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Experiments on the Prevention and Relief of Parathyroid Tetany

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THE METABOLIC RATES OF AMBLYSTOMA LARVAE

O. M. HELFF

Introduced by GEO. E. POTTER

1. The oxygen consumption per gram weight, four hours, of five species of *Amblystoma* larvae was determined by means of the Winkler method and distinct species variations found to exist.

2. The average oxygen consumption of ten *A. microstomum* larvae was 200 per cent higher than the mean consumption of ten *A. tigrinum* larvae; 153.2 per cent higher than the mean consumption of ten *A. jeffersonianum* larvae, and 104.2 per cent higher than the mean consumption of ten *A. punctatum* larvae.

3. A second series of twelve *A. punctatum* and twelve *A. tigrinum* larvae emphasized the results previously obtained that the former species possess approximately a 47 per cent higher oxygen consumption than is true of the latter species.

4. The results obtained indicate that the metabolic rates of *Amblystoma* larvae are widely divergent and may serve to explain problems of differential growth rates, especially where heteroplastic grafts are concerned. The rather wide individual variations between members of the same species could likewise be applied in interpreting the growth rates of homoplastic grafts.

5. Seventeen axolotl (*A. tigrinum*) gave approximately the same oxygen consumption as was found to be true for normal *A. tigrinum* larvae.

6. This fact indicates that the neotonous condition of axolotl cannot be interpreted in the light of a supposed difference in metabolic rate, as compared with normal *A. tigrinum* larvae.

STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

EXPERIMENTS ON THE PREVENTION AND RELIEF
OF PARATHYROID TETANY

W. F. WENNER

Introduced by GILBERT L. HOUSER

Parathyroidectomized dogs given a five per cent solution of ammonium chloride in 100-cc. doses twice daily may be kept free from tetany for long periods. Once tetany appears, and the serum calcium falls below 7 mgm. per 100 cc., ammonium chloride brings

about a recovery within two hours after administration. Calcium determinations show that the calcium has risen, on the average, 2.5 mgm. or to 8.5 mgm., which is above the level at which tetany appears.

The experiments indicate that ammonium chloride exerts a marked influence on tetany probably more through its acidotic effect on the organism than through an immediate effect on the calcium, although the rise in calcium is sufficient to cause the disappearance of tetany symptoms.

Six dogs were parathyroidectomized. Two dogs, allowed to develop tetany, recovered in 1.25 hours after receiving 100 cc. of five per cent solution NH_4Cl . The calcium of one dog rose from 6.6 to 10.1 mgm. This was the greatest rise obtained for the 1.25 hour period. Two dogs died in tetany, one in seven days, and one in forty-five days after operation. Four dogs recovered permanently, and after thirty to forty days of NH_4Cl therapy were placed on a meat diet and the NH_4Cl discontinued without ill effects.

Magnesium lactate also is effective in preventing and relieving parathyroid tetany. Operated dogs given a five per cent solution of magnesium lactate three times daily can be kept free from tetany for long periods — 70 to 100 days. The level of the serum Ca. is maintained above the tetany level (7 mgm. Ca.) by such treatment.

STATE UNIVERSITY OF IOWA,
IOWA CITY, IOWA.

STUDIES OF THE BLOOD OF SUPRARENALECTOMIZED DOGS

F. YONKMAN

Introduced by GILBERT L. HOUSER

Bilaterally operated dogs exhibit a marked disturbance in the acid-base equilibrium of the blood, as well as marked hypoglycemia. The adrenal glands were removed at two stages, seven days apart, the average survival period after the second operation being six days.

Following the second operation there is a gradual fall in the carbon dioxide capacity of the plasma although the pH remains normal. When the CO_2 capacity drops to 30 volumes per cent or