

DISCUSSION

After the appropriate cortical lesion most post-synaptic neurons of the medial geniculate degenerate and cause a 39% weight loss of the nucleus.^{6,7} Koch *et al.*¹¹ have histologic evidence of this process in the cat lateral geniculate which they used to study ionic content of glia. It is probable that the degenerative processes in both geniculates are alike, so that their histological picture of the lateral would apply to the medial geniculates as well. The decrease in pentobarbital concentration in the degenerated tissue relative to the contralateral, control medial geniculate indicates that pentobarbital may normally be retained only in neurons. This is in contrast to certain hydroxamic acids which are apparently retained in equal concentration by both neurons and non-neural tissue (unpublished results).

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Rat stomach preparation *in vitro**

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THE INVERTED rat intestine, developed by D. H. Smyth and his colleagues in Sheffield,¹ has become a classical preparation for the study of active transport of body constituents. We wish to report on a new preparation—the inverted rat stomach—which is suitable for similar research and also for the study of gastric acid secretion.

Adult male rats weighing at least 200 mg and made to fast for 24 hr, are killed and their stomachs removed together with 5 mm long pieces each of duodenum and oesophagus. The fundus (Fig. 1, above) is opened and the stomach is washed with cold saline through the pylorus. Then the duodenum and the oesophagus are united and simply closed from outside by a common ligature. Inversion of the stomach proceeds from below by pushing a glass rod from outside into the antrum until it reaches the opened fundus. Inversion is then completed. Now the whole stomach is closed by a ligature of the inversed fundus. Thus results an inverted closed stomach sac into which 3 ml of Ringer solution are injected through a fine 25–26 gauge canule. The operation takes about 2 minutes.

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The inverted sac is put on a 30 ml sintered glass filter F (Fig. 2) and 10 ml 37° Ringer solution are added from above. The whole set-up is put into a 37° incubator, with an oxygen tube introduced from outside. The latter is connected to the lower part of the glass funnel and oxygen thus bubbles through the pores of the filter onto the inverted mucous surface of the stomach. As this results in excessive

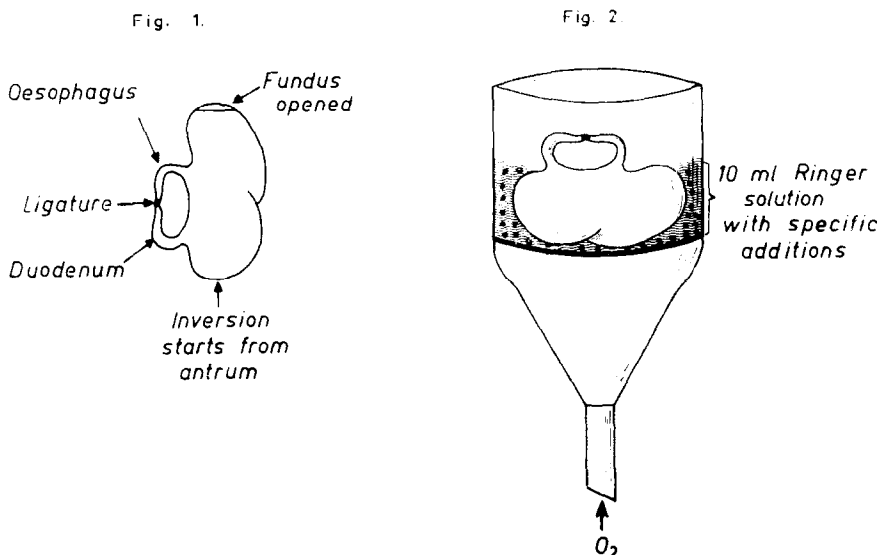


FIG. 1-2: Inverted rat stomach preparation

foam formation, 1-2 drops of General Electric Silicon Antifoam No. 20 (diluted 1:100 in water) are added to the 10 ml Ringer solution. Each experiment lasts 2 hours. Now the substances to be tested are added to the gastric bath. All solutions used are isotonic. They should contain 2 mM Na_2HPO_4 and 6 mM KCl, adjusted to pH 7.4 by HCl. The results are given in Table 1.

