

incorporation into lipids is depressed by additional acetate, while non-radioactive ethanol dilutes the radioactive acetate incorporation not more than 10 per cent. If acetaldehyde were directly converted to acetyl coenzyme A, a reciprocal dilution effect between the two radioactive precursors should be observed. It is not likely that the presence of acetate is inhibiting the oxidation of acetaldehyde since this reaction is known to be irreversible. Furthermore, I have shown that acetate does not slow the rate of ethanol oxidation<sup>7</sup>. My results best fit the theory that acetaldehyde from ethanol is converted to free acetate before entering the metabolic pool.

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### Effect of Splenectomy on the Resistance of Rats to Histamine Stress

THE spleen has been suggested by many investigators as a site of production of hormones or hormone-like substances; interrelationships have been postulated with the pituitary, adrenal, gonad and thyroid glands. The present communication on the relationship of histamine tolerance to splenectomy provides additional evidence for a splenic humoral contribution.

Two hundred and ten female Wistar rats averaging 75 gm. were matched by weight and divided into three groups (A, B and C) representing respectively splenectomized rats, sham-operated animals and normal controls. The splenectomies were completed under open-ether anaesthesia, as described by Farris and Griffith<sup>1</sup>. The splenic pedicle was ligated and cut as close to the hilus as possible. The incisions were closed in two layers, surgical gut being used for the abdominal wall, and silk for the skin surfaces. Sham-operated females were subjected to the same operative procedures except for the surgical removal of the spleen. After four weeks, 60 animals in each group were selected and equal numbers tested for histamine resistance. The histamine challenge was at four dose-levels, 450, 600, 750, 900 mgm./kgm. of body-weight. Identical procedures were utilized for male animals. Finney's method of probit analysis was used to calculate the  $LD_{50}$  values and dose-response lines<sup>2</sup>.

Table 1 presents the results. Comparisons between the  $LD_{50}$  values for groups A and B indicate that splenectomy induced 5.1 per cent increase in the tolerance of female and 14.9 per cent increase in the tolerance of male rats to histamine stress. In the males, the increase approached statistical significance ( $P = 0.13$ ). In no instance did any of the differences between the sham and unoperated controls attain or

Table 1. EFFECTS OF SPLENECTOMY ON THE  $LD_{50}$  VALUES OF MALE AND FEMALE RATS

	Group A : splenectomized rats	Group B : sham-operated rats	Group C : normal control rats
I. Male $LD_{50}$ (mgm./kgm. $\pm$ S.E.)	754.3 $\pm$ 68.2	656.6 $\pm$ 63.4	686.6 $\pm$ 56.7
Percentage difference between $LD_{50}$ values	A : B + 14.9 per cent A : C + 9.9 per cent	B : C - 4.4 per cent	
P values	A : B, 0.13 A : C, 0.30	B : C, 0.64	
II. Female $LD_{50}$ (mgm./kgm. $\pm$ S.E.)	703.8 $\pm$ 49.9	669.6 $\pm$ 54.1	661.1 $\pm$ 55.7
Percentage difference between $LD_{50}$ values	A : B + 5.1 per cent A : C + 6.5 per cent	B : C + 1.3 per cent	
P values	A : B, 0.48 A : C, 0.38	B : C, 0.88	

A : B, results of comparisons between results for group A and group B, A : C, group A and group C, and B : C, group B and group C, respectively.

approach statistical significance. It is of interest that the increase in tolerance observed in the male was greater than the comparable increase in female rats. This finding suggests the possible existence of a sex difference in splenic function, a suggestion supported by previous reports of sex differences in response to histamine in parathyroidectomized<sup>3</sup> and thymectomized<sup>4</sup> animals.

That splenectomy tends to increase tolerance to histamine stress is in accord with the protective action against epinephrine-induced pulmonary oedema<sup>5</sup> and toxic doses of 2-thio-5-methyl-uracil<sup>6</sup> induced by splenectomy.

Although the investigation does not offer conclusive evidence concerning a splenic endocrine function, the results provide inferential support for such a hypothesis.

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### An Effect of Chlorpromazine on Rat Mitochondrial Membranes

THE phenothiazines used in therapy appear to affect membranes in many biological systems. Thus, Greig *et al.*<sup>1</sup>, among others, have shown that promethazine, a phenothiazine type of antihistaminic drug, prevents the usual deterioration of red blood cells during storage. This presumably is a membrane effect. The frog gastrocnemius muscle swells when placed in distilled water. This water imbibition can be partially prevented by chlorpromazine<sup>2</sup>. A few *in vivo* experiments may be cited as well. Thus,