excessive amounts which in time would be converted into corticosterone or related substances having cortical hormone-like activity. The fact that the A.P. injected non-castrate adrenalectomized cat is easier to maintain and survives longer than the similarly treated castrate fits well with this viewpoint. But the fact that the castrates also react to A.P. injections offers difficulties, unless it be assumed that other tissues besides the gonads can also form progesterone or related substances as a result of A.P. treatment.

Although the writers believe that the various factors enumerated may and probably do enter into the explanation of the ameliorative effect of A.P. extract on adrenal insufficiency in the cat, there remains another factor which we regard as important. This is the effect of A.P. extract upon the appetite, ingestion and digestion of foodstuffs, and the absorption and utilization of carbohydrate in these animals.

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Influence of Posture on Skin and Subcutaneous Temperatures.

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Previous experiments[1] showed that the cardiac output in the sitting and standing positions was less than in the recumbent. They also indicated the probability that the former positions facilitate the return of a disproportionately large amount of blood from the short systemic circuits, although the amount from the extremities and the splanchnic area is decreased. The present report deals with observations on blood flow, particularly in the extremities, as measured by surface and subcutaneous temperatures.

Eight adult subjects with normal cardiovascular systems have been systematically studied. Temperatures in various parts of the body were determined by means of surface and non-conducting hypodermic thermocouples in a potentiometric circuit so arranged as to permit rapid and accurate consecutive readings.[2] The subcutaneous thermocouples were inserted to a depth of from 2 to 4 mm. Passive

1 Sweeney, H. M., and Mayerson, H. S., *Am. J. Physiol.*, 1937, **120**, 329.
2 Foster, P. C., *J. Lab. and Clin. Med.*, 1936, **22**, 68.

change of position from the horizontal to an angle of 75 degrees was achieved by a tilt table, the subject being held in place by supports over the iliac crests. This method of support eliminated the necessity of a foot-rest, objectionable because of the tendency of subjects to carry and shift enough weight on their lower extremities to aid in the venous return through muscle action. The subjects remained at 75 degrees for from 14 to 40 min, being returned to the horizontal position when they complained of being uncomfortable or became faint. Room temperature was maintained relatively constant during each experiment by means of fans and heaters.

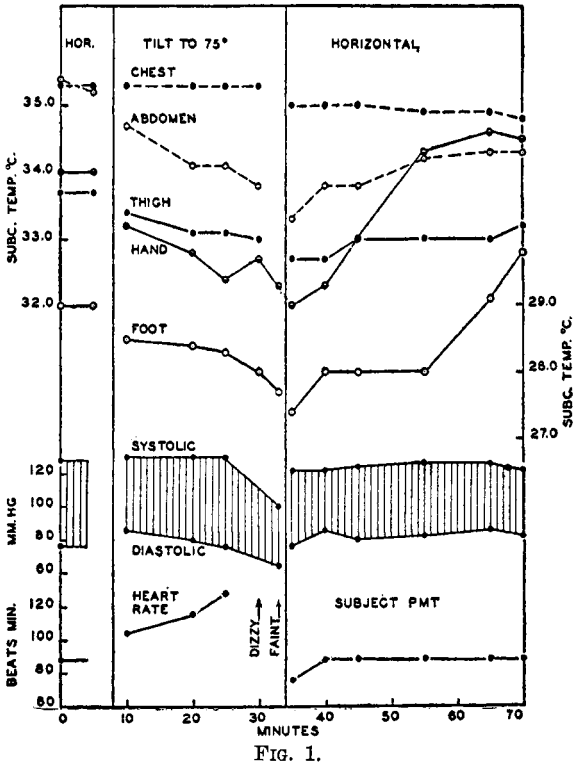

FIG. 1.

A typical experiment is charted in Figure 1. In addition to the usual surface to subcutaneous temperature gradient, both temperatures showed gradients from toes to forehead when the subjects were in the horizontal position. When tilted to 75 degrees, there was, in general, a progressive decrease in the temperatures of all parts of the body measured, being most marked in the extremities. The lowest values were usually reached at the end of the tilt period, or within one to three minutes after the return to the horizontal in

those instances where the tilt period was terminated by fainting. In the majority of the experiments the temperatures returned to or were approaching their original levels in from 15 to 60 min after the subjects were returned to the horizontal position.

In 4 experiments a heating pad was wrapped around the left foot, thus reflexly dilating the arterioles of the right foot. Temperature measurements were made on the right side of the body. Such an experiment is charted in Figure 2. The results of these experiments

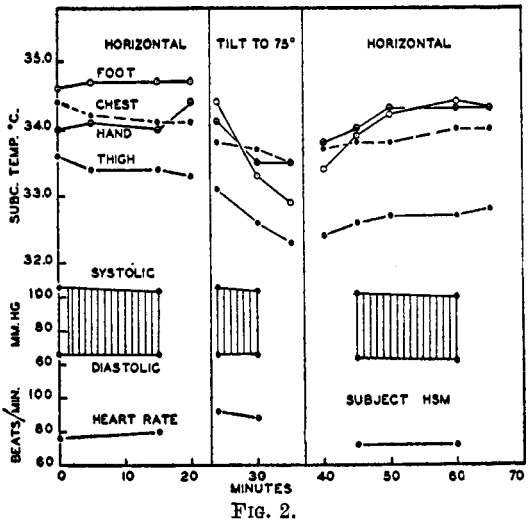

FIG. 2.

indicate that arteriolar vasoconstriction is largely, if not entirely responsible for the decrease in temperature observed on tilting from the horizontal to the 75 degree position.

Three of our subjects showed no signs of discomfort when tilted for periods as long as 34 min, while 4 consistently showed signs of syncope within this period. One subject developed syncope on several occasions but not on others. The inability to tolerate the upright position could not be correlated with the changes in surface or subcutaneous temperatures. The similarity of our results with those of Weiss, Wilkins and Haynes[3] suggests the possibility that the development of syncope in the upright position is related to the amount of venous dilatation and pooling in the extremities which accompany the arteriolar constriction and reduction of blood flow.

[3] Weiss, S., Wilkins, R. W., and Haynes, F. W., *J. Clin. Invest.*, 1937, **16**, 73; Wilkins, R. W., Haynes, F. W., and Weiss, S., *J. Clin. Invest.*, 1937, **16**, 85.