Abstract

Title:

The influence of physical load on the level of cognition and decision-making processes in a selected sports game

Objectives:

The aim of this thesis is to find out level of changes in cognition and decision-making processes after physical load.and how level of these changes differ between more and less skilled athletes.

Methods:

Result evaluation was done via descriptive statistics (average result of research group, standard deviation) and t-test paired two sample for means.

Results:

Research group was made of 18 probands (floorball players), whose ages were between eighteen and twenty seven years. All probands performed diagnostics in virtual reality consisting of five skill tests. First diagnostics was performed before physical load and second diagnostics after physical load. The physical load took the form of the vita maxima spiroergometric test. In case of avarage changes in cognitive functions after physical load, players accomplished following outcomes: recognition time (ms) -2.1±235.8 reaction time (ms) -87.7±148.1, release time (ms) 40.5±218.9, player tracking (%) 8.7±17.3. In case of avarage changes in cognitive functions after physical load due to skill level of players, national team players accomplished following outcomes: recognition time (ms) -125.1±252, reaction time (ms) -57.1±102.92, release time (ms) +18.8±206.7, player tracking (%) +7.6±13.2. Superliga players accomplished following outcomes: recognition time (ms) +84.4±230.9, reaction time (ms) -59.6±164.79, release time (ms) +35.9±204, player tracking (%) +10.8±17.6. National league players accomplished following outcomes: recognition time (ms) -18.4±192.6, reaction time (ms) -133.4±140.6, release time (ms) +57.5±238, player tracking (%) +7.3±18.7. In case of avarage changes in game-skills after physical load, players accomplished following outcomes: precise passes (%) +1.9 ± 18.6, successful passes (%) +10.3±17.1, received passes (%) +11.9±20.5, covered game field (s) -0.1±4.4, looking for open lanes (%) 3.5±15.3. In case of avarage changes in game-skills after physical load, due to skill level of players, national team players

accomplished following outcomes: precise passes (%) -3±15.9, successful passes (%) +11.7±25.7, received passes (%) +17.8±20.45, covered game field (s) -0.9±4.4, looking for open lanes (%) +6.9±11.1. Superliga players accomplished following outcomes: precise passes (%) +0.3±11.3, successful passes (%) +10.1±12.1, received passes (%) +10.9±5.7, covered game field (s) -1.1±4.2, looking for open lanes (%) -0.01±16.8. National league players accomplished following outcomes: precise passes (%) 6.4±24.1, successful passes (%) 9.6±15.1, received passes (%) 8.9±14.5, covered game field (s) 1.53±3.5, looking for open lanes (%) 5.2±15.1. The t-test paired two sample for means showed significant statistical change only in the case of reaction time t-$_{Stat}$ (2.4) > t-$_{krit}$ (2.1), when the mean value before physical load was 941.6 (ms) and after 853.8 (ms).