TABLE I.
Hydrolysis of Water-soluble Fatty Acid Esters by Hepatic and Pancreatic Esterase.
Buffered substrate, 10 ml; 4% tissue extract (rat liver and pancreas), 0.5 ml. Activities expressed in micromoles of fatty acid liberated in 1 hr.

	Tween 20 (lauric)	Tween 40 (palmitic)	Tween 60 (stearic)	CRL-16838 (undecylenic)	G-2144 (oleic)	G-6486T (ricinoleic)	G-9926T (linseed)
Liver	6.6	3.8	3.3	0.4	0.4	0.0	0.5
Pancreas	40.0	19.6	10.4	16.8	16.6	3.0	19.2

that in attempts at therapy they must be administered pre-hydrolyzed, as soaps and not as fats, since hydrolysis of the latter in the intestinal tract is likely to be inadequate. It should be remarked that in the human intestine even esterase reaction is weak.

Summary. Water-soluble unsaturated fatty acid esters are hydrolyzed almost exclusively by the pancreatic type of esterase (true lipase) while similar esters of saturated fatty acids are readily attacked by esterases of both the hepatic and pancreatic type. This difference is utilized in a technic for the histochemical localization of true lipase activity. The findings presented may have implications in human pathology.

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Metabolism of the Steroid Hormones. Conversion of Desoxycorticosterone to Glycogenic Material *In vitro*.* (17547)

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Recently, Hechter *et al.*(1) have reported the conversion of desoxycorticosterone to corticosterone by the isolated adrenal gland using a perfusion technic. We have been able to demonstrate the conversion of desoxycorticosterone into material possessing glycogenic properties with adrenal slices and an adrenal homogenate preparation.

Desoxycorticosterone,† either as the free compound or the glucoside, was incubated for 6 hours at 38°C with adrenal slices, homogenates, or a combination of both. In Experiments A, B, C (Table I) where adrenal slices were used, 50 mg of steroid were dissolved or suspended in a total volume of 25 ml containing 0.01 M glucose, 0.062 M sodium chloride, and 0.02 M sodium phosphate buffer (pH 7.4). The gas phase was air. In Experiment D, 50 mg of steroid was contained in a total of 25 ml of media containing 5.0 ml of a 10% boiled adrenal cortical extract in saline, 0.01 M sodium fumerate, 0.062 M sodium chloride, 0.025 M potassium chloride, and 0.004 M magnesium sulfate. The gas phase was air.

At the end of incubation, 400 ml of acetone were added and the mixture placed in the cold overnight. The precipitated tissue was filtered with suction, ground, and extracted 3 times with hot acetone. Tissue slices were cut into small pieces with a scissors before grind-

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1. Hechter, O., Jacobsen, R. P., Jeanloz, R., Levy, H., Marshall, C. W., Pincus, G., and Schenker, V., *J. Am. Chem. Soc.*, 1949, v71, 3261.

† The desoxycorticosterone and desoxycorticosterone glucoside were generously supplied by Ciba Pharmaceutical Products, Inc.

TABLE I.
Conversion of Desoxycorticosterone to Glycogenic Material.

Exp.	Amt of desoxycorticosterone equivalent added, mg	Adrenal tissue added, wet wt, g	No. of mice used	Equivalent of 11-dehydrocorticosterone found, mg	Net amt of glycogenic material formed calculated as 11-dehydrocorticosterone, mg	Conversion, %
	0	5 (Slices)	6	< .20	—	—
	0	5 "	5	.20	—	—
	0	5 (Homogenate)	5	< .20	—	—
A	100 (Free)	4.5 (Slices)				
		1.5 (Homogenate)	7	3.84	3.60	3.6
B	67.0 (Glucoside)*	4.5 (Slices)				
		1.5 (Homogenate)	7	4.40	4.16	6.2
C	33.5 " *	5 (Slices)	10	1.92	1.72	5.1
D	33.5 " *	3.5 (Homogenate)	10	3.89	3.71	11.1
	33.5 "	—	10	< .3		

* This preparation was a 1% solution of the glucoside containing 10% glucose and 10% acetamide.

ing. The combined acetone filtrates were evaporated to an aqueous sludge, 25 ml of distilled water added, and brought to pH 7.0. This aqueous residue was extracted 3 times with ethylene dichloride. The ethylene dichloride extract was concentrated to dryness and taken up in corn oil for bioassay by a mouse glycogen method.(2) The results are expressed in 11-dehydrocorticosterone equivalent.

The results are summarized in Table I. Five grams of adrenal tissue incubated without steroid yielded 0.2 mg equivalent of 11-dehydrocorticosterone or less. For the calculation of net amount of glycogenic material formed the value of 0.04 mg of 11-dehydrocorticosterone per g of tissue was used as the amount of activity material contributed by the tissue as such. The unreacted desoxycorticosterone contributed a negligible amount of glycogenic activity.

Incubation of desoxycorticosterone either with slices or homogenate resulted in the formation of glycogenic material. The yields were higher when the glucoside was used. Incubation of the glucoside with the homogenate gave a higher yield of glycogenic material than when slices were employed (Table I).

Since glycogenic activity in the adrenalectomized mouse is associated with steroids having oxygen at carbon 11, it is presumed that the enzyme system is concerned with the oxidation of carbon 11 to either a carbonyl or an alcohol grouping.

Summary. Incubation of desoxycorticosterone either as the free compound or as the glucoside with adrenal slices or homogenate resulted in the formation of glycogenic material.

2. Dorfman, R. I., Ross, E., and Shipley, R. A., *Endocrinology*, 1946, v38, 178.

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