

The amount of aspirin required to ameliorate the glycosuria of the rat is very large, and there is no reason to expect that this drug would be of any therapeutic value in clinical diabetes.

Summary. Aspirin was administered to 7 mildly diabetic rats which were force-fed a medium carbohydrate diet. The dose was 40, 80, and 160 mg of the drug per day. A marked amelioration of the glycosuria together with a gain in weight was noted in each rat. When the drug was withdrawn, there was exacerbation of the glycosuria to significantly higher levels than were noted during the pre-injection period, and there was an accompanying loss of weight.

Addendum. Since this manuscript was submitted for publication a review (Gross, M. and L. A. Greenberg, Hillhouse Press, New Haven, Conn., 1948, pp 108-9) of the effects of salicylates upon carbohydrate metabolism has been noted. Salicylates were shown to have an ameliorating effect upon diabetes mellitus in man as early as 1875, but large and frequently toxic amounts were required and the use of salicylates for this purpose has long since been discontinued. The nature of the action of salicylates upon carbohydrate metabolism remains as an interesting problem.

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A New Criterion for Anti-tumor Activity of Tissue Extracts Using Crocker Sarcoma No. 180 in Mice.* (18302)

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When Crocker Sarcoma No. 180[†] is implanted into CFW male mice (Carworth Farms), a loss in weight of the animals invariably occurs on the 7th or 8th day following implantation at a time when the tumors are in rapid growth. One is tempted to regard this loss in weight as concurrent with the development of a cachectic state, somewhat analogous to what occurs in advanced human cancer cases. Apparently most of the transplantable tumors fail to show the same behavior. We have investigated in this respect, the Walker Carcinosarcoma 256 transplanted into Sherman, Wistar and Sprague-Dawley rats, Mammary Adenocarcinoma E.O. 771 transplanted into C-57 female mice (Rock-

land Farms), a spontaneous mammary tumor (Cystoadenocarcinoma) found in Swiss Webster female mice (Rockland Farms) and in fewer instances in the Rous Sarcoma of chickens. All these tumor strains showed either no loss in weight, due to the tumor, or this occurred only in some cases. It seems, however, possible that some other tumors may be found, in which this phenomenon can be demonstrated.

We have used the above tumors for routine assay of extracts obtained from various organs in assaying the potency of tumor-inhibiting and tumor growth-stimulating activity. Some 130 experiments were performed in the last 3 years in this direction. When we used such active fractions in the first mentioned tumor (Crocker Sarcoma No. 180) we found invariably, that while control animals showed a loss in body weight, tumor-growth-inhibiting fractions (in doses 5-10 mg/mouse, total dose 40-80 mg) caused body weight increases, while tumor-stimulating fractions showed even larger weight losses than the controls (Fig. 1) Normal controls, not bearing the tumor, gain on an average 10 g during the experimental

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[†] The spontaneous tumor used was obtained from Rockland Farms. Rous Sarcoma was kindly supplied to us by Dr. A. Claude, of the Rockefeller Institute, N. Y., all the other tumors used in this work were most generously made available by Dr. K. Sugiura, Sloan-Kettering Institute, N. Y., to whom our sincere thanks are due.

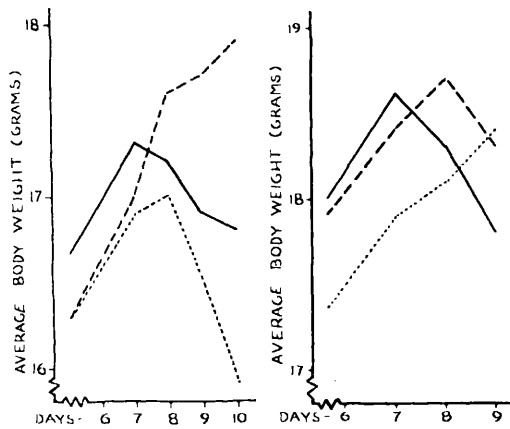


FIG. 1. (left). Showing influence of tumor implantation on controls (15 mice) and treated mice (15 each). Controls, —; tumor-inhibiting fraction, ---- (39.8% tumor wt decrease); tumor-stimulating fraction, (38.7% tumor wt increase).

FIG. 2. (right). Controls, —; tumor-inhibiting fraction, ----, single dose (20.0% tumor wt reduction); tumor-inhibiting fraction,, double dose (53.0% tumor wt reduction).

period chosen. They reach a plateau at 24 g body weight.

By using single and double doses of the same material, a more accentuated response is obtained (Fig. 2). It is obvious that only fractions or substances with low toxicity can be used in this reaction. In cases in which we are dealing with a mixture of inhibiting and stimulating fractions the above reaction does not show, unless the 2 fractions are

separated from each other. The evidence of such behavior can be obtained by using single and double doses of the same mixture (Fig. 2). A histological study[†] of the tumors revealed in the controls an invading tumor into the striated muscle, with rounded polyhedral and spindle shaped patterns, with widespread necrosis and reaction changes to necrosis. Treated animals (those on double dose were more accentuated) showed surprisingly more mitotic figures and more anaplasia. It may be mentioned that Cornman (1) reports, that the factors influencing mitosis may be different from those which cause reduction in tumor size.

Summary. Mice implanted with Crocker Sarcoma No. 180 invariably lose weight suddenly after 7-8 days. When injected with tumor-inhibiting fractions they continue to gain weight, with tumor-stimulating fractions the opposite effect takes place. Definite evidence of the two effects have been demonstrated.

[†] The histological work was done by Dr. A. Angrist, pathologist to the Queens General Hospital, N. Y., through the kind intervention of Dr. J. M. Brown. We wish to extend our thanks to both these gentlemen.

1. Cornman, I., *J. Nat. Cancer Inst.*, 1950, v10, 1123.

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Effect of Sugars on Erythrocytes Preserved at 0° to -3°C.* (18303)

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Proper amounts of dextrose are known to improve preservation of stored erythrocytes. The use of other sugars has been reported by several workers(1). This report deals with the effect of certain sugars on the osmotic

fragility of erythrocytes maintained at temperatures between 0°C and -3°C and the result of transfusions of blood thus preserved in humans. The fragility studies(2) were carried out for the purpose of general screen-

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1. Rous, P., and Turner, I. R., *J. Exp. Med.*, 1916, v23, 219. DeGowin, E. C., *et al.*, *Proc. Soc. Exp. Biol. and Med.*, 1942, v49, 481.