Thesis Title	Effect of Exercise on Sex Hormones, Lipids and Lipoproteins in Thai Male.
Name	Phachongchit Thaiudom
Degree	Master of Science (Physiology)
Thesis Supervisory Committee	Supornpim Chearskul, M.D., M.Sc.
	Suwana Hungspreugs, M.D.
	Prasit Gonggetyai, M.D.
Date of Graduation	30 June B.E. 2537 (1994)

ABSTRACT

The hormonal and metabolic responses to physical exercise were studied in 47 young Thai males who were classified as physically trained (N = 25) and untrained subjects (N = 22). All physiological parameters i.e. $\mathring{V}O_2$ max, pulse rate, respiratory rate and blood pressure were recorded. Venous blood was taken 15-min before, at 30th-min of and at 30-min after submaximal exercise on bicycle ergometer about 80% $\mathring{V}O_2$ max from each subject in both groups. Determinations of hemoglobin, hematocrit, estradiol, testosterone, cortisol, prolactin, lipids (total cholesterol, triglycerides) and lipoproteins (HDLC,LDLC) were done. Cerrection for exercise-induced plasma volume change was done for each value of studied hormones, lipids and lipoproteins. Comparisons of data at each recording time between groups of subjects and of data within group at different times were performed.

$\dot{V}O_2$ max was higher while mean pre-exercise values of pulse rate, systolic blood pressure and plasma prolactin concentration in trained group were lower than in the untrained group. Mean pre-exercise values of other studied hormones, lipids and lipoproteins were not different between two groups.

Acute exercise induced elevation of pulse rate, respiratory rate, systolic and diastolic blood pressure, hemoglobin and hematocrit in both trained and untrained subjects. In trained subjects, all studied lipids, lipoproteins and hormones except estradiol were increased while E_2/T ratio was decreased during exercise. However, only testosterone together with lipids and lipoproteins were elevated during exercise in sedentary men.

At 30-min after stopping exercise, pulse rate in both groups had not yet decreased back to their pre-exercise values. Further decline of plasma estradiol and prolactin to be lower than their basal values was observed in both trained and untrained subjects though the difference was statistically insignificant for prolactin in trained men. Significant decrease in mean values of triglycerides and E_2/T ratio after 30-min rest was observed only in trained subjects.

Univariate and multivariate analyses showed that total cholesterol and LDLC were correlated negatively with estradiol and E_2/T ratio but positively with age. Negative association between smoking and LDLC concentrations was also observed.

The physiological, biochemical and may hormonal advantages of chronic and acute physical exercise in healthy men have been demonstrated. Cardio-respiratory benefits of endurance exercise training have been shown in this group of Thai men. Decreased estradiol, prolactin and especially triglycerides at 30-min after the end of exercise may reflect some beneficial roles of exercise in healthy trained and sedentary men. Exercise may decrease risk of coronary heart disease in men, since reduced E_2/T ratio has been observed in trained subject during and after acute exercise.