independent political aspirations, and it became a sports organization sponsored by a political party. Their political activity in the General Zionists, in addition to receiving financial support from the party, was the end of Maccabi`s stated neutrality, and Maccabi ceased to be a national sports association.

PARALLEL SESSION F3: HEALTH BEHAVIORS DURING THE COVID-19 PANDEMIC

Dietary and Lifestyle Habits of Adolescents During School Closures Due to the COVID-19 Pandemic: A Pilot Study of the SUGAPAS Project

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There is an urgent need for implementing effective lifestyle interventions to minimize negative impacts of the COVID-19 pandemic on schoolchildren`s health (Xiang et al., 2020). One strategy may be the project Supporting Gamified Physical Activities in & out of Schools (SUGAPAS), aiming to design and implement: (1) an exergame that requires gross motor activity, to trigger physical activity (PA) and sport participation of students; (2) a mobile game to support a healthy lifestyle through planning of meals, snacks as well as designing daily and weekly menus; and (3) a mobile game which implements a series of nutritional self-assessments for supporting students' awareness and knowledge about nutrition and dietary guidelines. This cross-sectional study aims to investigate dietary and lifestyle habits of adolescents in a pilot sample of European countries involved in the SUGAPAS project.

Six-hundred and twenty adolescents (of them girls n=331), within the age range of 12-17 years, from Lithuania (n=215), Greece (n=127), Cyprus (n=159) and Spain (n=119), volunteered and anonymously participated in this study. Due to the ongoing pandemic of coronavirus disease and implemented school closures to prevent further spread of infection in the communities, the survey was conducted online. In order to evaluate dietary and lifestyle patterns of the respondents, a three-part questionnaire was used. The first part evaluated nutritional behavior using the KIDMED Index to measure the adherence to the Mediterranean Diet (MD). The second part roughly estimated the frequency and duration of involvement in PA/sports participation in a typical week. Finally, the participants indicated the weekly frequency of participation in 27 different leisure management activities.

When comparing adolescents' dietary habits, it was revealed that better dietary choices are characteristic to youth from Cyprus and Spain rather than their counterparts from Lithuania and Greece (medium vs. poor adherence to MD), i.e. the KIDMED Index of 5.08 and 5.13 vs. 1.13 and 1.65, respectively (p0.001). Participants from Cyprus were more actively involved in PA/sports, in comparison with the youth of similar age from Spain and Lithuania (p=0.001). A vast majority of adolescents fail to accomplish the international guidelines of PA for health. Analysis of leisure time management revealed that youth prefer mostly sedentary activities (e.g., social activities such as meetings with friends, social networking, using screens for entertainment, etc.), instead of choosing sports and active recreation.

The lifestyle of schoolchildren during the COVID-19 pandemic restrictions has been affected dramatically, causing a substantial decrease in PA and an extensive increase in sedentary activity time. The combination of inactivity and poor nutritional behavior may be a determining factor for weight gain and the cause of other negative health consequences. There is an urgent need for intervention programs to promote active healthy living, and the SUGAPAS project may contribute by offering a challenging tool to youth for educated choices.

Physical Activity, Resilience, Emotions, Moods, and Weight Control during the COVID-19 Global Crisis

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Aviva Zeev
Sigal Eilat-Adar

The Academic College at Wingate, Netanya, Israel

Aims: This study aimed at exploring the relationships between physical activity, weight control, and psycho-social aspects of the lockdown that characterized the Israeli population's behavior during the COVID-19 global crisis.

Design: Cross-sectional survey research.

Methods: Participants included 1,855 men and women aged 18-90, from different regions in the country and representing different sectors. They were recruited through the social media, and filled out a self-administered six-part survey: Demographic background, the International Physical Activity Questionnaire (IPAQ), the positive and negative affect scales (PANAS), the Conor and Davidson resilience scale, a questionnaire for measuring depressive symptoms, and questions regarding weight change based on the Israeli National Health and Nutrition (MABAT) survey.

Results: Routine physical activity (PA) before the lockdown was reported by 76.3% of the participants. 19.3% stopped exercising during this period, and 9.3% began exercising during the lockdown. The participants who were physically active during the lockdown period reported a higher level of resilience and positive feelings, and a lower level of depression, compared with those who were not physically active.

People who were physically active during the lockdown maintained their weight compared with those who were inactive. Concerning weight change, 44.8% of the respondents maintained their weight, and a higher percentage of people reported weight gain than those who reported weight loss.

Conclusions: Continuous PA before and weight stability during the COVID-19 lockdown was associated with higher resilience and positive emotions, and low negative emotions and depressive symptoms.

Participation in Physical Activity, Resilience, and Emotions in Two Consecutive Lockdowns during the COVID-19 Pandemic

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The mental consequences of dealing with both the COVID-19 pandemic and the strict lockdown implemented by governments worldwide to fight the virus are currently unknown. We performed an online survey in Israel during two consecutive lockdowns (Waves 1 & 2).

Aim: To examine if there was an association between physical activity (PA) and factors of mental strength (personal ability and positive acceptance of changes), negative emotions, and depression during the two waves of lockdown due to COVID-19.

Method: One-hundred and thirty-five participants filled out the survey questionnaire twice – during the first and during the second lockdowns (Waves 1 & 2), two months apart.

Results: PA behaviors were divided into three categories: those who increased their PA in the second lockdown, those who did not change their PA habits, and those who decreased their PA.

ANOVA with repeated measures was performed. For negative emotions, Interaction time X group [$F(2,118)=4.856, p=0.009$], showing that negative emotions decreased among those who increased their PA and increased among those who decreased their PA.

For depression, only the time effect was significant [$F(1,124)=4.745, p=0.031$], showing that depression decreased among those who increased their PA from a mean (SD) of 1.97(0.65) to 1.85 (0.60).

Among participants who increased their PA between Waves 1 and 2, negative emotions decreased from 2.2(0.8) to 2.0(0.8) p0.001 and depression decreased from 1.9(0.7) to 1.8(0.7), respectively.

Among participants who decreased their PA between Wave 1 and 2, negative emotions increased by 1.8(0.7) to 2.2(0.7), respectively p0.001, and the depression level was unchanged.

Conclusion: Negative emotions and depression factors were lower during Wave 2 compared to Wave 1. All participants had higher positive emotions and mental strength factors, and lower negative emotions and depression levels in Wave 2 compared to Wave 1.

Participating in PA was correlated with higher mental strength factors, positive emotion factors, lower negative emotion factors, and lower depression factors in both Waves 1 & 2.

Decreased PA resulted in higher levels of negative emotions and depression factors, while increased PA was associated with an increase in mental strength factors and positive emotions. Participants who reported increasing their PA during Wave 2 had lower negative emotions and depression factors than in Wave 1.

Population at Risk in a COVID World: Changes in the Quality of Life and Physical Activity Level of the Elderly

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Aim: This presentation focuses on a risky category of population connecting with COVID pandemic topic. During the period of lockdowns, the main health precautions were directed towards the elderly population in most of the European countries, which brings next to safety also the inactive lifestyle (physically and socially as well).

Preliminary data come from a presented study identifying the quality of life (WHOQOL-BREF questionnaire) and a self-report measure of older people expressing on their attitudes to the process of ageing (AAQ questionnaire) in the period of lockdown in the Czech Republic. Results of the standardised questionnaires are related to physical activity level of the participants. Also, the picture of active lifestyle differences BEFORE and DURING lockdown is presented.

Methods: The Czech versions of standardised questionnaires WHOQOL-BREF (World Health Organization Quality of Life Assessment) and AAQ (The Attitudes to Ageing Questionnaire) were used. Personalised surveys have been implemented to compare answers from both questionnaires related to physical activity frequency and health condition during the COVID period and outside of this period; different age groups of elderly; sex; living environment). There are to date around 100 respondents participating in the research. Mann-Whitney U test and Kruskall-Wallis ANOVA test ($p=0.05$) and Spearman correlation to evaluate the relation between WHOQOOL-BREF and AAQ questionnaires were used ($p = 0, 05$).

Results/findings: We are now in the process of evaluating the gathered data (Master's thesis). This project is a part of the University department research plan, and results will be compared with data collected in the last three years (in a non-epidemic situation time).

Conclusion: We assume that the numbers describing activities and active lifestyle may represent lower values compared to "normal non-epidemic time", but we are looking forward to the results in quality of life parameters.

Healthy Behavior of Adults and the Elderly during the COVID-19 Global Crisis

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Aim: The purpose of the current study was to examine the differences among adults divided into three age groups (45-59; 60-69; 70+) concerning their healthy behavior during the COVID-19 global crisis.

Methods: Participants were 1202 people, 381 males and 821 females, aged 45-90. A survey comprised of six parts was used: Demographic background, The International Physical Activity Questionnaire – short version, Positive and Negative Affect Schedule – PANAS, The Connor and Davidson Resilience Scale, a questionnaire for measuring depressive moods, and questions regarding weight change, based on the Israeli National Health and Nutrition (MABAT) survey. Data were collected in Israel during the entire first lockdown. The questionnaire was distributed via e-mail, WhatsApp, Twitter, and Facebook, using a snowball sampling method.

Results: Resilience, negative feelings, and depression symptoms were higher in age group 45-59 compared to 70+ year-old participants, and the depression symptoms score was also higher among participants aged 45-59 compared to ages 60-69. Physical activity was associated with higher resilience, fewer depression symptoms, and fewer negative emotions. Regarding gender and psychological variables, no differences were found. During the time of lockdown, weight change was not prevalent and sleeping hours increased.

Conclusions: In adults at 70+, health behavior and related well-being measures were similar to other adult groups that were examined (45-59 and 60-69).

Effect of a Goalball Competition on Neuromuscular, Physiological and Game Technical Performance Parameters

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This study investigated the neuromuscular, physiological and game technical performance responses induced by a simulated goalball competition. Ten male goalball players underwent neuromuscular assessments of isometric maximal voluntary contractions and the Twitch Interpolation technique, blood lactate concentration and rating of perceived exertion (RPE), before and after three games. Heart rate (HR) was recorded at rest and during all games, which were filmed to enable further analysis of the game technical performance. Significant decreases of peak force (402 ± 132 N to 359 ± 80 N) and percentage of voluntary activation (84 ± 13% to 73 ± 20%) were observed after the second game. The blood lactate concentration increased significantly in relation to rest (~ 1.8 mM higher), but it was similar in all games. The predominant HR range in all games was 130 bpm, whereas the main intensity was that corresponding to the zone between 65 and 85% of the maximum HR. RPE was significantly correlated with frequency of throws (r = -.58) and peak heart rate during the game with recovery time (r = -.63). This study demonstrated that a simulated goalball competition induced significant fatigue due to central alterations. In addition, the intensity of the game is predominantly moderate, and the athlete's participation seems to be dependent on RPE and the peak HR during the game.

Is the Whole-Body Vibration Exercise Important to a Variety of Professional Sports?

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Whole-body vibration (WBV) exercise has been used as a modality of physical exercise. It is generated in an individual who is exposed to mechanical vibrations produced in a vibrating platform. WBV exercise is also considered as a clinical intervention used in the management of individuals with different clinical conditions. Moreover, it has been utilized to improve the performance of healthy trained and untrained individuals. It is reported that WBV exercise can promote various physiological effects, such as an increase in muscle strength and power, speed, and flexibility. These effects can contribute to improving the performance of these individuals. As a consequence, it is expected that WBV exercise might provide an important alternative for professionals of various sports. The aim of this study was to identify modalities of sports that use WBV exercise to improve factors related to performance. Searches were performed in PubMed and Scopus with the keywords “whole body vibration” and "sport" on January 15, 2021. In PubMed, 564 publications were identified, and in the SCOPUS, 200. Fifty-eight publications were selected when a modality sport was clearly defined in the title. Professionals of different ages were included in the studies, and the presence of males and females was also found. Thirty-six types of sports were found in the publications. Sports performed (i) for a single individual, as well as (ii) collective sports, on the land and in water, and (iii) sports using the feet or hands, were found among the publications. The most cited sports were soccer, basketball, and swimming. Besides the relevance of WBV exercise in clinical application, the analysis of these findings indicates the importance of this modality of physical activity to professionals of a variety of sports. This is probably due to the known physiological response of the body to the mechanical vibration generated in the vibrating platform that is transmitted to the body of the athletes.

The Effect of Long-Term Whole-Body Vibration on Muscular Performance

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Background: The whole-body vibration (WBV) approach is considered to be a unique training method for physical rehabilitation, injury prevention, and improving physical performance in athletes. The scientific literature about WBV is documented with inconclusive methods, different vibration protocols, different measurements and, as a consequence, different results.

Aims: To explore the effect of long-term WBV training on several muscular strength variables among physical education students in comparison to a control passive group of students.

Methods: Fifty healthy male physical education students were randomly allocated into a Vibration Group (VG, n=25) that underwent WBV training with an external load, and a Control Group (CG, n=25), that received no treatment. The study was composed of pre-test assessments, a 4-week intervention phase and post-test assessments. During the intervention phase, the VG performed three training session per week that included six sets of 30 sec squats with external loads on a WBV platform. Assessments included maximal muscle strength, power, reactive strength and endurance.

Results: Significant improvements were shown in all components among the VG from pre- to post-tests (p.01), while no significant differences were found among the CG.

Conclusions: A 4-week WBV training program with medium external load improves different components of strength among healthy physical education students.

The Physiological and Self-Perceived Determinants of Fatigue Development during Upright Versus Supine Cycling

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Background: Supine cycling is a commonly used form of exercise to study skeletal muscle bioenergetics (Goulding et al., 2020; Goulding et al., 2021). Compared to upright cycling, the supine variant is characterized by slower oxygen transport, greater skeletal muscle deoxygenation amplitude (Goulding et al., 2020), and a greater type II fiber activation (Goulding et al., 2021). This typically results in excessive energy cost of supine exercise, and subsequently earlier exercise termination when compared to the classical upright cycling. However, the underlying mechanisms causing earlier exercise termination during supine cycling require further clarification.

Aim: The purpose of this investigation was to determine whether differences in body position (upright versus supine) govern the physiological performance indicators, including time to exhaustion (TTE), maximal heart rate (HR), peak power output (PPO), as well as the self-reported rate of perceived exertion (RPE), in healthy young men.

Methods: Nineteen participants (age 22±3) completed three experimental sessions, including one preliminary medical screening visit, and two ramp incremental tests (random order, in upright and supine positions, within 48 hours) until voluntary exhaustion. All tests were performed on an electronically braked cycle ergometer (Ergoline 900, Hamburg, Germany), and HR responses were monitored with a Garmin monitor (HRM-3 SS, Kansas, USA). The self-reported RPE scale (1 - 10) was administered following both upright and supine protocols, and participants were asked wheatear they stopped the ramp test due to leg pain or dyspnea.

Results: Significant differences were observed between the supine versus upright cycling. Lower PPO (-15%, p=.001) and HR (-17 bpm, p=.001) accompanied by shorter TTE (2 min, p=.001) were found in the supine cycling compared to upright cycling. The self-reported RPE data suggest that exercise termination was predominantly associated with perception of pain in the leg muscles, as compared to dyspnea (9.1±1.2 vs 7.6±1.1, p=.001, respectively), with no differences between the two exercise variants.

Conclusion: The present findings suggest that during supine cycling fatigue develops more rapidly when compared to the upright protocol. Interestingly, there were no differences observed in the self-reported RPE in upright versus supine cycling, with all participants consistently reporting leg pain as the main reason for exercise termination. Future studies should provide the context for the interplay between physiological response and the self-reported exertion during similar exercise protocols.

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The Effects of the Pre-Fatigue Method of Brain Endurance Training on Physical Endurance Performance

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Introduction: Mental fatigue (MF) impairs endurance exercise performance (Van Cutsem et al., 2017). Brain endurance training (BET) – engaging in mentally demanding cognitive tasks concurrently during exercise – can develop resilience to MF and improve physical performance compared to physical training alone (Dallaway et al., 2017; Marcora et al., 2015,).

The pre-fatigue method of BET proposes that engaging in mentally demanding cognitive tasks prior to physical training can induce a state of MF, increasing ratings of perceived exertion (RPE) during the subsequent physical training. It has been hypothesized that MF impairs physical performance via the anterior cingulate cortex (ACC), as it is activated by both exercise and complex cognitive tasks. It remains to be determined if physical and mental tasks that activate the ACC have overlapping or additive effects on performance.

Aim: To examine if pre-fatigue BET enhances endurance performance over identical physical training and to explore the underlying mechanisms.

Methods: Pre/Post testing: 24 participants completed a rhythmic handgrip task requiring generation of as much force as possible, by squeezing a dynomometer once a second for 300 s. This was performed on its own and followed 1200 s of a 2-back memory/attention task. Cardiac activity (ECG), electromyographic (EMG) forearm activity, pre-frontal cerebral haemodynamic (near infrared spectroscopy), and force were recorded continuously.

Training: Participants (randomized to a Control or BET group) completed 5 weeks of training (20 sessions) comprised of submaximal hand contractions, once a second, until reaching a force target relative to maximum voluntary contraction. In addition, the BET group completed cognitive tasks (2-back, word incongruence Stroop) for 1200 s prior to the physical training.

Measures of motivation, physical and mental exertion, mental fatigue and mood were collected via self-report throughout.

Results: Averaged across the 2 physical tasks, handgrip endurance performance improved (p.05) more following pre-fatigue BET (24.2%) than physical training alone (12.5%). The BET group showed higher prefrontal oxygenation at post-testing (p.05) but the same RPE, motivation, cardiac and EMG activity compared to controls.

Discussion: Our findings demonstrate that sub-maximal physical handgrip training in a state of MF (pre-fatigue BET) improves endurance performance over the identical physical training alone.

References:

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PARALLEL SESSION F5: SENSORY MODULATION AND PSYCHOMOTOR EMPOWERMENT

'Inclusive Adaptation Approach' for Children with Sensory Modulation Disorder (SPD) in Public Spaces, Educational and Home Settings

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'Sensory modulation' refers to a complex process of perceiving sensory information and producing responses that are appropriately graded to, or congruent with, the circumstances. It defines the ability to regulate and organize adaptable reactions to sensory input, filtering out needless stimuli, and attending to relevant stimuli while upholding an optimal level of arousal. This capacity is a critical component of human function that affects the competence of one's interactions with the physical and human environment, ability to succeed in every daily life tasks and the quality of life.

Sensory Modulation Disorder (SPD) refers to an inability to "regulate and organize the degree, intensity, and nature of response to sensory input in a graded and adaptive manner" (Lane et al., 2000). Children with SPD struggle with overload in the process of information processing and/or insufficient sensory signals that are not perceived. Hence, they have difficulties in organizing the sensory input in a way that can be arranged into suitable responses. The negative consequences of SPD can be noticed in the way children behave, perform motor skills, learn at school and socially interact with others. Excessive emotional states such as anxiety, depression, anger and hostility usually accompany SPD. Providing support to children with SPD is significantly important at any time, and especially in the present challenging period of the Corona epidemic.

The lecture is aimed to:

a) Facilitate a better understanding regarding the consequences of SPD, the prevalence of which has been estimated at 5% of the pediatric population.

b) Describe the characteristics of the main three subtypes of SPD.

c) Suggest a unique `Inclusive Adaptation Approach` for empowering children with SPD. Such an approach is significantly important for public decision makers, professionals and teachers in educational settings, in the clinical field and for parents.

The lecture`s aims will be achieved by presenting current research findings, a short movie and examples of adaptations.

Adapted Activities for Children Who Are Hyposensitive and/or Hypersensitive to Tactile Stimuli

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Tactile information, or the experiences derived from receptors in the skin, are relayed to the brain and processed by somesthetic or somatosensory systems. According to Kranowitz (2005), the touch system layers our bodies and gives us information about surrounding physical entities. Moreover, it works as the physical barrier between ourselves and the environment. This sense has a significant role in developing a child's feeling of being loved and secure, motor planning, body awareness and so on.

Some children with sensory modulation disorder (SMD) react adversely or negatively, or display escape-like behavior on being touched, hugged, or kissed or when they are asked to touch objects or fabrics that are needed in play, learning or in performing every day activities. This is due to an oversensitive tactile system, which is usually referred to as tactile defensiveness.

Children who are tactile defensive may experience emotional and self-regulation problems along with difficulties in performing gross and fine motor coordination tasks, speech and language delays, dizziness, confusion, feeling overwhelmed and motor planning problems.

A child who is hyposensitive to touch because of low registration may display seeking behaviors due to a need for extra tactile input. That is in order to better process tactile stimuli such as pressure, vibration, temperature, etc. Such a child is very active and is usually is blamed for misbehaving. Not all kids are distinctly tactile seekers or avoiders. Certain kids may show a mixture of these reactions, because their reactions can change based on their level of arousal or how well they are able to self-regulate.

In the presentation, a variety of unique tactile activities will be displayed. These activities are aimed to improve touch acceptance and promote tactile awareness in a pleasant way.

Adapted Activities for Improving Force and Body-Spatial Awareness for Children with Proprioceptive Hyposensitivity

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The proprioceptive system is located in our muscle tendons, joint capsules and ligaments. It affords us with a sense of body awareness and detects/controls force and pressure. Also, the proprioception system has an impact on behavior regulation. Proprioception is a sense that informs us about the position of our body parts in relation to each other, other people and the environment around us. Proprioception is an inner sense that enables us to move and perform movements without looking at our body. In that way it informs us about the way our body parts are moving and the amount of force needed for performing different activities, such as in driving, cutting with scissors or jumping over an obstacle. Proprioceptive stimuli also regulate our emotional and behavioral responses to sensory stimulation. Children with poor proprioceptive processing may show decreased postural control and difficulties with motor planning, overreliance on visual cues other than inner proprioception stimuli, movement imitation, and problems in organizing body movements in a specified space. Children with hyposensitive proprioception profile may display an extreme and persistent need for proprioceptive stimuli in order to feel their body is in space or in relation to other people or objects. Some kids are 'proprioceptive stimuli seekers'. Usually they involuntarily act vigorously in order to obtain this 'missing' input, which is significantly needed by them (they might knock body parts, raise or hold objects with excessive force, throw themselves roughly on floor, and so on. Such behaviors may also cause social problems and accusations of misbehaving. In this presentation a variety of unique proprioceptive activities will be displayed. These activities are aimed at improving body awareness and promoting force awareness in an enjoyable way.

PARALLEL SESSION G1: PHYSICAL ACTIVITY AND HEALTH BEHAVIORS (HBSC SURVEY) IN ISRAEL AND AROUND THE WORLD

Physical Activity, Sedentary Screen Time, Bullying and Risk Behaviors: Exploring Differences between Adolescents With and Without Disabilities

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Worldwide, adolescents often present difficulties in complying with health-behavior recommendations set by the World Health Organization (WHO). Adolescents with disability (AWD) are more likely to be at risk of reduced participation in physical activity, as well as at risk of being more engaged in sedentary screen time, in bullying and in other risk behaviors. The purpose of this study was to examine the prevalence of PA participation and risk behaviors in participants with and without disabilities. The current study implemented sub-group comparisons, correlations, and regression analyses on data from the 2013-14 Health Behavior in School-Aged Children Survey (Israel) among adolescents aged 11-17 (N=4241; 56% female; 9.3%= AWD). Our findings indicated that the majority (90%) of AWD and adolescents without disabilities did not comply with WHO PA recommendations. PA participation was significantly decreased in AWD in grades 6 and 8 compared to adolescents without disability. In addition, 30% of AWD and adolescents without disability, engaged in sedentary screen time 3 hours/day during the week and weekend. Furthermore, AWD were significantly more involved in bullying behaviors as well as in risk behaviors such as smoking cigarettes, misusing drugs or drinking alcohol. Differences between various groups of students with disability have also been noticed. In conclusion, utilizing the information derived from this study, AWD should be given specific attention to reduce the likelihood of bullying and other risk behaviors at school, and to increase the likelihood of inclusion of AWD in PA programs.

A Composite Measure of a Healthy Lifestyle: A Study from the Health Behavior in School-Aged Children Survey

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This study aimed to create a composite measure of a healthy lifestyle for adolescents, and analyze its relationship to sociodemographic factors.

Data were from the Health Behavior in School-Aged Children 2014 International Survey. Participants were 167,021 adolescents (48.2% boys and 51.8 girls), aged 10-16 years, from 38 countries.

Five healthy behaviors used in this study included engaging in ≥60 minutes of physical activity every day, daily consumption of fruit and vegetables, spending 2 hours daily immersed in screen-based behaviors, and abstinence from alcohol as well as from tobacco products. Only 1.9% (95% CI: 1.4%, 2.3%) of adolescents had a healthy lifestyle, achieving all five healthy behaviors. In contrast, 4.2% (95% CI: 3.7%, 4.6%) reported none of the healthy behaviors.

Despite the benefits of engaging in physical activity, engaging in low levels of screen-based activity, regular consumption of fruit and vegetables, and abstaining from alcohol and cigarettes, only 2% of adolescents could be classified as having a healthy lifestyle.

