

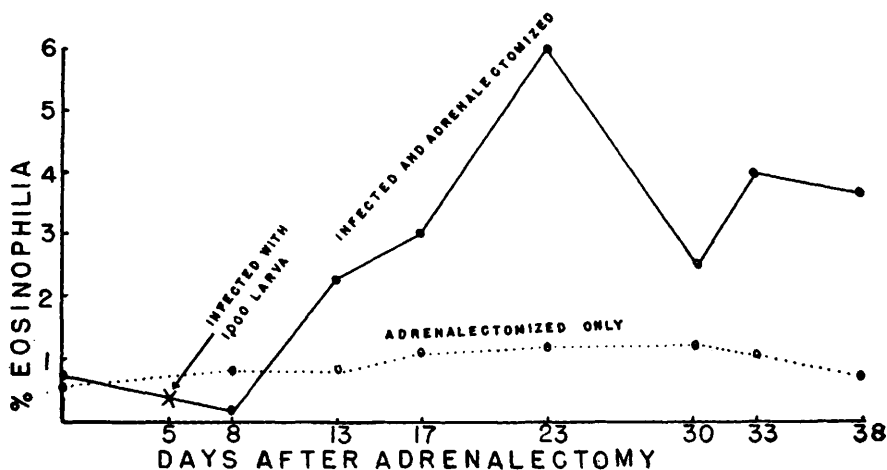


FIG. 2.

Eosinophil response of rats infected with *Trichinella spiralis* larvae 5 days after adrenalectomy, as compared with uninfected adrenalectomized controls.

the effect on this response of adrenalectomy. This work was limited to rats. Nineteen (2.5 months old) were adrenalectomized in a one stage operation, and kept on a potassium-low diet (Nichols¹¹). They were given drinking water with 0.8% NaCl and 0.1% NaHCO₃, and remained in apparent good condition throughout the experiment. The completeness of adrenalectomy was verified at autopsy. Eleven of these rats were infected with 1000 *T. spiralis* larvae 5 days after adrenalectomy, the remaining 8 were kept as uninfected controls. The eosinophil counts of all of the animals are shown in

Fig. 2. While the counts are somewhat higher than those shown in Fig. 1 for intact rats, the difference is too slight to draw definite conclusions. Perhaps it would be worthwhile to repeat this experiment with an animal which has a significantly higher granulocyte count than the rat.

Summary. (1) White mice and rats failed to show a high eosinophilia following initial infection with various doses of *T. spiralis*. (2) Rats also failed to elicit a striking response following reinfection. (3) Adrenalectomy influenced only slightly the number of circulating eosinophils in infected rats.

¹¹ Nichols, J., *Arch. Path.*, 1948, **45**, 717.

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17287. Local Sweating in Man Induced by Intradermal Epinephrine.

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The possibility of an adrenergic innervation of the sweat glands was suggested recently by Haimovici,¹ who reported that intravenous injection of neosynephrine was followed by an increase in palmar sweating; this response was inhibited by dibenamine (N,N-dibenzyl-

β -chloroethylamine hydrochloride). In preliminary experiments² in our laboratory, intradermal injection of neosynephrine into the palm failed to alter the pattern of spontaneous sweating. Patton³ measured electrical potentials of the cat's paw, as an index of sweat

¹ Haimovici, H., *Proc. Soc. Exp. Biol. and Med.*, 1948, **68**, 40.

² Janowitz, H., Sonnenschein, R. R., and Grossman, M. I., unpublished observations.

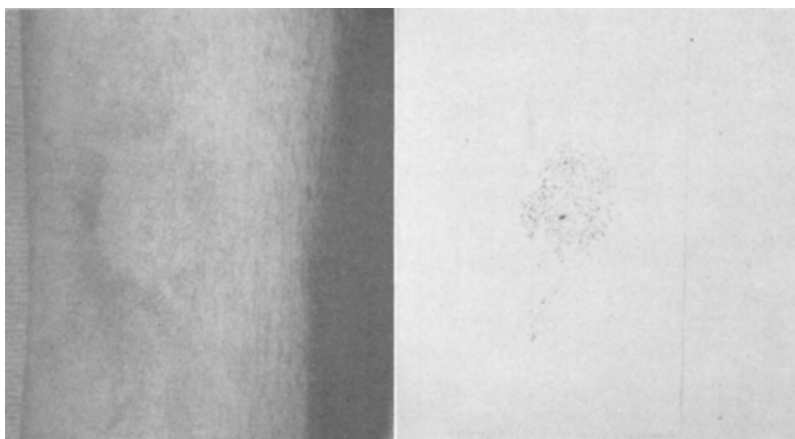


FIG. 1a.

The photograph demonstrates the vasoconstriction on the forearm of a subject 7 minutes after intradermal injection of 0.1 cc epinephrine 1:100,000.

FIG. 1b.

A sweat print of the same area as that in 1a 5 minutes after the injection. Note the lymphatic spread downward.

gland activity, and observed no blocking effect of dibenamine. Unfortunately, no tests were made with sympathomimetic drugs; furthermore, the results are not necessarily applicable to man. The present study followed the accidental observation of a local sweat response on the forearm of two subjects after the intradermal injection of epinephrine. After this study was underway the report of Kisin⁴ appeared, stating that the subcutaneous injection of adrenaline, in concentrations as low as 10^{-8} , produced local sweating.

