

most sera during sensitization. It had a mobility slightly greater than albumin and can be seen in the diagrams for rabbit No. 140. In another communication¹¹ it has been suggested that this may be due to the presence of tuberculin protein in the serum.

An increase in the α -globulin component occurred also in a rabbit sensitized in a similar manner with crystalline ovalbumin, and may, therefore, possibly be a general phenomenon in protein sensitization.

Conclusion. Antibody to tuberculin protein has been identified in serum as a component with an electrophoretic mobility close to α -globulin. This component increases in sera following sensitization to the protein, and is removed in part with the specific precipitate produced by adding antigen to the immune serum.

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Urinary Excretion of Pantothenic Acid by Normal Individuals.

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Excretion studies have frequently been employed in assessing the dietary requirement for certain nutritive essentials. It is axiomatic that individuals consuming diets deficient in a particular nutritive essential will excrete less of the material in question than those subsisting on an adequate or optimum regimen. The establishment of normal excretion values is, therefore, a requisite for the application of such a method in evaluating the adequacy of diets.

Pantothenic acid is a dietary essential for a variety of species. Evidence has been presented by Spies, *et al.*,¹ that it is essential in human nutrition. Pelczar and Porter,² using a method based on the essential nature of pantothenic acid for *Proteus morganii*, found that the pantothenic acid content of 24-hour urine specimens from 9 persons ranged from 1.46 mg to 6.79 mg and averaged 3.81 mg. Pearson,³ using the method of Pennington, Snell, and Williams,⁴

¹¹ Seibert, F. B., and Nelson, J. W., *J. Biol. Chem.*, in press.

¹ Spies, T. D., Stanbery, S. R., Williams, R. J., Jukes, T. H., and Babcock, S. H., *J. Am. Med. Assn.*, 1940, **115**, 523.

² Pelczar, M. J., and Porter, J. R., *Proc. Soc. Exp. Biol. and Med.*, 1941, **47**, 3.

³ Pearson, P. B., *Am. J. Physiol.*, 1941, **135**, 69.

⁴ Pennington, D., Snell, E. E., and Williams, R. J., *J. Biol. Chem.*, 1940, **135**, 213.

which employs *Lactobacillus casei* as the test organism, reported that the amount of pantothenic acid excreted during a 48-hour period by each of 3 individuals was 6.32, 6.60, and 6.23 mg. The daily excretion of pantothenic acid, therefore, is in agreement with that reported by Pelczar and Porter. In this paper data are reported on the pantothenic acid content of 57 24-hour urine specimens from 29 normal individuals (medical students).

Two 24-hour specimens were collected from each subject approximately one week apart; toluene was used as a preservative. The specimens were assayed according to the method of Pennington, Snell, and Williams.⁴ An acid-treated sample of urine was incorporated in the basal medium as suggested by these workers. Under such conditions recoveries of pantothenic acid, when added to urine, were quantitative. Titration of the lactic acid produced after a growth period of approximately 72 hours was employed as a measure of the response to pantothenic acid. The results are expressed in terms of milligrams of calcium pantothenate excreted per day.

A frequency distribution of the data obtained is presented in Table I. In 72% of the cases studied the daily excretion fell between 2.50 and 4.00 mg per day. The mean daily excretion of pantothenic acid was 3.42 mg (maximum 5.54 mg; minimum 1.10 mg).

TABLE I.
Daily Excretion of Pantothenic Acid.

Range mg per day	No. of samples
— -1.99	2
2.00-2.49	2
2.50-2.99	13
3.00-3.49	16
3.50-3.99	12
4.00-4.49	5
4.50-4.99	3
5.00-5.49	3
5.50- —	1
Total	57