PARALLEL SESSION G1: PHYSICAL ACTIVITY AND HEALTH BEHAVIORS (HBSC SURVEY) IN ISRAEL AND AROUND THE WORLD

Can Health-Promoting Schools Contribute to Better Health Behaviors? Physical Activity, Sedentary Behavior, and Dietary Habits among Israeli Adolescents

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Health Promoting School (HPS) frameworks are actively committed to enhancing healthy lifestyles. This study explored the contribution of school participation in HPS on students' health behaviors, namely, physical activity (PA), sedentary behavior, and dieting. Data from the 2018-19 Health Behavior in School-Aged Children Survey of Israeli adolescents aged 11-17 years were used. Schools were selected from a sample of HPSs and non-HPSs. Between-group differences and predictions of health behavior were analyzed. No between-group differences were observed in mean number of days/week with at least 60 minutes of PA (HPS: 3.84+2.19 days/week, 95% confidence interval of the mean = 3.02-3.34; non-HPS: 3.93+2.17 days/week, 95% confidence interval of the mean = 3.13-3.38). Most children engaged in screen time behavior for 2 h/day (HPS: 60.83%; non-HPS: 63.91%). The odds of being on a diet were higher among more active children (odds ratio [OR]=1.20), those in a higher socio-economic status (OR=1.23), and females (OR=2.29). HPS did not predict any health behavior. These findings suggest that HPSs did not contribute to health behaviors more than non-HPSs. Therefore, health promoting activities in HPSs need to be improved in order to justify their recognition as members of the HPS network and to fulfill their mission.

Physical Education as a Protective Factor for Risk Behaviors among Adolescents in Israel: Age and Gender Differences

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In Israel, as well as in other countries throughout the world, physical education (PE) classes are included in a school's core program. PE classes are based on physical health concepts and focus on instilling active and healthy lifestyle habits among students. Studies have shown that adolescents` participation in PE classes can lead to a decrease in risk behavior patterns and an increase in involvement in physical activity even outside the school walls. The present study examined the extent to which PE variables in school (love of PE classes, duration of PE classes, and participation in sports) serve as protective factors against risky behaviors (drunkenness, excessive alcohol consumption, and cannabis smoking) among adolescents. Quantitative correlations were conducted based on secondary analysis of the Health Behavior in School-Age Children Survey data from Israel during the years 2018-2019. The study population included 4,407 students from the sixth, eighth, tenth, and twelfth grades, from the following sectors: state (54%), state-religious (14%), and Arab (32%). Students answered questions about PE and risk behaviors. We found that love for PE and duration of activity in PE were protective factors against the risk behaviors examined. Participation in sports was found to be a protective factor in preventing drunkenness and excessive drinking among teenagers. Policy makers should develop intervention programs as part of the PE lessons to help address the risk behaviors of adolescents in order to create a healthier future generation.

Inverted U Associations between Physical Activity and Perceived School Performance of Young Adolescents in HBSC Countries

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Background: Regular physical activity and performing well in school are two important aspects of growing adolescents. In this study, the associations between physical activity and perceived school performance (PSP) are examined.

Methods: Data from young adolescents from 42 countries (n = 193,949) in Europe and Canada on self-reported moderate to vigorous physical activity (MVPA) and PSP were collected in 2013-2014. Multinominal analyses were conducted with reference categories of 0 to 2 days of MVPA and below average PSP. Adjusted (by family affluence) odds ratios and 95% confidence intervals were reported for pooled data and individual countries.

Results: More boys participated in daily MVPA than girls, yet overall, girls had better PSP than boys. The associations between MVPA and PSP were inverted U shaped. The strongest association for 5 to 6 days of MVPA was among young adolescents who reported very good PSP (odds ratios = 2.3; 95% confidence interval, 2.1–2.4).

Conclusions: Young adolescents with average or better PSP took part in 3-7 days of MVPA in a week, suggesting that some MVPA participation was positively associated with PSP. More MVPA, especially for young adolescents with below average PSP, would be beneficial for physical health and school performance.

Adolescents Get Moving: Active Travel and Physical Activity in Israel

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Background: Habitual physical activity (PA) is a key component in improving health outcomes among adolescents. Active travel (AT), including walking and bicycling, is one method to incorporate PA into daily living. This research examines patterns and associations of AT and PA among adolescents in Israel to better understand motivations for use of AT modes, using data from the Health Behaviour in School Age Children (HBSC) study in Israel.

Aims:

· To describe the prevalence of adolescent AT by socio-demographic characteristics.

· To discuss the association between PA and AT, including PA rates and motivations.

· To discuss the relationship between sedentary behaviors and AT among adolescents.

Methods: The HBSC cross-sectional international study examines adolescent well-being and health behaviors. The 2018/9 HBSC study in Israel included an extended module focused on PA, with questions on AT to and from school (ATS), use of bicycles and e-bikes (N=4409). Statistical analysis includes cross-tabulation analyses to examine associations among two or more categorical variables and comparisons of key variables between groups, as well as weighted logistic regression analyses to investigate predictors associated with the key analysis variables.

Results: Regular use of ATS is reported by 59% of adolescents. Demographics associated with ATS include sex (higher for males, for bicycling, not walking) and age (highest in grade 6), but not socio-economic status. Adolescents who report walking together with parents on a frequent basis were more likely to be ATS users [F(4,4247)= 4.23, p0.01]. Habitual cyclists and ATS users report PA of at least 60 minutes a day more frequently [F(2,4404)= 128.29, p0.001; F(2,4249)= 5.66, p0.01]. Cyclists and ATS users are also more likely to indicate that they are as good or better than their peers at sports [F(2,4404)= 118.67, p0.001; F(2,4249)=8.50, p0.001]. Conversely, cyclists and ATS users were less likely to report high rates (4+ hours daily) of sedentary behavior [F(2,4404)= 30.18, p0.001; F(2,4249)=15.99, p0.001]. The number of reported neighborhood facilities for AT and PA was not associated with adolescent AT. Additional characteristics of AT users, predictors of AT as well as time spent on AT and PA will be presented.

Discussion: Adolescent AT is associated with higher rates of PA and lower rates of sedentary behavior (not necessarily establishing a causal relationship). In contrast with PA, walking to school is similar for males and females and ATS is similar across socio-economic groups. Parents may have an impact on AT behaviors; walking with parents regularly is associated with ATS.

Conclusions: Promotion of adolescent AT may serve as stepping stone to increase PA across different socio-demographic groups. Programs that increase adolescent AT for both school and leisure trips and joint AT with parents are recommended.

SESSION G2: SPORT PSYCHOLOGY

A Brief Literature Review of Psychodynamic Sport Psychology Practice: Ongoing Neglect and Potential Contributions

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Background: Although the psychodynamic perspective is one of the most dominant and important therapeutic approaches in psychology, it is almost completely missing from contemporary sport psychology consultation practice. One of the major advantages of psychodynamic theory is its ability to describe inner psychological states and experience, and its ability to explain overt behavior and performance. Any effective, tailored consultation or intervention with professional athletes, must relate to different aspects of the athletes` functioning – including their inner psychological experiences. Therefore, the necessity of the psychodynamic perspective in sport psychology consultation cannot be underestimated.

Aims: The aim of this presentation is twofold: Firstly, to describe the ramifications of the ongoing neglect of psychodynamic approaches in sport psychology practice; Secondly, to illuminate the value of psychodynamic thinking to sport psychology consultation.

Method: A brief literature review and a critical analysis of the psychodynamic perspective in sport psychology consultation.

Discussion: Assimilating the psychodynamic perspective will add value to sport psychology practitioners, since the contemporary psychodynamic perspective provides an effective technique for fostering psychological resources and for helping athletes approach challenges with greater freedom and flexibility. Furthermore, understanding the inner dynamics and emotional states underlying the athlete`s overt behavior can remove obstacles and foster both the athlete's performance and well-being in and outside of sport.

Mindfulness, Reinvestment, and Rowing Under Pressure: Evidence for Moderated Moderation of the Anxiety-Performance Relationship

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Aims: Our study had two objectives. First, we examined the relationship between dispositional sport-specific mindfulness and rowing performance. Second, we investigated whether dispositional sport-specific mindfulness moderated the moderating effect of conscious processing on the anxiety-performance relationship.

Design: Cross-sectional field study. Participants took part in a competitive race and completed a survey after the race.

Method: Rowers (N = 270) completed post-race measures of mindfulness, rowing-specific reinvestment, perceived performance, anxiety and demographics. We also determined actual rowing performance.

Results: Mindful refocus was positively associated with perceived and actual performance, whilst non-judgmental thinking was only positively associated with perceived performance. Rowing-specific Conscious Motor Processing (RS-CMP) moderation effect on the anxiety-performance relationship was attenuated by high levels of mindful awareness; this was true for both actual and perceived performance. Rowing-specific movement self-consciousness (RS-MSC) moderation effect on the anxiety-performance relationship was moderated by non-judgmental thinking, but only for perceived performance.

Conclusion: Our findings provide initial support that dispositional mindfulness may benefit performance under pressure and that this may be through the attenuation of reinvestment processes. Furthermore, the results demonstrated that mindful awareness and non-judgmental thinking may act on distinct reinvestment processes.

Exploring the Emotional Aspects of Long Distance Runners

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Recreational long-distance running is increasing in popularity worldwide, also giving rise to an increase in running devotees engaging in running training far beyond the health recommendations of the International Health organizations (WHO, 2010). In accordance with Stebbins' study, these amateur athletes correspond to the characteristics of Serious Leisure enthusiasts (Stebbins, 1992). The current study sought to gain insight into the personal, subjective motivations that spur these athletes to both pursue, and remain committed to, high levels of training despite the toll it may take on their lives. The study was conducted with 12 participants, Serious Leisure long-distance runners. Ages of the participants range between 35 and 67, and they were involved in various professional pursuits. Participants were recruited from within the local Israeli running arena. Inclusion criteria included running experience of at least four consecutive years, a running schedule of at least fifty kilometers per week, and having completed at least one marathon. One-on-one interviews were conducted, with the purpose of shedding light on the participants' internal emotional experiences. The interviews consisted of twenty-four open-ended questions, and lasted about an hour. Questions centered on the topic of emotional aspects of the pursuit of running training, including: emotions during and after running training, the effect of running training on other areas and relationships, body and self-image, and personal significance of running engagement. The interviews were transcribed and analyzed. The analysis revealed thirteen themes and sub-themes, which were grouped into eight main themes. These themes were then cross-referenced by gender, age, and seniority.

According to our findings, although physical health motivation was the primary motivation for initial running engagement, running training also enhanced emotional health and well-being factors, such as mood, emotional calm, a sense of mental cleansing, and enhancement of self-image and self-confidence. The study further demonstrated that being a runner became part of the participant's self-identity.

Moral Identity Predicts Attitudes Towards Doping via Perception of Fair Play

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Background: The evidence suggests that athletes' attitudes toward banned substances are one of the strongest predictors of intention to use or indulge in the actual practice of doping. Previous research has found that personal morality was negatively related with doping attitudes. However, less is known about the role of perception of fair play on attitudes towards doping. It is important to note that not only modern testing tools and financial resources are important in the fight against doping, but also public support. Although most adults are against doping in sport, some findings demonstrate that students become more tolerant or less supportive of the internationally promoted zero tolerance policy.

Aims: The first aim of this study was to examine whether moral identity is associated with athlete's attitudes toward doping, and whether perception of fair play mediates this relationship. The second aim was to determine whether these associations differ among non-athletes.

Methods: Participants in this study were 365 university students (49.9% male; 55.3% athletes; age from 18 to 28 years) recruited from universities in Lithuania. They completed a questionnaire measuring moral identity, attitudes towards doping in sport, and perception of fair play. Mediation analyses were performed using the PROCESS 2.16 (Hayes, 2013) separately with athlete and non-athlete students.

Results: The results showed that athletes compared to non-athletes had significantly more positive attitudes towards doping ($t(263) = -2.31$, p .05), but less positive perception of fair play ($t(363) = 2.70$, p .001). Analysis showed that perception of fair play was also significantly related to attitudes towards doping ($\beta = -.51$, p.001). Moral identity had significant direct ($\beta = -.14$, p.001) and indirect effects ($\beta = -.10$, p.05) on athletes' attitudes toward doping. Perception of fair play was a significant predictor of non-athlete students` attitudes towards doping ($\beta = -.49$, p.001). It was found that moral identity indirectly via perception of fair play predicts non-athletes' attitudes toward doping ($\beta = -.08$, p.05).

Discussion: The study provides insight into how a person`s morality and perception of moral values in sport may act as factors related to doping in sport. The study revealed that both the athlete`s moral identity and how he/she perceived fair play are important factors in forming attitudes towards doping. We found that moral identity was not directly associated with non-athletes' attitudes towards doping. However, perception of fair play mediated the relationship between moral identity and doping attitudes, suggesting that if people with a stronger moral identity are also more likely to endorse fair play, and they would demonstrate more negative attitudes towards doping.

Conclusion: Our study suggests that the perception of fair play mediated the relationship between moral identity and attitudes towards doping.

Internal and External Focus in the 60-Meter Sprint Among Children

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Background: External attentional focus has an advantage over internal attentional focus in improving closed motor skills and in tasks involving the use of physical fitness components (Wulf, 2013). This superiority was also found in a short run ((Porter et al., 2015).

Aim: The purpose of this study was to examine whether the external attention advantage was maintained among young learners during a 60-meter sprint.

Method: One-hundred and thirty-four fourth grade students were divided into three research groups: an external focus group (25 boys, 26 girls), an internal focus group (28 boys, 24 girls) and a control group (14 boys, 17 girls). Participants performed a first measurement of a 60-meter sprint and then received an intervention according to their research group. After the intervention, another measurement was performed to examine the effect of the intervention on performance.

Results: Among the girls, no difference was found in the running times before and after the intervention and no interaction was found between the results and the study groups. Among the boys, no significant difference was found between run times before and after the intervention, but an interaction was found between the results and the study groups ($F = 7.022$, $p = 0.002$). Post-hoc tests show that the external focus group ran slower in the second run (12.67 sec) (p 0.05), compared to the internal focus group (11.99 sec) and the control group (11.89 sec).

Discussion and Conclusions: The internal focus improved the boys' performance. That is, young learners produce an advantage in internal focus similar to inexperienced golfers (Perkins-Ceccato et al., 2003). In addition, the attentional system in children is still in the developmental process and therefore the effect of external focus does not work in the same way as in adults.

PARALLEL SESSION G3: PHYSICAL EDUCATION METHODOLOGY AND EVALUATION

Evolution of Pedagogical Content Knowledge in Physical Education: Conceptualizations and Findings

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Quality of teaching relies on the degree of teachers` understanding of the content they teach. This understanding influences decisions teachers make when they plan, execute and adapt their instruction. Developing teaching quality requires a specific focus on teaching practices. These are issues of content knowledge and Pedagogical Content Knowledge (PCK) in physical education. Substantial progress has been made in the understanding of content knowledge and pedagogical content knowledge, and in the methodologies by which these bases can be empirically measured. This presentation will introduce the conceptual and analytical evolution of pedagogical content knowledge in physical education, which has been known and discussed in the past three decades as an abstract heuristic construct. Next, the novel theoretical discriminations, Common Content Knowledge (CCK) and Specialized Content Knowledge (SCK) will be presented and explained. Finally, research findings will be presented to illustrate the empirical knowledge that has emerged in the empirical investigation of CCK and SCK in international countries.

Evaluating the Temporal Location of Feedback Provided in the Practicum Setting

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Most researchers and teacher educators consider feedback to function as a consequence and advocate for its immediate delivery in the form of "on-the-spot" supervision or after-session conferencing. The literature suggests that when compared, on-the-spot supervision is found to be more effective than after-session conferencing. Despite these findings, most supervisors are still implementing after-session conferencing, probably due to the limited feasibility of performing "on-the-spot" supervision when supervening teachers are implementing whole class or small group instruction. One way to overcome the feasibility issue of "on-the-spot" supervision and still providing feedback effectively, is by providing feedback before the next opportunity to perform. The purpose of this study was to evaluate the effectiveness of feedback provided (a) after the teaching session, versus (b) before the following teaching session on (1) accuracy of the error correction procedure and (2) rate of specific praise of undergraduate students implementing Direct Instruction (DI) to a small group of children. An adapted alternating design was utilized to evaluate the effects of feedback in its two forms, on the preservice teachers' performance. Results of the study suggest that feedback provided before the teaching session was more effective in improving teaching skills than feedback that was provided after the session. These findings suggest that feedback may function primarily as an antecedent to future performance and not necessarily as a reinforcer/punisher for past performance.

Assessment of Physical Education Teaching Methodology of the Secondary School Level in the Colombo District

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The assessment of "teaching methods" is widely considered in the field of education as one of the measurement tools of successful teaching. This research, focused on the assessment of Physical Education teaching methodology, attempted to determine which factors can be used as tools for building positive teacher-student relationships. The aim of the study was to assess the effectiveness of the practices in accordance with accepted teaching methodology adopted in teaching Health and Physical Education, and to compare the guided methods with current practices of Physical Education teaching in Sri Lanka. An in-depth literature assessment was used to formulate a conceptual model of the observations and to broaden theory.

A qualitative research design was applied to examine the teaching methodology of secondary schools in the Colombo district teachers. The study population was the Health and Physical Education subject teachers who are currently teaching in the Colombo district. Thirty-one Health and Physical Education teachers (N=31) representing thirty-one schools (1 AB school type) in the Colombo Education Zone took part in the study, using a purposive sampling method. Semi-structured interviews were conducted in order to collect data. The study provided conclusions after thematic analysis was used to analyze data and examine themes within the data.

The study revealed that the Physical Education teacher preparation education, the teacher's innovative ability in application of different teaching methods for teaching both the theory and practical aspects of the subject, the curriculum, the teacher-student ratio per classroom, the facilities, and a suitable background were all identified as key elements of a successful teaching method. In addition, the results indicated reasons and factors affecting poor teaching methodology of the Health and Physical Education teachers of the secondary schools in the Colombo district.

Test-Retest Reliability of a Rhythmic Ability Test in Youth Volleyball Players

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Background: Coordination abilities participate in all forms of movement and activities, from the simplest to the most complex. Coordination consists of several components, and one of them is rhythmic ability. Children produce rhythmic patterns during their daily lives in activities such as walking, running or crawling. Furthermore, in volleyball, the offense has its own rhythm which players in the team must follow if they want to be mutually aligned. But in addition, the opposing team in the block and backcourt defense must adapt to the rhythm of the opponent's attack. Correspondingly, rhythmic ability is essential not only for volleyball but in physical activities in general.

Aim: To determine the reliability of the Movement Rhythm Observation Test (Šimonek, 2014). The author suggests a modification of the test for elementary school children in such a way that instead of rope skipping the participants imitate rope skipping in a time of 20 seconds in a self-determined tempo and then try to repeat the same number of repetitions at the same time. Deviation from 20 seconds is a criterion of success.

Methods: Twenty-eight youth female volleyball players, mean age 11.23±0,67 years, were tested twice in a 14-day interval by the same measurer. ANOVA repeated measurements were used to detect any systematic bias between the individual trials. The relative reliability was analysed by the intraclass correlation coefficient (ICC). The absolute reliability was analysed using standard error of measurement (SEM), the smallest detectable change (SDC) and the smallest worthwhile change (SWC).

Results: ANOVA with a 2-way (factorial) repeated measurement revealed no significant difference between six measurements in two days ($F=0.70$ $p=0.50$). A fair level of intraday reliability was reported (0.49). Measures of absolute reliability indicate that the measurement error was minimal (SEM=1.92; SDC=5.30; SWC=1.48).

Discussion: A satisfactory level of the reliability of the Movement Rhythm Observation Test has not been established. It can be assumed that imitations of rope skipping movements were confusing, and the children were so disturbed that they could neither establish a unique rhythm of performance in the first part of the test, nor repeat it in the second part, in which they try to execute the same number of repetitions in a given time. Also, due to the participants' age, the children occasionally lost their sense of jump and arm movement which led to variations.

Conclusion: The results obtained show that this type of test has limits in the rhythmic ability testing of elementary school children. It can be suggested to use ordinary jumps with arm swings. Another solution is to use a rope in this group when performing the test. In that case, it is necessary to first improve the mentioned skill in children.

Changes in the Requirement System of Hungarian School Swimming Lessons in Light of the Curricula

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Background: Studies indicate that the practice of swimming lessons in public education is characterized by changes. In some countries changes in the approach occurred decades ago. Core changes can be found in the aims, which are examined by practical tests at the end of the courses.

In Hungary, changes were made concerning swimming lessons in public education since the first documents in 1805, while today the development of environmental factors and various national swimming education programs help more children to acquire swimming skills within the school framework.

Aims: How have the curriculum requirements for swimming movements changed in Hungary and what is the training goal? With what requirements does the swimming education process end? Our research aims to compare the curriculum requirements of primary school swimming education with different curricula, to determine how consistent they are with the findings in the foreign academic literature as well as in the 15 competencies representing water safety.

Methods: We examined the curriculum drafts and the curricula of primary schools for elementary and civic schools published in public education from 1918 to 2020, by content and source analysis (n = 45). We examined these in the light of the context and the output requirements, and the requirements of the subject of physical education, including the keywords related to swimming. We compared the results with the content definitions of water competencies.

Results: Documents were grouped according to which components represent water safety and swimming competence in curriculum requirements. Of the 45 documents, 10 did not include swimming instruction at all, while 26 documents could be further examined based on competencies. The fewest competencies are found in the 1932, 1963, 1973, 1974 plans, while the most are found in the 1941, 1943, and 1992 documents. The rescue competence is shown in 1926, 1941, 1943, the 1970s, 1992, and 2020.

Discussion: Summarizing the positive development of infrastructural conditions and the introduction of various educational support programs is not parallel with the existence of water safety competencies that could be filtered out based on curricula. A previously issued curriculum contributed to the quality and effectiveness of swimming lessons with more detailed, goal-oriented tasks and requirements. It can be said that the output requirement of swimming education in Hungarian public education focuses more on swimming competencies than on water safety competencies.

Conclusion: We could consider a form of practice-oriented training where teachers develop children`s water safety and swimming competencies in addition to the latest methodological trends. Training would ensure that from the playful habituation to water, through mastering successful swimming techniques and developing water safety competencies, drowning can be reduced.

The Effects of Mindful Movement Intervention on Academic and Cognitive Abilities among Kindergarten Children

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Evidence suggests that acting mindfully – that is, stressing the purpose of the action and monitoring its current state, may benefit health, well-being, and academic achievements. We sought to investigate the underlying motor abilities affected by mindful-movement (MM) intervention, which mediates its effect on academic achievement among kindergarteners. To this end, 160 children aged 3–6 years participated for 145 days, which included pre- and post-intervention tests of verbal and non-verbal intelligence, namely language, mathematics, and Raven matrices. The three conditions consisted of MM (integrating movement in academic learning), MS (movement-for-its-own-sake; promoting movement without promoting awareness), and control (regular academic environment activities). Results indicated that, compared to MS and controls, MM improved verbal and non-verbal intelligence. The effect on verbal intelligence was mediated through static balance performance, whereas the effect on non-verbal intelligence was mediated by dynamic balance performance. Possible mechanisms accounting for these mediation effects are discussed.

PARALLEL SESSION G4: EMOTION IN TEACHER EDUCATION – AN ALTERNATIVE APPROACH FOR TEACHER EDUCATION AT RISK

An Innovative Dyadic Art Therapy Working Model for Families with Multiple and Complex Needs

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Returning Home is a pilot therapy project that runs throughout the final year of the out-of-home day-care facility at Ahava Child & Youth Village with children who are expected to fully return home. The last year is a confined time-frame that is being used as a window of opportunity to connect with, enhance and empower these children and their families in preparation for their return home.

The purpose of this pilot project is to promote positive parenting practices, strengthen connections and enhance emotional support to the families whose children are in the daycare boarding service, are in their final year and are expected to return home to stay at the end of that year. This working model gives a voice and space for an emotional dialogue between children and their families in care services, using a variety of art media.

A large percentage of the children in AHAVA Village are the first or second generation of migrants to Israel from countries around the world. These are low-functioning families with complex needs who, in addition to facing daily challenges, may also be confronted by cultural, lingual and emotional issues. Needless to say, all these factors endanger the parent-child relationship and the free flow of emotional expression. The article reviews existing dyadic models (Ben Aharon et al., 2001; Gavron, 2013; Manzano et al., 1999).

