## 96 (2056)

### Effects of thyroxin, thyroid extract, and sodium iodide, respectively, on neuro-muscular activity in cretin sheep.

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Thyroxin was administered to four cretin sheep in the form of daily subcutaneous injections and its influence on the spontaneous activity of the animals was estimated by means of a pedometer attached to the fore leg. One cretin had been thyroidectomized at about six weeks of age and showed extreme muscular weakness four months later. Daily subcutaneous injections of one half milligram of thyroxin was followed after an interval of nine or ten days by a marked increase in activity. One year later, injections of 0.25 mg. of thyroxin every second day were again followed in three days by a pronounced increase in neuro-muscular activity. Another cretin sheep of about the same age as the first and thyroidectomized at the same time received daily injections of one fourth milligram of thyroxin during a period of prostration four and one-half months after the extirpation of the thyroid. In this case the rise in the activity curve occurred three days following the first injection. One year later, thyroxin was again administered in doses of 0.25 milligrams every second day and the sudden increase in activity began after a latent period of six days.

The other two cretin sheep (one of which had previously thyroxin, the other having been fed thyroid extract) both gave essentially the same reaction as the two preceding sheep to daily injections of one-half milligram of thyroxin. The latent periods were in one case, five days for the first series of injections and four days for a similar series of thyroxin injections eleven months later. In the other case, the interval between the beginning of treatment and a marked increase in activity was six days.

One cretin sheep less active than the normal, showed no increase in activity following the ingestion of one-half gram of sodium iodide every second day for a period of sixty-three days. In the case of another thyroidectomized sheep which was fed

0.3 gram of thyroid extract every second day, the activity was maintained above that of the normal sheep but no sudden and pronounced increase was observed.

## 97 (2057)

### Influence on the respiratory metabolism of pancreatic extract administered by mouth to depancreatized dogs.

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Extracts of beef pancreas prepared in the same manner[1] as extracts of dog's pancreas were prepared by Murlin and Kramer[2] in 1913-6 and administered by mouth to depancreatized dogs with glucose and NaOH in sufficient quantity to make the entire mixture N/20 NaOH produced in all of four trials distinct elevations of the respiratory quotients taken from two to four hours afterward. In two of the four trials the extract was concentrated and purified before administration and in both instances the rise in quotient was greater than when crude unconcentrated extract was given.

One of the experiments on a depancreatized dog is reproduced below.

Dog No. 40. Operated Nov. 28th, 1922.

| Date. | Time. | $CO_2$ | $O_2$ | *RQ* |
|---|---|---|---|---|
| Dec. 1 | 12:40-1:35 | 2.943 | 4.271 | 0.689 |
| | 1:35-2:47 | 4.073 | 6.151 | 0.662 |
| | 2:47-3:48 | 3.330 | 4.799 | 0.694 |
| Dec. 2 | 11:05-11:43 | 1.960 | 2.596 | 0.755 |
| | 11:43-12:13 | 1.578 | 1.959 | 0.721 |
| | 12:13-12:46 | 1.619 | 2.508 | |
| | 3:40 P.M. | Dog given 50 c.c conc. No. 87(2) extract in 300 c.c water + 20 gm. glucose + N/20 NaOH (final reaction). | | |
| | 4:53-5:23 | 1.497 | 2.854 | 0.757 |
| | 5:23-6:23 | 2.932 | 3.813 | 0.769 |
| | 6:23-7:41 | 3.966 | 4.479 | 0.885 |
| | 7:41-8:42 | 3.284 | 3.424 | 0.959 |

[1] Murlin, Kramer and Sweet, *Journ. Metabolic Research*, 1922, ii, 19.

[2] Murlin and Kramer, *Journ. of Biol. Chem.*, 1916, xxvii, 516.