Abstract

INTRODUCTION*:* The aim of this thesis is to identify the effect of trunk stabilization training based on Dynamic Neuromuscular Stabilization (DNS) on maximum kayak ergometer power output and reported self-disability in the shoulder girdle area.

METHOD: Thirty flatwater kayakers of both genders (17 - 25 years old) were randomly divided into two groups. Crossover design was used for this study. Subjects in the experimental group (group A) integrated DNS exercises into standard flatwater training during the first phase. The control group (group B) conducted only common flat water training at the same time. After 6 weeks, the groups were switched. Then group B underwent the same DNS exercise with the same intensity and the same time. The intervention was the same for both phases and took 6 weeks. Group A performed only standard off-season training during the second phase. The maximum power output on kayak ergometer was measured three times (before study, after 6 weeks and after 12 weeks). Disabilities of the Arm, Shoulder and Hand (DASH) were analyzed at the same time.

RESULTS: Initially, no significant differences in maximum power output on kayak ergometer and the DASH questionnaire score were identified between the groups. During the first phase the experimental group (group A) improved the maximum power output on kayak ergometer by 14,11 % and improved the ability of the upper girdle area by 44,65 %. The control group (group B) increased the maximum power output on kayak ergometer by 1,32 % and improved the ability of the upper girdle area by 14,19 %. The Repeated measures analysis of variance showed that the experimental group improved significantly compared to the control group on the DASH questionnaire score ($p = 0,033$), but not in the maximum power output on kayak ergometer ($p = 0,079$). Group B increased the maximum power output on kayak ergometer by 8,08 % and improved the DASH questionnaire score by 29,44 % during the second phase.

CONCLUSION: DNS-based trunk stabilization training can improve athletic performance and reduce disability of the upper girdle area of elite flat water kayakers.

Keywords