

Natchanon Sungpook 2014: Effect of Recovery Type after Exercise upon Lactic Acid Concentration Level and Heart Rate in Soccer Players. Doctor of Philosophy (Physical Education), Major Field: Physical Education, Department of Physical Education.
Thesis Advisor: Associate Professor Boonsong Kosa, Ph.D. 137 pages.

The objective of this research is to study and compare lactic acid concentration and heart rate after performing 3 different patterns of post-exercise and post-sport recovery activities, which are 1) jogging and stretching, 2) jogging and cool water bathing, and 3) jogging and bathing in hot and cool water alternately. The research sample in this study were 30 soccer players of Kasetsart University's Football Club, aged between 19-22 years old and studied in the academic year B.E. 2552. They were selected by purposive sampling method. They were trained and asked to have lactic acid concentration test and heart rate measurement after finishing 3 patterns of post-exercise and post-sport recovery activities. In the training session, the research sample was firstly asked to exercise by running, using Yo-Yo Intermittent Recovery test program, level -2, until they cannot keep their speed limit, compared to a standard running distance for soccer players, then having first blood test and heart rate measurement. After that the soccer players were asked to perform different patterns of post-exercise and post-sport recovery activities for 15 minutes before having a second blood test and heart rate measurement. The experiment was repeatedly conducted 3 times a week, with 2-day break between each experiment. They had the same experimental procedure for the 2nd and 3rd patterns of post-exercise and post-sport recovery activities. The results of the experiment were analyzed and compared to find out differences between mean of heart rate and lactic acid concentration level in the players's blood during performance of the 3 patterns of activities, by using F-test (ANOVA) between the first and second tests. In case the ANOVA analysis found a significant difference between the two tests, multiple comparisons (Bonferroni) was applied with statistical significant difference at 0.01

The research found that there was a significant difference at 0.01 between the means of lactic acid concentration in blood and heart rate among the 3 patterns of recovery activities, which were 1) jogging and stretching 2) jogging and cool water bathing and 3) jogging and bathing in hot and cool water alternately. Moreover, the mean of lactic acid concentration and heart rate decreased by a statistically significant difference at 0.01 after performing 3 patterns of recovery activities, which were 1) jogging and stretching 2) jogging and cool water bathing and 3) jogging and bathing in hot and cool water alternately. It was also found that the method of jogging and bathing in hot and cool water alternately had the best result in reducing lactic acid concentration level and heart rate. In conclusion, this research may guide soccer players, soccer coaches, and concerned personnel to alternate appropriate post-exercise recovery activities to reduce lactic acid concentration and heart rate, in order to help the players resume their normal condition quickly, as well as to apply this recovery pattern to similar training activities.

Student's signature

Thesis Advisor's signature