INTERACTION OF MOTOR AND COGNITIVE ABILITIES OF ELITE HANDBALL PLAYERS

Abstract
In order to identify statistically significant interactions between the motor latent variables (structure of motion, tonus regulation and synergy regulation, regulation of intensity of excitation and regulation of duration of excitation) and latent variables of cognitive abilities (IT – 1 - the efficiency of perceptive processor, S – 1 - the efficiency of parallel processor and AL – 4 - the efficiency of serial processor) a system of 15 variables was applied (12 motor and 3 cognitive) to the sample of 180 handball players who belong to I and II Serbian handball league. Data were analyzed using regression analysis of the statistical package IBM SPSS Statistics 19. The results confirm the general assumption that the cognitive mechanisms are in a statistically significant interaction with the motor mechanisms of top players. Cognitive test IT–1 - the efficiency of perceptive processor is in the interaction with latent motor variables for assessment of regulation of intensity of excitation, structure of motion and regulation of duration of excitation. The manifest predictor motor variable has the biggest single and statistically significant influence 20R - 20m run from the standing start (β=.000*), SLJ - standing long jump (β=.050*), FHB - feet and hands banging (β=.026*) and ISH - endurance of seated hang (β=.045*). Test S–1 - the efficiency of parallel processor is in interaction with latent motor variables for assessment of structure of motion and regulation of intensity of excitation, and the biggest single and statistically significant influence has the manifest predictor motor variable FHB - feet and hands banging (β=.001*) and SLJ - standing long jump (β=.030*). Cognitive test AL–4 - the efficiency of serial processor - symbolic reasoning is in interaction with latent motor variables for assessment of structure of motion, tonus regulation and synergy regulation, regulation of intensity of excitation and regulation of duration of excitation, and the biggest single and statistically significant influence have manifest predictor motor variables COS - coordination with the stick (.006*), DPB - deep pull-up hang on the bench (.010*), AHT - aiming at the horizontal target (.038*), MTL - medicineball throw from supine lying (.012*) and ISH - endurance of seated hang (.024*).

Key words: handball players, motor abilities, cognitive abilities, interaction, regression analysis