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. 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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[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. Rodriquez, Department of Physical Medicine.

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

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In a recent paper Roffo[1] 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. Hainline[2] 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.

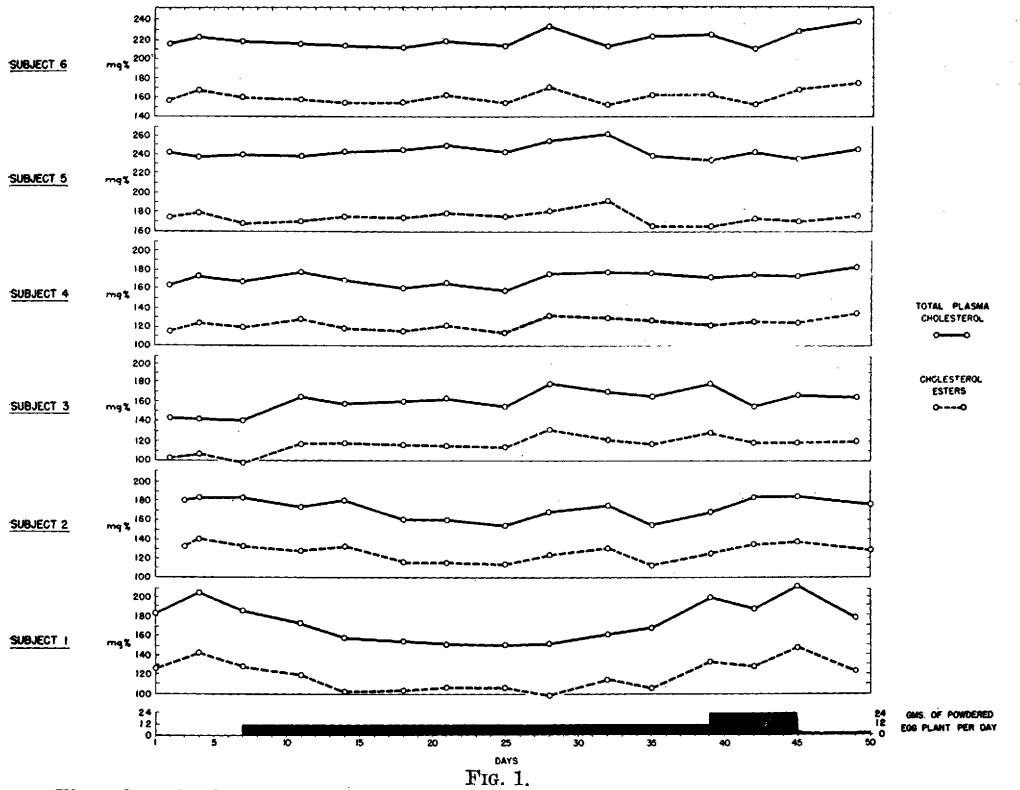

FIG. 1.

The values for both total plasma cholesterol in mg % and esterified plasma cholesterol in mg % are plotted individually for each of the six subjects against a common ordinate which shows the dosage of egg plant administered.

healthy males to determine its effect. One hundred fifty pounds of fresh egg plant was dried in a regular tunnel type drier; *i.e.*, the vegetable material was placed on trays and passed through the tunnel against a stream of air. Two stages of drying were used; *i.e.*, in the first stage a temperature of 145°F was maintained and the moisture content of the vegetable was reduced to approximately 12%. The vegetables were then removed from the trays in the tunnel and put into drying bins. Here the moisture was reduced from approximately 12% to approximately 4% and heat, not in excess of 130°F, was applied. This resulted in 9.5 pounds of slices which were powdered.

This powder was fed in doses of 12 g, and later 24 g a day, to six healthy males. Complete lipid fractionations on the blood plasma were done every third day for a control period of one week and throughout the experiment. The values for free and esterified cholesterol are shown in Fig. 1. The remainder of the blood lipids likewise showed no change.

There were some unavoidable differences in the conditions under which our experiments were conducted and those of Roffo and Hainline. Roffo does not state how his material was dried nor does he give weights before and after drying. Hainline states that his was air dried but does not give weights before and after drying. Due to the pressure of other experiments upon our laboratory we were unable to use the egg plant for several months after it was delivered to us. It was however, hermetically sealed in light and water tight containers and kept in a cool place.

As can be seen, we observed no decholesterolizing effect upon any of the subjects. Subjects 1 through 4 had normal blood lipid values while subjects 5 and 6 are assumed to

have Essential Familial Hypercholesterolemia[3] and to represent the heterozygous abnormal of this condition.

[3] Wilkinson, C. F., Hand, E. A., and Fliegelman, M. T., *Ann. Int. Med.*, Oct., 1948, **29**, 4.

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17289. Synthesis of Nucleic Acid and Phosphoprotein in Normal and Cancer Tissue Slices Studied with Radio Phosphorus.*

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Experiments have been performed using radioactive isotopes to study the synthesis of phospholipids and proteins in tissue slices and homogenates.[1-6] The synthesis of large molecules, *in vitro*, can be studied by the tracer technic even though they undergo a net degradation under the conditions of the tissue slice technic.[1]

In experiments reported here, radioactive phosphorus in the form of phosphate was used to study the synthesis of total nucleic acid and phosphoprotein in both normal and tumor tissue slices, by measuring the incorporation of radioactive phosphorus, under aerobic and anaerobic conditions and in the presence and absence of added glucose. Briefly, the experiments indicate the dependence of the incorporation on the presence of oxygen, hence presumably on energy yielding reactions. The inhibition of phosphate incorporation in the absence of oxygen is partially prevented in tumor tissue, by the addition of glucose, thus suggesting that anerobic glycolysis can also provide the necessary energy.

Experimental. White rats were decapitated and the liver or kidneys removed. The slices cut were about 0.3 mm in thickness[1] and weighed about 25-30 mg when dry. They were placed in 50 cc Erlenmeyer flasks in 5 cc of Krebs-Ringer bicarbonate solution[1] containing radiophosphate. The solution had previously been equilibrated with the same gas mixture, either 95% O_2:5% CO_2 or 95% N_2:5% CO_2, as was used in the flasks during the 2 hours of incubation with shaking at 37°C. The inhibition by N_2 was determined, in each case, on slices originating from the same organ or tumor.

The concentration of radioactive phosphorus in the Krebs-Ringer bicarbonate was approximately 1 microcurie per ml. In the experiments in which glucose was added to the Krebs-Ringer bicarbonate solution, its concentration was 0.2%.

Eleven normal rats and 9 rats bearing the transplantable carcinoma 256 (Walker tumor) were utilized. Care was exercised in sampling to avoid including any of the central necrotic regions of the tumor. The body weights of the normal rats employed were about 200 g, and of the tumor bearing rats, 120 g.

* This paper is based on work performed under contract with the United States Atomic Energy Commission at the University of Rochester Atomic Energy Project, Rochester, N. Y., and is taken from University of Rochester Atomic Energy Report No. UR-20 (April, 1948).

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[4] Frantz, I. D., Jr., Loftfield, R. B., and Miller, W. W., *Science*, 1947, **106**, 544.

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