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Effect of Cysteine on the Metabolism of the Isolated Brain Tissue.

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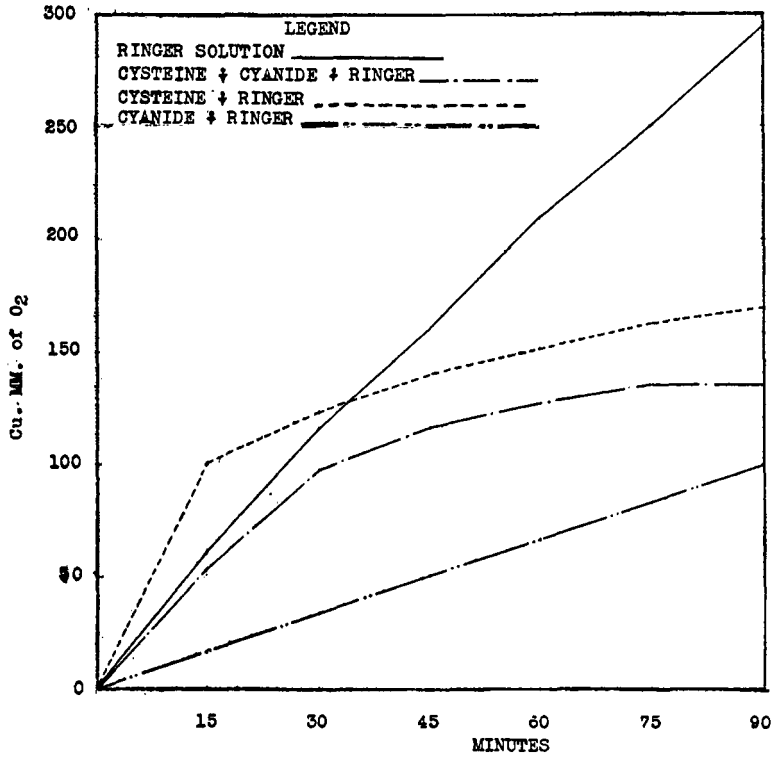
We are reporting experiments elsewhere on the effects of cysteine and cystine on the metabolism of rats (Goldfarb, Fazekas, Himwich[1]). The present communication is a report of further experiments on isolated brain tissue. The observations were limited to the effects of cysteine, since cystine was soluble in solutions

FIGURE 1.

EFFECT OF CYSTEINE AND CYANIDE ON THE O_2 UPTAKE OF THE BRAIN TISSUE (PER 100 MGM. OF TISSUE)



[1] Goldfarb, W., Fazekas, J. F., and Himwich, H. E., (to appear in the *Am. J. Physiol.*).

too alkaline or acid to support respiration. In all experiments the tissue was suspended in a phosphate medium buffered at pH 7.4 with lactate as a substrate. The tissues were inserted in the Warburg respirometer and one-half hour elapsed, the time required for equilibration, before observations were begun.

The data disclose that the O_2 consumption of the brain tissue treated with cysteine exhibits a diphasic response. During the first 30 to 45 minutes there is a marked stimulation which is followed by a profound depression in the later periods. Cysteine, moreover, retains an early stimulatory effect on O_2 consumption despite the presence of cyanide.

In order to obtain further information as to the character of the increased O_2 consumption, a group of observations was made on the R.Q. after the addition of cysteine hydrochloride in a concentration of 0.01 M. In most instances the R.Q. of unwashed, minced brain tissue is approximately 0.9, (Himwich, Fazekas, Barker, Hurlburt[2]) and in these studies the addition of cysteine resulted in a depression of the quotient. In 8 experiments they were found to be 0.50, 0.65, 0.65, 0.54, 0.59, 0.52, 0.30, and 0.83. The presence of the sulphydryl group had obviously caused a consumption of O_2 without the simultaneous production of CO_2.

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Relation of Anterior and Posterior Lobe of the Hypophysis to Insulin Sensitivity in the Rat.*

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The discovery of Houssay and Magenta,[1] since repeatedly confirmed by other investigators, that the hypophysectomized animal becomes extremely sensitive to insulin, led to attempts to determine what part of the pituitary body was involved. The observation

2 Himwich, H. E., Fazekas, J. F., Barker, S. B., Hurlburt, M. H., *Am. J. Physiol.*, 1934, **110**, 348.

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1 Houssay, B. A., and Magenta, M. A., *Rev. Assn. Med. Argentina*, 1924, **37**, 389; *Comp. Rend. Soc. de Biol.*, 1925, **92**, 822.