observed for CG after 12 week of endurance training. An increase in the transport capacity for lactate out of the working muscles could play a role for this observation.

P-079

Biomechanics and Bioenergetics of 100-m Front Crawl Swimming in Young Male Swimmers

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INTRODUCTION: No studies have investigated the influence of somatic, energetic and technical parameters together to determine sprint swimming performance in boys after reaching puberty. The purpose of the study was to analyze possible relationships between swimming performance, anthropometrical, physiological and biomechanical parameters in male adolescent swimmers. METHODS: 25 male swimmers (15.2±1.9 years; 176.1±9.2 cm; 63.3±10.9 kg) performed 100m maximal front crawl swim in the 25m pool. Oxygen consumption, swimming speed (v), stroke rate (SR), stroke length (SL) and stroke index (SI) were assessed. Blood samples for lactate were taken at the 3rd and 5th minute of recovery and energy cost (Cs) was calculated. RESULTS: The average 100-m performance time was 77.6±9.1 and was significantly related ($p<0.05$) to height, body mass and arm span values from the measured somatic parameters and to ~, SL, SR and SI values, and VO2, ΔLa and Cs values from measured biomechanical and bioenergetic parameters. Biomechanical factors (79%) characterized best the 100m swimming performance in these young swimmers, followed by somatic (49%) and bioenergetic factors (32%). DISCUSSION: The most important finding was that biomechanical parameters characterized best the 100m swimming performance, while the SI was the best predictor of sprint performance in adolescent male swimmers. Therefore, learning the correct swimming technique from the early years of swimming training is important. Cs is a key parameter to evaluate performance in swimming, but there are only a few studies that have investigated the determinants of swimming economy in children and adolescents (Kjendlie et al. 2004; Poujade et al. 2002). By investigating how aerobic and anaerobic performance develops during growth and maturation, it may be possible to identify the capacity for improvement and provide guidelines to coaches for the preparation of specific training sessions for young swimmers. REFERENCES: 1. Kjendlie P et al. (2004) Differences in the energy cost between children and adults during front crawl swimming. Eur J Appl Physiol 91,473-80. 2. Poujade B et al. (2002) Determinants of the energy cost of front-crawl swimming in children. Eur J Appl Physiol 87,1-6.

P-080

Effects Of Applying Different Work Methods At Swimming School Programme For Beginners

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INTRODUCTION: The main aim of this research was to establish any possible differences in learning dynamics of basic swimming skills between two homogeneus groups of children. The first group was experimental group, and this group had learning program divided into five levels. The second group was control group, which worked according to learning program divided into three levels. Both groups were given the same swimming distance. METHODS: The research was conducted on 50 beginners, at the sports camp of Zaostrog, Croatia (n=50, 7-10 yrs). Two groups were formed: the control group and the experimental group. Both groups consisted of 25 participants each. It was previously established that these children have no swimming abilities. The T-test was used in order to establish differences between the two groups. RESULTS: The effects of applying different work methods have given statistically significant differences between the two groups. The experimental group had more significant results than the control group. The Control group results were:sig=0,1; Mean M= -3,76 and the value of the T-test was t= -2,67. DISCUSSION: It can be said that the experimental group was more motivated for success, since this group worked according to five level training program. The program offered faster advancement from the first level to the fifth level. The control group worked according to the three level program; however this group had to overcome the same swimming distance as the experimental group. CONCLUSION: The experimental group has adopted swimming abilities in greater manner and more quickly. REFERENCES: Jürimäe J, Haljaste K, Cicchella A, Lätt E, Purge P, Leppik A, Jürimäe T (2007). Pediatr Exrec Sci, 19, 70-82. Leppik A, Jürimäe T, Jürimäe J (2006). Coll Antropol, 30, 753-76. Torlakovic, A. (2009). Analysis of dynamics of studying basic swimming elements. 11th International Conference of Sport Kinetics (ISBN: 978-960-88403-2-4), Chalkidiki, Greece, p.83-84 (O4).

P-081

13th FINA World Championships: Analysis of Swimsuits Used By Elite Male Swimmers

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INTRODUCTION: The polyurethane swimsuits has become the notice around the pools in the past couple years. A better body position and the reducing of drag are believed to be some of the reasons that allow the swimmers wearing these swimsuits to go faster (Kainuma et al., 2009). The purpose of this study was to verify the distribution of different swimsuits used by male swimmers during the finals at the last world championships being held at Rome in 2009. METHODS: Results databases from the 13th FINA World Championships, in Rome 2009 were used. Only the male swimmers participating in the finals were analyzed, for a total number of 24 individual swimming events. The wearing swimsuits were observed from video recorded of the television broadcast. RESULTS: Male swimmers participating in the finals limited their choice to seven types of swimsuits, of four different brands. Jaked01 Full® was the most used (47%), followed by the Powerskin X-Glide Full® (35%), the Powerskin X-Glide Pants® (7%) and the LZR Racer Full® (5%). Less used were the Jaked01 Pants® (3%), the Hydrofoil Full® (1%) and the LZR Racer Pants® (1%). Powerskin X-Glide Full® was the most used in freestyle events (56%), followed by Jaked01 Full® (29%). In backstroke, male swimmers share a preference between Powerskin X-Glide Pants® and Jaked01 Full® (33% each). All the swimsuits used in the breaststroke finals were distributed by the Jaked01 Full® (79%) and the Powerskin X-Glide Full® (21%). In medley finals, the Jaked01 Full® remained in the preferences (56%) followed by Powerskin X-Glide Full® (25%). We also could verify that 41% of the swimmers wearing Powerskin X-Glide Full® reached the podium, as well as 29% with Jaked01 Full®. DISCUSSION: Male swimmers preferentially used full swimsuits, covering both the torso and legs, probably contributing for a higher drag decrease. We can observe a clear preference for two swimsuits types: the Powerskin X-Glide Full® and the Jaked01 Full®. It seems these swimsuits had greater success rate for achieving podium places. One can speculate that in backstroke swimmers used more swimming pants because they are in a dorsal position, where a full swimsuit could not allow much benefits of the torso cover. The existence of selected preferences by the swimmers highlights the importance of the