CHAPTER III

FACTORS OTHER THAN DIET CONTROLLING BLOOD CHOLESTEROL

The cholesterol content in blood varies with advancing age. Although there are some controversy about the exact average value for cholesterol in the blood of the infants, the values, found by different workers are always less than 100 mg%. There seems to be no significant change in cholesterol content until puberty after which the subsequent changes depend on sex. There is a gradual increase in serum cholesterol levels up to an age of 45-50 years. Serum cholesterol levels of men and women are approximately the same at the age 20, then rise in both sexes, male cholesterol levels being higher than those of females until the sixth decade of life, when the male cholesterol values drop and female cholesterol values rise (Lawry et al., 1957).

A post menopausal rise in serum cholesterol level was also recorded by many workers. Hypercholesterolemia in pregnancy was noted at a very early date. Many studies aptly reviewed by Oliver and Boyd (1955) indicated that there is hypercholesterolemia in pregnancy.

Although it is difficult to dissociate primary genetic characteristics from environmental habits, studies of the effect of ethnic origin on serum cholesterol levels have yielded some value. The cholesterol level of the Navajo Indian living in the United States is low (Page et al., 1956) but their diet is not appreciably different from other Americans. The Jews have been said to have higher cholesterol level (Epstein et al., 1957). The immigration of individuals, having average plasma cholesterol levels, to an economically more developed country results in an elevation in the plasma cholesterol content, possibly showing the effect of environmental factors. This thing
was observed in the Yemenite immigrants to Israel (Toor et al, 1960).

In a very interesting experiment it was seen that four different strains of rats had different cholesterol levels which approached average values when the rats are inbred (Kohn, 1950). Roseman and Friedman (1959) in a very illuminating review pointed out that plasma cholesterol is uniquely sensitive to the occurrence of mental stress. This has been confirmed by several groups of workers (quoted in the review) investigating in normal military personal, in patients with healed myocardial infarction and in college students during examination week. More often than not it is found that emotional stress is always associated with hypercholesteremic states.

The apparent inconsistencies in the effect of physical exercise on plasma cholesterol and incidence of atherosclerosis in experimental animals could be due to differences in the degree of physical exertion the animals are subjected to. Thus, while moderate exercise decrease plasma cholesterol and atherosclerosis, vigorous efforts to exhaustion leads to myocardial damage with atherosclerosis in rabbits (Myasnikov et al, 1961; Myasnikov, 1958). Wong et al (1957) showed that exercise lowers serum cholesterol in cockerels. The lower serum cholesterol of other ranks of the Indian Defence Force compared to officers is also attributed to more strenuous physical exercise by Gopalan and Ramanathan (1957).