TABLE 1. ACID PRODUCTION OF INVERTED GASTRIC SAC MEASURED BY LOWERING OF pH

Substances added to the bath	Medium: 220 mM sucrose + 80 mM glucose				Medium: 100 mM NaCl + 80 mM glucose			
	30 min	60 min	90 min	120 min	30 min	60 min	90 min	120 min
Control	6.5	6.0	5.5	5.5	6.0	6.3	4.8	4.75
2 mM CaCl_2	6.5	6.0	5.5	5.5	6.0	5.5	5.1	5.0
2 mM MgCl_2	6.5	6.0	5.25	5.0	5.8	4.5	4.0	3.9
100 $\mu\text{g/ml}$ histamine	6.5	6.25	5.5	5.1	5.8	4.5	4.0	4.0
100 $\mu\text{g/ml}$ histamine + 2 mM CaCl_2	6.5	6.25	5.5	5.1	6.0	4.5	4.1	4.1
100 $\mu\text{g/ml}$ histamine + 2 mM MgCl_2	6.25	5.6	5.0	4.6	5.0	3.6	3.0	2.6

Generally it could be observed that lowering of the pH due to HCl formation begins after 30 min. It became maximal after 120 min and did not change significantly thereafter. The molar concentrations shown in the Table are optimal; higher or lower concentrations caused a weaker effect or inhibition.

From the results, the following conclusions can be drawn: The NaCl-glucose medium is superior to the sucrose-glucose medium, a pH of 2.6 being obtainable. Magnesium is essential for maximum activity and it is synergistic to histamine. Calcium does not show the effect, an observation already

made on frog stomach acid secretion.² Increase of sodium chloride content increases the efficacy of the preparation, but magnesium is still needed for maximum performance.

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Influence of thyroid on free fatty acid release from *in vitro* electrically stimulated epididymal fat

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ADIPOSE tissue, both white and brown, is richly innervated, as shown in 1934 by Hausberger, with anatomical evidence.¹ In brown tissue, the innervation is symmetrical; unilateral denervation results in increased glycogen and lipid content and blockade of lipid utilization.^{2, 3}

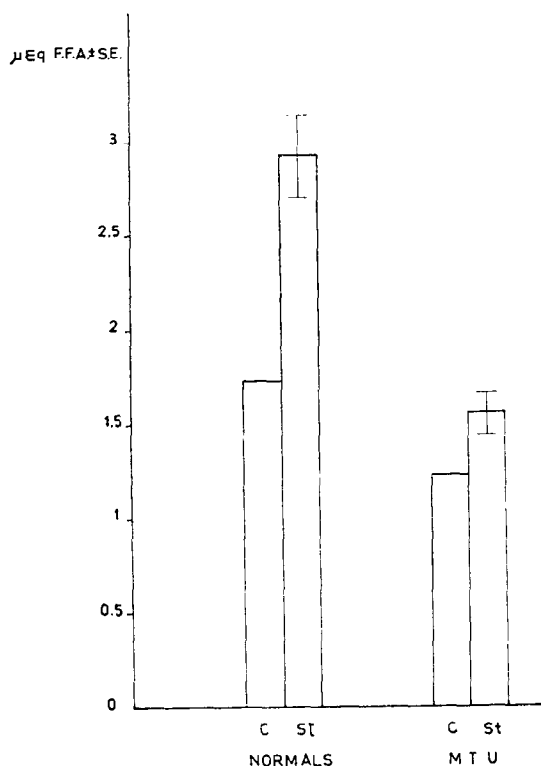


FIG. 1. Effect of methyl thiouracil (MTU) on FFA release from stimulated rat epididymal pad.