Yield: Approximately 15 liters.

Temperature during preparation: It is important to note that the temperature of the extract was never allowed to rise above 10° C. at any time during the preparation.

Bacterial content: Culture of the extract proved it to be sterile. (Dr. Reichert.)

Total solids: About 1.1%.

Color: Very pale, cloudy pink, presumably due to hemoglobin, almost clear in 100 cc. bottles; fluorescent.

Potency: Tested in normal adult female rats (weighing 250-270 gm.) the extract gave what we consider to be indubitable proof of the presence of the growth hormone; it created an increase in body weight of about 35 gm. in 20 days when administered in a daily intraperitoneal dose of 1/8 cc. and a growth of 55 gm. when given in 1 cc. daily doses.

4625

Effect of Morphine Sulphate by Mouth on Oxygen Consumption in Normal Humans.

H. H. ANDERSON. (Introduced by C. D. Leake.)

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A preliminary report by M. E. Stark[1] has shown that morphine sulphate, presumably administered subcutaneously, significantly decreases oxygen consumption in normal humans, and, as might be expected, in a manner roughly proportional to the dose (0.37 mgm. to 0.48 mgm. per kg. weight). In studying the effects of the commonly used barbiturates on oxygen consumption, observation was also made of the action of morphine sulphate on some of the subjects. The drug was administered by mouth in doses from 0.1 mgm. to 0.5 mgm. per kg. weight. The technique was essentially the same as that employed by Miss Stark, except that the experiments did not run as long. The Sanborn apparatus and averages were used.

The results are shown in Table I. Where a change occurred in respiratory rate, it was usually slightly diminished. On the other hand, within the first hour after giving the drug, the pulse rate in-

[1] Stark, M. E., *Analgesia and Anesth.*, 1929, viii, 307.

TABLE I.

Maximum Functional Changes during One Hour's Observation Following Oral Administration of Morphine Sulphate in Normal Humans.

Subject	Sex	Age	Wgt. kg.	Dose mgm/kg.	Resp. per min.	Pulse per min.	Pulse Pressure mm. Hg.	Tactile Discrim.	Basal Metabolic Rate
D. C.	M	40	70.5	0.1	—2	0	—8	Decrease	0
H. P.	F	28	61.0	0.1	+3	—4	—8	No change	—5
R. M.	M	22	65.0	0.1	0	+6	+8	Decrease	0
D. C.	M	40	70.5	0.2	—3	—12	+4	Decrease	—15
H. P.	F	28	61.0	0.2	0	+12	+6	Decrease	—7
R. M.	M	22	65.0	0.2	0	+6	—10	—	+3
A. C.	F	23	60.0	0.25	0	+6	0	—	—11
H. P.	F	28	61.0	0.3	—2	+12	+8	Decrease	—3
A. H.	M	25	72.0	0.3	—2	+6	+12	Decrease	—8
H. P.	F	28	61.0	0.4	0	+8	+8	Decrease	—5
R. M.	M	22	65.0	0.4	0	+14	+14	Decrease	—4
R. M.	M	22	65.0	0.5	0	+6	—16	Decrease	—5

creased quite markedly. Pulse pressure usually increased during this period. Tactile discrimination was generally diminished, and, in the higher dosages, to a considerable extent. The basal metabolic rate was generally depressed but not to the same degree as noted by Miss Stark. This may be a reflection of the presumed difference of administration and also of the fact that our experiments did not run longer than an hour. In this time there seemed to be no significant relation between the effect on oxygen consumption and the dosage employed which was in the ordinary therapeutic range. It is probable that longer observation would show a diminution in the pulse rate below normal and a greater fall in the basal metabolic rate after the oral administration of morphine sulphate in the higher dosages here employed. None of the subjects here noted had any symptoms of nausea or sleepiness following the drug.

4626

Effect of Amytal Anesthesia on Glucose Tolerance.

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That amytal may have an effect on carbohydrate metabolism is indicated by the finding that dogs under amytal anesthesia exhibit a decreased capacity to assimilate injected glucose.[1, 2] This problem

[1] Hines, H. M., Boyd, J. D., and Leese, C. E., *Am. J. Physiol.*, 1926, lxxvi, 293.

[2] Hines, H. M., Leese, C. E., and Baker, A. P., PROC. SOC. EXP. BIOL. AND MED., 1928, xxv, 736.