

Thesis Title	Renal and Liver Functions and Muscle Performance During Training in Thai Boxers.
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ABSTRACT

The effect of training program, which consisted of 1-2 weeks normal training (NT) period and 2 weeks pre-fight intensive training (IT) period, on physical fitness, liver and renal functions and muscle performance were investigated in 10 professional Thai boxers (TB) aged 13-16 years compared to 10 sedentary controls group (SD) of similar age. Anthropometry, evaluations of vital signs, physical fitness tests, blood and 24-h urine collections were performed 2-3 days before the end of each training period for boxers or at 2 weeks interval for controls. Blood and urine samples were used to evaluate liver and renal functions, and possible muscle damages. All anthropometric data of TB, e.g. height, weight, % body fat, lean body mass, and anaerobic capacity, grip strength were significantly less than, but Vo_2max was higher than, those of SD. On the other hand, leg strength and vital signs at rest such as heart rate, blood pressure and oral temperature during NT period of TB were not different from those of SD. After IT in TB, all physical fitness parameters were significantly increased from the values during NT except anaerobic capacity and right grip strength expressed as %BW, which were not altered. Blood enzyme assays during NT revealed higher levels of alanine aminotransferase (ALT), aspartate aminotransferase (AST), lactate dehydrogenase (LDH), creatine kinase (CK) and creatine kinase-MB (CK-MB) in TB compared to SD. On the other hand, serum albumin of TB was significantly less than that of SD, but serum creatinine and hematocrit of TB were not significantly different. Two weeks IT in TB caused significant elevations of LDH and CK, but not ALT, AST

nor CK-MB, serum albumin, hematocrit and serum creatinine. Hematuria was absent in all boxers. Although total proteinuria was apparent, the excretion rate was not significantly increased. In addition, creatinine clearance was not altered. It is concluded that pre-fight intensive training for two weeks in Thai boxers had virtually no effect on liver and renal functions, but apparently produced some injury to the skeletal muscle resulting in enhanced release of LDH and CK.