The Impact of Physical Education Teaching During COVID-19 on Social Emotion, Attention Deficit Hyperactivity Disorder (ADHD) and Physical Fitness of Elementary School Pupils

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Background: COVID-19 invaded our lives in 2019 and throughout 2020, and severely affected the entire world in all areas. Universities, colleges and educational institutions were required to close their gates for extended periods, and to adapt to new teaching methods based on small groups and capsules with limited exposure to staff members. Most teaching became distance learning from home, using multimedia features. In ordinary times, Physical Education (PE) was the profession that relieved students from prolonged sitting in a chair, allowed them to discharge stored energies, and to improve physical, social and cognitive skills while maintaining their physical and mental health. Research (Czuckermann, 2016), sustained by others, found that a fencing training program and PE had a significant positive effect on improving physical fitness as well as improving ADHD in children.

Aim: To conduct a review from PE teachers' perspectives that reflects how physical education is taught in elementary schools during the COVID-19 period, and how it affects the implications for students with ADHD in terms of physical, social and academic functioning, and to examine the development or disengagement of a teacher-student relationship or social relationships with classmates.

Methods: The study population consisted of 26 PE teachers in elementary schools in the State of Israel. The study period refers to the COVID-19 outbreak during the second third of the 2020 school year and during the 2021 school year, and relates to teaching during periods of full and partial lockdowns using different distant learning techniques. The study is based on questionnaires and personal interviews referring to the way PE is taught.

Results: In many schools, PE teachers were qualified as professional teachers due to system constraints and were assigned a pod, teaching a group of up to 13 students. In other cases, teachers worked with singular classes. Thus, there was considerable difficulty in the functioning of students suffering from ADHD, both in their studies and in the ability to develop normal social relationships with other students and in student-teacher communication.

Discussion: According to Czuckermann (2016), and data from many other studies, PE has a positive effect on the health and functioning of students with ADHD. The imposed reality of COVID-19 caused many schools to suspend PE hours, leading to an increase of ADHD comorbidities such as decreased learning ability, loss of interest in studies, decreased self-confidence and self-esteem, obesity, and social-emotional problems. The situation addressed the education system decision-makers regarding the importance of PE for the benefit of all students and those suffering from ADHD, on a daily basis and especially during the COVID-19 period.

The Emotions Embedded Within Educators' Holistic Professional Development

Hily Rosenblum

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The present lecture aims to highlight the role of emotion in education. In recent years, emotion has gained increasingly greater attention in the study of professional development, at least in part because education is an emotional practice.

There are two contrasting perceptions of educators' development. One is the traditional approach that focuses on the acquisition of theoretical and pedagogical knowledge in education, as well as ethical aspects and intellectual involvement (Korthagen, 2016). A review of professional development programs reveals that this approach focuses on procedures for the purpose of improving teaching skills and methods (Robinson, 2019).

The second is the alternative approach to educators' development (Furlong & Oancea, 2005) that is based on a humanist-holistic philosophy in education (Buber, 1958; Maslow, 1998), and focuses on the relationships between the personal, interpersonal, and professional dimensions in educators' training (Oplatka &Iglan, 2020). This holistic approach is grounded in the acquisition of teaching techniques as an integral part of professional development, along with development of the personal dimension – i.e., emotion.

Researchers point out that educators whose training is based on the traditional approaches operate on a technical level, rather than on a personal level (Allender & Allender, 2008). Moreover, emotion is absent (Rosenblum ,2015) even in educator teacher training models (Peter and Walter, 2010) that integrate techniques from the personal dimensions (such as drama, movement and guided imagery) and are based on educational and experiential theories (Gardner, 1993). The gap of knowledge that this study aims to address is the understanding of the impact of embedding emotion within professional development of educators, and its contribution to teaching.

The research questions in this study, therefore are: (1) How do educators perceive holistic-integrative professional development based on personal development? (2) What is the impact of the holistic-integrative personal and professional development on educators' practice in general, and on construction and regulation of their emotion in teaching in particular?

The current research will increase our knowledge concerning the complex connection between personal and professional development, and in doing so we will enhance our scholarship concerning the role of emotion within professional development and its contribution to holistic practice.

The Mind Thinks Via the Body – Emotions in Motion

Nurit Cederboum

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The lecture will deal with the presentation of an academic artistic session entitled ‘Talk to the body and talk within the body’, as part of the course ‘The language of art as a primary channel of expression’, a fundamental course in the art and movement therapy program at the Academic College at Wingate.

The session will present the link between verbal language, body language, movement, and creative activities, together and separately. We will seek to define in a number of ways the concept of emotions and examine how it is expressed within a creative activity that has multidimensional emotion and movement. The movement that the body creates expresses excitement, which produces a dynamic movement of emotions within intrapersonal and interpersonal pathways.

We will discuss the irrational processes that we all feel, those that do not necessarily obey the laws of logic and arise from the depths of the inner integration of emotions and thinking. It is a two-way and two-valued process – the creative processes stimulate the emotions and allow them to exist, and the product generated from this process evolves into additional emotions – a process of creation that stems from emotions and at the same time also generates emotion.

We would like to show how we combine spontaneous and intuitive processes with thought and organization processes in which we can, according to Descartes` approach, be “the master of emotions and manipulate them very skillfully”, an activity which beyond being emotional can also be called ‘intellectual joy’.

In this lecture we observe visual images, photographs and videos depicting the artistic activity for which we created a special room for creation as an ‘enabling environment’. We brought ourselves, ‘body and soul’; we acted with our bodies to create; we used our bodies as an object for creation.

In terms of the language of art we dealt with drawing and painting which are part of built-in thinking, ‘the intellect’, and a work of color representing the ‘emotion’ (Charles Baudelaire). A dialogue and discourse are created between a line and a stain that expresses this, thus insisting that the combination of logic and emotion reflects unity. As Damasio points out, “those structures within the brain that are biologically responsible for an emotional response are also necessary for cognitive processes to exist”.

Finally, we show how ‘the mind thinks via the body`, and integrates physical actions, movement and artistic activity.

PARALLEL SESSION G5: SENSORY MODULATION AND PSYCHOMOTOR EMPOWERMENT

Adapted Fine Motor Activities for Children with Developmental Coordination Disorder (DCD)

Limor Shalom Marco

Adapted Fine Motor Activities, Kadima, Israel

"Fine motor tasks" refers to a set of movement skills that require control of the small groups of muscles, which work in coordination in order to achieve motor accuracy and hand-eye coordination. Many activities in daily life, like grasping utensils, cutting, dressing, buttoning, tying laces, opening a faucet, opening a door, drawing, writing, and threading, are done with the palms and are the ones that allow the child and adult to adapt to his/her environment, learn, play and adapt to a vast array of tasks. Proper development of fine motor skills leads to good execution of daily skills and skills that are needed for learning, such as drawing and writing.

In regular and special education, there are children diagnosed with developmental coordination disorder (DCD). For many of them the acquisition of fine motor skills is a difficult, frustrating and tedious process. These children are unable to achieve the level of expertise expected of children their age. Failure to provide appropriate care for children who have difficulty performing fine motor skills leads to the onset of accompanying difficulties in the behavioral, emotional, perceptual-cognitive, and performance-related areas. It is our responsibility as parents and educators to make efforts in order to cultivate fine motor skills for all children, and especially for those with DCD.

In the presentation a variety of unique activities for improving fine motor skills will be displayed. The activities are aimed at cultivating palm and fingers differentiation, finger opposition, eye-hand coordination and accuracy, in a pleasant way.

The Effect of Being in the Center

Shulamit Regev

Physical Education Department, The Academic College at Wingate, Netanya, Israel

Two years ago, we set up the first Elai's Place, a coffee palace & bakery for Elai Regev, a 22-year-old diagnosed with Autism. Educational frameworks for people with special needs end at the age of 21; the future for them is blurred and their development is at great risk, as there are no frameworks fully tailored to the needs needed to empower and realize their potential in adulthood.

From an early age, I noticed Elai`s passion for baking – he was fascinated by this world and was always ready to collaborate as we made a cake and engaged in the kitchen. And so, by the age of ten we found a bakery in the area where he could spend time twice a week after school to absorb and be exposed to the field.

As the time for school came to a close, it became clear to me that a place that would allow him the optimal growth and development in the field of baking, as well as exposure to people and a genuine integration into society, would be a place where he was the center of power and work. That was the reason why we decided to open a coffee place with the clear goal of giving Elai an equal opportunity in adult life – an equal opportunity to be a vital and active contributor in the community.

Seven months after the venture was opened, Elai had made a tremendous leap in all areas – personal, professional and independent. The speech therapist, occupational therapist, and all other therapists were replaced by the café staff, and they are the one that have enabled him to actually integrate into the community. The place has become an inspirational space for business educators and the whole country. Communication and opinion leaders come to the cafe to see and learn more closely how real integration happens, where the person with the special needs is in the center of the business and pushes the entire community around him to adopt new values of mutual responsibilities while inspiring the whole community. A year ago Elai's Place moved to Sarona Market in the big city in Israel.

Incorporating iPads in Training Students Qualifying in Special Physical Education and Sports Therapy for Cultivating Motor Skills among Students with Special Needs

Orly Yazdi-Ugav
Orly Alshech

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One of the challenges facing physical education teachers is to advance the level of mastery of students with special needs and communication problems in learning and performing motor skills. These skills are required in play, learning, exercise and leisure time. Mastery of these skills contributes significantly to improving physical fitness, general well-being, utilization of leisure time, and social integration. In many cases, special education students are characterized by difficulties manifested in the comprehension and execution of verbal instructions, sequence perception, and unwillingness to cooperate. As we know, integrating iPads into teaching students with special needs increases motivation and also provides a visually and auditory supportive means of understanding movement sequences and constructing a sequence of activities required in performing motor skills. In recent years, many college courses have integrated technological tools in teaching education, however they are not usually used in learning specific subjects such as physical education.

In a qualitative study conducted between 2017 and 2019, we examined the process of training students from a special education and sports therapy qualification program in an innovative combination of two courses taken in parallel: one dealt with the analysis of motor skills and the development of adaptations for specific motor difficulties. The second course focused on content development and application use by using iPads in order to improve the understanding required in performing the skills and in cultivating interpersonal communication in the population of students with intellectual disabilities and autism.

The aim of the study was to examine the effectiveness of combining iPads to train students in teaching motor skills to students with intellectual disabilities and autism. A qualitative research approach was applied between 2017 and 2019 in order to examine the initiative of improving the teaching of motor skills through iPads. The sample included 40 students from a special education and sports therapy qualification program at The Academic College at Wingate.

The research tools for evaluating the contribution of the initiative for student training focused on analyzing texts from student reflections and analyzing videos from the practical experience of both courses. The findings showed that the initiative contributed to the improvement of the teaching skills of the students in the program, and that the process was intriguing and challenging for them. The study showed that in order to implement a procedure as in this initiative, it is important for students to have access to technological tools (iPad), cooperation and coordination between the course instructors, experience during the course in analyzing skills and building motor adaptations, while developing verbal and visual adaptations using the iPad.

Principles of Tailored Emotional Instruction (TEI) in the Disciplines of Writing and Sensory Integration

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Tailored Emotional Instruction (TEI) takes into account interpersonal differences and adapts itself to the learners' profile according to their various attributes and needs, through constructing optimal teaching methods for all learners in the classroom. This teaching style is based on principles of high-level recognition, efficacious dialogue, psycho-pedagogic knowledge, mapping and adaptive teaching for the learners. The approach focuses on complete attentiveness towards the learner, collaboration between the learners and teacher in choosing learning objectives and the manner in which these are to be attained though enhancing the learners` sense of capability and providing success-oriented experiences.

The principles of this approach are crucial for all teachers. It is imperative that teachers receive comprehensive training regarding the approach, including on- and offsite demonstration of the various teaching methods corresponding with teachers' diverse learning styles a well as the students'. In addition, with the assistance of an instructor, teachers will learn to conduct an ongoing liaison between parents, students and school staff.

In this lecture, we will demonstrate the principles of the approach in the disciplines of writing and sensory integration. Writing is a vital discipline for learning. Students who have difficulties in this discipline will find it difficult to fulfill assignments in school, which can negatively affect their sense of capability. Research findings of a study conducted in an elementary school, combining meta-cognitive intervention according to the TEI approach, will be presented.

PARALLEL SESSION H1: ASPECTS OF SPORTS NUTRITION AND PHYSIOLOGY

Making Weight in Amateur Wrestling: A Healthy Approach

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Any physical activity requires a certain amount of fuel to be combusted in the body to accomplish various daily life tasks. When it comes to sports this process gets magnified and intensified, due to the desired precision, dexterity, competitive intensity and other surrounding factors, natural as well as artificial, such as the weather, and expectations of the coach, teammates, family, friends and, of course, fans.

Wrestling is not an exception. The age-old practice of making weight or weight management makes it more challenging and physiologically taxing on an athlete's body. Wrestlers have been using various unhealthy methods, sometimes proving fatal, to simultaneously cut down their natural weight to wrestle in a lower weight category and to find some advantage during competition. Reduced daily calorie intake, training strenuously while wearing plastic suits in hot temperature to increase sweating, saunas, hot boxes, steam rooms, compromised fluid intake, use of laxatives and even sometimes donating one or two units of blood are some prevalent ways wrestlers all around the world use indiscriminately to cut down their weight to lower weight categories. While some studies found it advantageous as far as speed and agility are concerned, others found a loss of strength and endurance along with some serious life-threatening side effects.

Despite so much criticism, the malpractice of rapid and excessive weight cutting was practiced until 2017-18 when the United World Wrestling (UWW) framed new rules of separate weigh-in and matches on two consecutive days for each weight class. Now, to some extent, new weigh-in and competition rules discourage wrestlers from reducing excess weight, and this positive change has led to the overall good health of wrestlers.

Many researches have documented some advantages of a slow weight loss program, such as not more than 8% of total body weight at the pace of not more than 1.5% per week, , and this has ultimately led to some healthy and scientific practices under the supervision of a medical practitioner and a nutritionist.

This presentation will shed light upon various weight loss practices prevalent among wrestlers, their side effects along with nutritional strategies, and exercise regimes to counter those ill effects.

Weight Change Adjusted Equations for Assessing Resting Metabolic Rate in Overweight and Obese Adults

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Background: Although over one hundred equations have been developed to predict the energy expenditure of individuals, none are sensitive to weight change in the assessment of resting metabolic rate (RMR) before and after weight loss.

Aim: To formulate prediction equations for overweight and obese individuals and to compare their accuracy with existing prediction RMR equations before and after weight loss.

Methods: This is an historical prospective study. Participants included 39 overweight and obese men (n=21) and women(n=18), 25-60 yrs, with 27 BMI 40 kg/m2 and after losing 10-20% from baseline on a diet and professionally tailored exercise prescription for at least three months. Pre and post weight loss measured RMR results were compared to estimated RMR using several existing prediction equations: Harris and Benedict (HB), Ravussin and Bogardus (RB) and Mifflin et al .(M) prediction equations. To improve the accuracy of these prediction equations, we suggest new equations adjusted for weight loss, based on measured RMR and evaluated for their accuracy:

Men:

RMRbefor=132.82+(28.37×W)-(250.59×H)+(9.46×FFM)-(2.87×A)-(25.93×FM)

Women:

RMRbefor=553.97+(16.60×W)+(1033.84×H)-(13.73×FFM)-(10.93×A)-(19.67×FM)

RMRafter=552.85+(7.29×W)+(340.73×H)+(8.93×FFM)-(5.06×A)-(5.02×FM).

Results: Pre and post weight loss data indicated: significant fat reduction in both genders; reduction in free-fat mass only in men; and a significant decrease in measured RMR only in women. Our suggested equations were the most accurate and closest to measured RMR in both genders, in comparison to the Harris and Benedict, Ravussin and Bogardus, and Mifflin et al. equation results. Estimated RMR using the latter equations was significantly lower than measured RMR in both genders at pre and post weight loss (P=0.01).

Conclusions: This study highlights the need for adjusting RMR equations before and after weight loss in overweight and obese individuals. Further research is needed to validate our suggested equations.

Identifying and Assessing Views Among Physically-Active Adult Gym Members in Israel on Dietary Supplements

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Background: Sports dietary supplements (SDS) are available for sale in public places, including sports clubs. Although there is uncertainty regarding their safety, many gym members who regularly work out consume them. The present study aimed to identify the approaches and perspectives of the public who work out in gyms and take dietary supplements. It examined how professionals view sports dietary supplement consumption, and how they communicate this issue to gym members. The literature discusses the prevalence of SDS use among athletes, but rarely discusses or compares between the risk perceptions of gym members, trainers, and dietitians, who represent the physically-active general public, regarding SDS.

Methods: We conducted constructivist qualitative research in semi-structured one-on-one interviews (n=34). We held in-depth interviews with a heterogeneous population of adult gym members who take dietary supplements (n=20), and with dietitians and fitness trainers (n=14).

Results: The main finding was a gap in risk perception of dietary supplement use between dietitians, gym members and fitness trainers. There was a low risk perception among dietary supplement consumers. Trainers believed that benefits of supplement consumption exceeded the risk, and therefore they did not convey a message to their clients about the risks. In contrast, dietitians interviewed for this study renounced general use of sports dietary supplements and doubted whether trainers had proper nutritional knowledge to support it.

Conclusion: Lack of awareness of the possible risks of diet supplement use suggests that there is a need for communication on this issue. We recommend that professionals (physicians and dietitians) be present in sports clubs that sell such products in an uncontrolled way.

Study on Body Composition of Height-Weight Matched Male and Female Athletes

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Aim: The purpose of the study was to assess the body composition of height-weight-matched male and female athletes.

Methods: Sixty male and female Indian national level athletes, age between 20-25 years, height (157.5cm - 162.5cm), weight (52.5kg - 55.5kg) participated in the study. Body composition variables were body mass index (BMI), body fat percentage (% BF), waist-to-hip ratio (WHR), lean body mass (LBM), and fat mass (FM). Data were collected following ISAK guidelines (ISAA, 2006). Mean, standard deviation and independent t-test were the statistics used for data analysis and interpretation of data. The level of significant difference between groups was set at 0.05 level (p0.05).

Results: Among the body composition variables, the height-weight-matched athlete, males and females respectively, were: BMI - 20.72±0.62 kg/m2 and 20.96±0.76 kg/m2 (p = 0.19), %BF 9.80±2.29 % and 25.49±2.41 % (p = 0.00), WHR - 0.85±0.03 cm and 0.76±0.04 cm (p = 0.00), LBM 48.59±1.67 kg and 40.20±1.10 kg (p = 0.00) and FM - 5.28±1.23 kg and 13.77±1.51 kg (p = 0.00). Differences between the two groups were observed in %BF, WHR, LBM and FM. However, there was no difference in BMI.

Conclusion: Height-weight-matched male and female athletes had body composition differences in body fat percentage, waist-to-hip ratio, lean body mass and fat mass.

The Dangers of Blood Doping in Sports: An Overview

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Blood doping is defined as the misuse of certain techniques and/or substances to increase the red blood cell mass (RBC), which allows the body to transport more oxygen to muscles and therefore increase stamina and performance in sports. Blood doping became popular in the 1970s among elite athletes and declined at the end of the 1980s with the introduction of recombinant erythropoietin. It includes three widely known substances or methods, namely injections of erythropoietin (EPO), blood transfusions, and injections of synthetic oxygen carriers. According to the World Anti-Doping Agency (WADA) blood doping is prohibited at all times under WADA's List of Prohibited Substances and Methods. The aim of this research article was to present an overview of the available evidence which shows the side effects and the serious health risks for athletes who may use this method of doping to enhance their physical performance. I searched the available electronic databases in order to obtain the necessary data. The results of the search identified that blood doping can stop the heart during sleeping and increases blood pressure; it can also spread infectious diseases such as hepatitis and HIV. Also, blood doping raises the risk of blood clots and pulmonary or cerebral embolism. In addition, the use of blood doping as an ergogenic aid for athletic competition is unethical and unjustifiable.

The Association between Vegetarianism, Nutritional and Emotional Status and Blood Chemistry in Subjects Participating in Aerobic Activity

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Background: A vegetarian diet reduces the risk factors for morbidity and mortality, and therefore is considered to be a healthy dietary alterative. However, it is important for vegetarians who are athletes to know the advantages and disadvantages of their diet compared to non-vegetarians.

Aim: To assess whether there are differences in the nutritional, physiological, and emotional status, as well as in risk for diabetes, between vegetarian and non-vegetarian people who engage regularly in aerobic activity at least three hours per week as compared to less than two-hours of aerobic activity per week.

Methods: This is a cross-sectional study with a "snow ball" sampling. Participants filled out a self-administered lifestyle questionnaire, reported their weight and height, and were referred for blood tests.

Normality of the distribution was examined by Q-Q plot. Mean and standard deviation are displayed for variables with normal distribution. Frequencies and percent for categorical variables are represented. ANCOVA was performed (gender X group) using age as a covariance.

The final numbers of participants included in the study were: 53 active vegetarians, 47 active non-vegetarians, 49 inactive vegetarians and 45 inactive non-vegetarians.

Results: Vegetarians included 73 women and 29 men. The non-vegetarian group included 55 women and 37 men. Total cholesterol as well as LDL-cholesterol (LDL-C) were highest in non-active, non-vegetarians (178±31 p=0.08, 107±24 p=0.03), respectively. Creatinine was slightly but significantly higher in non-vegetarians (p=0.01). Active vegetarians had the lowest ferritin levels 44 ± 42.6 ng/ml compared to all other groups p=0.09. They also reported the highest prevalence of vitamin and mineral supplement intake n(%): 31(68.9) compared to 13(24.5) in non-active non-vegetarians.

Conclusions: In this cross-sectional study, being either vegetarian or non-vegetarian but being active, was associated with a reduced level of feelings of depression. Active vegetarians have a better blood profile but should be followed up to prevent deficiencies and the use of unnecessary supplements. Endurance activity is associated with consumption of gels and isotonic supplements.

PARALLEL SESSION H2: PERCEPTION BASED RESISTANCE TRAINING MODELS

Exercise-Induced Hypoxemia among Endurance-Trained Athletes

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It is well documented that in endurance-trained athletes performing heavy intensity exercise, arterial oxyhemoglobin saturation (SaO2) may fall below resting values. This phenomenon, termed exercise-induced arterial hypoxemia (EIAH), is common among male and female athletes, regardless of age, with prevalence rates reaching up to 70% in certain populations of highly-trained athletes. EIAH is manifested as excessive widening of the alveolar-arterial PO2 difference (D(A-a)O2) due to a substantial fall in arterial partial pressure of O2 (PaO2) and a rightward shift in the haemoglobin-O2 dissociation curve. In athletes, the reduction in PaO2 has been mostly attributed to ventilation-perfusion mismatch, an inadequate hyperventilatory response during exercise, and diffusion limitations such as incomplete pulmonary gas exchange and reduced erythrocyte pulmonary transit time. A 3-4% fall in SaO2 below resting levels has been suggested as a threshold for significant negative effects on aerobic capacity measures such as maximal O2 uptake (VO2max) and time-trial performance. Prevention of EIAH by maintaining Hb-O2 saturation at resting levels has been shown to improve performance, likely by mitigation of locomotor muscle fatigue. Yet, there remains a gap in the literature as to the physiological consequences of EIAH. For example, whether the occurrence of EIAH is associated with more pronounced increases in stress and immune-related markers following a bout of prolonged (20 min), heavy intensity (80-85% VO2max) exercise is yet to be determined. This question is of high relevance for endurance athletes who routinely perform heavy-intensity exercise for 20-30 min (e.g., “tempo runs”) and could experience, on a regular basis, an exaggerated inflammatory and/or stress response.

The Effect of Time-Restricted Eating Combined with Resistance Training on Body Composition and Cardiometabolic Health

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Intermittent fasting (IF) is a broad term that encompasses a variety of programs that manipulate eating occasions by utilizing short-term fasts to improve body composition and overall health. A limited number of controlled trials have tested the effect of time-restricted eating (TRE) on body composition and cardio-metabolic health among active or exercising individuals. Studies at the level of the skeletal muscle show that a single bout of RT increased both MPS and muscle protein breakdown for up to 48 h, but while the relative stimulation of MPS was greater than MPB, MPB still exceeded MPS in the fasting state, resulting in no net muscle protein accretion. Since TRE programs necessitate prolonged periods without amino acid-induced stimulation of MPS, a question can arise whether TRE eating patterns with RT in middle-aged men may be beneficial for FFM and strength. This has implications for many populations, such as the elderly, who wish to counteract or reduce the loss of muscle mass.

In this lecture I will discuss the benefits of TRE, and the possible effect on metabolic diseases and muscle mass among strength trainers.

