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Parathyroid Extract and Alkaline Phosphatase Activity.* (20157)

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Parathyroid extract has been reported to increase(1) and to have no effect(2) on the alkaline phosphatase activity of the kidneys of rats. This difference now has been resolved by repeating the experiments with each of the separate laboratories performing simultaneously both of the previously reported procedures.

Results. The results obtained in both laboratories were identical (Table I). The parathyroid extract‡ produced an increase in phosphorus excretion, but no change in the

TABLE I. Inability of Parathyroid Extract to Change Alkaline Phosphatase Activity of Kidney.* (5 male rats per group.)

Treatment	B. wt, g	Urine P, mg (24 hr)	Kidney, g	Alkaline phosphatase, U/g — Homogenate at 5°, 18 hr† — K–A pH 9.7	K–A 8.6	Bodansky 9.7	Bodansky 8.6
			Bonelli and Sala				
Control	215 ±10‡	5.1 ± 1.7	1.64 ± .10	56 ± 3.4			35 ± 2.2
PTH 1 ml	200 ± 6	9.6 ± 1.5	1.52 ± .05	54 ± 6.4			32 ± 1.7
			Kochakian and Reed				
Control	209 ± 6	7.7 ± 1.7	1.52 ± .07	111 ± 5.0	46 ± 4.9	36 ± 5.2	19 ± 2.1
PTH 2 ml	210 ± 6	24.1 ± 2.6	1.51 ± .04	113 ± 4.4	46 ± 2.9	34 ± 3.5	18 ± 1.3
				Homogenate at 23–30°, 42 hr† — K–A pH 9.7	K–A 8.6	Bodansky 9.7	Bodansky 8.6
			Bonelli and Sala				
Control	215 ±10‡	5.1 ± 1.7	1.64 ± .10	18 ± 4.2			18 ± 4.2
PTH 1 ml	200 ± 6	9.6 ± 1.5	1.52 ± .05	19 ± 2.2			13 ± 3.4
			Kochakian and Reed				
Control	209 ± 6	7.7 ± 1.7	1.52 ± .07	89 ± 3.9	36 ± 2.1	29 ± 3.1	25 ± 1.7
PTH 2 ml	210 ± 6	24.1 ± 2.6	1.51 ± .04	75 ± 4.0	34 ± 5.7	27 ± 4.9	22 ± 2.4

* Autopsy 6.5 hr after inj. of parathyroid extract.
† Temperature and duration of autolysis.
‡ Stand. error of the mean, $\sqrt{\frac{\Sigma d^2}{n(n-1)}}$.

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‡ The parathyroid extract was provided by Eli Lilly and Co.

alkaline phosphatase activity of the kidneys. The larger dose of the parathyroid extract produced a greater excretion of phosphorus(1). The method of autolysis of the homogenate, the type of substrate and the pH of the enzyme determination did not reveal any differences between the two groups of animals. Similar results were obtained in rats studied at 2, 4, 6, and 8 hours (Bonelli and Sala) and 6 hours (Kochakian and Reed) after an injection of 1 ml of parathyroid extract.

The divergent findings previously reported (1) were very likely due to observations based on an insufficient number of animals.

It should be noted that greater enzyme activities were obtained at pH 9.7, by the King-Armstrong (K-A) method, and by autolysis at 5°.

Conclusion. Parathyroid extract produces an increased excretion of phosphorus, but no change in the alkaline phosphatase activity of the kidney of male rats.

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Influence of Administration of ACTH on Urinary Amino Acids.* (20158)

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The present paper describes some changes produced by the administration of ACTH‡ on the urinary output of nitrogenous substances with particular emphasis on amino acids. Urine samples were obtained during 3 periods of study in 2 female psychotic patients. Since the results for all 3 collection periods were similar, the results for only one will be discussed in detail. Both of these patients responded in a similar manner to each other and as reported for normal subjects in the literature and other psychotic patients tested in this laboratory(1) with regard to drop in eosinophils, sodium retention, potassium diuresis, and negative nitrogen balance (see Fig. 208 of reference (1) for pertinent data on patient reported). A preliminary report has been made of this work(2).

Methods. The data reported are for a 29-year-old schizophrenic female who was studied for 4 days prior to administration of the hormone, 10 days during the administration of a daily dose of 150 mg of ACTH, and for 5 days after the cessation of the treatment. The hormone was administered 6 times daily in 25 mg doses via the intramuscular route. The various *nitrogenous constituents* listed in Table I-A were determined by customary procedures. The microbiological determinations shown in Table I-B were performed on urine dialysates by previously described methods(3). For *2-dimensional paper chromatography* samples of urine were dialyzed to equilibrium against 3 ml of glass-distilled water in a rocking dialyzer for 18-24 hours at 4°C. Samples corresponding to 1 x 10^{-4} of the 24-hour excretion were employed for chromatography. Aliquots of the dialysate were hydrolyzed for 18-24 hours in 6 N HCl in a sealed tube at 110°, and the acid removed *in vacuo* prior to placing the samples on paper. Two-dimensional chromatograms were made of the protein-free dialysates before and after acid hydrolysis by the method of Consden *et al.*(4), as extended by Dent(5,6). By visual inspection it was possible to compare the 24-hour excretion of the major free and bound amino acids from day to day. Urine

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