Thesis Title	The effects of cigarette smoking on exercise performance in the Thai people.
Name	TERMBOON SANGKABUTRA
Degree	Master of Science (Physiology)
Thesis Supervisory Committe	Suwana Hungspreugs, M.D., Cert. of Training in Pulm. Physiology. Anchern Israngkura Na Ayudhya, M.D., Dr.Med. Supornpim Chearskul, M.D.,grad.Dip.in Clin. Sc.(Ped), Cert. of Proficiency (Ped.) , Training in Reproductive Physiology., M.SC.
Date of Graduation	September 28, 1988

ABSTRACT

To determine the long-term effects of cigarette smoking on cardiorespiratory function under stress. The chronic effects of cigarette smoking on ventilatory and cardiovascular response to exercise were studied in fourty healthy male university students. The subjects were separated into two groups, smokers (smoked $\geq$ 20 cigarettes/day, 3 yrs) and nonsmokers. Each subjects was required to perform an incremental exercise test to exhaustion. Tidal volume (V_T), respiratory frequency(f), minute ventilation($\dot{V}_E$), oxygen uptake ($\dot{V}O_2$), carbon dioxide output($\dot{V}CO_2$), R-value, O_2 -pulse,blood pressure, electrocardiogram, and heart rate (HR) were recorded at the last minute of each exercise load. The maximal aerobic capacity(VO_2 max) was determined from the gas exchange data. No differences between smokers and nonsmokers in V_T, f, $\dot{V}_E$, $\dot{V}O_2$, $\dot{V}CO_2$, R , $\dot{V}_E/\dot{V}O_2$, and $\dot{V}_E$ / $\dot{V}CO_2$ achieved at rest and during each exercise load were found. Pulmonary function test (VC, FVC, FEV_1, $\%FEV_1/FVC$, MMEF) was performed on the two groups revealed no statistically different.

Cigarette smoking resulted in a significantly higher resting heart rate ($p < 0.05$) compared with nonsmokers. Additionally, a trend towards a higher exercise heart rate, lower VO_2 max and O_2-pulse max was found during exercise in smokers.

In conclusion, cigarette smoking in short duration (3 years) evidently causes long-term detrimental effects on cardiovascular function, including tachycardia and impaired oxygen delivery to exercising muscles. The effects on respiratory function were less striking. These adverse effects on cardiovascular and respiratory system might be seen in smokers of prolonged smoking history which require further study.