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Wiktor Adamus, Edward Mleczko, Józef Bergier

About the possibility to apply quantitative and qualitative methods, Analytic Hierarchy Process (AHP) and Analytic Network Process (ANP) to physical culture sciences

The authors have drawn attention to the dominant significance, which representatives of cultural sciences have attached to interdisciplinary context of research work in conviction that this is the best way to gain the knowledge about their study subjects. Currently, valuable data can be collected by applying the most appropriate method or combination of methods. Very often, the data, which has been obtained with the help of one method, needs to be verified by another one.

The review has given proof that most valuable methods are distinguished due to: the way of inference (deductive, inductive, analog methods), formalization and problem solving (deterministic methods based on probability distribution), analytical and synthetic approach to the subject of research (analytical methods and systems approach) as well as the way of measurements (quantitative, qualitative and multicriteria methods). The authors, basing on a critical evaluation of all above mentioned qualitative, quantitative methods, have underlined the importance of multicriteria decision support method, especially developed by Saaty [1, 2, 3, 4] in scientific research, highlighting the importance of the Analytic Hierarchy Process (AHP) and Analytical Process Network (ANP).

Wiktor Adamus, Józef Bergier, Edward Mleczko

Proposal to use the Analytical Hierarchy Process (AHP) method to evaluate the benefits and costs of organizing Euro 2012 in Poland

The aim of the work. Assessment of the costs and losses of organizing Euro 2012 in relation to the key findings of *Report on the impact of preparation and organization of the UEFA European Football Championship EURO 2012™ and the Polish Economy* [2].

Methods. Invented by T.L. Saaty Analytical Hierarchy Process (AHP) Method [4 –10] applied to verify the hypothesis about higher benefit than losses arising from the organization of high-level international competitions in Poland.

Results. It is recommended to use above-mentioned method to study various aspects of contemporary professional sports because of its objectivity and comparability of results, which are similar to those obtained with the help of quantitative methods. As the most important benefits Polish respondents considered the development of infrastructure (construction of roads and highways, construction of sports fields and stadiums with facilities) as well as the promotion of Poland (promotion of the country and attractive tourist destinations etc.). The largest expenditure incurred by Poland – to build roads and highways and to develop tourism infrastructure.

Conclusions. The effects of putting into practice the Analytic Hierarchy Process Method (AHP), based on strong fundamentals of mathematical and cognitive psychology, have proved that it is useful to develop cost-benefit assessment of the organization of Euro 2012. It is recommended to use this method to study various aspects of contemporary professional sports, in connection with the objectivity of results, which are comparable to data obtained with the use of quantitative methods.

Jarosław Gasilewski, Janusz Iskra

The effectiveness of hurdling teaching in the aspect of motor and technical training

Aim of the research. To find the influence of 10 weeks-long sport preparation in two variants (motor and technical) on the results in sprint-hurdle races with different hurdle heights and lengths of spacing.

Material and methods. 147 students of physical education from Polish universities participated in our study. This group was divided into two subgroups according to the type of the training: technical (rhythm) preparation with hurdles ($n = 74$, aged $21,2 \pm 1,7$; experimental group – EG) and only motor (speed, strength and flexibility) exercises ($n = 73$, aged: $21,4 \pm 1,6$; control group – CG). Before and after the period of 10 weeks (with training sessions 1,5 hours a week) we carried out 60-m hurdle run tests. We used four variants of obstacle run according to the height of hurdles (“low”/L – 75% of average leg length, “high”/H – 85%) and inter-hurdle spaces (“short”/S – 4 times body height and “long”/O – 4,5 times). Finally we analyzed time of runs and strides’ number (hurdles “rhythm”) performed during four variants of the race: L/S, L/O, H/S and the most difficult H/O.

Results. We assessed the differences of both parameters according to one-way analysis of variance (ANOVA). Before the process of “hurdle training” in both groups, there were differences between the number of strides only in the variant of high hurdles and short inter-hurdle spaces (H/S, $p \leq 0,001$).

