27th Annual Congress of the

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Hosted by: Faculty of Sport Science - Universidad Pablo de Olavide

BOOK OF ABSTRACTS

Edited by:

Dela, F., Piacentini, M.F., Helge, J.W., Calvo Lluch, Á.,
Sáez, E., Pareja Blanco, F., Tsolakidis, E.

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times from September 2020 to July 2021. The data that the initial day (pre) and the last day (post) were analyzed. 12 athletes of among them took part in training inventions.
RESULTS: The results showed that standing athletes' body composition measurements, muscle strength, and aerobic capacity for standing athletes were not significant compared pre and post. By contrast, body weight and body fat percentage were lower than in pre for wheelchair athletes. And upper muscle strength which includes push power and pull power were larger than in pre. On the other hand, aerobic capacity for wheelchair athletes were not significant compared pre and post.
CONCLUSION: This study has shown that wheelchair athletes improved data in body composition measurements and muscle strength tests, however, there was no significant difference pre and post for standing athletes. We can see the effects of the training interventions for particularly wheelchair athletes so that we discuss them in detail. Wheelchair athletes are required for not only badminton skills but also wheelchair skills and the power which are to move forward or backward. We conducted resistance training including push power and pull power focused on the upper body of wheelchair athletes. For this reason, Para badminton wheelchair athletes could improve upper body power. The main point of this study is that physical fitness tests and training interventions are effective for wheelchair athletes particularly.
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3-M ROPE-CLIMBING TEST: A COMPARISON BETWEEN MALE AND FEMALE RESULTS

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INTRODUCTION: Combat tasks (CT) expose soldiers to exhausting physical and physiological demands in war operations [1]. Specific training focused on simulated tasks (ST) can be considered the best way to increase physical readiness in combat [2] without exposing the troops to unnecessary risks. However, little is known about the differences in ST performance between men and women [3]. Thus, the purpose of the current study was to investigate possible sex differences in physical performance on a 3-m rope-climbing test (RCT).
METHODS: Two hundred cadets from the Brazilian Air Force (167 male) performed the selected test. The test began when the participant held the rope above the 1.6 m mark and started to climb. The test ended when the cadet put the two hands above the 4.6 m mark or when he gave up without completing the ST. All volunteers were already familiar with the test. Statistical analysis of group performance was compared using the chi-square test of independence. The significance level was set at $p<0.01$.
RESULTS: Significant differences were found between males and females. Male cadets had a significantly higher pass rate in the RCT ($X^2(2) = 39,403$; $p<0.01$). A total of 140 participants passed the test (132 men, 8 women; 94.3% and 5.7%, respectively), and 60 cadets did not complete the test (35 men, 25 women; 58.3% and 41.7%, respectively).
CONCLUSION: The physiological specificity of women may have contributed to a significantly lower performance in the RCT, which involved upper-body power. Therefore, it could be useful to take into account these differences in performance, considering that specific physical training could be developed for each gender to improve combat readiness levels.
1. Foulis et. al. (2018) 2. Knapik et al. (2009) 3. Conkright et al. (2021)

MEASURING FITNESS IN ARTISTIC GYMNASTS: THE UPDATED MEN'S ARTISTIC GYMNASTICS FITNESS TEST BATTERY (MAG-FTB)

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STK SPORT

INTRODUCTION: An objective assessment of specific physical fitness is an essential part of the training process of gymnasts. The Men's Artistic Gymnastics Fitness Test Battery (MAG-FTB) has been used for over 30 years as the main tool for testing specific fitness in Bulgarian male artistic gymnasts but it needed to be updated and improved due to modern developments in gymnastics. The aim of this study was to assess the need to update certain tests from the MAG-FTB and add components for monitoring and assessment of specific fitness.
METHODS: The study included 70 male gymnasts (mean age of 9.6 ± 2.5 years) who were members of the Bulgarian Gymnastics Federation. The participants completed the MAG-FTB, which included a total of 20 fitness tests with each age group undertaking between 8 and 10 tests. The modified shuttle run test on the 12m gymnastics floor was replaced with the original 20m shuttle run test (20m SRT) in order to assess gymnasts' maximal oxygen uptake (VO2max) for the gymnasts at the age of 13 and older. The test was administered by using BeepShuttle Junior software using Leger's equations to calculate VO2max. The MAG-FTB's points system for each test was modernized with percentile scores (for up-to-date application and comparison between ages), and the total test battery score was recalculated for each age group.
RESULTS: The total MAG-FTB scores showed that 4.3% of the male gymnasts were assessed as 'excellent', 18.6% as 'very good', 15.7% as 'good', 45.7% as 'fair', and 15.7% as 'poor' results. This wide variation of the results was due to the diverse nature of the gymnasts participating in the study, including both elite and intermediate level gymnasts. The relationship between total MAG-FTB scores and gymnasts' current competitive level was found to be moderately correlated ($r = 0.50$). The results from the 20m SRT showed a mean VO2max of 47.4 ± 4.0 ml/kg/min, which was close to published VO2max values for gymnasts (around 50 ml/kg/min) in different studies in the literature. The mean percentile score of VO2max was 63.5 ± 21.8. The 20m SRT provided more valuable information for the coaches in contrast to the replaced 12m shuttle run test which was previously used in the MAG-FTB. Moreover, testing gymnasts with specialized shuttle run software was well accepted, highly convenient, and comprehensive.
CONCLUSION: The MAG-FTB provides gymnastics coaches with a functional, field-based tool to measure and assess specific physical fitness for safe and effective participation in men's gymnastics. The updated battery considered the modern developments in gymnastics, and it can be easily incorporated into any artistic gymnastics program. Annual testing with the MAG-FTB can provide important information about individual training regimens, fitness deficits, and directions for training development.