

# ANTROPOMOTORYKA

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40th Number of "Antropomotoryki" – "Kinesiology"!

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# ANTROPOMOTORYKA

## SUMMARY

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### DISSERTATIONS AND ARTICLES

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***Josif Moisiejewicz Fejgenberg przekład (translation): Waclaw Petryński***  
SPEED OF MOVEMENT RESPONSE AND PROBABILISTIC PROGNOSIS

The basic Author's premise results from N.A. Bernstein's theory, who introduced the notion of „model of desired future” in the frames of his physiology of activity. The fundamental process associated with the creation of such model is probabilistic prognosis (anticipation), i.e. creation of system of imagination of future events, considering the probability of their occurrence. The Author points to the fact that reaction to the event which already arose (response with feedback only) would be too slowly, both in sport and in daily life. So, it is necessary to apply such mechanism of motor behaviour control which assures the desired efficacy. Its main factors are accuracy and speed of motor response. The requirements of accuracy and speed are contradictory, and the compromise enabling their reconciliation needs the probabilistic prognosis. When the probability of occurring of anticipated event is lower than 1.0, (there is no full certainty of its occurrence), the ensuring of necessary speed may cause the lowering of response accuracy. The results of presented experiments show the influence of various factors on the speed of motor response. The analysed factors were: probability of occurrence of given signal and probability of its anticipation, accuracy of perception of a visual signal, anticipation of a signal and anticipation of a response, preliminary preparation to a given motor response, locality of a preliminary preparation to a given motor response, and influence of importance of a stimulus on speed of motor reaction. The Author with his co-workers proved that main factor influencing the speed of a sensorimotor response is not a frequency of occurrence of a given stimulus, but probability of its anticipation. Very important factor is also preliminary preparation (arrangement) for performing a given sensorimotor response.

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***Alicja Kostencka, Józef Drabik***

PHYSICAL ACTIVITY OF STUDENTS AND THEIR BODY MASS INDEX

**The aim of the research.** The objective of undertaken research was to determine the dependency between various kinds of PA and students' body mass expressed by BMI.

**Methods.** The research was conducted on 2465 people, including 908 men and 1557 women who attended regular studies at the University of Bydgoszcz (UB). PA was assessed by means of a questionnaire form. In order to assess correct body mass, its indicator BMI was used.

**The results.** The research showed that different types of physical activity (with the exclusion of obligatory PA) statistically differentiate substantially slim teenagers and those overweight or obese. Percentage of overweight or obese students who do not exercise at all in their leisure time was 57% and slim students, on the other hand, only 14%. Similar result was obtained in the examination of intensive PA. In the case of regular PA, however, 61% and 16% respectively. High level of total PA concerned 73% of slim students and 46% of overweight students; communicative PA, on the other hand, 22% and 16%.

**Conclusions.** Body mass expressed by BMI is influenced by different types of PA (including total, communicative, intensive, regular, and any other PA in leisure time). It, therefore, proves a well-known postulate that it is necessary to increase PA to prevent the phenomenon of overweight and obesity, growing within Polish society. The most effective is regular and intensive physical activity. In the face of students' lifestyle which involves too much sitting, their obligatory PA (physical education), conducted once a week, has no effect whatsoever in respect to holding the correct body mass (variation analysis ANOVA).

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**Ewa Dybińska, Marcin Kaca**

SELF-ASSESSMENT OF SWIMMING TECHNIQUES IN TERMS OF NOTICEABLE KINESTHETIC IMPRESSIONS AND SELF-OBSERVATION

**The purpose of the work.** The aim of the paper is to specify changes in the accuracy of self-assessment of swimming techniques done by the students of the University School of Physical Education, Krakow on the base of noticeable kinesthetic impressions, self-observation and expert's note.

**Material and methods.** Direct observation of learning and teaching swimming activities was the main research method. To assess swimming techniques, 'Criteria Ability Test' (according to the point system) was used. The test covered the swimming distance of 50 m using the backstroke and the crawl. The students assessed themselves twice: on the base of noticeable kinesthetic impressions (S1) and on the base of the video recording (S2). The results of the self-assessments S1 and S2 were compared to expert's notes. 143 students, among them 48 women and 95 men were tested. The Test for t-student for independent tests was used for looking for the differences between the considered variables.

**Results and conclusion.** The results of the observation enabled to state that the self-assessment of swimming techniques should be done on the base of the self-observation of abilities (as recorded on the video), and not on the base of noticeable kinesthetic impressions. The latter method proves to be rather inaccurate, therefore it is not very useful for didactic purposes.