Rate of Recovery from Prolonged Exercise: Evidence-Based Practice

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Exercise training in unaccustomed loads or high intensity results in muscle damage. Its consequences start from production of pro- and anti-inflammatory cytokines to reduction in exercise capacity. The majority of research investigating the effect of aging on the rate of recovery has primarily focused on comparing older with younger adults in strength training. Whether the decline in physiological response following prolonged exercise starts in middle age, remains unclear. Therefore, the primary objective of this study was to evaluate differences in rate of recovery between young (Y) and middle-aged (MA) men. A total of 28 participants completed 60 minutes of downhill running at 10 degrees. Changes in muscle micro-damage using MRI, inflammatory markers, and performance assessments, were measured before and during 48 hours following the downhill running. The young group (age 26.1±2.9) were significantly lower in baseline measures such as waist circumference, years of training and experience in downhill running, and were significantly higher in maximal heart rate ($p=0.05$), as compared to the middle-aged group (age 43.6±4.01). Changes in performance decreased at IP, 30P, 120P 24H and 48H in both age groups ($p=0.05$), muscle damage markers showed significant differences compared to baseline in CK at IP, 30P, 120P 24H and 48H in both age groups, and in LDH at IP and 30P in the MA group and at IP in the Y group. Cytokine measures indicated a significant increase at IP and 120P in the MA group compared to baseline, but no significant increase in IL-10 and IL-1RA in either groups. TNF-a decreased significantly from baseline at 30P and 48H in the MA group and at 48H in Y group. This finding was not compatible with the notion that middle-aged runners have a lower rate of recovery compared to young-aged runners following downhill running. As long as athletes are physically active, the physiological changes do not fully occur as expected with aging.

The Effect of Exercise Training on Liver Fat and Fibrosis

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Non-alcoholic fatty liver disease (NAFLD) is a major health burden, affecting 25% of the global population. NAFLD can progress to non-alcoholic steatohepatitis (NASH), liver cirrhosis, and sometimes liver cancer, and is associated with an increased risk for type-2 diabetes and cardiovascular disease. The fibrosis stage is the strongest histologic predictor for disease-specific and overall mortality or for the need of liver transplantation in patients with NAFLD. Liver biopsy remains the gold standard for histological evaluation of NASH and fibrosis, but its use is limited due to its invasive nature and sampling error. Currently, the most reliable noninvasive method for liver fibrosis diagnosis and quantification is Magnetic Resonance Elastography (MRE). Several studies have reported that a comprehensive lifestyle modification based on reduced energy intake and increased physical activity for 6-12 months induced improvement in liver enzymes and metabolic parameters, reduced liver fat concentrations, and reduced histologic steatosis and necroinflammation. Exercise without weight loss produces a 20-30% relative reduction in liver fat. Different modalities of exercise (aerobic exercise, resistance exercise, or high-intensity intermittent exercise) appear to have similar effects on liver fat. However, most exercise trials to date were small and based on short-term interventions, between 8 and 12 weeks. Even though exercise is recommended as part of the treatment for NAFLD, there have been no large-scale studies to guide healthcare practitioners in prescribing specific exercise programs for the management of NAFLD patients and to promote health among people with obesity and metabolic syndrome.

Long-Term Metabolic Adaptations to Physical Activity

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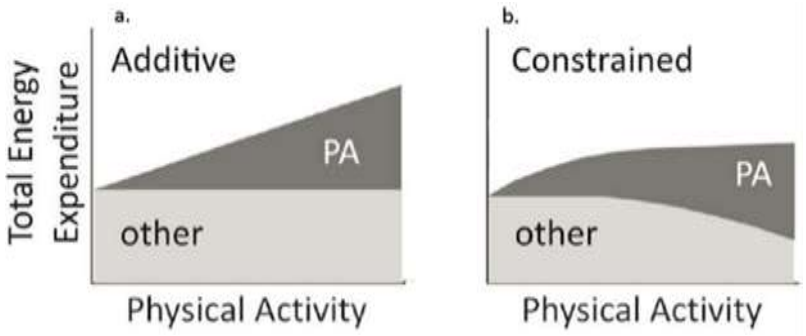
The predominant view on the effect of exercise on total energy expenditure (TEE) was based mainly on exercise intervention studies, which showed a linear relationship between the amount of physical activity (PA) and TEE, known as the additive model (Fig. 1a). According to the additive model, increased PA will result in elevated TEE in a dose-response manner. These results were the basis for population health recommendations to incorporate exercise as a weight loss strategy, but the lack of clear evidence in clinical trials has caused some to question its effectiveness. Although exercise is commonly recommended as an important strategy for weight reduction and maintenance, intervention studies have demonstrated that exercise training without a dietary intervention results in far less weight loss than expected, based on the energy expended during exercise. Hence, recent free-living and population-based studies have challenged the traditional, additive model-based assumptions. It was found that in free-living conditions, the relation between PA and TEE is linear at low activity levels but plateaus at high activity levels. Based on this finding, a new constrained TEE model was suggested (Fig. 1b). According to the constrained model, the body adapts to increased PA by reducing energy spent on other activities (both behavioral and physiological adaptations), which results in a less-than-expected increase in TEE. The constrained model may explain the results from studies on the long-term effect of exercise on weight loss, showing no weight loss after ~1 year (15–20) even when associated with high doses of exercise, with relatively high inter-individual variability. Therefore, while exercise lowers all-cause mortality, and prevents the onset of type II diabetes and cardiovascular risk, the effectiveness of PA as a weight loss strategy, in the form of regimented PA, has been the subject of much debate.



The Role of Exercise Regimens on Muscle Mass Preservation and Endocrine Response after Bariatric Surgery

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Obesity has increasingly become a major worldwide public health problem. Lifestyle interventions achieve a small weight loss with more than a 90% weight regain. Thus, weight loss surgery is currently the most effective treatment of severe obesity and its related comorbidities. During the first six months following surgery, patients experience a massive weight loss which, beyond its positive effect, may involve a high muscle loss that may contribute in the long term to weight regain, a decrease in metabolic activity, and an increase in frailty. The evidence on the effect of exercise training on fat and muscle mass changes following obesity surgery is scarce. Different exercise trainings can induce muscle mass preservation during the massive weight loss following weight loss surgery. However, the quality of evidence of the effect of exercise on fat mass loss and on preserving muscle mass following bariatric surgery using well-controlled clinical trials remains controversial. A wide variety of study methodologies and a predominance of observational studies make it difficult to adapt exercise guidelines for the bariatric population. However, exercise may be a critical strategy to mitigate skeletal muscle loss and increase the metabolic improvement resulting from the rapid weight loss induced by surgery.

Attacking Formation: Sport Tourism and Sexual Behavior

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Background: Sex tourism is a socio-economic phenomenon whose characteristics and prevention have been extensively studied in academic literature (Lovelock & Lovelock, 2013). Similarly, due to the volume of sports tourism, which has proliferated over the last few decades, this type of tourism has also received considerable research interest (Hudson, 2012). However, research on tourism combining these two types and research examining sexual behavior patterns among sports tourists remains marginal. An exploratory study, such as the current one, sheds light on the similarities and differences between the different types, and mainly contributes to examining masculinity in sports tourism.

Aim: The purpose of the research on which this lecture is based was to analyze the shared properties between the two types of tourism by studying male sports tourists' sexual behavior patterns. That is, to examine how sexual behavior is reflected in sports tourism. Within this goal, the phenomenon was examined in three aspects: motives, behavior, and perceptions.

Methods: The study included a series of 18 semi-structured in-depth interviews with young Israeli men who traveled abroad to watch professional sports. It should be noted that the current research focused exclusively on trips in which all participants are men and which are primarily intended for sports viewing. The interviewees were identified using the snowball method, which is particularly suited to the selected case, both in the sports fans' closed nature and the interview topic.

Conclusions: The findings of the study reveal three themes. The first is the dynamics of the trip and the importance of the group composition. These constitute the primary incentive for activities of a sexual nature, rather than the individual aspect. The second is the tourists` circumstances, especially their marital status. This theme suggests that men who are recently married or in a fresh new relationship tend to take a more limited part in these sexual activities. The third theme is about the self-perceived attitudes toward sex workers, especially the moral remoteness of prostitution. The themes and their theoretical implications are widely discussed.

Opportunity, Work and Ancestry: Sport and New Brazilians

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As host of the 2016 Olympic Games, Brazil had in its delegation 24 athletes born in other countries. This number draws attention because the nation adopts jus soli as the principal criterion for granting citizenship, which means people born in Brazilian territory have the country's citizenship. Those born abroad can become Brazilians through naturalization or ancestry – without adopting the jus sanguinis; Brazil favors the children of its natives, born abroad, to obtain citizenship. The water polo (seven athletes) and grass hockey (six athletes) teams were the leading Brazilian teams that benefited from these new Brazilians. Through the methodology of biographical narratives, and analyzing the theories of migration to Brazil, it is possible to trace the profile of these 13 athletes. The two female water polo players, born in France, are twin sisters, daughters of Brazilian parents who have built their sporting trajectories in Brazil. The remaining eleven athletes began their path abroad. Four of them (three from hockey and one from water polo) became Brazilians after marrying citizens of the country – Brazilian law also makes it easier for people under these conditions to obtain citizenship. Another five athletes in this group (three from hockey and two from water polo) are the children of a Brazilian mother or father, although before representing Brazil in sports competitions they had never lived in the country; they began their careers abroad, and had weak ties with the country which were strengthened by the presence of the teams. Returned Brazilians can be considered in a cyclical migration process. Closing the group, two water polo athletes did not have ancestral or matrimonial ties with Brazilians, but were naturalized in an instrumental procedure – some authors classify this type of migrant as "mercenaries." Sports professionals, they accepted the proposal made by the Brazilian Confederation of Water Sports to change nationality, in a process that brought gains both for the athletes (mainly financial) and for the team, which gained reinforcements. When analyzing the formation of the Brazilian teams of hockey on the grass and water polo for the Rio Olympic Games, it is possible to notice characteristics that make deterritorialization a global phenomenon in current times. In conclusion, it is possible to see that instrumental naturalization, even if it exists, is rare, and understanding the migration processes of most athletes needs a broad investigation, focusing not only on economic aspects but also on social and cultural ones.

Brazilian Olympic Women and the Coach`s Position: Chasms, Distances and Possibilities

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Female Olympic participation in the Modern Era has been official since 1900 in Paris. However, Stamata Revithi participated in the 1896 Olympics, running the marathon even though she was not legally subscripted or allowed by the Games' organization. This consent was always in charge of men, mostly white and European, who decided when and what spaces women should occupy. Not so long ago, women were included in the Olympic boxing only in 2012. If inside the lines and streaks of competition, women's participation is controlled and curbed, to take over leadership positions has a long way to go, especially as coaches. In Brazilian Volleyball, the national team never had a woman as a coach, either in the female or male team. Perhaps standing in the top four 6 times since the 1992 Olympic Games, with two gold medals and two bronze medals, Brazilian women athletes are not or do not see themselves as coaches, a huge difference when compared to male athletes, already in different technical committee positions in Brazilian tournaments and National teams. In this sense, we aim to investigate the reasons for this gap between women athletes who have already made their career transitions and the coaches` positions, always choosing something else or not having this labor as a possibility. We will start from these protagonists, through biographical narratives, to understand what made them seek other paths or perhaps, not reach this place. Analyzing the athletes` narratives from the amateur period to the current one, through the four medals gained, we will attempt to help to comprehend the barriers. Therefore, we intend to bring other meanings to this place in sport, understanding the context but looking for ways to build new possibilities.

Recreational Activities as a Tool for Enhancing Relations between Arab and Jewish Students in an Israeli College

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Sport can be an effective tool for reconciliation between groups in conflict (e.g, Kidd, 2013). Yet, literature on intercultural competence has established that contact between groups is not sufficient (e.g. Byram, 1997) and neither is sport per se. Rather, structured sport activity intended to promote interaction between individuals from different groups over a period of time can lead to a more significant understanding of one another (Sugden & Tomlinson, 2018).

Based on this assumption, we examined the effect of a leisure sport activity program on Arab and Jewish Israeli undergraduate students (average age, 23) studying at a college of physical education in Israel. Based on previous findings indicating that merely studying together had not changed the attitudes of either group towards the other (Sky & Arnon, 2017), we conducted a 6-week program, once a week, for the students. The first five encounters comprised leisure sport activities designed and led by students enrolled in a Leisure Sport for Peace course, and supervised by their professor. An average of 60 students participated in each of these meetings. The sixth meeting was a peak event of Israeli folk dancing led by a professional instructor, in which over 100 students participated.

Pre- and post-program questionnaires were distributed to the students. Jewish students filled out a questionnaire about their attitudes towards Arab students and Arab students filled out a questionnaire about their attitudes towards Jewish students. Statistical analysis indicated positive changes in attitudes on both sides, particularly on items such as being pleased to have an Arab/Jew as a friend and trusting Arabs/Jews.

Sports Metaphors in the Economic Press in Israel

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In modern society the economic press is part of the economic system. Researching metaphors in economic language can help expose common thinking among economic discourse participants, as well as criticize this discourse at a specific place and time. In this lecture I will present a study that reveals the main metaphors used in the economic press in Israel and their sources. The lecture will focus on one of the categories found in economic language: leisure metaphors, including sports metaphors. I will also address motion metaphors as part of sports metaphors.

The sports metaphors found in Corpus are divided into four areas: competition, record, players and effort. The most common metaphor is the competition metaphor. Competition is an important economic issue, which is important to boost and encourage in the economic world. Economic discourse in Israel reflects the perception that opening the Israeli economy to competition or removing competition barriers is considered to be an important factor in a developed economic market.

The metaphors found in the corpus of the economic press have been sorted according to their sources and to the degree of their lexicalization. In terms of the level of the lexicalization, three categories were defined: lexicalized metaphors, conventional metaphors, and media metaphors.

The more often a metaphor is used, the more it becomes frozen or lexicalized (e.g., price competition, a peak in tax collection).

On the other hand, we find in the corpus communicative metaphors according to the model presented by Lykoff and Turner (2009). These metaphors are “alive”, and are therefore suitable for reporting about economic events (e.g., the company is running from investment to investment).

In addition, in between those two extremes are the conventional metaphors, which are often used and are common in the language but have not yet been lexicalized and remain alive (e.g., Don`t play games with me).

Compared to the use of sports metaphors in the political press in Israel (Zonder, 2018), the use of sports metaphors in the Israeli economy press is relatively low, However, in American English, which greatly influences the economic language, sports metaphors are widely used, especially team sports metaphors (McCluskey, 1995). Therefore, the absence of many metaphors from this area in the current corpus is surprising.

The research is part of a doctoral dissertation written under Professor Zohar Livnat`s supervision.

PARALLEL SESSION H4: PROMOTION OF A HEALTHY LIFESTYLE

Exercise and Sleep Quality among College Students

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Background: College students are a specific population that does not get enough sleep; their sleep is disrupted, due to the change of their lifestyle. Sleep plays important roles and is essential to a healthy lifestyle for normal functioning of the human body. Accordingly, disturbed sleep impairs a student`s academic achievements and increases the tendency towards stress and depression. Exercise as well as well-being are also essential for a healthy lifestyle, and are affected by quality of sleep. This study aims to examine the quality of sleep as well as the well-being of college students according to their amount of exercise, their field of study and their academic school year.

Methods: The study consisted of 367 college students from different academic disciplines. The students submitted a questionnaire via Google Forms relating to the amount of exercise they engage in, sleep quality and well-being.

Results: It was found that Physical Education students exercise more (4.8 compared to 2.7; p0.001). Their sleep quality is better compared to students from other disciplines (score of 2.72 compared to 2.96, p0.05). A correlation was found between well-being and quality of sleep (Pearson correlation (-0.324), p0.001). In addition, the sleep quality of freshmen students who exercise more is better (score of 5.33 compared to 4.85, p=0.002).

Conclusion: In order to improve sleep quality for college students, it is recommended to increase the level of their weekly exercise, especially in their first year of study, and especially those who are not used to exercising regularly.

Initiated and Non-Initiated Physical Activity in Physical Education and Other Teachers

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Regular exercise is known to reduce risks such as heart failure, cancer, diabetes, hypertension, obesity, and osteoporosis. It decreases stress and depression, increases productivity, and improves mental and cognitive functioning. In recent years, awareness has grown of the importance of non-exercise activity thermogenesis (NEAT). NEAT reduces sitting time, prevents obesity, and is a major component of the daily energy expenditure. Most of the adult population, including teachers, spends most of their working hours sitting down, resulting in a steady decline in energy expenditure, leading to obesity, and poor health. Physical education teachers are an exception and are considered physically active.

This study examines the level of initiated and non-initiated activity of teachers in Israel (measured by the number of their daily steps), and examines whether physical education teachers are more active and more aware of the importance of a healthy lifestyle than teachers of other subjects of study. A pedometer was attached to all the teachers for a month, counting their daily number of steps. The teachers also completed a daily and weekly self-report questionnaire indicating the level of their initiated physical activity, as well as a questionnaire that revealed their views on leading a healthy lifestyle.

The teachers of other subjects carried out more initiated physical activity than that reported by physical education teachers. However, the daily number of steps made by physical education teachers was significantly higher than that of teachers of other subjects. The teachers of other subjects did not reach the recommended number of steps (10,000 per day) even though they were physically active during their leisure time. This underscores the importance of avoiding excessive sitting during the day and places emphasis on greater mobility and greater non-initiated physical activity, without giving up strict and planned physical activity.

Sports and Field Activities (Outdoor Training) as a Therapeutic Tool for At-Risk Youth

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Crime and violence of youth is a major public concern leading to social and interpersonal difficulties and the failure to integrate socially, all resulting from a lack of drive and motivation for learning. Many inclusive programs have been developed to deal with at-risk youth behaviors. One of the main intervention tools involves the inclusion of diverse sports activities.

The aim of this study was to explore the success and impact of a unique intervention program, "Maslul Hadash", integrating physical activity with outdoor training (ODT) on the social, educational, and personal skills of at-risk students and adolescents attending special education classes in Israeli middle and high school institutions. This is an interventional and longitudinal study combining quantitative and qualitative research. The sample consisted of 166 Israeli adolescents aged 13–16. One-hundred and twenty-six students participated in the experimental group and 40 students served as a control group. At the end of the interventional program, an online questionnaire was given to the two groups of educators examining the subjective emotional, behavioral and learning skills change of the individual students.

There were significant differences found between the experimental group and the control group in both behavioral and social objectives. Moreover, there was a significant positive difference between the experimental group and the control group in improving academic achievement. Nevertheless, it was relatively smaller in comparison with the main research objectives. Additionally, there was a high positive interaction between the educator`s participation level and the attention level and hyperactivity changes that occurred within the intervention group. The findings highlight the effectiveness of the "Maslul Hadash" intervention program, which improves students` personal motivation, increases confidence, reduces negative school behaviors and has a positive effect on their learning skills and academic achievements. We assume that the "Maslul Hadash" intervention program can have a long-term impact on at-risk youth, and thus it is highly recommended to be integrated within the regular curriculum of schools.

Changes in Students` Lifestyle during the Covid-19 Pandemic as Compared to Pre-Pandemic Times

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Paz Carmel[1,3]
Livna Nissim[1]

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Background: This research investigates nutritional and physical exercise changes among a cohort of Israeli students following the worldwide Corona virus crisis. This study focuses on pre-service teachers (student teachers) who are studying to become kindergarten, elementary and secondary school teachers. This research hypothesized that teachers who are aware of habits for long-term health (healthy nutrition and regular exercise) will become excellent role models for their students.

Aims: To identify any changes in students` nutritional and fitness behaviors during the Covid-19 pandemic as compared to their behaviors prior to the pandemic.

Methods: In May, 2020, a sample of 288 Israeli university and college students received an anonymous questionnaire. We used Chi-squared tests and linear regression to analyze their answers.

Results: The research found a mild regression in healthy habits among the students. Their tendency to consume snacks between meals increased, accompanied by a decrease in physical activity.

Discussion and Conclusions: Students in general, and especially those planning to become teachers, should aim to maintain a healthy lifestyle. This holds for routine life and/or during times of uncertainty such as the Covid-19 pandemic. In order to live a healthy life, everyone (including students) needs to stay calm and maintain a high morale, eat well-balanced and nourishing meals, maintain fitness, and avoid smoking and alcohol. Students who follow these guidelines will become excellent ambassadors and role models for their students, colleagues, friends, and families. They can promote well-being as a lifestyle that increases their life span and reduces disease within the communities in which they live.

An Environmental Intervention Program to Promote Physical Activity and Healthy Eating Habits: The Impact of the Urban Forest on Israeli At-Risk Youth

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Background: The Urban Forest Health Intervention Program was formed at a center for at-risk youth in Israel, in order to promote physical activity, healthy eating habits, self-efficacy and life satisfaction.

Objective: To evaluate the effect of the intervention on physical activity, healthy eating habits, self-efficacy and life satisfaction among Israeli at-risk youth.

Methods: The quasi-experimental study ran from September 2016 to June 2017; at-risk youth were randomly selected to participate in the program. Questionnaires were administered to both intervention and control groups before and after the intervention. Univariate and multivariable analyses evaluated the intervention effect.

Results: Repeated measures analyses of covariance were calculated to assess change in group differences. An increase was found in measures of physical activity in the intervention group (p .001) and no change was noted in the control group (activity during the past week p = .340, hours per week in general p = .702). Healthy eating increased in both groups (p = .007), with no significant difference between them (p = .165). Non-healthy eating decreased significantly in the intervention group (p = .002) and increased in the control group (p = .007). Self-efficacy increased in the intervention group (p .001) and no change was noted in the control group (p = .353). Likewise, life satisfaction increased in the intervention group (p .001) and no change was found in the control group (p = .657).

Conclusions: Findings indicate that the environmental intervention was efficacious in increasing physical activity, healthy eating habits, self-efficacy and life satisfaction. The effectiveness of this intervention among larger samples is warranted in future prospective studies.

PARALLEL SESSION H5: GENETICS IN PHYSICAL ACTIVITY AND ATHLETIC PERFORMANCE

Genetic Characteristics of Competitive Swimmers

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A successful swimming performance is a multi-factorial accomplishment, resulting from a complex interaction of physical, biomechanical, physiological and psychological factors, all of which are largely affected by the special medium of water as well as by genetic factors. The nature of competitive swimming is unique, as most of the competitive events last less than four minutes. Yet training regimens have an endurance nature (many hours and many kilometers of swimming every day), which makes it impossible to classify swimming by definition of aerobic-type or anaerobic-type events, as in track and field sports. Therefore, genetic variants associated with swimming performance are not necessarily related to metabolic pathways, but rather to blood lactate transport (MCT1), muscle functioning (IGF1 axis), and muscle damage (IL6), among other factors. The current presentation reviews the main findings on the leading 12 genetic polymorphisms (located in the ACE, ACTN3, AMPD1, BDKRB2, IGF1, IL6, MCT1, MSTN, NOS3, PPARA, PPARGC1A, and VEGFR2 genes) related to swimming performance, while taking into consideration the unique environment of this sport.

COMT and HTR2A Genetic Polymorphism Association with Physical Activity among Women

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Despite the known health benefits related to physical activity, there is a great variability in physical activity engagement during the day. Though this variability results from various factors, part of it can be attributed to genetic variability between humans. The main aim of the current study was to explore the associations between two genetic polymorphisms that are related to the neural reward system: COMT rs4680, and HTR2A rs6313 and physical activity indices among healthy women.

The neural reward system mediates behavior that results in a positive reward; for example, increasing the dose of activity to gain a positive rewarding effect. The COMT rs4680 polymorphism regulates the amount of dopamine, and the HTR2A rs6313 polymorphism regulates the amount of serotonin, thus affecting the reward engaged with physical activity.

Ninety healthy women from an upper socio-demographic background participated in the current study. They responded to a questionnaire regarding their daily life, leisure and occupational physical activity habits. In addition, a sample of buccal epithelial cells were collected for DNA extraction and genetic analysis.

Most of the women stated they practice leisure time physical activity, but there was a remarkable variation of physical activity dosage and frequencies. Significant differences in physical activity indices were found between carriers of different genotypes. COMT rs4680 A allele carriers (representing high levels of dopamine) were more active compared to non-carriers, especially if the main physical activity was running. HTR2A rs6313 TT genotype carriers (low levels of serotonin) engaged in physical activity at the lowest doses compared to other genotype carriers. A genetic profile was calculated, based on these two genetic polymorphisms. It was found that COMT rs4680 A allele and HTR2A rs6313 C allele carriers (high levels of dopamine and serotonin) were engaged in the highest doses of physical activity, and the rate of runners within this group was high compared to the other carriers.

It was concluded that there is a great variation in physical activity among women, even among those sharing a similar environmental background. Part of this variation can be explained by genetic variability related to the neural reward system. The genetic polymorphisms associated with dopamine and serotonin levels could be the reason for some of the differences in the dosage of sport activities such as running.

