## 114 (2074)

## Experiments on the metabolism of thymine.

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The recent demonstration[1] of the readiness by which thymine could be oxidized to urea, pyruvic acid and acetol by such mild reagents as $Fe(OH)_3$ and $NaHCO_3$ at room temperature renewed our interest in the metabolism of this pyrimidine in the body.

When 3 gram doses were fed to a small dog (5 kilo), it was possible to isolate approximately one gram of pure thymine from the urine on the following day although none was recovered after administration of the same amount to a large dog (12 kilo). When 3 grams of thymine were given to the same small animal in daily amounts of 0.25 gram over a period of 12 days, it was apparently utilized; for none could be crystallized out of the combined urines of the experimental days, nor was any change in the quantity of non-urea nitrogen noted. The dogs were kept upon constant adequate diets. Experiments on other animals are now in progress.

In every case when thymine was administered, there was an increase in the urea output, suggesting that some of this pyrimidine was metabolized. Attempts to isolate thymine from 150 liters of normal human urine were unsuccessful, thus indicating that under ordinary conditions of diet, thymine does not escape physiological conversion.

Whether thymine ordinarily is destroyed as such in the body or whether still in the nucleoside combination is uncertain; the present experiments suggest that the animal organism is able to convert the pyrimidine to urea when it is uncombined.

The observation of Sweet and Levene[2] that thymine causes diuresis was confirmed when large doses were given; apparently the extent of its diuretic action is dependent upon the amount administered.

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[1] Johnson, T. B., and Baudisch, O., *Jour. Amer. Chem. Soc.*, 1921, xliii, 2670,

[2] Sweet, J. E., and Levene, P. A., *Jour. Exp. Med.*, 1907, *ix*, 229.