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**Adam Haleczko, Leszek Korczewa, Ewa Misiótek, Urszula Włodarczyk**

CONNECTIONS BETWEEN STRENGTH-SPEED TASK WITH DIFFERENT STRUCTURE OF MOVEMENT  
PART II

**Introduction.** First part of the study deals with a research of male subjects and includes presentation of main goals as well as description of used methods. That is why in this part only completion of the literature by some foreign references is done.

**The purpose of the work.** To get information on strength-speed trials performed by women.

**Material and methods.** Subjects were the body build data and the results of some motor trials of 79 women, the first year students of University of Physical Education in Wrocław. All measurements and also forms of indices were carried out according to the description given in first part of the study.

**Results.** The obtained results were presented in 7 tables, form of them being equivalent to respective ones in previous part. Very high variability of one-hand throws results suggests the existence of certain anatomical limitations in such type of throws in women. It was concluded, on the basis of average values of correlation coefficients, that the backward throws of 3 kg and 2 kg balls are the most representative. Additionally it was confirmed by the relationships of all 12 throws with products of trial results performed with use of the same weight equipment. Jumps occurred to be connected with somatic factors only to small extend, while throws are determined by the body mass, which influence on weight-height indices decreases with increasing of the body height power degree. Close connections between both jumps and backward throws of balls are caused by an engagement of the same muscle groups. Mathematical transformations of Sargent index and spurt strength don't give the good results in each variant, so application of certain version must be adjusted to the specific research needs.

**Conclusions.** The conclusions formulated in first part were confirmed but one, namely an evaluation of the throw positions. For women the most recommended positions are backward throws of 2 kg and 3 kg balls and, not much different in that context, forward throws.

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**Grzegorz Lech, Janusz Jaworski, Robert Krawczyk**

THE LEVEL OF MOTOR CO-ORDINATION ABILITIES AND THE COURSE OF FIGHTS AS WELL  
AS THE LEVEL OF ACHIEVEMENTS BY SENIOR JUDOISTS

**The purpose of the work.** The purpose of this paper is to identify the rudimentary motor abilities that influence the fighting method and the sports level during judo competitions of seniors.

**Methods.** This research involved seven competitors. On the basis of the video recording of 51 fights, fought during the two tournaments of the Polish Teams' Cup, the activity and efficiency of their activities were defined. The sports level of those competitors was determined by taking into account the final classification achieved by those competitions.

During the period between those tournaments, the level of motor co-ordination abilities of the participants was determined. The scope of the research involved the following aspects: kinaesthetic differentiation of movements (components related to strength and time), frequency of movements, speed of a simple reaction (to a visual stimulus and an aural one), speed of multiple choice reaction, spatial orientation, visual and motor co-ordination, rhythmization, speed, accuracy and precision of movements, ability to adjust movements and eye-hand co-ordination. During the research we applied Spearman's the ranking correlation coefficient (R).

**Results.** Positive, statistically significant correlations were noticed between:

1. The activity of the contestants and: • the level of spatial orientation; • the average reaction time to a visual stimulus; • the minimum reaction time to an aural stimulus; • visual and motor co-ordination.
2. The effectiveness of actions and: • movement differentiation ability; • the average time of a complex response.
3. The level of achievements during the competitions and the speed, accuracy and precision of movements.

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***Anna Demuth, Jarosław Janowski, Urszula Czerniak, Magdalena Krzykała, Marek Sokołowski,  
Ryszard Strzelczyk, Ewa Ziółkowska-Łajp***  
SEXUAL DIMORPHISM MORPHOLOGICAL AND MOTOR CHARACTERISTIC OF SOLDIERS WOMEN

**Aim.** The aim of this study is to evaluate dimorphism differences in morphological traits and motor abilities between men and women who studied at Land Forces Military Academy in Wrocław.

**Material and method.** In this study 23 anthropometric traits and 8 motor tests were used. Those features allowed us to determine 5 indexes which describe body proportions. Moreover, the level of body composition (lean body mass, body fat, water) development was estimated using Wleński equations. To assess sexual dimorphism in morphological traits Mollison index and discrimination coefficients  $r$  were used. In case of physical activity, relative quantity of motor abilities tests were described with reference to body mass and lean body mass (LBM). All material, in comparative depiction, is showed in tables and prints.

**Results and conclusions.** In case of our own research sexual dimorphism – typical for most group of people – was observed: larger skinfolds and body fat level in women, larger size in another somatic traits in men. Body build estimated in this way, persuade us to reject presumption about typical men characteristics of women from High Officer Schools.

Body morpho-functional differences determine differences in physical activity, about which basic motor abilities decide: strength, speed, endurance, movement co-ordination.

