

Effects of long-term training on neutrophil function in male university judoists.

Yamamoto Y, Nakaji S, Umeda T, Matsuzaka M, Takahashi I, Tanabe M, Danjo K, Kojima A, Oyama T.

Nippon Sport Science University, Japan.

OBJECTIVES: To clarify the effects of high intensity and high frequency long-term/chronic training on neutrophil function and serum level of myogenic enzymes in male university judoists. **METHODS:** The subjects were 24 male university judoists who had stopped judo training for six months and had restarted their training. The following parameters were examined before and after a 2 h unified exercise loading (UEL) at the beginning of the restarted quotidian training (pre-training) and at two months, four months, and six months thereafter: myogenic enzymes, neutrophil and leukocyte counts, and neutrophil phagocytic activity (PA) and oxidative burst activity as a measure of reactive oxygen species (ROS) production capability. **RESULTS:** Myogenic enzymes that were measured after UEL at all four points significantly increased and neutrophil counts significantly increased after UEL at the pre-training, two- and four-month points, but these changes became smaller from the two-month point. PA significantly decreased after UEL at the pre-training and two-month points, but no change was seen at the four- and six-month points. On the other hand, no change in ROS production per cell after UEL was seen at the pre-training point, but it significantly increased after UEL at the two-, four- and six-month points. Furthermore, there were no significant differences in the changing rates at the three last assessment points. **CONCLUSION:** The changing rate of the levels of UEL-mediated myogenic enzymes, neutrophil mobilization and neutrophil function was seen to decrease during daily training at the two- and four-month-assessments: these may comprise at least some of the long-term training effects.