SUMMARY

Title: The effect of active recovery and hydroterapy on the subsequent short-term and medium-term muscular performance

Objective: The aim of the study was to compare the effect of two recoveries (ice pack, passive recovery) on the subsequent short-term and three recoveries (active recovery, cold water immersion, passive recovery) on the medium-term knee strength in the extension and flexion.

Methods: Fourteen athletes in an average age of 26,6±4,4 years performed, in a random cross-over design, 2 sessions with 5 repeated short-term isokinetic tests and 3 sessions with 3 repeated medium-term isokinetic tests. The effect of ice packs and passive rest and the effect of active recovery, passive rest and cold water immersion were assessed by the 5x2 (time x recovery) and 3x3 (time x recovery) repeated-measure ANOVA, respectively.

Results: The ice packs did not have any effect on peak torque, total work and average power during short-term performances. The average heart rate was significantly lower during measurements with the ice packs than during the passive recovery (125±15 vs. 135±20 tepů. min^{-1}).

We stated significantly lower changes in knee extension for the peak torque after the active recovery (↑ 0,9 N.m) than after the cold water immersion (↓ 14,6 N.m) or the passive recovery (↓ 13,9 N.m). The decrease of the average power was significantly lower after the active recovery (↓ 5 W) than after the cold water immersion (↓ 23,7 W) or passive recovery (↓ 25,9 W). The changes in total work were not significant. We did not found any changes in the isokinetic strength for the knee flexors after different recoveries. Maximal heart rate (HR_{max}) was significantly higher during measurements with the active recovery than during the cold water immersion and the passive recovery (173±14, 166±14 a 167±14 tepů.min^{-1}). We have found significant differences in average heart rates (HR_{av}) aminy measurements with the active recovery, cold water immersion and passive recovery (124±8, 97±9 a 107±12 tepů.min^{-1}). In conclusion, the ice packs did not have any effect on the subsequent short-term isokinetic knee strength. The active recovery was the only method affecting the subsequent medium-term muscular performance.

Key words: recovery, ice pack, cold water immersion, passive and active recovery, isokinetic strength, heart rate.