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Pituitary Hormones and the Blood Sugar Level.

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It has been reported from several sources[1, 2, 3] that glycosuria was obtained after the injection of anterior pituitary extract. Houssay[4] reports that daily injections of the extract into dogs cause hyperglycemia, glycosuria and ketonuria. Evans, *et al.*,[5] observed glycosuria in 2 dogs treated with growth hormone. Barnes, Regan, Nelson[6] found that Amniotin injections reduced glycosuria in depancreatized dogs. Houssay and Biasotti[7] injected rats with the Evans and Simpson extract for growth. Five to 7 injections were given, intraperitoneally, once a day in doses of 10 cc. per rat. Glycosuria and glycemia occurred 2 to 3 days after the cessation of the injections.

In view of these researches it was thought worth while to try the effect of the various pituitary hormones upon the blood sugar level of the rat. Growth hormone (Squibb); pregnancy urine extract, Antuitrin S (Parke-Davis); theelin (Parke-Davis) and Antuitrin G (Parke-Davis Growth Hormone) were used. All the determinations were made by the Somogyi Micro Method[8] for blood sugar. The following summaries give the different experiments with their results.

Antuitrin S. Ten rats were injected daily, subcutaneously, with 1 cc. of the extract for 8 days. Blood sugar was determined 1 day and 4 days after the last injection. No change in the blood sugar level was found. With 4 other rats 2 were injected subcutaneously and 2 intraperitoneally with ¼ cc. twice a day for 4 days. On the 5th day the blood sugars were normal.

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[1] Barnes, B. O., and Regan, J. F., *Endocrinol.*, 1933, **17**, 522.

[2] Baumann and Marine, PROC. SOC. EXP. BIOL. AND MED., 1932, **29**, 1220.

[3] Houssay, Biasotti and Rietti, *Rev. Soc. Argent. Biol.*, 1932, **8**, 469. (Cited by Barnes and Regan, *Endocrinol.*, 1933, **17**, 522.)

[4] Houssay, B. A., *Klin. Woch.*, 1933, **12**, 773.

[5] Evans, Meyer, Simpson and Reichert, PROC. SOC. EXP. BIOL. AND MED., 1932, **29**, 857.

[6] Barnes, B. O., Regan, J. F., and Nelson, W. O., *J. Am. Med. Assn.*, 1933, **101**, 926.

[7] Houssay, Biasotti and Rietti, *Compt. Rend. Soc. Biol.*, 1932, **111**, 479.

[8] Somogyi, M., *J. Biol. Chem.*, 1926, **70**, 599.

Antuitrin G. Six rats were injected subcutaneously with ¼ cc. per day. Blood sugars determined on the 3rd and 8th days were normal. The dose was then stepped up to ½ cc. Two days later the blood sugars were normal. Injections were continued but by the intraperitoneal route for 3 more days after which time the blood sugar level was still normal.

Theelin. Five rats were injected subcutaneously with ¼ cc. per day. The blood sugars were determined on the 3rd, 4th and 8th days. All were normal. The injections were continued, but with ½ cc. per day. Blood sugars determined on the 10th and 13th days were normal.

Growth Hormone, Squibb. Ten rats were given 1 cc. daily, subcutaneously, for 9 days. Blood sugars were determined on the 3rd and 4th days after the injections were discontinued. All were normal. Five rats injected subcutaneously, daily, with ¼ cc. showed no change in the blood sugar level on the 3rd and 8th days. On the 8th day the dose was increased to ½ cc. daily, but no changes were observed 2 and 5 days later.

The totally negative results were surprising. We endeavored in every case to give doses within the physiological range. In one case we deviated from the dosage used. Houssay and Biasotti[7] injected 10 cc. intraperitoneally into 200 gm. rats, a volume which we considered sufficient to distend the abdomen of the animal.

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Effect of Hypothyroidism on Antidiuretic Action of Pressor Principle of Posterior Pituitary.

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The effects of total ablation of the normal thyroid gland in man on the action of injected adrenalin and of insulin have been reported