Methods. In all experiments, Randall's iodine-starch paper method⁵ has been used. Injections of approximately 0.1 cc were made with a 27 gauge needle into the skin of the volar surface of the forearm, except as noted otherwise. Observations were continued for 5 to 20 minutes after injection.

Results. Thirty subjects have been tested of whom nine showed no significant response to commercial, synthetic epinephrine hydro-

chloride (Winthrop Chemical Company), 1:10,000 or 1:100,000, in physiological saline; 5 of these were tested with acetylcholine or nicotine and gave a marked sweat response. On one occasion epinephrine 1:100,000 caused an apparent inhibition of sweating in an individual who had rather profuse spontaneous sweating. The remaining 21 subjects manifested definite sweating after epinephrine 1:10,000 to 1:1,000,000. The response varied widely in intensity among subjects, and in individual subjects on different days. In several experiments the solutions used were made up with crystalline epinephrine (Adrenalin, Parke, Davis & Co.) rather than from the stock solution, and results were identical. Members of both sexes, and of white, Negro and mongoloid races have been tested; no differences in responses of these groups were apparent.

The response, when present, commenced within a minute of the injection. The pattern of sweating closely approximated the area of vasoconstriction, and followed its local and lymphatic spread (Fig. 1). Secretion was observed up to 20 minutes, at which time the rate seemed to have diminished. Neosynephrine hydrochloride (Winthrop-Stearns) 1:10,000 or 1:100,000 produced sweating in

³ Patton, H. D., *PROC. SOC. EXP. BIOL. AND MED.*, 1949, **70**, 412.

⁴ Kisin, E. E., *Vestnik Venerol. i. Dermatol.*, 1948, No. **5**, 27. (Abstracted in *Chem. Abstr.*, 1949, **48**, 2323).

⁵ Randall, W. C., *J. Clin. Invest.*, 1946, **25**, 761.

4 individuals who responded to epinephrine, but the response was less intense. Three subjects who did not respond to epinephrine also failed to respond to neosynephrine.

Pretreatment of the skin by intradermal injection of 0.4 cc atropine sulfate 1:100,000 (4 subjects) or tetraethylammonium chloride 1:100 (2 subjects) had no significant effect on the response. At these concentrations, atropine has been shown to block the local action of acetylcholine, and TEA its axon reflex effects.⁶ Procaine hydrochloride 1:100 (4 subjects), however, caused a slight to marked inhibition. Dibenamine was introduced by ion transfer* into the skin of 2 subjects who had shown marked response to epinephrine. Twenty-four hours later, the treated areas of both subjects showed no response to epinephrine 1:1,000,000, while a definite effect was seen on the control arm.

⁶ Janowitz, H., and Grossman, M. I., *Science*, 1949, **109**, 16.

* 0.25 cc of a 5% solution of dibenamine was applied to an asbestos electrode of 7.5 sq cm. A current, whose density was 0.3 milliamp. per sq cm, was passed for 25 minutes. Performed through courtesy of Dr. Arthur A. Rodriguez, Department of Physical Medicine.

Epinephrine at 1:100,000 was only partially inhibited. The dibenamine had no significant effect on the response to acetylcholine chloride 1:1,000,000.

Comment. The epinephrine effect differs from that of acetylcholine in that the latter is characterized by (1) an associated axon reflex, (2) inhibition by atropine, (3) absence of inhibition by dibenamine.

These results indicate that at least some sweat glands of certain individuals are sensitive to the direct action of epinephrine but the physiological significance of this phenomenon is unknown. Experiments are in progress to elucidate the possible role of adrenergic fibers in regulation of sweat responses. Questions under consideration include the distribution of sweat glands which are sensitive to epinephrine, and their activity during thermoregulatory and emotional responses.

Summary. Intradermal injection of epinephrine caused local sweating in 21 of 30 subjects. The response was not altered by atropine or TEA but was diminished by procaine; dibenamine inhibited it. The physiological significance of this phenomenon remains to be elucidated.

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17288. Effect of Feeding Dried Egg Plant (*Solanum Melonga* L.) on Plasma Cholesterol.*

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In a recent paper Roffo¹ stated that egg plant (*Solanum Melonga* L.) has a decholesterolizing effect in rabbits as well as in man. He also stated that it causes a diuresis. Hainline² has recently presented data which he

interprets as showing a like effect in rats.

Roffo has published graphs showing a decrease in serum cholesterol in rabbits. We were unable to find any data regarding his experiments with humans other than the statement that a like effect was noted. We have concluded that Hainline's interpretations are open to question, since a number of factors including trauma and infection were not controlled.

Because of our interest in finding some substance that would decrease the plasma cholesterol it was decided to feed dried egg plant to

* The authors are grateful to the California Vegetable Concentrates, Inc., for furnishing as well as processing the egg plant.

¹ Roffo, A. H., *Yale Jr. Biol. and Med.*, Oct., 1945, **18**, 25.

² Hainline, A., Jr., Thesis presented to the faculty of the Graduate College, University of Denver, March 8, 1948.