Determinants of Muscle Fiber Size in Athletes

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João Paulo Guilherme[3]
Ekaterina Semenova[2]
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Muscle fiber cross-sectional area (CSA) significantly contributes to gains in strength after resistance training, and can be affected by numerous factors, including genetics, age, nutrition, training parameters and habits. However, the majority of research seems to include only males in the sampled cohort. The aim of the study was to identify the associations between various factors and muscle fiber CSA of the vastus lateralis in 157 physically active subjects. The retrospective, observational study involved 55 power-trained (19 females) and 102 endurance-trained (27 females) subjects. Athletes' nutrition, training parameters and habits were recorded using a survey. Muscle fiber composition and CSA of m. vastus lateralis were determined by immunohistochemistry. Genotyping was performed using micro-array analysis. As expected, power-trained subjects had significantly greater fast- and slow-twitch muscle fiber CSA than endurance-trained subjects. In female power-trained subjects, the CSA of the fast-twitch muscle fibers negatively correlated with age (r=-0.48, P=0.037), but positively associated with training frequency (r=0.68, P=0.0014), protein/BCAA intake (r=0.46, P=0.046), meat consumption (r=0.65, P=0.0028), water consumption (r=0.48, P=0.037) and sleep duration (r=0.48, P=0.039). Multiple regression analysis showed that these factors explained 76.6% of fast-twitch muscle fiber CSA variation in female power-trained subjects. In female endurance-trained subjects, only sleep duration (r=0.52, P=0.0059) reported a significant interrelation with CSA of the fast-twitch muscle fibers. In the whole group (n=157), the CSA of the fast-twitch muscle fibers negatively correlated with age (r=–0.26, P=0.0011) and alcohol consumption (r=–0.17, P=0.032). Furthermore, in the combined group of male and female endurance-trained subjects, the CSA of the fast-twitch muscle fibers positively correlated with creatine consumption (r=0.24, P=0.015). Next, using two panels of DNA-markers associated with fat-free mass (1981 SNPs) and testosterone levels (855 SNPs) in the UK Biobank cohort, we identified that 40 SNPs were significantly associated with both CSA of the fast-twitch muscle fibers in our group (n=157) and handgrip strength in the UK Biobank cohort. These results demonstrate that genetics, training parameters, nutrition and habits are associated with muscle fiber CSA in physically active subjects.

Speed-Power Performance Genetic Variants in Czech Elite Soccer Players

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Many research teams around the world intensively study the genetic influence on sport-related traits. Expectations from sports genomics, according to Bouchard (2016), includes defining the extent of human variability; illuminating molecular biology, physiology and behavior to identify biomarkers and correlates; and developing diagnostics. The latter meet practitioners` expectations in sports and other experts for individualization exercise prescription for improved performance or health, sports talent identification, or injury prevention. Unfortunately, current knowledge in sports genomics is not at such a level that it is possible to meet these expectations, and thus further research is needed. Our research on elite Czech soccer players includes a replication study on genetic variants previously associated with sport-related traits, and the whole-exome sequencing data analysis to identify novel variants. We evaluated the influence of selected genetic variants on performance in speed-power and strength laboratory testing, taking into account players' plying position. The total genetic score regression explained 26% of the variance in jump performance and isokinetic strength. Moreover, other results include decreased hamstring and quadriceps isokinetic strength in defenders' ACTN3 XX homozygotes compared to ACTN3 R allele carriers. We also found associations between soccer playing position and increased lower limb strength for AMPD1 CC and NOS3 Glu/Glu genotypes and IL1RN*2 allele carriers. Data analyses of whole-exome data are currently underway, but some preliminary data will be shared at the presentation.

PPARD CC and ACTN3 RR Genotype Prevalence among Elite Soccer Players

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Aims: Soccer is a complex sport in which players are required to perform a variety of aerobic and anaerobic activities. The purpose of the study was to explore aerobic (PPARD CC) and anaerobic (ACTN3 RR) performance-related genotype frequencies among young soccer players and compare them to those of sprinters/jumpers (S/J), long distance runners (LDR) and controls.

Methods: Genomic DNA was extracted from buccal epithelial cells of 170 national level athletes (60 soccer players, 51 S/J, 59 LDR) and 51 non-athletic controls. Genotypes were determined using Taqman allelic discrimination assay.

Results: Soccer players had non-significant lower frequency (15%) of the PPARD 294CC genotype compared to LDR (19%), but higher compared to S/J (10%). ACTN3 R577X genotype and allele frequencies of soccer players (28%) were not significantly different from those of S/J (39%) and LDR athletes (20%).

Conclusions: Soccer players do not have a noticeable or clear genotype tendency compared to S/J and LDR. This may suggest that soccer players rely more on diverse physiological qualities as well as other factors that are required in the game, rather than on a single physiological attribute. It should be also noted that the different physiological demands for diverse positional roles in soccer may contribute to the results' heterogeneity.

PARALLEL SESSION I1: PHILOSOPHY OF SPORT

What is Sport (Philosophically Speaking)?

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Background: According to the members of the consulting committee for correcting and updating the term 'sport', there are six criteria we should adopt in order to define what a sports activity is (Lidor et al., 2001). These criteria are consistent with those accepted in many countries worldwide, serving sports governing bodies in defining what a sports activity is. The consulting committee believes that in order to define a physical activity as sport, all the proposed criteria should be adopted. The members of the committee hope that these criteria will assist sports governing bodies in Israel in trying to discern between sports activities and other activities.

Aims: Our aim is to discuss the various criteria offered by the consulting committee and propose a more comprehensive answer to the question "What is sport?".

Methods: Since we accept analytic philosophy, our considerations proceed by examining ways of speaking about the phenomenon in question. However, we note in advance that we understand linguistic analysis as being object-oriented.

Results: We begin with some observations based on common or ordinary opinions about sport. Then, we try to explain in which sense the question "What is sport?" can be considered to be philosophical. The next step consists of citing several popular definitions of sport derived from vocabularies and encyclopedias, which are also philosophical. This leads to a general problem of what it means to define something. We report various descriptions of the concept of definition and its species. The next section applies these settings to the concept of sport, but we do not limit our remarks only to formulations that seem to be definitions.

Discussion: We consider characterizations of sport: as physical activity; expertise aimed at a clear goal; competitiveness; known and agreed laws of the game; institutionalization; and, clear rules of victory, loss, or tie. In general, our view is that an essentialist definition of sport is impossible. However, we consider professionalism as an important feature of contemporary sport. Although sport is not definable by traditional means, we think that there are some paradigmatic cases of sport. This view naturally suggests that Wittgenstein's later philosophy of language and related views can be applied to the analysis of sport.

Conclusion: Considering the problem of using a classical or even a quasi-definition to capture the meaning of sport, we would like to suggest a Wittgensteinian approach as an alternative model, namely of utilizing Wittgenstein's remarks on the concept of game as a paradigm. Wittgenstein`s solution is novel and opens up a new way of understanding the meaning of sport.

Reference:

Lidor, R., Galily, Y., Fejgin, N., Lebed, F., Netz, Y., Wertheim, M., & Harlap, U. (2011). What is sport? Six recommended criterions for the definition of sports activity. Movement, 10, 59-69 [in Hebrew].

Basketball as a Moral Laboratory

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Background: Basketball receives considerable attention in the philosophy of sport. Clearly, it includes several features that attract attention, among others being a 'constructed' game rather than one that evolved. As such, it might be expected that the rules would be consistent, but a case can be made to the contrary. Drawing on D'Agostino's celebrated account of ethos, there seems to be a conflict between the rules-as-written and the rules-as-played, especially around the contact/non-contact nature of basketball. The latter brings forth ethical considerations about rule-observance, thus setting the stage for what McFee calls moral laboratory.

Aims: To consider the reasons for including basketball in the moral laboratory: do the rules of competition permit one to behave fairly (or justly)? What accommodation is made for a fair starting point (to level the playing field)? How much is being risked? The moral benefits require attention to the rules, and hence acting in that way for that reason. Thus, we would like to examine if this can indeed teach us something about the character of the rules: roughly, that you cannot simply distinguish regulative rules from constitutive ones.

Methods: Philosophical analysis.

Results: Looking to history, we see how the standard reading of those rules in, say, the NBA was modified when umpires came up against cases where the rules were silent or the standard 'reading' was counter-intuitive. For instance, 'drawing the foul' must have started with umpires deciding what to call faced with a player contacted while standing still – the contact makes it a foul, but what were the attacking player`s options? In addition, basketball has several more specific connections to moral matters, namely to how one should behave. Woodbine discusses an interesting case about what 'the rules' of basketball are, and about where 'the real' basketball is played (not in the NBA?).

Discussion: These considerations lead to the question about the definition of 'basketball': What would it include, and what would it achieve? Obviously one starts form the rules, but which rules does one include? And understood how, in terms of playing? Wittgenstein (2005: 200e) famously asked about the rules of tennis, just which are and which are not included (completeness). Where would it leave the rules in the tournaments described by Woodbine? And what would we say if we concluded there was no definition of 'basketball' adequate to deal with all the cases?

Conclusion: It is becoming much more difficult to relate sporting rules and moral 'rules'. The latter are not really rules and the former do not circumscribe behavior in sport in the way we had hoped.

Reference:

Wittgenstein, L. (2005) The big typescript: TS 213 (tras. C. G. Luckhardt and M. A. E. Aue). Blackwell.

Scripted Spectacles: Technology and Kipchoge`s Sub Two-Hour ‘Marathon Record’

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Breaking records in modern running races has excited sport enthusiasts for more than a century. Perhaps the most famous of these events was Roger Bannister breaking the four-minute mile on 6 May 1954 in England. Fast forward 65 years, when on 12 October 2019 in Vienna, Kenyan runner Eliud Kipchoge became the first person to run a ‘marathon’ known as the INEOS 1:59 Challenge, in less than two hours in a time of 1:59:40.2. Yet his record was not ratified by World Athletics. Why?

Some of the reasons include: he was the sole runner designated to break the record; he had 41 world-class pacesetters rotate on and off the course; he ran behind an electric pace car that guided him with green laser beams; he was given drinks by a person on a bicycle; and he ran the carefully selected and level course specifically on a date and time that provided him with optimal environmental conditions. Other factors that assisted Kipchoge were his use of Nike Alphafly shoes; being trained and monitored for months, up to and during the Challenge, by an extensive team of sport scientists and organizers; preparing in Kenya in the same time zone as Vienna; and being sponsored by INEOS, a multinational petrochemical company founded and headed by Sir James Radcliffe, the richest person in the UK, which spared no expense to break the two-hour ‘marathon’ barrier.

The response to Kipchoge’s scripted record-breaking feat was mixed – from elation to the assertion it was a fake. In this oral presentation I will argue that the role of technology in Kipchoge’s ‘marathon’ achievement makes his scripted spectacle and record meaningless.

To develop my position, I will: 1) describe a previous scripted event Kiphchoge was involved in where he failed to run a ‘marathon` in less than two hours; 2) explain why his 2019 ‘marathon record` was not ratified; and 3) present four areas of thought to support my argument that demonstrate why Kipchoge`s ‘marathon record’ is meaningless. In the conclusion I will respond to possible criticisms of my argument and comment on what counts as a meaningful marathon record.

Aesthetics and Politics Through the Lens of the Camera: Notes on Informative Documentary Cinema in the Early Olympic Games

Eduardo Galak

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This research seeks to analyse the different ways of perceiving sports based on the study of cinematographic documentary of the first Olympic Games. The aim is to explore the political discourses and aesthetic senses transmitted through images, investigating footages from the beginning of the twentieth century until Berlin 1936, when the aestheticization process became analogous to the sportivization process. From observing a set of documentary Olympics footages placed in the Olympic Studies Centre, especially those produced since the Saint Louis Games in 1904, this article analyses projected significations about the individual and collective body. In other words, these 'movement-images' –as coined by Deleuze– show projected meanings about the individual and collective body.

The central focus of this paper argues that informative cinema, through the exhibition of educated bodies, teaches and also forms the sensitivity of the viewer`s perspective. In other words, it not only transmits ways of doing, but also an ethos, or ways of being sensitive. The aim of this study is to explore the political discourses and aesthetic senses transmitted through the Olympic images, which are often loaded with moralism and patriotism. The hypothesis is that historic filmed physical activities intended to educate not only through the gaze, but also the gaze itself. This paper concludes with a counterpoint between Rancière and Benjamin about technical reproducibility and political reproduction, considering the aesthetic-political tension that sports put into play.

PARALLEL SESSION I2: PHYSIOTHERAPY FOR CHRONIC BACK PAIN

Hip Instability and Spinal Pain: The Role of the Physiotherapist

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Hip assessment and treatment have advanced greatly over the past two decades. Femoroacetabular Impingement Syndrome (FAIS) as defined by the Warwick Agreement in 2016 has facilitated a framework by which clinicians can navigate through the clinical reasoning process to assess conditions of the hip. Kalsivaart and Safaran (2015) described how hip microinstability, which can be caused by several factors including mechanical impingement, collagen disorders and muscular weakness to name a few, also highlighted the role of muscular strengthening. Bennell et al. (2016) described the role of local muscular control followed by global muscular strengthening as a way to treat patients following hip arthroscopy.

As clinicians, we must assess the full kinetic chain during function to improve quality of life for our patients. Therefore, to assess the hip appropriately, we must assess the lumbar spine and its links to the pelvis, the pelvis of the femur and finally the femur on the tibia and ankle.

Hip/Spine Posture is a simple term; however, the assessment is very complicated. It takes into account several elements, including resting position, muscular tone, motor control, strength and, finally, endurance. During my presentation, I will aim to highlight specific components relating to hip instability, risk factors, assessment techniques and finally one strategy to manage such patients presenting with hip/spine conditions.

The Importance of Assessment

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Whether you are a clinician or whether you are a trainer, an assessment should be one of your first steps because it provides you with baseline information. You cannot see whether your client is progressing or regressing if you do not have data with which to compare. In order to relieve pain and improve movement you have to identify the source, which is typically not the site of pain or the site of what you see as a dysfunction. We must assess the entire body to know how to build a plan. As Dr. Vladimir Janda commented, "due to the interaction of the skeletal system, muscular system and CNS, dysfunction of any joint or muscle is reflected in the quality and function of others not just locally but also globally". Movement should be our main focus. We will talk about the fundamental components that should be included when assessing the neuromusculoskeletal system. Movement assessment is a key piece in the prediction of injury but it is not the only piece in the puzzle. Always consider homeostasis; ask about sleep, pain, stress, emotions, etc.

The literature shows that poor posture across multiple joints creates a higher likelihood of problems. Riviera (2017) and Ross (2014) showed in their studies that dynamic changes in pelvic tilt can significantly influence the functional orientation of the acetabulum, meaning pelvic posture affects the range of motion at the hip and as a result this contributes to femoral acetabular impingement (FAI). Any clinician can tell you that improving posture or position can reduce pain. For example, working on a pelvic tilt can increase that space in the acetabulum by up to 8 mm. Thus, we can improve hip range of motion or pain in terms of FAI. For shoulder impingement, just by taking the scapula to an upward rotation in flexion or abduction at the shoulder, we can reduce pain and improve the range of motion at the shoulder.

There are many kinds of posture and movement assessments out there. Understanding the principles allows you not to be dependent on a single method but to choose what is relevant to each client.

The Role of the Diaphragm in Spinal Stability and Chronic Low Back Pain

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Low back pain is associated with dysfunction in posture and movement strategies. However, current treatment often takes an overly simplistic approach by compartmentalizing individuals into either a biomechanical or psychosocial category. While both categories need to be addressed in most patients, there is increasing evidence that suboptimal breathing habits are one of the underappreciated and overlooked aspects to successfully addressing chronic spinal issues and low back pain. This workshop will discuss the role of breathing in posture, movement and performance. Additionally, participants will discover how to integrate breathing into an overall approach in both treating the patient with chronic low back pain and enhancing spinal stability and performance.

Key Objectives:

· Consider the link between breathing, posture and movement.

· Review the components of breathing and its contribution to posture, spinal stability and movement.

· Discuss the link between suboptimal breathing strategies and chronic low back pain.

· Present a biomechanical and motor control approach that integrates training the respirator and postural system.

· Develop clinical skills in evaluating suboptimal breathing patterns and incorporate strategies for optimizing the respiratory system.

· Integrate breathing into an overall treatment and/or training program for improved clinical outcomes.

PARALLEL SESSION I3: ADAPTED PHYSICAL ACTIVITY

Players` Perspectives on Reverse Integration in Wheelchair Basketball

Yeshayahu Hutzler[1,2]

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Wheelchair basketball is an attractive and popular team sport activity within the Paralympic program. It is played on the same court with generally similar rules as basketball. The major modification is the classification system enabling a range of participants with mild (4.5 points) to significant impairments (1 point) to contribute to the team composition and performance, based on a rule of a maximal total number of points on court. The functional capability of a classifiable wheelchair player with a mild impairment should not differ from that of an able-bodied player who has gained experience in wheelchair use and wheelchair basketball techniques and tactics. Due to various reasons, able-bodied individuals have participated in wheelchair basketball in the past, at least, 30 years, under the label 'reverse integration' (RI), and their contribution to the game`s development has been discussed among scholars and decision-makers in different countries. The current study reports the outcomes of the perceptions of players with disabilities across various wheelchair basketball divisions in Israel about the RI of players without disabilities in wheelchair basketball league activity and the national team, and about how they might contribute to the growth of this field of sport. Forty-seven athletes with disabilities were surveyed, comprising 16% of the total number of the wheelchair basketball players' register (n=295) and about 25% of the active players. The results generally favored RI at the league level with higher scores (81.8-94.1%) obtained among A level and Premier level compared to B level leagues (42%). Furthermore, Players of classes 4-4.5 exhibited higher scores (95%) compared to 2.5-3.5 (91.6%) and 1-2 point players (86.7%). The implications of survey outcomes to the further development of the game are discussed.

The Influence of Participation in a Disability Sport Program on Physical Fitness Components, Exercise Self-Efficacy and Social Competence of Youth with Visual Impairments

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The purpose of this research was to assess the effectivity of a Paralympic youth sport program regarding the physical and psychosocial functioning of youth with visual impairment (VI). The program was designed and implemented by the Israeli Sport Federation for the Disabled with the intention toof enhanceing the exercise and sport participation of youth with disabilities throughout the country. The majority of the program's participants chose Judo and Goalball as their sport discipline. Forty youth participants with VI, who were engaged in these sport disciplines were followed, completing tests and questionnaires at the beginning and the end of a three-month period. Physical fitness tests included stork stance, the four-step- test, the push-up test and the sit-up test. Psychosocial questionnaires included the social competence sub-scale of Schalock`s Quality of Life Questionnaire. Participants were divided into two practice groups, presenting novice and experienced exercisers, and two age groups presenting children and adolescents, which were compared at the onset and end of the evaluation period. Findings exhibited some minor differences between and within groups across variables. Several reasons have been proposed for the lack of significant results, including lack of consistency and volume in exercise participation, lacking in most cases the recommended volumes. In addition, Ttraining content differed among coaches. Finally, it appears that the three-month period at a moderate training intensity might not be enough for achieving major differences.

Stakeholders` Perspectives on Reverse Integration in Wheelchair Basketball

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Mauro Grassi Roig[1]
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Wheelchair basketball is an attractive and popular team sport activity within the Paralympic program. It is played on the same court with generally similar rules as basketball. The major modification is the classification system enabling a range of participants with mild (4.5 points) to significant impairments (1 point) to contribute to the team composition and performance, based on a rule of a maximal total number of points on court. The functional capability of a classifiable wheelchair player with a mild impairment should not differ from that of an able-bodied player who has gained experience in wheelchair use and wheelchair basketball techniques and tactics. Due to various reasons able-bodied individuals have participated in wheelchair basketball for at least the last 30 years, under the label 'reverse integration' (RI), and their contribution to the game`s development has been discussed among scholars and decision-makers in different countries, including the USA, Canada, Australia, UK and Israel. In Spain the RI topic has been discussed during recent years and several pilot activities have been performed to address the possibility of implementing this practice in the national league system. The current study reports the perceptions of Spanish decision makers and stakeholders – wheelchair basketball players, coaches, club managers and referees, about the RI of players without disabilities in wheelchair basketball and how they might contribute to the growth of this field of sport. Based on preliminary discourse, a questionnaire was prepared comprised of 11 questions regarding the potential benefits of implementing RI in the Spanish context and five questions regarding potential precautions while implementing RI (i.e. players without disability would play only half-time and/or only in the second national division). Forty-nine decision makers were surveyed in Spain, all of them active in the wheelchair basketball framework. The results indicated that in all questions regarding benefits, over 50% of participants were in agreement or completely in agreement with the benefits. Regarding precautions, over 50% were in favor of assigning able-bodied participants in a 5-point class, having a maximum of two players in total and one on court. Only 20-22% were in agreement or completely in agreement with limiting the participation time or the playing division of these players. In conclusion, it can be suggested that Spanish stake-holders generally favor RI implementation in Spain, with minor limitations on the participation of the able-bodied players. The implications of the survey outcomes are discussed.

Intervention Programs Facilitating Healthy Lifestyle in Persons with Severe Mental Illness

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Persons with severe mental illness (SMI) perceive significant health hazards represented in early mortality and increased incidence of lifestyle-related diseases, such as obesity, high blood pressure, diabetes, cardiovascular disease, etc. These health risks are direct outcomes of an unhealthy lifestyle associated with unhealthy nutrition, lack of physical activity and excessive smoking. Several health promotion programs have been designed and implemented in order to change the vicious cycle of unhealthy behavior and disease. Cohorts of participants in two unique programs were followed over a 10-week period, and compared to a similar control group not receiving any particular intervention. The first is a health promotion program called Even Derech, based on 10 weekly workshop sessions facilitated by a trained facilitator with a disability and provided to 10-15 participants with SMI each. Group members were recruited in residences, sheltered vocational centers, leisure time clubs and the community. Workshops were hosted either by the recruitment host or in a community center. The second is a basketball sport group comprised of individuals with SMI and participating in a unique league of teams comprising of persons with SMI. Both programs met once a week for one to one-and-a-half hour sessions. The purpose of the present study is to present the self-rated health, nutrition, physical activity (PA) and social change outcomes, as well as perceived stage of change and self-efficacy (SE), in participants of the three cohorts prior to and after the evaluation period. The results indicated a significant increase in intense physical activity at least three times per week, as well as in an index of three questions regarding PA participation after the 10-week period only in the basketball team. However, both the basketball and the workshop groups significantly perceived more gains in stages of change regarding PA participation compared to the control group. Conversely, the workshop participants reported significantly greater gains in perceived SE toward PA participation. Regarding nutrition, a minor but insignificant increase in compliance with healthy nutrition practices was observed in the workshop participants. It may be concluded that only the basketball activity had an impact on self-rated PA participation and its stages of change, while the workshop group appeared to improve perceived SE in this regard.

PARALLEL SESSION I4: CHILD PHYSIOLOGY AND EXERCISE

Physical Activity Prescription in Children and Young Adults with Congenital Heart Disease (CHD)

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Children and young adults with CHD often demonstrate a significant decline in their functional capacity. This decline is usually caused by a reduction or even abstention from physical activity, and not necessarily by their underlying disease. These patients often become sedentary due to some physical limitations but mostly due to their parents' and their own concern to their safety and health. A sedentary lifestyle can increase the risk for cardiovascular and metabolic diseases as they grow older.

Exercise training programs for patients with CHD may help them in maintaining a healthy lifestyle (physically and psychologically), and decreasing their risks for adulthood morbidity. However, since these patients often have complicated and complexed medical conditions, it is extremely important to individualize their exercise program. The exercise prescription takes into consideration not only their medical and risk status, but also the motor skills, social interactions, self-confidence, and personal goals that are characterized by their age-related peers.

In this review we will briefly learn about the types of CHD; the effect of CHD on functional capacity; the required physical and medical assessments prior to exercise initiation; and the guidelines for exercise prescription. We will close this review with a short presentation of our future special program for patients with CHD at our cardiac rehabilitation center at Hadassah Har-Hazofim.

Can a Supramaximal Treadmill Test be Used to Verify Maximal Oxygen Uptake in Obese Children?

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Background: Children with obesity usually do not reach a plateau during a maximal incremental exercise test. Therefore, we proposed using a supramaximal exercise test (SMT) to verify that the peak oxygen uptake achieved in an incremental exercise test reflects the "true" maximal oxygen uptake (VO2max), in the absence of a VO2 plateau.

Methods: Sixty obese (BMI percentile 95), children (36 females), 10.6±2.7 years old, completed a two-test protocol that included a maximal incremental test (modified Bruce) to exhaustion, followed 10 minutes later by a 2-minute supramaximal constant-load SMT on a treadmill, one stage higher than the last load achieved in the incremental test. Oxygen consumption (VO2), respiratory exchange ratio (RER), percentage of predicted maximal heart rate (%HRp) and rate of perceived exertion (RPE) were recorded at the end of the incremental test and the SMT. VO2max from the incremental test was considered verified by the SMT if peak VO2 in the SMT was 5% higher than the VO2 peak attained in the incremental test.

Results: In 23% of the children VO2 in the SMT was higher than in the incremental test, and VO2max was not verified. There were no significant differences in secondary objective criteria (RER≥1.05, %HRp≥90, and RPE ≥9) between those who had a higher VO2max in the SMT and those verified for VO2 max (RER p=0.16; %HRp p=0.54; RPE p=0.48).

