

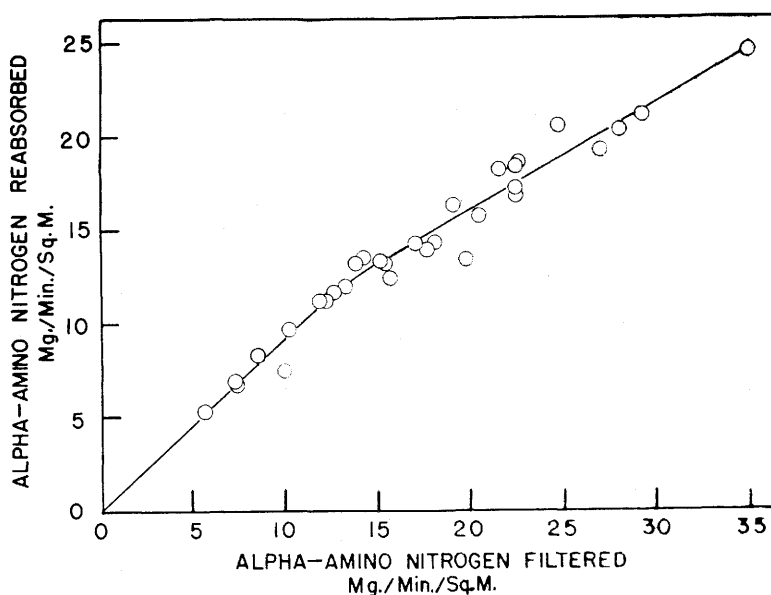


Fig. 1.
The relation between renal filtration and reabsorption of alpha-amino nitrogen of *dl*-methionine in Dog III.

which are considerably higher than the maximal rates reported for leucine, isoleucine and valine⁴ and which stand in strong contrast to such low threshold amino acids as arginine and lysine.^{3,5}

Summary. The relation between the rate of renal filtration and reabsorption of *dl*-methionine α -amino nitrogen has been studied in normal dogs. As the amount filtered was

increased to 34.8 mg α -amino nitrogen/min/square meter, the highest level attained in these experiments, the rate of reabsorption increased to 24.8 mg/min/square meter and there was no evidence that a *Tm* value was obtained. The data demonstrate the high efficiency of the renal mechanism for the reabsorption of methionine.

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Cataracts Resulting from a Deficiency of Phenylalanine in the Rat.*

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Experimental cataracts in the rat have been shown to result from deficiencies of either of 2 of the essential amino acids. What apparently were cataracts due to tryptophane

deficiency in the rat were first described by Curtis, Hauge and Kraybill.¹ Totter and Day² later made a careful study of the cataracts resulting from this deficiency. Recently,

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¹ Curtis, P. B., Hauge, S. M., and Kraybill, H. R., *J. Nutrition*, 1932, **5**, 503.

² Totter, J. R., and Day, P. L., *J. Nutrition*, 1942, **24**, 159.

Sydenstricker, Schmidt and Hall³ have reported the development of cataracts in rats on a histidine-deficient diet. The study reported here was occasioned by the discovery of a well-developed cataract in a rat fed on a diet deficient in phenylalanine.

Methods. The rats used were from a Wistar strain. When 25-28 days of age they were placed in individual cages and given experimental diet and water *ad libitum*. The phenylalanine-deficient diet and a similar control diet used were those described by Sydenstricker, Hall, Bowles and Schmidt.⁴ The development of cataracts was studied in 15 rats from 5 litters which were fed the phenylalanine-deficient diet. Seven rats from the same litters were fed the control diet. Three times weekly the eyes were examined for lenticular abnormalities with the biomicroscope after dilating the pupil with 0.5% solution of atropine sulphate in physiological saline solution. As soon as possible after the death of each deficient rat the lenses were removed, immersed in saline, and examined under a dissecting microscope.

Three deficient rats with cataracts of varying degrees of development were changed to the control diet so that any resulting regres-

sion of the lenticular changes could be observed.

Results. Definite lenticular changes were observed in all but 2 of the 15 rats in from 17 to 33 days (mean, 22 days). These changes continued to develop, resulting in a progressive lessening of the transparency of the lenses until at the time of death, after 20-53 days on the diet, various degrees of opacity were observed. The earliest change was a slight haziness of the lens substance. Next the lens star became visible. This was followed by a separation of the superficial fibers, and sometimes by a rough granular appearance of the epithelial layer. No changes in the lens capsule were observed. Finally, in the posterior portion of the lens a dense central opacity developed, eventually filling the central portion of the lens and leaving only a narrow peripheral portion comparatively clear.

Changing the deficient rats to the control diet resulted in a reversal of only the more superficial changes in the lens.

In none of the control rats were any lenticular changes observed.

Summary. The lenticular changes observed to result from phenylalanine-deficiency in the rat were diffuse haziness, opacity of the star, progressive separation of the fibers, granular changes in the epithelial layer and the development of dense central cataracts. Only the more superficial changes in the lenses were found to be reversed by adding *dl*-phenylalanine to the diet.

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Effect of Podophyllin on Tumor Cells in Tissue Culture.*

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Podophyllin, N.F. is a mixture of substances

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derived from the roots and rhizomes of the mandrake plant by hot ethanol extraction and subsequent precipitation in dilute HCl. Various preparations of the mandrake plant have been in use for at least a hundred years as laxatives and more recently as supposed