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In Rydzyna on 15-17 of September The International Science Conference „Aging and Physical Activity: Application to Fitness, Sport and Health Take Place”

Professor Krzysztof Spodaryk (1953-2006)

From Editors – Where Are Going To?

DISSERTATIONS AND ARTICLES

Josif Moisiejewicz Fejgenberg (translated by Waclaw Petryński)

Human's Own Activity in Fulfilling the Information Deficit

Introduktion. In the introduction the Author describes current change of scientific paradigms, transition from treating reflexes as basic components of a complex motor activity to perceiving them as elementary activities.

Results. It results in change of fundamental philosophy of motor control: the former paradigm consists in analysing the moving living being as a purely reactive system, responding only to external stimuli, while the latter assumes that the living being actively adjusts the environment to its needs. Then the Author points out that for planning of movements (or any other activities), an information is necessary, effecting in building a mental model of desired future. This is based mainly on previous experience of a living being, as well as on probabilistic prognosis of the future. However, information flowing from the environment is incomplete and includes many gaps, which are actively bridged – though sometimes unconsciously – by a being, who observes the world and plans its activities. Thus, such a being (also a human) actively searches the environment for necessary information or even produces it consciously.

Conclusion. According to the Author, there exist two main ways of enriching the knowledge about reality: putting scientific hypotheses (which may be proved or invalidated), or creating myths (which may be merely believed in, though without any evidence). The Author compares science to a great fire, burning in the middle of a great, dark, icy plain. The melted ice constitutes a sphere of knowledge. The portion only illuminated, but not melted by fire is a sphere of searching. The area completely dark is a sphere of myths. The Author describes the process of dynamic widening of the spheres under consideration, yet resulting not in decreasing, but in increasing the number of questions which have to be answered. In conclusion the Author concisely describes the part played by activeness in sensory perception, mental processes, building of “models of desired future” (as defined by Bernstein) and thinking.

Romualdas Malinauskas, Audrone Dumčiene, Jan Jaszczanin, Saule Sipaviciene

Peculiarities of Mental Health of Adolescents Involved in Sports

Introduction. Mental health of adolescents involved in sports determines their good physical, intellectual and emotional communication. Recently researchers have paid more attention to the issues of teenagers' mental health, however, there is not much research addressing mental health of adolescents involved in sports.

The aim of the work. The aim of the present research is to establish peculiarities of mental health of adolescents involved in sports. In this article mental health is discussed as a multidimensional construct including the following components: sense of coherence, self-control and level of stress. The problem question being addressed in the study is the following: are there any differences in the level of mental health of boys and girls involved in sports?

Material and methods. The sample consisted of 274 boys and 249 girls involved in sports aged from 14 to 16. Four methods were used in the inquiry. Stepanov's [1], questionnaire was used to estimate the level of mental health of adolescents involved in sports, Antonovsky's [2]

method was meant to determine the sense of coherence, Milman's [3] questionnaire was used to evaluate self-control, and Kiseliiov's [3] Thermometer Scale had to evaluate the level of stress of adolescents involved in sports. The hypotheses of mathematical statistics were tested by the χ^2 test.

Results. Research data revealed that there were statistically significant differences ($p < 0.05$) in the level of mental health and stress of boys and girls: the level of mental health of boys was higher, and their level of stress was lower. No differences were established in self-control and the sense of coherence between boys and girls involved in sports.

Jerzy Januszewski, Edward Mleczko

Quetelet II Height-Weight Index – BMI and Tested Physical Efficiency and Morphological Referring to the Health of Girls from Małopolska

Aim of research. Basing on the results of the researches conducted on 3221 girls from Małopolska in years 1996-2005 some hypothesis were verified about ontogenetic period appearance of: the negative influence of too low and too high fatness level on the positive health measures level, and the similar structure of the physical efficiency analyzed referring to health and the similar strength of the correlation connection between its elements and the height-weight index (Quetelet II) sorted in groups according to BMI level.