Conclusions: The SMT verified the VO2max determined by the incremental test in 77% of the obese children tested, even in the absence of a plateau phase. For the remaining 23%, VO2max was underestimated by the maximal incremental test. Secondary objective criteria on the incremental test failed to verifyVO2 max. These findings highlight the importance of incorporating an SMT to verify VO2max in this population.

High Intensity Interval Training: Is It Suitable for Youth Athletes?

Bareket Falk

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High intensity interval training (HIIT) consists of repeated bouts of brief, intermittent high-intensity exercise, interspersed by periods of rest or low-intensity exercise. It has been used by athletes to improve performance for over 100 years. HIIT is time-efficient, and is recognized as effective in increasing performance among adult athletes. Further, there are well-established training guidelines for adults. In youth athletes, several studies have demonstrated the feasibility of HIIT in improving aerobic power and performance, although the effectiveness of HIIT appears to be lower than in adults. Additionally, the effectiveness of HIIT in improving other performance measures (e.g., sprint, explosive power) in young athletes is inconsistent.

The time-efficient nature of HIIT makes it attractive for both adult and youth athletes. For youth, however, HIIT may be specifically suitable. Children appear to perceive less fatigue during short bursts of high-intensity exercise, compared with adults. The intermittent nature of HIIT is also more aligned with children's physical activity pattern, which is typically characterized by brief, high-intensity bouts of activity. Recovery is an integral aspect of HIIT, so children's distinctive faster recovery from high-intensity exercise may allow them to take better advantage of HIIT protocols.

It has been suggested that children typically activate their type-II motor units to a lesser extent than adults. That is, they rely more on their oxidative, type-I motor units. HIIT, characterized by high-intensity bouts, requires athletes to utilize more of their type-II motor units. Thus, HIIT, where the intensity is sufficiently high, may provide youth athletes with the opportunity to activate and train more of their type-II and, specifically, type-IIa motor units, and to better develop the aerobic potential of these motor units. However, it is suggested that in order to fully exploit this potential benefit of HIIT, the effective training zone for young athletes must be higher than in adults. That is, while HIIT may be feasible and suitable for youth athletes, in order to increase its effectiveness exercise intensity must be higher than is typically recommended for adults. Thus, youth-specific training guidelines for HIIT must be developed.

An Omics Approach to Understanding the Health Benefits of Exercise in Children: A New Era of Research and Clinical Practice

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The beneficial effects of physical activity are well documented, yet the mechanisms by which physical activity prevents disease and improves health outcomes are poorly understood. Because of this, we have yet to optimize the use of exercise in health and disease.

Since the process of mapping and sequencing the human genome began, new technologies have made it possible to obtain a huge number of molecular measurements within a tissue or cell and facilitated the development of omics research (transcriptomics, genomics, metabolomics, lipidomics, and epigenomics). These omics technologies can be applied to a biological system of interest to obtain a snapshot of the underlying biology at a resolution that has never before been possible.

The NIH recently launched a new and exciting initiative: MoTrPAC, Molecular Transducer of Physical Activity Consortium, the largest ($200M) NIH investment in exercise research. The overall goal of this U.S. national project is to generate a map of molecular responses to physical activity and exercise using omics technologies. The University of California Irvine Pediatric Exercise and Genomics Research Center is the sole pediatric center out of seven clinical centers across the U.S. The Center recruits children (10-17y/o) from diverse racial and ethnic groups with a goal to map the molecular mechanisms through which exercise benefits health. Low- and highly-active participants perform an acute bout of endurance exercise with blood collection before, 20- and 40-min during exercise and 10 min, 0.5 h and 3.5 h into recovery. A subgroup of low active participants repeats the assessment following 12 weeks of a supervised endurance training program. This research will lay the foundation for a new era in which we can harness the molecular pathways of the exercise response to improve health across the lifespan.

PARALLEL SESSION I5: PHYSICAL EDUCATION IN EARLY CHILDHOOD SYMPOSIUM

The Right to Move: Experiencing Movement and Physical Activity in Preschool as a Basis for Substantial Learning and Development

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Miri Shachaf[2]
Osnat Binstock[2]
Merav Asher[1]
Shiri Ayvazo[3]
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Childhood in the 21st century is commonly characterized by increased sedentary behavior and exposure to screens, along with decreased individual and social physical activity. Furthermore, parents, teachers, and education environments are typically oriented towards the traditional acquisition of academic skills, hence promote sedentary behavior at the expense of encouraging children to move and use their body. However, there is a growing body of evidence stressing the contribution of physical activity to motor, socio-affective, and cognitive development, and its implication for later life. Taken together, it seems that there is an urgent need for a paradigm shift among parent, teachers, and policy makers in the education system.

Guided by this notion, in this symposium we will present the product of an extensive three-year work, aimed at bringing the most updated research and recommendations to the awareness of policy makers, field workers, and kindergarten-and school-teachers. To this end, we present relevant scientific literature and specific activities that may be implemented in educational environments and in teacher training to provide children with the physical conditions needed for better development. In this symposium we will present our conclusions concerning the contribution of movement to the development of motor coordination, emotion regulation, cognitive abilities, bone properties, self-guidance, and more.

III. POSTER PRESENTATIONS

Sixteen Weeks of Krav-Maga Training Improves Maximal Strength: Comparison Between Novice and Veteran Athletes

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Yan Fiqueiredo Foresti[3]
Antônio Coppi Navarro[2]
Francisco Navarro[2]
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Aim: The study aimed to assess the strength development of individuals submitted to 16 weeks of specific Krav-Maga training.

Methods: 30 Krav-Maga practitioners participated in this study, divided into two groups according to the training status, novices in the modality (GN, n = 15) and veterans in the modality (GV, n = 15). In the 1st day the participants were submitted to anthropometric and body composition assessments to characterize the groups. Weight, height and fat percentage (%FAT) were measured using 7 skinfolds, according to Pollock protocol. On the second day, the maximum voluntary contraction (MVC) of individuals was measured in the following exercises: Shoulder press, back squat, and deadlift in this order. The subjects had 10 minutes to determine the highest load for each movement; After every 10 minutes there was a 3-minute interval for complete recovery. The specific training for the modality consisted of 16 weeks of Krav-Maga training, with the same pre-training evaluation protocols being performed in the 8th training week and post-training. The training was conducted and monitored by a qualified instructor with the required graduation for the modality. The Shapiro-Wilk test was used to determine the data normality. Data were expressed as mean and standard deviation for comparison between groups and different times. ANOVA was used for repeated measurements. In case of significant F values, the Holm-Sidák post-hoc was applied. The Effect Size was estimated by calculating the Partial Eta square (η^2P), being classified as 0.01 - Trivial; 0.01 Small; 0.06 Medium; 0.14 Large. All statistics were performed on JASP software (version, 0.13.1, Amsterdam, Netherlands).

Results: The GN presented age of 36.7 ± 8.4 years; the height of 174 ± 0.1 cm, the weight of 78.0 ± 13.9 kilos, %FAT of 26.1 %; while the GV was aged 35 ± 12 years, the height of 1.73 ± 0.1 cm, the total weight of 79.6 ± 8.4 kg, %FAT of 24.1 ± 4.0 %. The strength development and comparison between groups are presented in figure 1.

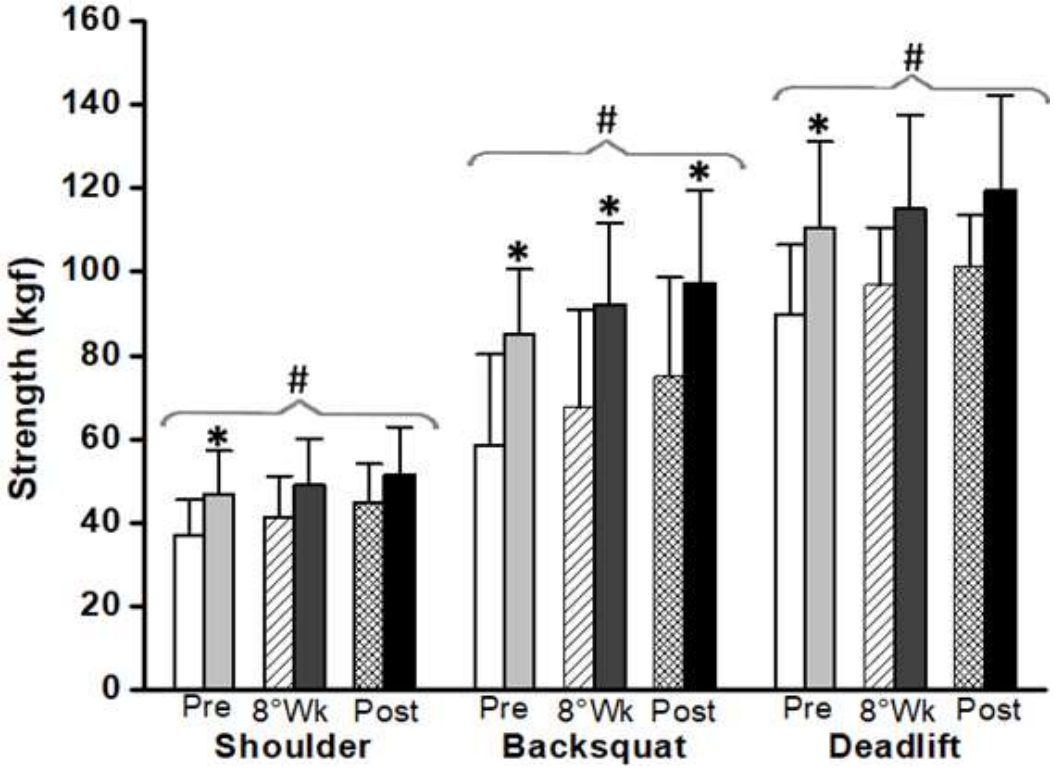

Figure 1. Strength development during 18 weeks of Krav-Maga training. The white rectangle represents GN, Grey and black rectangle represents GV; * represents statistical differences between GN and GV; # represents statistical differences between training time (pre; 8°Wk; Post).

Conclusion: It is noted that both groups improved the total muscular strength in the three exercises with 18 weeks of Krav-Maga training, regardless of the training status, except for the back squat exercise, for which veterans showed a more significant improvement than novice subjects.

The Effect of Personal Training in Progressive Relaxation Techniques and Deep Breathing on Coaches

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Research in sports psychology has mainly focused on the athletes themselves, while interventions directed at trainers, who face multiple factors that generate stress and anxiety, have been very limited.

Hence, the objective of this investigation is to describe the effects in verbal instruction, perceiving health and psychological distress and in emotional self-control, based on progressive relaxation techniques and deep breathing. A pre- and post-evaluation of the intervention, in which psychological variables and coaches` behaviors were measured, was performed. Instruments utilized include CBAS, NEO-FFI, GHQ-12 and a sub-scale of self-control.

Seven male coaches from Bogota`s registry who are part of fencing, fighting, squash, and beach volleyball participated in this research. Results demonstrated statistically significant increments in the self-control and perception of health and psychological distress among trainers. In conclusion, techniques of emotional self-control were proven to be effective among the seven coaches.

Fencing Training Effect on Children Diagnosed with Attention Deficit Hyperactivity Disorder

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Background: The present article relates to the impact of a Fencing Training Program applied on Attention Deficit Hyperactivity Disorder (ADHD), as a therapeutic model for ameliorating the anomalous symptoms of the disorder. The correlation between Physical Activity (PA) and the benefits of mitigating ADHD symptoms is a common fact, while the added value of warrior skills reflected by martial arts such as fencing on various areas of personality domains is a relative new terrain of research in the literature.

Aims: The aims of the research were to examine the impact of a fencing training program on moderating ADHD symptoms, and especially whether specific fencing PA assists in ameliorating attention, concentration and the interaction among those factors over a population of children diagnosed as having ADHD symptoms. Moreover, the research examined whether there is any extra value to fencing over general physical activity programs.

Methods: The study, based on Czuckermann (2016), was carried out for nine months (90 min biweekly sessions) and included two groups (n= 20, 10 boys and 10 girls each) with a mean age of 10 at the beginning of the study. The experimental ADHD group was termed Fencing Training Experimental Group (FTEG); the control group was termed Physical Activity Control Group (PACG). The tool used in the research for evaluation of the behavioral results was the ADHD RS IV Questionnaire, completed by the participants pre- and post-intervention. For evaluating the physical effect of the fencing training program relative to general physical activity, the Eurofit Fitness Testing Battery was chosen as the evaluation tool.

Results: The inattention data as reflected from the ADHD RS IV Questionnaire indicates that the value difference between the preliminary stage and the final stage of the FTEG (193) is much greater than of the PACG (52). As for the Hyperactivity/Impulsivity characteristic, the FTEG difference (180) is slightly greater than of the PACG (162).

Conclusions: Fencing training was found to yield a higher impact on all ADHD characteristics as reflected in the ADHD Rating Scale IV Questionnaire, supporting the assumption that fencing training is superior to PA in mitigating ADHD symptoms.

A Comparison of Drop and Depth Jumps in Eccentric and Concentric Phases

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Background: The shift of muscles from an eccentric to a concentric phase could be an important factor in the variation of muscle engagement during different types of jumps, such as drop (DJ1) and depth jumps (DJ2).

Aim: The purpose of the study was to investigate the differences during DJ1 and DJ2 in lower limbs for verifyingied the possible differences in muscle recruitment that can affect the emphasis of neuromuscular activation in eccentric and concentric contractions.

Methods: The data were acquired in 14 elite U17 football players (mass 64.36kg±4.5, height 177.36cm±4.5) with GPS-IMU Spinitalia v2 (acquired at 100 Hz) and EMG Myontec M-Body 2 (resampled at 100 Hz) for quadriceps, hamstrings and gluteus at different drop heights (40, 50, 60, 70cm in bipodal jumps, 20 and 40cm for both monopodal jumps).

Results: The comparison of IEMG in bipodals DJ1 and DJ2 shows significant differences only in concentric phases, respectively for falls from 40cm p=0.00 and d=0.84; from 50cm p=0.00 and d=0.67; from 60cm p=0.00 and d=0.50; and from 70cm p=0.00 and d=1.25. The monopodals IEMG (always evaluating only the contact leg for monopodal jumps) in concentric phases results for the left monopodal from 20cm p=0.07 and d=0.71; right monopodal from 20cm p=0.02 and d=0.95; from 40cm the left monopodal p=0.02 and d=0.93; from 40cm the right monopodal p=0.01 and d=1.01. When comparing the differences between DJ1 and DJ2 in relation to the peak value obtained on RBJs (Rebound Jump Multiples) as normalization for EMG, differences were also found in all bipodals eccentric phases, respectively for falls from 40cm p=0.00 and d=1.42; from 50cm p=0.00 and d=1.76; from 60cm p=0.00 and d=1.45; from 70cm p=0.00 and d=1.49; and for eccentric phases of monopodal left from 20cm result p=0.00 and d=1.43; right monopodal from 20cm p=0.00 and d=1.77; from 40cm the left monopodal p=0.05 and d=0.77; from 40cm the right monopodal p=0.43 and d=0.30.

Discussion: The evaluation of the electromyographic effort over time (IEMG) seems to vary purely in the concentric phases in these two different types of jumps, presumably due to the change in the temporal expression of the motor action, while in a more qualitative evaluation such as the electromyographic effort in relation to the RBJs, the eccentric phases also seem to vary with the change in the executive technique. We could thus summarize that the change in eccentric phases seems more qualitative and that of concentric phases more quantitative.

Conclusions: During DJ1 and DJ2 a considerable variation was found in muscle commitment that can affect the emphasis of neuromuscular activation towards eccentric or concentric contractions between these two different jump modes.

How Do Male Athletes Perceive the Mood Effects of Masturbation in Sport with Reference to Male Athletes in Sabaragamuwa University of Sri Lanka

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Masturbation is a sexual incitement of one's own for sexual excitement. The mood is an internal state of feeling related to the nervous system, bought on by neurophysiological changes differently related to thoughts, feelings, behavioural responses, and a degree of pleasure or displeasure. The study aimed to identify the mood effects on masturbation in sport.

The stratified sampling method was used to select 152 male athletes from 20 sport branches covering 50% of teams of the Sabaragamuwa University of Sri Lanka for the present study. A standard questionnaire "Profile of Mood State" (POMS) was used to collect data. The moods categories of tension, depression, anger, fatigue, confusion and vigour were tested in the present study. Vigour was the only positive mood supporting sports while other the moods were considered to negatively affect moods for sports. Data were gathered in two controlled situations by POMS. Paired T-test was utilized to analyzed data on Minitab version 17.

According to the findings, significant differences were identified in depression, fatigue and confusion (P0.05) by considering the two situations. The mean values were increased of the following moods in the second situation of athletes with masturbation (tension 2.4%, depression 9.6%, fatigue 62.1% and confusion 65.3%). Vigour and anger (23% and 3.6%, respectively) were decreased by masturbation. In conclusion, a decrease of anger by masturbation may positively impact a player's mood to effectively engage in sports. The researcher encourages performing future studies on different samples to generalize the effect of masturbation on the athlete's moods.

Effect of Short-term Sprint Interval Training on Cell-free DNA Kinetics and Neuromuscular Fatigue in Young and Old Individuals

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Chronic low-grade inflammation is considered a major factor underlying age-related diseases and functional impairments, including declining physical performance. Given the wide range of benefits from exercise and physical activity, exercise has been proposed for the prevention or attenuation of the decrease in quality of life with aging. Sprint interval training (SIT), which comprises short high-intensity bursts of exercise interspaced with periods of rest, is highly metabolically demanding and a potent stimulus for inducing metabolic adaptations in human skeletal muscle.

We studied the release of cell free DNA (cfDNA) during high-intensity exercise and its correlation with neuromuscular fatigue and aging. Inflammation-related, acute, and transient increases in cfDNA have been observed in a number of different exercises. We recruited 10 recreationally healthy young and nine elderly men. In our study, training was composed of nine short high-intensity sessions (three sessions/week for three weeks, sessions of 4-6 repetitions of 30-s all-out cycling sprints). Blood samples were taken and neuromuscular measurements were performed before, immediately after exercise and at 1 h, 24 h postexercise in the first and last SIT sessions. Lactate was measured immediately before, after and 1 h postexercise. Despite the significant increase (p 0.001) in plasma cfDNA concentration after exercise in each group separately, no substantial differences were noticed between the young and old groups in both sessions (p 0.05). There was a positive correlation with lactate (p 0.05). Further, there was a time effect showing a decrease in Central Activation Ratio (CAR) in the young group (p 0.001), but no significant effect in the older group ($p = 0.394$). Immediately postexercise, CAR significantly declined compared with baseline in the young group only (p0.01). Immediately postexercise increases in cfDNA were directly related (p0.05) to changes in CAR 24 h postexercise. These results suggest that acute changes in cfDNA may predict performance during the recovery period in young individuals.

The First Defense Line Against Chronic Pain

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Physical activity (PA) is important for human health (Dobson et al., 2014; Ho et al., 2016) and its absence raises the risk for illness and chronic pain (CP) (Rabbitts et al., 2014; Sluka et al., 2013). Therefore, it is necessary to implement an active and healthy way of living through daily PA (Ho et al., 2016; Rabbitts et al., 2014). Although pain itself is a defense mechanism, CP is futile and has no practical use. CP is one of the most common health problems and it affects the quality of life (QOL) of about 20% of the general population (Dobson et al., 2014; Sluka et al., 2013; Treede et al., 2015; Zdziarski et al., 2015).

A new classification of CP by its origins was published in the ICD-11 (June 2018). This new classification makes it easier to outline specific ways to treat CP (Treede et al., 2015).

It is known for some time that PA is an effective pain reducer (Sluka et al., 2013) by activating mechanisms like the release of opioids, endorphins and Neurotrophin-3 (Daenen et al., 2015; Dobson et al., 2014) and boosting HSP72 protein that is involved in reducing the sensation of pain (Daenen et al., 2015; Dobson et al., 2014).

PA avoidance because of CP, lack of persistence or other encumbrances hinders persistence in PA and makes it more difficult to use it as an effective treatment (Ho et al., 2016; Kakushi et al., 2008; Rabbitts et al., 2014; Zdziarski et al., 2015).

In most cases of CP, it is found that aerobic exercise (AE) is the most beneficial (Daenen et al., 2015; Juhl et al., 2014; Rabbitts et al., 2014; Sertel et al., 2017; Zdziarski et al., 2015). However, it`s better to start with resistance exercise (RE) to improve joint stability and reduce the chance of inducing pain (Zdziarski et al., 2015). The best method is to combine AE with RE (Searle et al., 2015; Zdziarski et al., 2015).

Other forms of exercise, like Chikunga, Yoga, Flexibility and Aquatic-Therapy, were found beneficial for CP reduction (Matsumoto et al., 2011; Sherman et al., 2005; Southerst et al., 2016; Zdziarski et al., 2015). Even though heat treatment in a dray sauna is not traditional PA it was also found beneficial for pain reduction (Matsumoto et al., 2011; Matsushita et al., 2008; Kakushi et al., 2008).

Physical Abilities and Muscle-Size Changes in Basketball-Trained Boys at the Onset of Puberty

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Background: Data is lacking on the combined effects of maturation and training on physical and morphological changes in children at the onset of puberty. In our study we examined year-long maturity-related physical and morphological changes of similar-aged basketball-trained (BT) and actively untrained (UN) adolescent boys.

Aims: We aimed to evaluate muscle parameters and maximal performance test results in young BT and UN boys, compare them, and check the correlations with maturity level.

Methods: Our subjects were 28 BT (11.84 ± 0.38 years-old during first session) and 22 UN (11.81 ± 0.49 years-old) healthy adolescent boys. Anthropometric parameters were collected using standard procedures with a stadiometer and a total body composition analyzer. Performance tests included: isometric bench press (BP), isometric knee extension (KE), vertical squat-jump test – parameters measured: jump height (JH) and ground reaction force (GRF), 30-meter sprint (RT), and the Flamingo balance test (FB). Muscle parameters measured were Biceps Brachii thickness (BB) and Vastus Lateralis thickness (VL). Two one-year in-between testing sessions were conducted to observe the influence of trainability and maturation (according to maturation development stages by Tanner). Students' t-tests were used to compare within-group differences between sessions and between-group differences in both sessions. Pearson's correlation coefficients were calculated to assess performance tests, muscle parameters, maturation level, and maturation level relationships.

Results: The BT group showed significantly higher (p0.05) BP, JH, and RT results during both testing sessions. In addition, they also had higher KE and VL during the second session, and KE was the only parameter which improved more between sessions in BT than in UN. Between sessions the BT group significantly improved all parameters except JH, and the UN group improved KE, GRF, RT, BB, and VL parameters. Strong correlations (p0.05) in the BT group were observed between maturity level and BB, BP, KE, and GRF. In the UN group maturity correlated only with GRF.

Discussion: Trained boys showed higher muscle and physical parameters, which is in accordance with previous findings. One year is probably too short a time to see significant basketball influence on most parameters, especially when the BT group already had pre-training and did not start from similar physical and morphological levels as the UN boys. Since physical abilities do not correlate fully with maturity level, additional studies should be done to clarify the underlying mechanisms of physical and morphological changes in relation to maturation and training at the onset of puberty.

Conclusion: Significant improvements in muscle size and physical abilities in boys start at the onset of puberty and before reaching age at peak height velocity. Furthermore, BT boys have superior strength and power abilities than their similarly aged and matured UN peers. On the other hand, physical and muscle parameters correlate only partly with maturity.

Peculiarities of Health Literacy among University Students

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Aim and Background: This study deals with the investigation of health literacy among university students. Health literacy is needed to take care of our health, prevent our diseases and improve our health, as well as to maintain and improve the quality of life. The aim of this research is o study and determine particularities of health literacy among university students - men and women. It was hypothesized that women rate their health literacy better than men do.

Methods: The study used Health Literacy Survey Questionnaire (HLS-EU-Q47). The HLS-EU-Q47 measures health literacy across three health domains: healthcare, disease prevention, and health promotion. The analysis covered 103 students (56 women and 47 men), which were randomly selected from two universities. The average age was 23.72±2.78 years. The subjects who agreed to participate in the study were interviewed remotely.

Results and Discussion: Indices of all domains of health literacy among male and female university students were calculated and analysed. The results indicated that the highest health literacy index was in the healthcare domain (36.95±10.32), followed by the disease prevention domain (35.64±11.07), and health promotion domain (35.34±14.89) for whole sample. It was established that female university students evaluate their health literacy better (in the healthcare domain ($t(101)=-3.52$; $p=0.001$) and in the disease prevention ($t(101)=-2.98$; $p=0.004$), than male university students do, with the exception of health literacy in health promotion domain ($t(101)=-1.47$; $p=0.146$). Female university students scored higher in the healthcare domain (40.07±10.36) than male university students (33.24±09.06) and in the disease prevention domain, respectively (38.51±11.25) and (32.22±09.93).