In this connection it is rather unlikely for women to approach to men possibilities even if they start to practice very intensively. It is very important to remember that training process and requirements for soldier women are the same for both sexes. Therefore, the concern for women-soldier professional future appears.

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***Robert Rokowski, Renata Tokarz***  
IMPORTANCE OF MOTORIC CAPABILITIES OF ENERGY GROUND IN SPORT CLIMBING IN COMPETITION  
OF ON-SIGHT

**The purpose of the work.** In the presented report we have made an attempt to describe the meaning of capabilities strength and endurance in sport climbing.

**Methods.** 30 beginners in climbing and 30 advanced were examined. Climbers, whose level did not exceed VI degree in Cracow scale, were qualified for beginners group. As for advanced climbers the level were between VI.3–VI.6+ (on-sight). Efficiency of climbers were examined. As for anthropometric mearsurs height, weight. Applied tests examined the motoric effects of strength character (special strength of fingers, arms) and endurance character (special endurance of fingers, arms).

**Results and conclusions.** It turned out that within beginners dominate factor of strength. However within advanced climbers' efficiency were determined in the same scale by strength factor and special endurance.

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**Wacław Mirek , Edward Mleczko, Jerzy Januszewski**

HEART RATE ACIDIFICATION LEVEL AND LACTIC THRESHOLD SPEED AS A CRITERION OF TRAINING INTENSITY OF WALKER IN PREPARATION PERIOD FOR 50 KM WALK

**Aim of the research.** In own researches one try to verify the methods of determination of lactic threshold for estimation of walker's training intensity in preparation macro cycle and 50 km walk efficiency prognosis.

**Methods.** To estimate training intensity a graded field test for lactic threshold determination was used. One analyzed preparation macro cycle workloads and evaluated correlation intensity between training load and threshold speed and prognosis efficiency in 50 km walk.

**Results.** The researches shown relatively low acidification level of lactic threshold in champion's class walker. The highest correlation between workload in middle and high training intensity and threshold speed was ascertained. Only threshold speed can be considered to be susceptible indicator of quality of applied workload in preparation for 50 km walk.

**Conclusion.** The results in lactic test are good criterion of training intensity zones estimation for 50 km walker and also his training state and prognosis of reaching appropriate sport level.

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DISCUSSIONS

**Wacław Petryński**

“SPEED OF MOVEMENT RESPONSE AND PROBABILISTIC PROGNOSIS” BY I.M. FEIGENBERG –  
TRANSLATOR'S REMARKS

The main issue of the paper “Speed of movement response and probabilistic prognosis” - being a résumé of twenty years long research of I.M. Feigenberg and his scientific team - is the role of probabilistic prognosis in construction of sensorimotor performance in humans. The presented researches and analyses show development of the “model of desired future”, being an important element of physiology of activity, created by N.A. Bernstein. I.M. Feigenberg applies a behavioural methodology, draws cognitive conclusions and eventually states that in analyses of human behaviour (also sensorimotor) it is necessary to take into account also emotions and to apply the modern heuristic methodology.

The paper by I.M. Feigenberg remains in accordance with the rules of contemporary systems theory. Its results justify also the assumption about simultaneous using - during execution of a sensorimotor performance by a human – at least two classes of codes of information processing: notional and non-notional (sensory) ones. The paper evokes some doubts concerning the notions of “subliminal stimulus”, “subconsciousness”, “nonassociative learning” and “self-organization”. The author emphasizes the importance of probabilistic prognosis and preliminary preparation; as the basis of the latter could be assumed the process of priming. He shows also the importance of three kinds of specificity: specificity of perception, specificity of information processing and specificity of execution. Eventually, the results of the researches point to importance of emotions in reasonable information processing in humans.

It has to be noted that the bases of the paper are theories by Bernstein and classical, Bayesian theory of probability. Their skilled application leads to original, important conclusions, what testifies to great need of theoretical analyses in contemporary kinesiology.

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REVIEWS

**Edward Mleczko**

THE IDENTIFICATION OF TRENDS IN CHANGES IN THE LEVEL OF SOMATIC AND PHYSICAL CONDITION DEVELOPMENT OF SIX-YEAR-OLDS FROM GDAŃSK BETWEEN 1995 AND 2004 IN THE BOOK BY MARGARET RESIAK

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ANNOUNCEMENTS

**Jerzy Sadowski, Tomasz Niżnikowski**

INTERNATIONAL SCIENTIFIC CONFERENCE: “COORDINATION MOTOR ABILITIES IN SCIENTIFIC RESEARCH”

THE REPORT ON THE WORKS OF THE EXECUTIVE BOARD OF POLISH SECTION OF IASK  
IN THE YEARS 2005–2007

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OF IASK IN YEARS 1990–99

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