Methods. The results of the positive health indexes were analyzed such as: the basic somatic features, antropometric indexes, the oxygen efficiency (VO₂ max), motor ability tested on Eurofit and MTSF tests. Basing on the average value and the standard aberration of BMI all tested girls were divided into 3 groups: 8-10, 13-14, 17-18. In every group the range and the trend of the considering features differentiations were discerned and only in two groups (above and below the range of 1 SD BMI) the concentration analysis was conducted where the strength of the correlation connection between the elements of the physical efficiency structure, tested according to the relation of health and BMI level, were estimated.

Results. The researches confirmed the accepted hypothesis about the negative influence of low and high fatness level, tested by BMI indexes, on the selected indexes of the positive health. The results of the concentration analysis and the Pearson's correlation between BMI index and the physical efficiency's elements tested referring to health show the reason to claim there are similar connections between the elements of the physical efficiency and the hierarchic structure in the group of individuals of low and high fatness. The statistically essential correlations only between efficiency's morphologic components and BMI were found.

Conclusion. The conducted researches confirmed: 1. The negative influence of too low and too high level of fatness on the level of the health positive indexes, 2. The statistically essential correlation connections only between BMI and the somatic features which measure a body's fatness, 3. The poor relations between BMI level and the positive health measures such as: physical efficiency, motor ability, 4. The similar structure of the physical efficiency tested referring to health in groups of lower and higher level of fatness.

Adam Haleczko, Urszula Włodarczyk

Interaction of Somatic Traits and Motor Abilities in Multidirectional Physical Activities

Introduction. The paper presents a continuation of the previous study which was published in 28th volume of „Antropomotoryka”. So as not to repeat particularly the subject matter, only an influence of sexual dimorphism on the motor achievements of women and men is

presented. The purpose of the work. Paper's objective is to establish the impact of the basic body build traits and motor abilities on women's motor performance in physical activities of a multidirectional structure.

Material and methods. The research material comprised somatic data and sports achievements of 100 the best women heptathlonsists all the times from the ranking list on 1.01.2004. The same as previously material division and methods of analysis was applied. In order to evaluate of maximum muscle strength and index construction the results of shot put were taken. From the whole material three group with different sports level and four groups with extreme values of basic somatic traits were selected.

Results. Correlation analysis enabled to assess an importance of the body height and mass as well as the Rohrer index in relation to the results in seven events. These results are thus determined by somatic and motor factors which are compatible or reciprocal in their impact on a sports result. In the last case they of course do lower a score.

Conclusions. It follows from the analysis of material which was divided into groups differing by the sports level or by the body build characteristics, that there is necessity to select for the sake of research the possibly homogeneous groups with respect to the trait under consideration. However in study of that type it concerns the competitors of the highest level of training. Each event require the holistic approach in estimation of the motor abilities which do manifest in it, and also in assessment of importance of the somatic traits causing the sports level of an individual.

Szymon Krasicki

Physical Activity and Family Conditions of Children and Youth from Nowy Sącz and Environs

Background. Physical activity as a natural need of human organism, especially in case of children and youth, is considered an important factor influencing somatic, motorial, and psychical development. Alarmingly low level of physical activity was the reason to undertake this research.

Aim. The aim of the work was determination children and youth's physical activity level in relations to the family conditions.

Material, method of working. A questionnaire among 599 primary (classes V and VI) and secondary school students was carried out on in 2004 in the Nowy Sącz and surrounding villages as environs. This region was selected due to its special characteristics.

Results. It has been stated that a significant number of the participants undertake different sport activity (the part of the sport' active was larger than quoted by other authors): organised guided – 37,6%, individually guided 47,1%. The level of physical activity among youth differs depending on the environment (urban, rural). Gender is also a factor having influence on the physical activity level, higher in boys. The most frequent motivation for undertaking sports depends on gender and living environment: feel like developing physical efficiency – 41,1% in urban population, 26,7% in youths from rural areas; 54,9% in boys and 41,0% in girls. Family (38,2%), physical education's teachers (31,6%) and colleagues (29,0%) were mostly specified as encouraging persons. Media was specified by 10% of participants, mostly from urban areas. Great percentage of owning skis (52,9%) is associated with special characteristics of region.

