

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



STEFAN KOLIMECHKOV, ILIYA YANEV, ILIYA KIUCHUKOV, EMIL STOIMENOV, LUBOMIR PETROV, ALBENA ALEXANDROVA & DILLYANA ZAYKOVA | NATIONAL SPORTS ACADEMY, BULGARIA

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 20m shuttle run test (20m SRT) in order to assess gymnasts' maximal oxygen uptake ($VO_2\max$) for the gymnasts at the age of 13 and older. The test was administered by using BeepShuttle Junior software applying Leger's equations. The MAG-FTB's points system for each test was modernised 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 $VO_2\max$ of 47.4 ± 4.0 ml/kg/min, which was close to published $VO_2\max$ values for gymnasts in different studies in the literature. 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.

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 programme. Annual testing with the MAG-FTB can provide important information about individual training regimens, fitness deficits, and directions for training development.

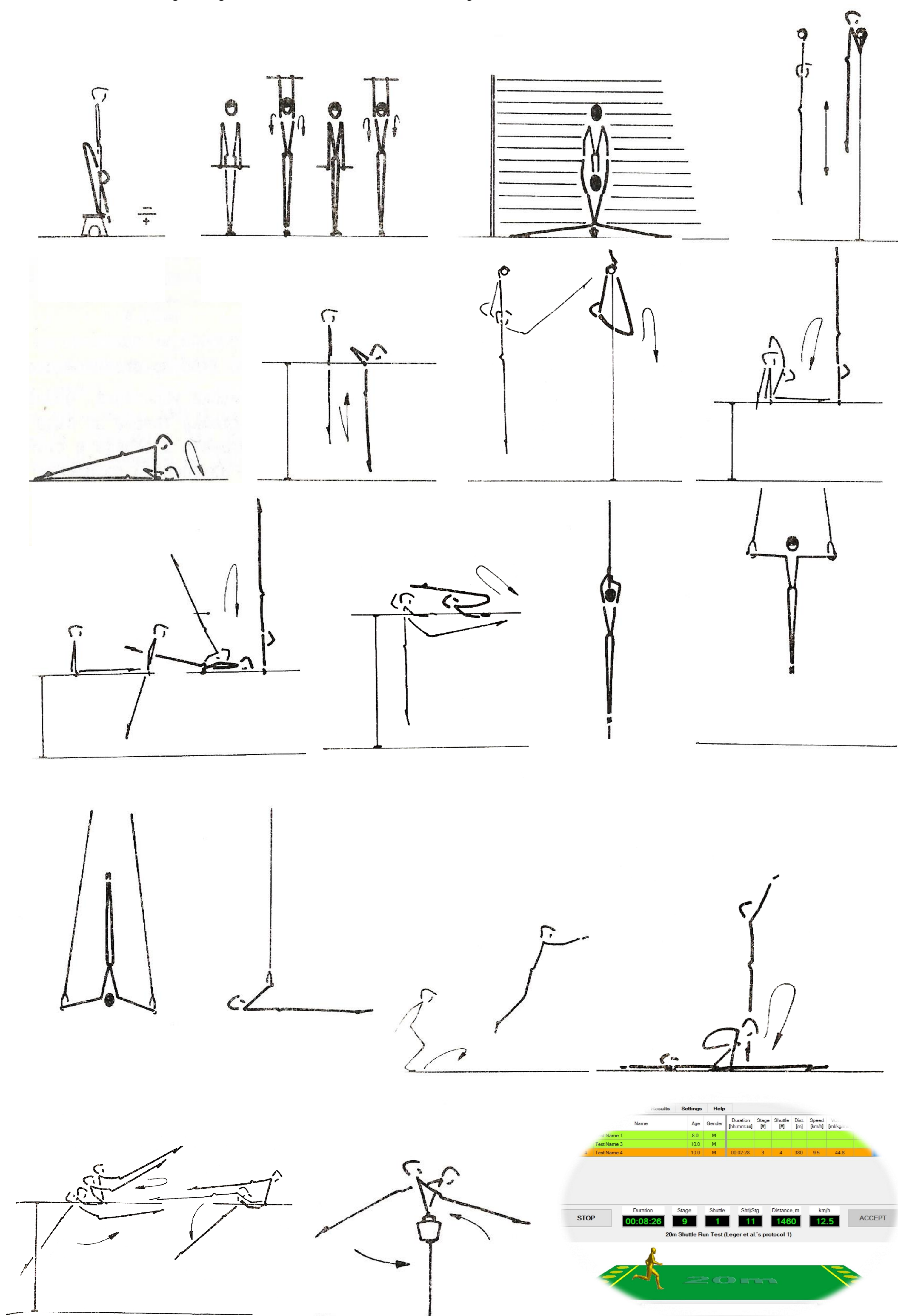


Figure 1. The Men's Artistic Gymnastics Fitness Test Battery (MAG-FTB)