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Lt. POOLCHAI CHAIYAPONG, RTN: EFFECTS OF MUSCLE AND BIOFEEDBACK TRAINING ON PISTOL SHOOTING PERFORMANCE. THESIS ADVISORS: THYON CHENTANEZ, Ph.D., CHATURAPORN NA NAKORN, M.D., WATTANA JALAYONDESA, Ph.D. 117 p. ISBN 974-665-010-6.

The purpose of this study was to investigate the effects of isokinetic muscle training and heart rate biofeedback (HR BFB) training on pistol shooting performance. Fourteen male pistol shooters were divided into two groups known as control (C, n=7) and trained (T, n=7). For an isokinetic training program, a training group performed 8 weeks of maximal isokinetic training of both legs (knee flexor and extensor) and right arm (shoulder adductor and abductor), at the intensity of 10x10 repetitions with varying speed (180, 180, 120, 90, 60, 60, 90, 120, 180, 180 deg.s^{-1}), 3 times per week. The data of fitness variables and shooting performance were collected at 4 trials of pretest (1 week before training program), test 1 (4 weeks after the training program began), test 2 (8 weeks after training began), and posttest (2 weeks after training stopped). Regular shooting training was on going in the same schedule as the control group. A biofeedback training program was carried out 2 weeks following posttest of the isokinetic program using the same group of subjects. Heart rate monitoring was used in combination with a concentration and relaxation program; the training program was performed 3 times per week for 6 weeks. The results of isokinetic muscle training showed that there was a significant increase (p <0.05) in shooting performance and muscle strength in the training group but there was no significant change in the control group (p>0.05). The results of biofeedback training showed that the percentage of triggering in the period of diastole was significantly increased (p<0.05) after training compared to the before training in the training group, while the control group was not significantly changed (p>0.05). However, the results of shooting performance were not significantly different (p <0.05) between before and after HR BFB training compared between the control and training groups. In conclusion, the isokinetic muscle training can improve muscle strength and shooting performance, while HR BFB training can increase the opportunity of triggering in the diastole period of the cardiac cycle, but does not seem to clearly increase the shooting performance.