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### **Basal Metabolism of a Woman Not Secreting Ovarian Hormone After Its Injection.\***

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In a previous communication<sup>1</sup> it was shown that certain single injections of ovarian hormone were not followed by any marked rise in basal metabolism 24 hours after injection. There was usually a slight rise during the day of injection and a still slighter rise during the day with no injection. This last fact might be taken as evidence that the results were due to accidental variations or variations in the secretion of the hormone. To eliminate the last objection the following determinations were made on a 20 year old woman who had apparently been castrated by mumps at the age of 6 and whose secondary sexual characters were developed only to the pre-puberty level or about to the extent of a girl of 10-12 years of age. An assay of the blood by an extraction method showing as high as a number of mouse units per cc. in normal women, showed no ovarian hormone in this woman and she had never menstruated in her life. Previous to this experiment her basal metabolic rate was 30-34 calories per square meter per hour. The ovarian hormone was obtained from Parke Davis and was assayed by us by the single injection of the aqueous solution in ovariectomized mice. We suppose this mouse unit to be about equal to the Allen Doisy rat unit but do not doubt that there may be a variation of 1000% in individual animals.

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<sup>1</sup> McClendon, Burr and Conklin, *PROC. SOC. EXP. BIOL. AND MED.*, 1928, xxvi, 265.

It may be seen from the table that the basal metabolism may rise a little on a fast-day (1st control). This rise is not increased by the pain of an injection or other psychic effect (2nd control). In this second control, distilled water was injected but the patient was led to believe that it was ovarian hormone and it was just as painful as the ovarian hormone preparation. On repeated injection of ovarian hormone during the day the basal metabolic rate rose 11.3% in the

TABLE I.

Day	Hour	Cal. per sq. m. per hr.	Ovarian hormone injected (mouse units)	Percentage increase in b.m.r.
1	0	33.7	0	3.5 (1st control)
	8	34.9	0	
2	0	33.4	0	11.3
	0	31.8	0	
3	0.5		250	2.8 (2nd control)
	2.5		350	
	6		400	
	7		500	
	8	35.4	0	
	0	32.9	0	
4	0	31.8	0	18.0
	0.5		H <sub>2</sub> O	
9	5		H <sub>2</sub> O	2.8 (2nd control)
	9	32.7	0	
10	0	32.8	0	18.0
	0.5		500	
	5		500	
	9	38.7	0	

first experiment and 18% in the second experiment. The rise in metabolism on the control days is not constant and the rise after injection of hormone is not proportional to the amount injected. The hormone preparation was not pure and therefore it is not known whether the hormone or an impurity caused the rise. Claire Conklin has shown a rise in basal metabolism during the intermenstrual period of normal women of more than 2.5 times the probable error, and Wildebush and McClendon have shown a rise in the ovarian hormone in the blood during this period. This indicates that the rise in basal metabolism is due to the hormone or to the growth of the endometrium.