Conclusion. Although great increase of living conditions in Nowy Sącz and environs it is diversified environmental influence on the undertaking physical activity by children's and youths. It was found greater than in other authors percentage of physical active persons, which is not unequivocally clarified and it circumstance to additional researches.

Introduction. Modern theories on the etiopathogenesis of hernias include ultrastructural abnormalities of the connective tissue, resulting from gene-derived molecular alterations in the structure of collagen fibers and the expression of proteolytic enzymes decomposing the tissue. Connective tissue also forms the structure of joints and is responsible for their mobility, therefore a general weakening of the connective tissue could be expressed as joint hypermobility. The coexistence of joint hypermobility and hernias can be seen in Ehlers – Danlos and Marfan syndromes, as well as in experimental studies on lathyrism. Some authors have also described the coexistence of hernias and benign joint hypermobility in adults showing no signs of the aforementioned syndromes. Other reports deny such coincidence, therefore an attempt to assess this phenomenon in the population of Poland was undertaken.

Aim. To assess joint mobility of patients hospitalized for inguinal hernia compared to healthy controls and to verify the hypothesis of higher incidence of joint hypermobility in patients with primary hernias.

Materials and methods. The study group included 30 patients (28 m, 2 f) undergoing surgery for primary inguinal hernia. The control group consisted of patients undergoing treatment for diseases other than hernia, not influencing body motorics. All patients underwent preoperative testing by Sachse, Weichman, Gomolka essays and the results were statistically analyzed by the Mann – Whitney qualitative test.

Results. No evidence of increased incidence of benign joint hypermobility was observed in the hernia group. On the contrary – the controls showed greater joint mobility than the study group.

REVIEW PAPERS

Wacław Petryński

Topological Tools in Model of Motor Control in Humans 77

In the paper new tools of mathematical modelling have been presented. They are applied to description of information processing both in motor control process in humans, and in movements learning. The new model of memory has been adopted, with distinguished two paths of information processing: sensory (afferent) and motor (efferent) ones. Two already existing notions of uncontrolled manifold (UCM) and goal equivalent manifold (GEM) were presented. They represent the transformations in the motor path. It was also pointed out at the actual application of a manifold in the process of sparse coding in the afferent path. The possibilities of more extended application of topological tools – manifolds and homeomorphisms – in the description of motor control process and motor learning were presented. It was also stated that the new description tools might enrich our knowledge about sensory-perceptual behaviour of a human, but they do not constitute a new theory by itself. Thus, the need to create such a theory becomes more and more urgent.

DISCUSSIONS

Józef Drabik

What Are We Aiming At?

In the submitted text the fragments of some scientific works-from conference, doctoral to the potential nominal professors' papers are quoted. They were prepared hoping to point out the physical education studies' danger symptoms. According to this fact, the written text links to the state of the Rehabilitation, Physical Education and Social Integrity Committee, April 28th 2005. It showed some aspects of the described dangers.

REVIEWS

Waclaw Petryński

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Participants of the International Scientific Conference organized under the auspices of the International Association of Sport Kinetics and with the support of the Committee of Rehabilitation, Physical Culture and Social Integration of the Polish Academy of Sciences adopt this resolution with a deep conviction about the growing medical, economic, and social challenges associated with the aging of the population in Poland and throughout the world. It is estimated that within the next 25 years the total number of people over 60 years will grow from 605 million in 2000 to 1.2 billion in 2025. Today, in many developed and developing countries there are more people aged 60-years and older than children below 15 years: Polish society is also growing older rapidly. According to the forecasts of demographers, by the year 2020 there will be approximately 2 million additional retired persons (women over 60 years, men over 65 years). By 2030 every fourth Pole will be a pensioner.

Professor Krzysztof Spodaryk (1953-2006)