Conclusions: To sum up, health literacy among university students is insufficient. The findings of the present study point out new trends to a deeper understanding of the peculiarities of health literacy among university students.

Changes in Aerobic Capacity Indicators of Prepubertal Children in Sports

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Aim: To evaluate the influence of football training on the aerobic capacity of prepubertal children.

Methods: There were two study groups: 16 prepubertal children training in football (3 hours per week) and a control group (11) who did not exercise regularly. The research was carried out in two stages. During both stages, a portable Oxycon Mobile (Germany) O2 / CO2 gas analysis system was attached to the back of the subjects. The above analysis system was followed by aerobic capacity indicators: absolute oxygen consumption (VO2 peak) l / min, relative oxygen consumption l / min, maximum lung ventilation (VE peak) l / min. Maximum heart rate (HR max) tv / min. rated with a Polar Accurax Plus (Polar, Finland) sensor. These parameters were evaluated during a consistently accelerating running test on the treadmill. For the first 4 minutes, the treadmill moved at a speed of 6 km/h with a 1% slope, after which it accelerated consistently. These tests were performed twice: at the beginning of the study and after 6 months. Data were processed by SPSS 26 software package.

Results and Discussion: The homogeneity (anthropometric data) of the study groups was verified by Levene and Shapiro-Wolf tests. No statistically significant differences were found. After the first half of the year, VO2 peak of prepubertal children training in the football group increased from 1518 ± 0.195 l / min. to 1,641 ± 0.157, so the change was statistically significant (Sig α). When assessing HR max after half a year it increased from 197.06 ± 5.15 to 200.50 ± 5.96. The peak lung ventilation rate (VE peak) also increased from 54.32 ± 9.59 to 59.87 ± 6.28 l/min, so the result is also statistically significant (Sig α) (see 1 table). Only the peak pulmonary ventilation rate (VE peak) of non-athletic prepubertal children had a statistically significant change over 6 months: it increased from 50.45 ± 2.50 to 51.14 ± 2.21 l/min. The result obtained is statistically significant (Sig α).

Our study shows the results, which are very similar to a Runacres et al. (2019) study, which also observed a higher increase in VO2 peak and other indicators in prepubertal children depending on attendance of football training sessions.

Conclusions: VO2 peak, HR peak and VE peak of prepubertal children attending football training showed a statistically significant increase. VE peak of prepubertal children who do not exercise regularly increased. Other indicators of aerobic capacity in prepubertal age children who do not exercise regularly did not show a statistically significant change.

First testing		Second testing		
n=16	Mean and SD	Mean and SD	Difference	Sig.
Age y	8.2±0.66	8.6±0.8	0.38	-
Height m	1.32±0.03	1.35±0.04	0.03	-
Weight kg.	32.6±2.5	35.4±2.77	2.79	-
VO2 peak l/min	1.518±0.195	1.641±0.157	0.122	0.013*
VO2 peak relat. l/min.	51.81±6.55	52.14±5.01	0.33	0.851
HR peak t/min.	197.06±5.15	200.50±5.96	3.4	0.011*
VE peak l/min	54.32±9.59	59.87±6.28	5.55	0.023*

Table 1. Football training group aerobic capacity changes (*Sig < α(0.05)

Identifying Criteria for a Physical Literacy Screening Task: An Expert Delphi Process

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Background: REACH (Recreation, Education, Allied-health, Coaching, Healthcare) leaders provide critical support for children's physical literacy. This project established screening criteria to identify children needing significant support for a healthy, active lifestyle.

Methods: A 3-round expert Delphi process sought consensus regarding physical literacy screening. Group discussions (Round 1) identified screening issues. Qualitative analyses of meeting notes by two researchers represented the issues as statements. Experts rated each statement (5-point Likert scale) in Rounds 2 and 3. Experts were aware of the mean Round 2 rating for each statement during Round 3. A priori consensus was 75% of participants stating agree/strongly agree.

Results: Fifty-three experts were invited to participate, with 37 (63% female, mean career length = 16 years) providing consent. Each round comprised at least 7 experts with primary/secondary expertise for each REACH sector. Round 1 identified 60 criteria and 27 potential screening tasks, which were represented in 90 statements. Consensus was achieved for 44/90 statements in Round 2 and 51/90 statements in Round 3. The tasks should be suitable for research and practice, with individuals or groups of children, and including those with disabilities. The assessment of physical activity and sedentary behavior, motor skill, cardiorespiratory fitness, and activity motivation is important. Providing results useful to REACH leaders and a decision tree for further follow up are recommended.

Conclusions: A physical literacy screening tool would enable leaders in recreation, education, allied health, coaching, and healthcare to identify children with low physical literacy. Expert consensus suggests the screening should use objectively measured tasks and questionnaires encompassing multiple facets of physical literacy, including motor competence, motivation, strength, endurance, and daily behavior. Research is required to identify potential tasks that meet these criteria and are suitable for each REACH sector.

Train Like You Fight: Volleyball Errors during Practice and Games

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Background: Currently, theoretical predictions regarding the role of errors in practice and gameplay over time do not distinguish between drill-like and scrimmage-type practice in sport. Recent work has looked at the relationship between the number of errors produced by athletes during volleyball scrimmage-type practice and games, and found that those with high error scores in scrimmage were more likely to produce high error scores in gameplay as well. Training the same way you compete can facilitate better prediction of errors.

Aim: The aim of the present study was to determine if the relationship between errors in scrimmage and gameplay differed across a competitive volleyball season.

Methods: Scrimmage during practice and official gameplay were recorded over the 5-month competitive varsity volleyball season. Videos were obtained through the official sport organization website and were provided by the institution's team coaches. Clips were recorded from behind the service line. Practice and game clip pairs were created, and three pairs were chosen for each gender to represent performance early, mid, and late in the competitive season. Coders recorded incidences of serve receive, serve, blocking, defence, and attack errors.

Results: Coder agreement met a priori intra-class correlation criteria. Spearman's rho was used to determine the relationship between errors in scrimmage and gameplay. When player position and percent time on the court for both practice and games were controlled for the relationship between errors in practice and errors in gameplay, we found a third-order partial correlation of $r = -.71$, $p = .022$ for the females, and a third-order partial correlation of $r = .89$, p .001 for the males early in the season. Mid and late season partial correlations were not statically significant at the $p=.05$ level for either gender (Females: $r = -.13$, $p = .73$ mid-season and $r = .48$, $p = .17$ late season; Males: $r = .11$, $p = .74$ mid-season and $r = .19$, $p = .58$ late season).

Discussion: The relationship between error score ranks for scrimmage and gameplay did differ across a competitive season. While partial correlations for both genders were significant during the early season, this was not the case mid and late season. The significant partial correlation for females was negative, while the significant partial correlation for males was positive. We propose that this may be due to differences in how coaches approached scrimmage. These results suggest that the role of error during practice in sport may change over time, and that training as you would compete is of benefit.

Conclusion: In the context of sport, the role of error in practice may not be constant over the course of a competitive season. This has implications for both motor learning theory and coaching practice.

IV. יוזמות חינוכיות של מורים לחינוך גופני

אקטיב מיינד -שילוב פעילות גופנית ותנועה בתהליכי למידה והוראה

מעין בר יהודה

התנועה היא צורך קיומי של כל ילד .הפעילות הגופנית מתאימה לכל הילדים ,בכל הגילאים ובכל האוכלוסיות)עם ההתאמות והשינויים הנכונים כמובן .(קיים קשר בין תנועה ולמידה לאורך כל החיים .שילובה של התנועה והפעילות הגופנית בלמידה העיונית יוצר תנאים מידיים לקיומה של למידה פעילה וחווייתית ,תוך הנאה גופנית , מוטיבציה פנימית ,פיתוח חשיבה מסדר גבוה ויצירת קשרים ביו-כימיים חדשים במוח .הלמידה בתנועה משלבת בתוכה את תחומי הדעת השונים ולכן מסייעת בהטמעה ואינטגרציה של הידע .

שיטת אקטיב מיינד הינה פרקטיקת הוראה ולמידה המשלבת בין הפעילות הגופנית והנושאים הנלמדים בכיתה . פיתוח אסטרטגיות למידה והוראה בשילוב פעילות גופנית ותנועה נותן מענה לדיפרנציאליות ולפרסונליזציה של התלמידים והמורים ,מעורר את הסקרנות של התלמידים ואת יכולות המורים ומוביל אותם להצלחה דו כיוונית . שיטת אקטיב מיינד נובעת מהסתכלות הוליסטית של 4היבטים הנותנים מענה למגוון הצרכים של הילדים .

היבט קוגניטיבי -שיפור הישגי לומד ,תהליכי קשב וריכוז ,תהליכי זיכרון ולא שינון ,פניות ומוכנות ללמידה ,סוגי לומד שונים בכיתה הטרוגנית .

היבט מוטורי -עוררות גופנית ,הוספת פעילות גופנית ועידוד לאורח חיים פעיל ובריא ,שכלול מיומנויות יסוד , הרחבת מאגר התנועות ,הנאה ,משחק ,אתגר פיזי ,חווית הצלחה מהירה עם תוצאות מידיות .

היבט חברתי -התמדה ומוטיבציה פנימית ללמידה ,תהליכי קבלת החלטות ופתרון בעיות ,שיתוף פעולה ועזרה הדדית ,ראייה כוללת של כל הקבוצה .

היבט רגשי-חוויה אחרת של למידה והוראה ,הוצאה מסדרי הכיתה המקובלים ,לומד פעיל ומעורב ,למידה אינטואיטיבית וחשיבה עצמאית ,התמודדות עם מצבים וסיטואציות חברתיות ,התחלה וסוף ברורים ,כללים ונהלים

השיטה מבוססת על משחקי בסיס מוכרים)תופסת ,תפסוני ,ארנבת שחורה ,דג מלוח ועוד (שאליהם ניתן לצקת כל תוכן לימודי באמצעות 6מודלים :מערך שיעור מלא ,משחק פתיחת /סיכום שיעור ,עבודה בקבוצות)כל הקבוצות פעילות בתנועה /רק קבוצה אחת פעילה בתנועה וכל השאר בלמידה ,(פרטני ,למידה סינכרונית וא - סינכרונית .

השיטה נבדקה במהלך השנים האחרונות ועולה בקנה אחד עם מחקרים המוכיחים כי תכניות התערבות המשלבות פעילות גופנית ותנועה בתהליכי הלמידה וההוראה עוזרות לילדים לפתח מיומנויות חברתיות ,משפרות את הבריאות והרווחה הנפשית ומפחיתות התנהגויות סיכון .כמו כן נמצאה בתכנית זיקה חיובית של שיפור במדדים אקדמיים וביכולות קשב וריכוז באמצעות תנועה ופעילות גופנית.

תכנית אימון מנטלי בחינוך הגופני

ענבל פרי

"תכנית אימון מנטלי בחינוך הגופני "משלבת שיעורי חינוך גופני יחד עם מיומנויות מנטליות לתלמידים בבתי ספר יסודיים ,במסגרת שעות הלימודים .התוכנית מקנה מיומנויות חיים לילדים בגילאי 12 - 8והיא עוזרת לילדים לפתח את המיומנויות והכלים הנדרשים כדי להגיע לרווחה נפשית ,ביצוע מיטבי והעצמה דרך הספורט ובתחומים שונים בחייהם .ההנחה הבסיסית של התוכנית היא שדרך ההכשרה והשימוש בפסיכולוגיית ספורט ובמיומנויות החיים נוצרת חשיבה שמקדמת את הרגשת ההערכה העצמית של הילד .ילדים שמרגישים טוב עם עצמם ומפתחים את הכלים שמאפשרים להם להרגיש שליטה במצבים בהם נתקלים ביומיום ,יחוו הצלחה בביצועיהם הספורטיביים ,בהישגיהם הלימודיים וביחסיהם הבין אישיים עם עמיתיהם ועם מבוגרים באופן כללי .

מטרת התוכנית כוללת חיזוק הביטחון העצמי של התלמיד והצבעה על חוזקות אישיות וכן חיזוק תחושת השייכות לקבוצת השווים בבית הספר ,פיתוח יכולות ביטוי ועמידה מול קהל ,מתן כלים לניהול העולם הרגשי ולפתרון אתגרים חברתיים ,ומתן הזדמנות לצבירת הצלחות .

תרומת התוכנית מקנה חוויה גופנית-רגשית ,מאפשרת מתן כלים לניהול רגשי ותקשורת חיובית ופיתוח הקשרים החברתיים בבית הספר דרך העצמת הפרט והקבוצה .אוכלוסיית היעד של התוכנית מופנית לכלל תלמידי א-ו בבית ספר יסודי ביניהם תלמידים עם קשיים רגשיים ,תלמידים עם קושי לנהל מצבים חברתיים ,תלמידים עם קושי בהבנת מצבים חברתיים ,תלמידים ביישנים שאינם מביאים את עצמם לידי ביטוי במסגרת החברתית , תלמידים שאינם זוכים להצלחות ולחיזוקים על ביצועיהם .פעילות מתבצעת בתרגול עבודה בקבוצות, בזוגות וביחידים .

התוכניות מיושמת בשיעורי החינוך הגופני בבית הספר .המורה מקציב 10שיעורים מתוכנית הלימודים הכללית , ומתבצעת במגרש או אולם ספורט ,סטודיו או כיתה פנויה .

התכנים בתוכנית כוללים :קביעת יעדים ,התמודדות עם לחץ ושליטה על רמת עוררות ,העלאת ביטחון עצמי , לימוד דיבור עצמי חיובי ,מיינדפולנס והדמיה ,הגברת השליטה העצמית ,הגברת הריכוז ,חיזוק הדינמיקה הקבוצתית בכיתה ופתרון קונפליקטים .התחומים הללו ,הנלמדים בצורה פעילה ומרתקת ,מועברים דרך הספורט ואז מיושמים בתחומים נוספים בחיי הילד כמו בבית ספר ,עם חברים ומשפחה .

תמי קשטר

החינוך הגופני מהווה מקצוע משמעותי לפיתוח מיומנויות וכישורים חברתיים .כישורים חברתיים הם כישורים נרכשים ,אשר דורשים אימון והתנסות .

הצורך בקשרים וכישורים חברתיים וטיפוח מיומנויות חברתיות גבר בעקבות הקורונה .מגפה שהובילה לבידוד וריחוק חברתי ,מנעה קשרים ומפגשים חברתיים ,צמצמה הזדמנויות לאינטראקציות חברתיות ,הקשתה על שמירת קשרים חברתיים ופגעה בשגרת החיים החברתיים של הילדים .לאור ההשלכות החברתיות של הקורונה , התעצמה השפעתו ותרומתו של החינוך הגופני בפיתוח "השרירים החברתיים "של הילדים .

החינוך הגופני ,במהותו ,מזמן התנסויות חברתיות ,דילמות חברתיות התמודדות עם סיטואציות חברתיות מחיי היומיום של הילדים ומאפשר רכישת כלים להתנהגות פרו-חברתית .במסגרתו ,ישנה הדמיה לסיטואציות חברתיות אמיתיות ,בסביבה ידידותית .סביבה שבה הילד יכול להתבונן ברגשות שלו ,בתחושות של האחר , בהשלכות שיש להתנהגות שלו על עצמו ועל חבריו .

הקניית כישורים חברתיים ורגשיים בקרב ילדים במסגרת החינוך הגופני ,יכולה לתת מענה להבנת סיטואציות חברתיות ,לספק תחושת מסוגלות ,ללמד את הילדים כיצד להתנהל נכון בחברה בזמן אמת ,תוך ליווי שיח רגשי והתבוננות רפלקטיבית .

סיטואציות בהם ניתנת לילד אפשרות להתנסות בזיהוי הצרכים של האחר ,ללמוד ליצור קשר משותף ,לבטא את עצמו בצורה פרו חברתית,ללמוד להצטרף לקבוצה ,להכיר מגוון דרכים לפתרון קונפליקטים ,לשתף פעולה בקבוצה ,לעבוד בצוות ,להכיר תפקידים שונים בקבוצה וללמוד לזהות את הרגשות שלהם ושל האחרים .

סיטואציות שיעזרו לילד להבין הבעות רגשיות של האחר ואת משמעותן לגבי רצונו וכוונותיו .להבין שלאחר יש מחשבות ,רגשות וזוויות ראיה שונות ולהתנהג בהתאם .להכיר את "כללי המשחק המוסכמים ,"לדעת כיצד ליצור קשר עם קבוצת השווים ,להיחשף למגוון דרכים לפתרון בעיות ולהצטייד ב"ארגז כלים "לחיים .

ביכולתו של המורה לעודד הקשבה ,איפוק ,אמפתיה ,ולתת חיזוקים ממוקדים להתנהגויות חברתיות רצויות . המסגרת החברתית מאפשרת לילדים לקבל רפלקציה על ההתנהגות החברתית שלהם .

מטרת הסדנה להעלות את המודעות בקרב המורים לתרומה המשמעותית של החינוך הגופני לפיתוח וטיפוח המיומנויות החברתיות של התלמידים .

במסגרת הסדנה נתנסה במגוון פעילויות ספורטיביות לצד שיח חברתי-רגשי ,ונקבל כלים אופרטיביים ליישום בשיעורי חינוך גופני.

דימיטרי בולט

"מחול מסביב לעולם" הינה תוכנית חינוכית חברתית -הוליסטית המיועדת לתלמידי בית ספר יסודי .התוכנית משתמשת בריקודים מעמים שונים ומדינות שונות ברחבי העולם.מחברת התוכנית ,קטיה מלאיה -רקדנית ואשת החינוך ,החליטה להביא לילדי ישראל גישה יחודית למוזיקה ותנועה ,להזמין אותם ל"מסע מחול מסביב לעולם .""במהלך המפגשים "יוצאים "הילדים לטיול וירטואלי ומבקרים במדינות שונות על פני כדור הארץ .כל "ביקור "מסתיים בלימוד ריקוד מיוחד לאותה מדינה .התוכנית מתבססת על גישה הוליסטית לבניית ביטחון עצמי ועבודת צוות ,כבוד הדדי ונימוס ,שיפור ריכוז ועוד .במהלך המפגש יקבלו משתתפי הכנס "טעימה " מהפרויקט המיוחד הזה ויחוו מה שמרגישים ילדים שמשתתפים בתוכנית.

לימור קריגל

הרציונאל :המסכים גורמים לחוסר העסקים גופנית אצל ילדים ובני נוער ולמחלת "היושבנות "התכנית שלנו לדאוג שהילדים יעשו שימוש נכון ונבון המסכים .שימוש שיועיל להם ,שיקדם אותם ולא שיפגע להם .האפליקציה תעזור בפיתוח תפקודי לומד שיש :ערבות הדדית ,קבלת אחריות ,מוטיבציה ,סטיילות ,למידה חושית תנועתית .

נכון ,יש היום הרבה אפליקציות העוסקות בפאילות .המוטיבציה של תלמיד שהוריד לבד אפליקציה והמוטיבציה של תלמידים שביחד הורידו אפליקציה ,היא אפליקציה בית ספרית ,ביחד עם מורה שמלווה תומך ,מעודכן , מפרסם תוצאות של התוכניות של התוכניות ,מחלק פרסים לכיוון עם הכמות הכי טובה של החברה גופנית וכו `אין ספק שפה המוטיבציה גדול יותר .התלמידים ,במיוחד בבית הספר היסודי רוצים להוכיח שהם יכולים .זה תחרות חיובית .בנוסף ישנה תרומה חברתית מאוד גדולה .המטרה היא ההתלמדות היפגושו בשעות אחר הצהרה ויעשו ביחד הפעולה גופנית .

בבית הספר בו אני מלמדת ,אני מפעילה תוכנית ,בשכבות הגיל ד-`ו ,`שהתחילה לפני העשר שנים ,כשישבתי באחת מההשתלמויות ושמעתי הרצאה של מורה לחינוך גופני שם יוסי ביבר .לימים נפגשתי עם יוסי ,התאמתי את התוכנית לבית הספר היסודי והתחלתי להפעילה ,התחילה כיוזמה חינוכית .את היוזמה הגשתי לקרן ליוזמות חינוכיות וזכיתי במגן .מטרות התוכנית ,הגברת המוטיבציה .לתוכנית קוראים "אישי יותר-בריא יותר .""התוכנית הפכה לחלק בלתי אפשרית נפרד משיעורי החינוך הגופני והמערכת התלמידים בשיעורי החינוך הגופני .

הסבר על התוכנית .התלמידים רושמים את התוצאות של שלושת המבדקים הבסיסיים והניקוד של כל התפקיד והתוכנית נותנת המטרה למספר אל התלמידים .התלמיד צריך להתאמן לתוצאות החדשות ,הם באמתם אתגר בשבילו .תלמידים שמצליחים להגיע ליד ,מקבלים צמיד אחד מארגט הצילים שיש לתוכנית :ירוק -הצלחה אחת ,אדום -שתי הצלחות ,תכלת -שלוש הצלחות ,לבן -ארבע הצלחות .בכיתה ד `התלמידים חוזרים על המבדקים 3פעמים לאורך השנה ובכיתה ה `וגם ו `חוזרים על המבדקים 4פעמים .תלמידים שלא מצליחים להגיע ליד ממשיכים להתאמן ומנסים במבדק הבא .להכיר קשר תלמידים מתקשים שלהם .

מצ"ב קישור לסרטון אותו הכינה הקרן לעידוד יוזמות חינוכיות על התוכנית "אישי יותר בריא יותר ."

https://www.youtube.com/watch?v=AIiEI62nMh8&t=16s

המוצר שלי הוא :המוצר נמצא מוצר טכנולוגי חדשני)בפלאפון הנייד ,(שמטרתו לפתח אצל התלמיד אחריות ומוטיבציה לפעולות גופנית קבועה בשעות הפנאי ,כל אחד בהשוואה לעצמו ולנקודת הפתיחה שלו .

לא יישום שני חלקים :

באדי התלמידים יכולים לרשום את ההישגים שלהם במבדקי התוכנית "אישי יותר בריא יותר ."בחלק השני של האפליקציה קוד 5אתגרי כושר גופני שההשתתפות בזמן עוזרת להציל את התוכנית "אישי יותר בריא יותר "בכל מבדק עצמך מבדקי התוכנית ובסך הכל להצליח להגיע לידי .

קבוצת כושר משותפת לצוות ותלמידים בביה״ס `בית הצייר `לנוער בסיכון

עמי ויסברגר

הפיקוח הארצי על החינוך הגופני מפעיל השנה את תוכנית `פכ״ל - `פעילות כושר לחיים .מטרת התוכנית היא לשפר את הכושר הגופני והחוסן המנטלי של בני הנוער בכיתות י-`י״ב עם דגש על הכנה גופנית נכונה לקראת השירות הצבאי .

בבית הספר `בית הצייר `הנמצא בירושלים בנינו קבוצת כושר משותפת לתלמידים ולצוות ,על בסיס ״תוכנית פכ״ל` .״בית הצייר `הינו בית ספר לחינוך מיוחד ,המיועד לנערים עם בעיות התנהגות קשות על רקע רגשי ,נפשי ותקשורתי בגילאי .12-21הנערים שמגיעים אלינו הינם בעלי אינטלגנציה תקינה ,אך הקשיים עימם הם מתמודדים יוצרים אתגר במפגש של בני הנוער עם מסגרות ,כללים ונהלים .מרבית תלמידי ביה״ס חוו כשלונות רבים במסגרות הקודמות בהם למדו ומגיעים אלינו חסרי אמון בעצמם ובעולם המבוגרים .קבוצת הכושר שהקמנו מתקיימת אחת לשבוע בשעות אחר הצהריים ,ומטרתה משולשת :שיפור הכושר הגופני ,בניית חוסן רגשי ומנטלי בהתמודדויות עם אתגרי היומיום ושיפור האקלים הבית ספרי .

בסדנא אתאר את הפרויקט ואת הפעילות הייחודית שמתבצעת במסגרתו ונדון באתגרים וביתרונות שיש בקבוצה שכזו .

הקבוצה נפגשת אחת לשבוע אחרי שעות הלימודים לאימון של כשעה וחצי ופתוחה לכל צוות ביה״ס ולתלמידים בכיתות י-`י״ב .ההשתתפות בתוכנית הינה וולונטרית לחלוטין ,הן לצוות והן לתלמידים וללא התחייבות מצידם . האימונים מתמקדים בשיפור היכולת האירובית של המשתתפים בשילוב עם תרגילי כוח בסיסיים ובנויים במבנה קבוע שכולל חימום ,מתיחות דינמיות ,תרגילי טכניקת ריצה בסיסיים ,חלק עיקרי של ריצה וכוח ומתיחות בסיום .

