

with anterior pituitary factors, augmentation is associated with luteinization of the ovaries and is apparently due to the combined action of 2 hormones. Prolan and placental hormone, both strong luteinizers, act like the luteinizing fraction when given in combination with the follicular stimulating fraction. These results do not lend support to the pro-hormone theory as the preparations which were used did not contain growth hormone. Moreover, augmentation does not necessarily depend on the use of prolan as demonstrated with the fractionated sex hormones of the pituitary.

6738

Skin Temperature of the Extremities and Basal Heat Production.

WALTER G. MADDOCK AND FREDERICK A. COLLER.

(Introduced by L. H. Newburgh.)

From the Department of Surgery, University of Michigan.

In the maintenance of a constant body temperature the importance of the skin in the dissipation of body heat is universally recognized. Several studies of normal subjects^{1, 2} have shown that in the adjustment to different environmental temperatures there are much greater changes in the skin temperature of the extremities than that of the head and trunk. Therefore, the shift of blood to or from the skin in order to meet the required heat dissipation under the new environmental condition takes place to a much greater extent in the extremities than it does in the head and trunk. Accordingly, we believe that the extremities have a more important part in the regulation of the dissipation of heat from the skin than does the remainder of the body. Such being the case, under a constant environmental temperature differences in heat production ought to be reflected in the skin temperature of the extremities and particularly that of the toes since they show the widest range of normal variations.

This study was carried out under a constant room temperature of $83^{\circ}\text{F.} \pm 1^{\circ}$. The basal heat production of 5 normal male subjects wearing only "shorts" was determined by indirect calorimetry, using the Tissot tank and Haldane gas analyzer. The skin tempera-

¹ Benedict, F. G., Miles, W. R., and Johnson, A., *Proc. Nat. Acad. Sci.*, 1919, 5, 218.

² Coller, F. A., and Maddock, W. G., *Ann. Surg.*, 1932, 96, 719.

tures of the subjects were recorded during and at the end of the test period with a "Tycos Dermatherm".

TABLE I.

Subject	Data	B.M.R.	Basal Heat Production C/M ² /HR	Aver. skin temp. great toes
	Age			
1	28	— 4	37.86	30.8
2	23	— 7	37.03	29.2
3	23	— 9	35.95	28.9
4	25	— 11	35.02	27.8
5	24	— 16	33.17	25.9

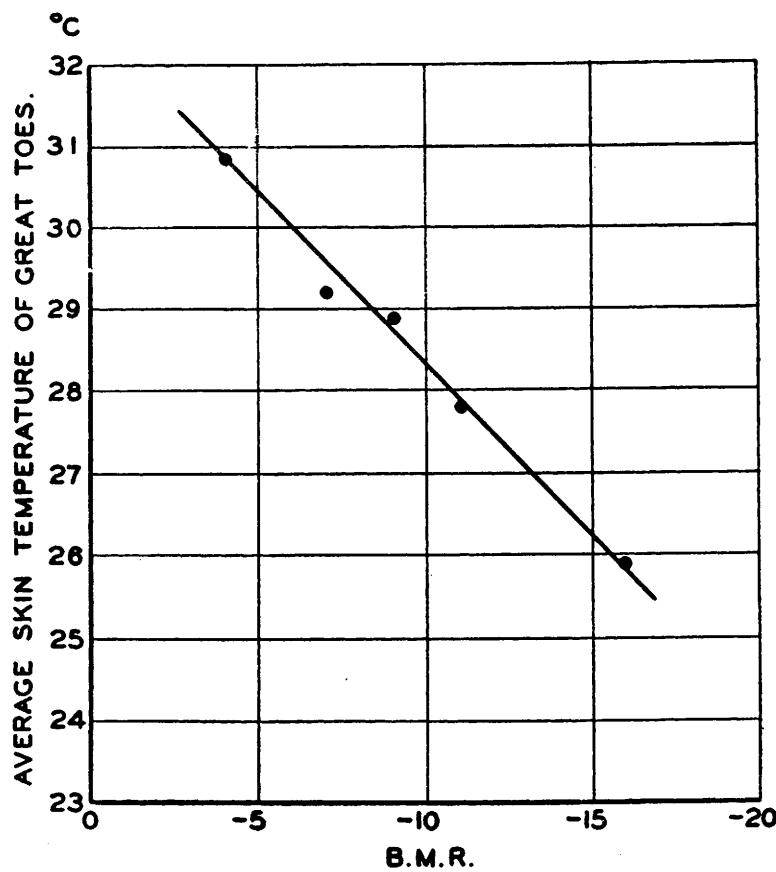


FIG. 1.

Relationship of skin temperature of great toes to basal metabolic rate.

Conclusion. Under the constant environmental temperature for the male subjects studied, a simple linear relationship was found between the basal heat production and the average skin temperature of the great toes.