Conclusion. After 10 weeks of technical training we observed the increase of the race time and the change of stride rhythm of all variants in both groups. The time of the run and number of strides were the most profitable only in “long” variants of hurdling.

Witold Ziara

Once again on the morphological and functional determinants of learning to swim lessons for younger children

Aim of the study. Determining the influence of somatic and functional parameters (height, weight, lungs capacity) of 10-year-olds, third form pupils on learning to swim pace.

Material and methods. 100 children at the age of 9–10, third form pupils of Cracow primary schools and the participants of 30-lesson obligatory swimming course were examined. The article includes the comparison between two different levels of swimming groups in relation to indicated somatic parameters.

Results. In spite of clear difference between the groups in level of swimming, no difference of somatic parameters among the children in both groups was observed. There was no direct influence of somatic and functional parameters (height, weight, lungs capacity) on learning speed in both groups.

Conclusion. In relation to children who learn to swim, other determinants of learning speed (e.g. psychological, pedagogical or connected with motor skills) should be considered.

Beata Wojtyczek, Małgorzata Paślawska

Knowledge of downhill skiing safety among the Physical Education Academy students participating in programme winter camp. Part one

Introduction. Appropriate training centered upon ensuring safety plays an important role in schooling future downhill skiing instructors and teachers specialized in coaching children. Evaluation of learning outcomes of students participating in the obligatory winter camp also includes their theoretical knowledge. Proper evalu-

ation of factors guaranteeing safety and limitation of risky behavior underlies the proper education of future teachers.

Material and methods. In evaluation conducted in January 2008, 88 second year students of AWF in Warsaw, including 26 women and 62 men at the age in range of 20–22 years, were examined. The test, which formed two questionnaires, was focused on such issues raised during the course as safety and risky behavior on ski slope or chosen elements of skiers' lifestyle.

Results. The knowledge of all examinees, especially beginners, was in majority wide enough to minimize the risk of accidents on ski slope and to be successful as instructors or teachers. Some of the attendants showed a significant deficiency of knowledge in such matters as: the role of ski instructors and special sky courses (13%), some aspects of *FIS Ski Decalogue* (16%), the necessity of using the helmet (properly 38% women, 69% men), 18% of examinee would allow to use addicted medicine (stimulants) during skiing, 40% of them would take care about proper regeneration.

Conclusion. 1. Examined men showed more tendencies to risky behaviour, such as riding without helmet or dash on a ski slope in comparison to examined women. 2. Examined skiers with average ski experience (1–5 seasons) disclosed the largest gaps in knowledge about chosen issues of downhill skiing safety. 3. In the future we would examine and evaluate more extensively the knowledge of skiing security among psychology students as future teachers and instructors of children and teenagers.

Jarosław Fugiel, Teresa Sławińska

Body posture of children of early sport specialization

Aim of the work. Assessment of body posture of boys and girls presenting early sport specialization comparing to non-training group.

Material and methods. The trial was conducted among the pupils of sports schools. The sample included 380 children, 186 boys and 194 girls in the 11–15 age range. Referential group consisted of 664 boys and 665 girls from Polkowice. Body posture was assessed on the strength of the spine shape in saggital plane using Moire topography. There was assigned the angle of kyphosis and lordosis and compensation indicator. According to this data, different categories of body posture were defined.

Results. Among male athletes the correct body posture was observed in 50% children between the ages of 11 to 12, among older boys the percentage of children with proper body posture was lower. In the reference group there was similar percentage of children with proper body posture between 40 and 48%. 58% of training girls presented proper body posture, the number of girls with that posture lowered up to 30–40% in older groups. In the referential group the percentage of proper body posture was the highest among the girls aged 13.

Conclusion. Occurrence of proper body posture among the children in the 11–15 age range decreased with age. In boys from training and referential groups the most common improper posture was kyphotic posture, in group of girls there was lordotic posture.