השילוב של צוות ותלמידים יחד נותן ערך מוסף גם לתלמידים וגם לאנשי ונשות הצוות .לתלמידים השילוב עוזר להתמיד בהשתתפות שכן הצוות שנמצא דוחף ומעודד אותם ,גם בזמן האימונים וגם בין האימונים וגם לצוות זה עוזר להתמיד בהשתתפות שכן נוכחות התלמידים גורמת לצוות להתאמץ ולא לוותר מתוך הדוגמא האישית שהצוות רוצה להוות לתלמידים .בנוסף ,עצם הפעילות המשותפת תורמת לאקלים הבית ספרי וליחסים בין הצוות לתלמידים ,יחסים שבשגרה נוטים לעיתים להיות מתוחים היות שמדובר על תלמידים עם התנהגויות מורכבות שפעמים רבות מתנגדים מאוד למסגרות ולסמכות .

כמו כן ,במסגרת הקבוצה אנחנו משתתפים במירוצים)ככל האפשר בשנת קורונה (ובפרויקטים שונים של הכנה לצה״ל .

בעזרת הקבוצה אנחנו גם משפרים את האקלים הבית ספרי והיחסים בין המורים לתלמידים וגם מקדמים ומעודדים פעילות גופנית בקהילת ביה״ס .

אימון אישי אצל מתבגר מיוחד ,כיצד יחס ,מקצועיות ורגישות הופכים לאימון

שי דוד

ההרצאה ״צביקה בחר בי ״ ...

שמי שי דוד אני בן 52 ואני מורה לחינוך גופני מזה 23שנים .

רוב חיי המקצועיים שימשתי כמורה לחינוך גופני בתיכונים ,כמורה ,כמאמן אתלטיקה מאמן חדר כושר ,מציל ומורה לשחייה ובעברי הייתי גם רקדן .

במפגש זה אני מעוניין לשתף אתכם בתובנות ,בניסיון ובחוויה שכל מורה ומורה שעוסק בפעילות גופנית יכול להנות ולהועיל לאוכלוסייה רבה ומגוונת אם רק נפתח את הלב ולא נירתע .

מזה שש שנים בהם למד צביקה בבית הספר היסודי מעולם לא השתתף בשיעורי חנ״ג ומעולם אף לא שולב בשיעור שכזה .אבל ,צביקה סיים בית ספר יסודי והגיע לתיכון ,לחטיבת ביניים לתיכון בו אני ,שי דוד מלמד .

צביקה בכלל ,היה רשום כתלמיד אצל מורה אחר בבית הספר אבל באופן חד צדדי וללא הודעה מראש צביקה בחר בי והחליט שהוא התלמיד שלי ומצטרף לכיתה ז `אחרת שאינה כיתת האם שלו בכלל

ומשם כל הסיפור התחיל .

נושא עודף המשקל והסרבול המוטורי הבולט ריכך את ליבי והצטרפתי למסע יחד עם צביקה מבלי שהבנתי כמה גדולה החוויה של שנינו בהמשך ולאור ההמלצה החד משמעית באבחון המקצועי שנערך לצביקה לשלב כושר אישי על ידי אימון אישי .בהרצאה אספר על השתלבותו והתקדמותו הפיזית ,החברתית הדימוי העצמי וכמובן ההנאה שהוא מפיק .אספר על ההישגים הקטנים והגדולים ,על כל הקשיים יחד עם כל הדרכים שמצאתי כדי לגרום לצביקה להגיד ״מבין כל השיעורים בבית ספר אני הכי אוהב את שיעור החינוך הגופני ״ולזכות ממנו לחיבוק לפני כל שיעור או אפילו בהפסקה .בהרצאה אשלב ראיון קצר עם צביקה ,תמונות וסרטונים שי דוד

״חינוך גופני אחר ״תוקף סביבתי ,דרגות חופש ודמותו של המקצוע

רוני לידור

החינוך הגופני הוא מקצוע ליבה בתוכנית הלימודים של משרד החינוך. המקצוע נלמד בבתי הספר היסודיים, בחטיבות הביניים ובבתי הספר התיכוניים. גם בגני הילדים לומדים הילדים חינוך גופני המותאם לשלב ההתפתחות שלהם ולצורכיהם הגופניים, התנועתיים, החברתיים והריגושיים.

מי שעוסקים בהוראת החינוך הגופני במסגרות החינוך הפורמלי בישראל, מי שמכשירים סטודנטים להוראת החינוך הגופני ומי שקובעים את המדיניות במקצוע החינוך הגופני נדרשים מעת לעת לתת את דעתם על תמורות החלות בחברה, בעיקר תמורות טכנולוגיות וחברתיות-תרבותיות, שכן יכולה להיות להן השפעה על התוקף הסביבתי של המקצוע. לדוגמה, בעת הזאת נדרש החינוך הגופני להתמודד עם אתגרים כמו אורח חיים יושבני, תזונה לקויה של תלמידים, תחרות בלתי פוסקת עם מוקדי פעילות גופנית חלופיים (כמו חוגי ספורט ותנועה המוצעים לתלמידים בשעות אחר הצוהריים), ולתת מענה לתלמידים עם צרכים מיוחדים.

מטרת ההרצאה היא לבחון את יסודותיהם של ארבעה מודלים להוראת החינוך הגופני: המודל להבנת המשחק, מודל החינוך לספורט, המודל לחינוך לאורח חיים בריא ומודל החינוך לתנועה ברוח הספר *חינוך גופני אחר – מודלים להוראת המקצוע* (לידור, אייבזו ושובל, 2021), שראה אור לאחרונה. מודלים אלו נבחרו משום שלכל אחד מהם רציונל הוראתי המסביר מדוע הוא נחוץ ומה הם היבטי ההוראה והלמידה שאפשר להשביח, אם ייושם. הטענה המועלית בהרצאה זו היא שיישומם עשוי לחזק את התוקף הסביבתי של מקצוע החינוך הגופני ולאפשר לו להיות רלוונטי.

"פעיל ובריא בזמן החופשי"
"הילד המשחק צועד קדימה אל שלבים חדשים של שליטה ויכולת "אריקסון

גלית שער

במסגרת שיעורי חינוך גופני ,החלטתי לעודד את הפרויקט "פעיל ובריא בזמן החופשי "אשר יקנה לתלמידים שלנו מודעות לפעילות גופנית אשר גורמת להנאה ותורמת לשיפור הדימוי העצמי והביטחון העצמי ויוצרת חברויות ומקנה ערכי משמעת ומחויבות וידע רב על גופם ובמטרה חדה להגביל את השעות בהן הילד צופה בטלוויזיה / משחק בסמארטפון/משחק במחשב ולעצור רגע ולשתף פעולה גם עם ההורים.
מטרת העל היא לעצב ,לפתח ולטפח אצל התלמיד דפוסי פעילות והתנהגות גופנית וספורטיבית, במסגרת עבודה שיתופית, לשם הבטחת איכות חייו ופיתוח בטחונו האישי (נגזרת ממטרת משרד החינוך)

1. התלמיד יפתח יכולות קוגניטיביות
2. התלמיד ירכוש ידע רב על גופו
3. התלמיד יפתח את בטחונו האישי
4. התלמיד יפעיל מערכות גופניות שונות

פעילות גופנית אצל ילדים אינה משחק בלבד ויש לה חשיבות רבה לא רק בהתפתחות הגופנית, אלא גם בהתפתחות הנפשית, ההתפתחות הקוגניטיבית וההשתלבות החברתית התקינה של הילד.
כיצד התוכנית תופעל?
כל תלמיד מקבל בתורו ערכה למשך מספר ימים אשר תכלול: ספר קריאה, דלתגית, כדור ,מטקות ,חוברת משחקים ומחברת – בה חשוב לשתף בחוויות , תחושות, תמונות, ולפרט: מה למדתם מהספר? איזה פעילות עשיתם עם האביזרים? ומה הועיל לכם פרויקט זה? איזה ארוחה בריאה אכלתם? ועוד ..

פרויקט קהילתי –צועדים ביחד

מטרת הפרויקט -קידום אורח חיים פעיל ובריא למבוגרים בגיל השלישי

רעיה יאור

המבוגרים יבצעו פעילות גופנית במפגש אחד על אחד ,על בסיס קבוע ,בהדרכתם של בני נוער שעברו הכשרה מקצועית ,(תוך יצירת מפגש חברתי בין דורי .

הפרויקט מיועד לתלמידי כתות י״א וי״ב במגמות החינוך הגופני ,ותלמידים המעוניינים להשתתף בפרויקט .

רציונל הפרויקט: האתגר החברתי שזיהינו הוא כי חלק ניכר מאוכלוסיית המבוגרים לא מבצע פעילות גופנית , וזאת ממספר סיבות הקשורות בחסמים שונים כמו :חוסר מודעות לאורח חיים בריא ,בדידות חברתית המשפיעה על מצב הרוח ומדכאת את הרצון לפעילות ,רתיעה מפעילות גופנית ללא שותף/ה ,והעובדה כי חלק מהמבוגרים אינם יודעים כיצד להתאמן באופן עצמאי .חסם נוסף הוא שפעילות במסגרת מכון כושר ,למשל ,כרוכה בהוצאה כספית ודורשת רכב .

חשיבות הפעילות הגופנית עבור הגיל השלישי : גוף האדם עובר שינויים פיזיולוגיים רבים במהלך השנים והיכולת התפקודית של האדם הולכת ופוחתת .כל אנשי המקצוע)רופאים ,פסיכולוגים ,מומחים לגיל השלישי וכו (` מודעים לחשיבותה של הפעילות הגופנית אצל המבוגרים כטיפול מונע ,שמנטרל גורמי סיכון שונים הקשורים בזקנה .היא משמשת חומת מגן שמאיטה את קצב הירידה ביכולת התפקודית ותורמת להארכת תוחלת החיים , לאיכותם ולרווחתם .מחקרים רפואיים והניסיון המצטבר מראים שהליכה ופעילות מתונה משפרות את סיבולת הלב ,מורידות את לחץ דם ומקטינות את הסיכון לסוכרת .בנוסף מפחיתות את הכולסטרול והשומנים בדם ומשפרות את מצב הרוח .

חשיבות ההתנדבות כתהליך חינוכי: ממחקרים עולה כי בני נוער שעסקו בהתנדבות גילו אחריות רבה יותר , הבאה לידי ביטוי בהתנהגות היומיומית ,בנתינה ובמעורבות האזרחית והחברתית .חינוך למעורבות חברתית בגיל הצעיר מחזק את הקשר והזיקה של בני הנוער למקום המגורים ,לחברה ולקהילה בה הם גרים .היכולת להקדיש זמן ולסייע לזולת מחזקת את החוסן הנפשי ,מעלה את הדימוי ואת ההערכה העצמית בקרב המתנדב .

שילוב מתנדבים שהם בני נוער ,תורם ומניע מבוגרים לפעילות גופנית ,ומייצר מפגש חברתי בין דורי .

מודל ההפעלה: הפרויקט מבוסס על הכשרה מקצועית של המדריכים וציוותם למבוגרים מהקהילה .המדריכים הם מתנדבים מבתי הספר התיכוניים הלוקחים חלק בפרויקט מעורבות חברתית ,או כל צעיר המעוניין לקחת חלק בפרויקט .לאורך הפרויקט ,המדריכים יקבלו ליווי מקצועי ומענה מלא לכל סוגיה או צורך .

הרשות המקומית תציע ותעודד את המבוגרים לקחת חלק בפרויקט .המבוגרים שייקחו חלק יזכו לאימון פעילות גופנית אישי על בסיס שבועי ,כמו גם הרצאות על אורח חיים בריא ועל חשיבותה של הפעילות הגופנית כזריקת מוטיבציה להשתתפות פעילה באימונים האישיים .לעומדים בדרישות הסדנה להכנת מתנדבים לקידום אורח חיים פעיל ובריא בקרב מבוגרים תוענק תעודה מטעם המכללה האקדמית בוינגייט .

ייחודיותו של צועדים ביחד: הפרויקט לוקח לראשונה אחריות על בריאותם ואורח חייהם של המבוגרים .הוא מציע ומעודד קבלת שירות חדש באמצעות הרשות המקומית :אימון אישי הכולל מפגש חברתי עם צעירים .נוסף על כך ,המדריכים ,מרביתם בני נוער ,זוכים לתכנית הכשרה ייחודית וחדשה לאימון והדרכה של מבוגרים . התנדבות זו אטרקטיבית במיוחד ומהווה תרומה לקהילה ,חוויה מרעננת ומאתגרת עבור המבוגרים ועבור המתנדבים.

הפעלה גופנית מבוקרת מרחוק באמצעים טכנולוגיים פשוטים ובמרחב הציבורי

מרטין קוסטוב

מיזם להפעלת תלמידים בפעילות גופנית מרחוק

"פנאי אינו אלא פוטנציאל .זהו חומר גלם של זמן ,שהאדם יכול להשתמש בו בדרך נבונה וחיובית או בדרך שלילית .במחקרים נמצא שדפוסי פנאי נכונים מסייעים לפרט להשיג איכות חיים ותורמים לבריאות הנפש והגוף ולקידום הקשרים החברתיים) "ע"פ רסקין (

חינוך גופני ופעילות ספורט חיוניים להתפתחות תקינה של המתבגרים .שני השעורים השבועיים הניתנים במערכת החינוך)בפועל הרבה פחות עקב טקסים ,אירועים ,מבחנים (הם טיפה בים .

נקודת המוצא למיזם היא האמונה שניתן באמצעים פשוטים לעודד את התלמידים לפעילות ספורט בלתי פורמאלית תוך ניצול של המשאבים במרחב הציבורי .

בתקופת מגפת הקורונה נכפו עלינו ריחוק חברתי וישיבה ממושכת בבתים שצמצמו את הפעילות הגופנית של התלמידים .מצד שני ,טיבם של תקופות לא שגרתיות כאלה הוא להצית מחשבה מחוץ לקופסה .

לפניכם מיזם להפעלה ותקשורת עם התלמידים מחוץ לבית הספר ,במרחב הציבורי .

לצורך המיזם יצרתי מדבקות עם 4ברקודים -בחלוקה לפי מגדר ושכבת גיל .המדבקות הודבקו על עמודים ברחבי הפארק בישוב .את המשימות אני יוצר במחשב ומקשר אל הברקודים על פי סדר מותאם לאימון שתכננתי .התלמידים מקבלים מטלה במערכת ה "Classroom"לביצוע אימון שבועי .ההוראות מכוונות אותם למדבקה בפארק ובה הוראות לתחילת הפעילות) .לדוגמה :כנסו לפארק מהכניסה הראשית וסרקו את הברקוד הכחול שעל מדבקה מס 1`הנמצאת על העמוד מצד שמאל של הכניסה .(לאחר הסריקה רואים הוראות בצורה של טקסט ו/או סרטונים לפיהם יש לבצע את האימון .בסוף כל משימה המתאמנים מופנים לברקוד אחר במקום כלשהו בפארק ושוב ,בסריקת ברקוד מקבלים הוראות להמשך האימון .לסיום עליהם לסרוק ברקוד וממלאים שאלון מקוון קצר ורושמים שם וכיתה -כך אני מקבל דיווח שוטף ועוקב אחר ביצוע המשימה .

בשגרת חירום המיזם נותן מענה לפעילות גופנית שמחליפה חלק משיעורי הספורט .בשגרה -מרחיב את העיסוק בספורט לשעות הפנאי של התלמידים .למיזם יתרונות רבים :ב

-אין התקהלות)אם נדרש ריחוק חברתי (

-התלמידים הופכים לעצמאים יותר :צריכים לנהל את זמנם לבד

-להחליט בעצמם מתי ועם מי לבצע את המשימה
-להתחשב במזג האוויר ושעות הפעילות של הפארק

ישנם יתרונות רבים גם למורה :

-אפשרויות מגוונות לניצול המשאבים העירוניים לפעילות גופנית :שבילי ומתקני הפארקים

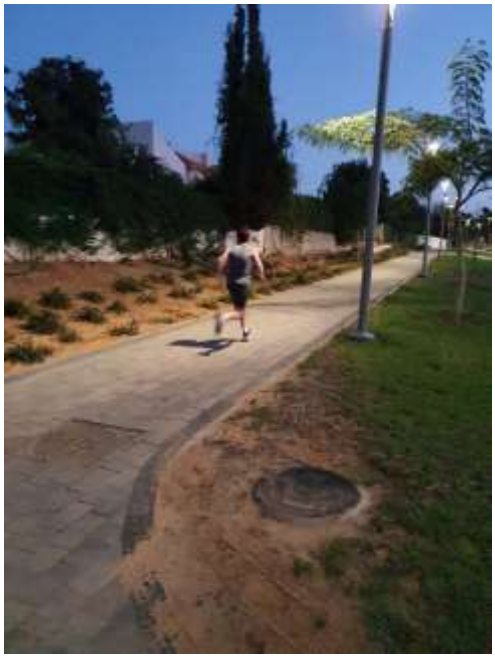
-התמצאות טובה בכמות התלמידים הפעילים באמת

-יכולת קבלת פידבק מהמתאמנים :בשאלון המסכם של כל יחידת אימון מופעים שאלות כמו :מה מידת הקושי של האימון לעומת הכושר האישי שלך ?איזה משימות נוספות היית שמח לבצע בפארק וכו `

-הפעלת המיזם פשוטה :את עיצוב המדבקות יצרתי במחשב

-המיזם מוציא את התלמידים למרחב הפתוח

-למורה יש השפעה על שעות הפנאי של תלמידיו



רועי ברקוביץ

מורים בשנתם הראשונה , שנת הסטאז ,`עוברים דרך מאתגרת בה הם מתמודדים עם ארגון חדש -בית הספר על כלל מרכיביו ,עם קשיים בירוקרטיים לא פשוטים ,עם צוות מורים ותיק ,הורים וקשיי קליטה לא פשוטים .ובכל זאת ,מה שקובע את הצלחתו של המורה ,את הרגשת הסיפוק ואת שביעות הרצון ממנו תהיה יכולתו לנהל שיעור ולהתמודד עם בעיות המשמעת .

התלמידים כיום ראשונים לזהות מורה שאין לו שיטה ברורה לארגון השיעור ,חסר ביטחון ,מורה שניתן "להוציא אותו מדעתו "וכך ככדור שלג ,למורה כזה השיעורים יכולים להיות סיוט עבורו ,הוא חש בודד "במערכה "ומיד עולות שאלות לגבי התאמתו למקצוע ההוראה בכלל ולחנ"ג בפרט .

הרצאה זו באה ללמד מיומנות הניתנת ללמידה .הרעיון ,זה ליצור "יחסים "המקדמים למידה .כדי ליצור יחסים שכאלה עם התלמידים על המורה להשתמש בשפה חיובית ובעיקר לחנך את התלמידים לקבל חיזוקים חיוביים . לעיתים "האוטומט של המורה הוא שלילי ,הוא מיד רואה ושומע את התלמיד המפריע ,הוא מעיר לו ,לעיתים זה מוביל לבזבוז אנרגיות ועימותים והגישה אומרת להפוך את האוטומט לחיובי .

מורה לחנ"ג צריך "לסגור "את הנושא המשמעת בשיעור והוא יעשה זאת ע"י חיזוקים חיוביים התלמידים ופועלים היטב זאת לצד שיעורים המקדמים בניית כללים ואמון ,קצב שיעור היוצר עניין ,בחירת שיעורים מעניינים ומאתגרים ומתן מענה דפרנציאלי לכלל התלמידים .

רננה בן נחום אורטנר

הוראת פיתוח יחידת הוראה בנושא :

הוראת המשחקים האולימפיים ביוון העתיקה בגישה רב תחומית

נושא ,המשחקים האולימפיים ביוון העתיקה ,מופיע במספר תכניות לימודים של משרד החינוך ,כמקצוע חובה או/ו בחירה)חינוך גופני ,המגמה לחינוך גופני ,אומנות ,היסטוריה ועוד . (התכניות ,ספרי הלימוד והכשרת המורים ,הם ספציפיים לתחום דעת אחד וממוקדים בו .מטרת התכנית המוצעת ,לשמש כלי למורה אחד , בהוראה רב תחומית)ללא קשר לתחום הדעת שלו (זאת משום שהנושא מוזן על ידי מגוון תחומי דעת. את המשחקים האולימפיים ביוון העתיקה מלמדים מספר מורים ,לאורך השנים ,בגילאים השונים ובמסגרת מקצועות שונים .כל אחד מהמורים מלמד על פי הדיסציפלינה שלו ומאיר את הנושא ,מנקודת מבט חד כיוונית . כדי לשלב מספר דיסציפלינות ולמקסם את זוויות הראיה ,יש ללמד את "המשחקים האולימפיים ביוון העתיקה ,"בדרך רב תחומית ,המעשירה את הלומד ומובילה לידע רחב ומשמעותי ,תוך שילוב מספר אסטרטגיות הוראה .

יחידת ההוראה נסמכת על אומנות ,כדי להסביר את הצד הספורטיבי פילוסופי ומסבירה את עקרונות האמנות הקלאסית ,בעזרת עולם הספורט .על מנת לתת מענה לאוכלוסיית תלמידים הטרוגנית ,יש שילוב של אסטרטגיות הוראה שונות :הוראה פרונטלית תוך שילוב תצוגה ויזואלית)מצגת , (הצגת חפצים שניתן לחוש)תלת מימד (וכן יישום תהליכי הלמידה העיוניות ,בהתנסות מעשית בשני תחומים :אמנות)ציורי כדים (וספורט .

יחידת הוראה כוללת שישה עשר נושאי לימוד והיא רב תחומית יישומית וחווייתית ,מעוררת עניין ומהווה בסיס לחקר ,נושאים נוספים המעשירים את הלומד בידע רחב וכן מהווים מקור לדיון פורה בכיתה :טיפוח הגוף , עירום ,נשים בספורט" ,שלום אולימפי ,"מקצוענות בספורט ,פילוסופיה יונית ,עקרונות פיזיולוגיים וביו מכאניים ,פרסים ,מיתוסים ,שימושי הכדים והכרת "שפתם , "שמירה על חוקים ,התפתחות המשחקים האולימפיים אז והיום .על פי חוזר מנכ"ל 2014למידה משמעותית היא "... :ערך ללומד ולחברה ,מעורבות הלומד והמלמד ,רלוונטיות ללומד . "התכנית זו עונה על ערכים אלה ,מציגה עקרונות ורעיונות עיקריים ויחד עם זאת מאפשרת למורה חופש פעולה נרחב וגמישות בתכנון שיעוריו .

ביום העיון יוצג בצורה פרונטאלית ,חלק משיעור בנושא אחד מענפי התחרות וכן דרכי הערכה ובדיקת הלמידה .

שיעור יכלול :אמנות ,ספורט "-קרב , "5דרכי הוראה והמחשה ,דילמות לדיון ,הערכה ובדיקת תהליך הלמידה .

חומרים :מצגת ,ציוד ספורט וכדים .

יורם אהרוני

אחד הקריטריונים להערכת תלמידים כפי שמופיע בחוזר מנכ"ל משרד החינוך הוא ..." :שיפור במרכיבי הכושר הגופני)מדידה כמותית ."...)בישראל אין כיום שום מבחן כושר גופני מחייב לתלמידים והמורים לחנ"ג יכולים לבחור מבחנים לפי הבנתם .באותו חוזר כתוב גם כי ..." :המבחנים ייקבעו על ידי צוות המורים לחינוך גופני בבית הספר בכפיפות לתוכנית הלימודים של משרד החינוך ובהתאם לנלמד במהלך השנה "...וכן כי ..." :המורה לחינוך גופני ינהל רישום של הנוכחות ושל ההישגים של כל תלמידי הכיתה ביומן המורה לחינוך גופני)או ביומן אחר) "...(חוזר מנכ"ל משרד החינוך .(2017 ,

מכל האמור לעיל משתמע שהפיקוח על החינוך הגופני במשרד החינוך קובע שעל המורים לחנ"ג לבצע מעקב אחרי הישגי התלמידים בכושר גופני אך הוא לא עושה דבר כדי לבדוק אם מעקב כזה אכן נעשה .

אני מלמד חינוך גופני לבנים בבית ספר שש-שנתי)כיתות ז – `יב (`ועורך מעקב אחרי הישגי הבנים במבחן ביפ ובריצת 2000מ .`כמו כן אני מלמד חנ"ג גם בבית ספר יסודי דתי ושם אני עורך מעקב שנתי של הישגי הבנים במבחן ביפ ובריצת 600מטר .

ממוצע ההישגים במבחן ריצת 2000מ `יורד בעקביות החל משנת .2011במבחן ביפ מסתמנת ירידה בממוצעים ב-5השנים האחרונות .

לדעתי חשוב מאד שהפיקוח על החינוך הגופני יתחיל לערוך מבחני כושר גופני שנתיים בישראל ,יאסוף את התוצאות וינתח אותן.

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Book of Abstracts

The 6th International Congress of Exercise and Sport Sciences

The Academic College at Wingate

In collaboration with The Olympic Committee of Israel and The United States Embassy in Israel

June 9-11, 2021

Editors:
Nili Steinberg and Devora Hellerstein