

pletely metamorphosed and have assumed the coloration and pigment pattern of the adult type. The experimental animals, however, remain as large silvery-white tadpoles, in which the limb buds are present as small translucent papillae, showing no differentiation of toes or other parts. Although no histological examinations have as yet been made, there can be no doubt but that the anterior lobe of the pituitary body, if present as such, failed to perform its normal thyrotropic activity.

Concerning the question of somatotropic activity of the "pituitary body" in these experimental animals, the data are only slightly less consistent. Most of the experimental larvae approximate their controls in size, and are larger than the control specimens when the latter have made any considerable progress toward metamorphosis. A few of the "albino" tadpoles are smaller than their control tadpoles but this seems attributable to effects of the operation other than the prevention of contact between the *pars buccalis* and *pars neuralis*. The lack of disparity in growth rate between the normal and experimental animals, however, is not considered as evidence of differentiation or even partial differentiation of the anterior lobe of the pituitary body, for similar lack of disparity in size between totally hypophysectomized tadpoles and their control specimens has been found to be the rule. No data are available as yet regarding the adrenocorticotrophic activity of the isolated *pars buccalis*.

We may conclude that the *pars buccalis* is correlatively differentiating, being dependent for its development and function upon the inductive effect of contact with the infundibular region of the brain. A more detailed account of this work will be published later.

10407 P

Effect of Adrenalectomy and of NaCl on Intestinal Absorption of Dextrose.*

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Wilbrandt and Lengyel¹ in Verzar's laboratory found that adrenalectomy decreased the absorption of dextrose and of olive oil, and

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¹ Wilbrandt, W., and Lengyel, L., *Bioch. Z.*, 1933, **204**, 267.

showed that administration of cortical hormone restored it to normal. These workers performed their absorption experiments on rats between the third and sixth day after operation. Deuel, Hallman, Murray and Samuels² found no impairment of the absorption of dextrose in adrenalectomized rats that had been kept on Rubin-Krick salt mixture for 12 to 20 days postoperatively. Recently, v. Issekutz, Laszt and Verzar³ reported diminished absorption of dextrose and of butterfat from isolated jejunal loops of adrenalectomized cats 3 to 5 days after operation.

We repeated and extended the work on rats mentioned above because the influence of the adrenal cortex on intestinal absorption of dextrose has an important bearing on the phosphorylation theory of preferential intestinal absorption. Six-months-old male and female rats were used for this study. In order to clear the intestine of food residue, our rats were fasted for 24 hours before the absorption experiment, but the adrenalectomized rats had access to sucrose for the first 8 hours of this period. A 20% solution of dextrose was then given by stomach tube in amounts approximately double the capacity for absorption. An hour later the animals were sacrificed in order to determine the amount of unabsorbed residue in the entire digestive tract by the method of Hanes.⁴ The first experiment was performed with normal and adrenalectomized rats 5 days after operation. The second experiment was done with normal rats receiving 1% of sodium chloride in the drinking water for 7 days and with rats treated similarly for 5 and 20 days after adrenalectomy (Table I).

From our experiment with untreated rats it is seen that adrenalectomy markedly impaired intestinal absorption of dextrose in both

TABLE I.

Sex	Rats not receiving NaCl				Rats receiving NaCl					
	Normal		Adrenal- ectomized 5 days		Normal		Adrenal- ectomized 5 days		Adrenal- ectomized 20 days	
	Dextrose absorbed*		Dextrose absorbed		Dextrose absorbed		Dextrose absorbed		Dextrose absorbed	
	No.	mg	No.	mg	No.	mg	No.	mg	No.	mg
M	8	130 ± 7†	7	84 ± 18	4	135 ± 8	5	146 ± 44	8	116 ± 33
F	6	166 ± 9	8	78 ± 26	—	—	6	142 ± 15	—	—

*Per 100 g of weight.

†Standard deviation.

² Deuel, H. J., Jr., Hallman, L. F., Murray, S., and Samuels, L. T., *J. Biol. Chem.*, 1937, **119**, 607.

³ v. Issekutz, B., Jr., Laszt, L., and Verzar, F., *Pflügers Arch.*, 1938, **240**, 612.

⁴ Hanes, C. S., *Bioch. J.*, 1929, **23**, 99.

sexes. The degree of impairment is very similar to that occurring after thyroidectomy, as reported by Althausen and Stockholm.⁵ Adrenalectomy, like thyroidectomy, nullified the normal difference^{2, 5} in absorption of dextrose between sexes.

Our experiment with rats given sodium chloride shows that this substance did not alter the absorption of glucose in normal rats, but restored it to normal in adrenalectomized animals. This finding is of particular interest in view of the work of Anderson and Joseph,⁶ who showed that administration of sodium chloride corrects the abnormalities of potassium and sodium excretion in adrenalectomized rats. Administration of sodium chloride after adrenalectomy did not raise the average rate of absorption in female rats above that in males. The present work reconciles the contradictory reports regarding the effect of adrenalectomy on intestinal absorption of dextrose.

Conclusions. Adrenalectomy markedly diminishes intestinal absorption of dextrose. Administration of sodium chloride after adrenalectomy restores the absorption of dextrose to normal.

10408 P

Electrolyte Excretion Studies in Rats Maintained on Low-Na and Low-K Diets.*

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The rates of excretion of radioactive sodium and potassium have been studied in rats which were reared on the McCollum low-sodium and low-potassium diets.¹ The low-sodium diet was found by analysis to contain 0.6% sodium; the low-potassium diet, 0.4% potassium. The animals were maintained on these diets from the time of weaning until the excretion studies were made 5 to 6 months later.

⁵ Althausen, T. L., and Stockholm, M., *Am. J. Physiol.*, 1938, **123**, 577.

⁶ Anderson, E. M., and Joseph, M., *PROC. SOC. EXP. BIOL. AND MED.*, in press.

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¹ Orent-Keiles, E., Robinson, A., and McCollum, E. V., *Am. J. Physiol.*, 1937, **119**, 651.