Magdalena Krzykała, Urszula Czerniak, Anna Demuth

Undernutrition assessment of adolescent girls in a light of anthropometric indexes

Introduction. Normal children development is regulated by a complex interaction of many factors, such as hormone all influences, tissue responsiveness and nutrition. Excess and lack of nutrients can have a negative effect on organism. Undernutrition could be affected for example by unfavorable diet, lack of medical care or infection, or fashion for having thin body (shape). Assessing it is very important because repeated malnutrition could depress final stature and could have many rather negative impacts.

Aim of the work. To assess undernourished state among adolescent rural girls.

Material and methods. The study included 226 adolescent girls (136 of them researched in 2002 yr and 87 – in 2007 yr). The anthropometric measurements were taken on the left side of the body and included: body height, body mass, arm circumference and triceps skinfold's thickness. Undernutrition status was evaluated using the Cole's index, upper arm fat area (UFA), upper arm muscle area (UMA) and BAMR (UFA/UMA).

Results. The prevalence of undernutrition was higher in adolescent girls from 2002 (40%), as compared to 2007, especially among late adolescents (16-year-olds).

Conclusion. Our study provides evidence of prevalence of adolescent undernutrition in the rural area. It has been indicated that malnutrition observation in this stage of ontogeny is a very important factor. Fortunately, the research from 2007 has shown decreased number of undernutrition girls with age in comparison to earlier research conducted in 2002. It is necessity of more research connected with questionnaire to improve results interpretation, which is aim of future research for us (for our team).

REVIEW PAPERS

Edward Mleczko, Joanna Gradek, Jerzy Januszewski

Overweight and obesity as methodological problem. Diagnosis of the epidemic in the world

Overweight and obesity – the terms concerning excessive accumulation of body fat – are not synonyms, although both of them refer to exceeding certain standards which has been established by the national or international health organizations. The paper deals with the latest research achievements from the turn of the century. Since the growth of excess body weight rate has defined as an epidemic [1], the authors discuss obesity methodology issues and diagnostic problems in different cultures. Apart from cognitive tasks, they concentrate on finding evidences for the thesis about the epidemic obesity spread. Additionally they put forward the importance of taking preventive and therapeutic precautions to halt this dynamic spread. In aim to determine the scale of the epidemic, they consider key methodology aspects of screening research and give the description of some obesity etiology aspects.

DISCUSSIONS

Ryszard Panfil, Edward Superlak

Strategies for using interaction skills in creating point situations (a pragmatic study of a volleyball game)

Aim of the work. To identify volleyball strategies, which involve cooperation skills of two or three volleyball high performance players, leading to point situation on the assumption of equifinal dimension of these strategies.

Material and methods. A set of data was collected and analyzed during the observation of three top national teams in men's volleyball: Brazil, Russia and Serbia. Players of these teams competed in the World League semifinals in 2010 and occupied first, second and fourth position. Research tool was the original data-recording sheet containing a description of selected variables and criteria for allowing the data quantification. The results were presented in the form of charts and indexes with an interdisciplinary interpretation of results, including the identification of qualitative relationships between the variables.

Results. The teams in varying degrees used creative synergy in binary and ternary combinations. Original combinations, so-called pipe, significantly differentiated studied groups, indicating a clear tendency that higher rank position of the sports team reflected in original solutions in attack. The team of the highest sports level proved to be the most diverse in the implementation of the greatest number of binary and ternary combinations into the play, demonstrating greater ability to use the game space to perform flexible combinations in attack.

Equifinal dimension of strategies in creating point situations was reflected in inadequate opponents' reactions in varying degrees.

Conclusions. Strategies used by the above-mentioned teams manifested themselves equifinally in the dynamic dimension of action and interaction skills. The strategy selection was based on the effective interactions between the players. Implementation of these factors was centered upon the synchronization and coordination of a wide variety of interdependent combinations and variants.

REVIEWS

Irena Norska-Borówka

Review on the manual "Fundamentals of diagnosis and rehabilitation of children and young people" edited by Czesław Szmigiel and Wojciech Kiebzak

No summary.