ternally and to the inside of the tubules, and the entrance of edema fluid into the general circulation, lead to decrease of glomerular blood flow.

4. The effects of the measures described in (3) are lost by section of the splanchnics or anesthesia of the part stimulated.

These results tend to support the current conception of the vascular effects of the splanchnic nerves upon the kidney, and to furnish an explanation for the genesis of reflex aneuria.

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Influence of Diet on the Phospholipid Fatty Acids of Growing Rats.

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Evidence has been presented[1] to show that the type of diet has a characteristic influence on the degree of unsaturation of the phospholipid fatty acids of various tissues of the cat. This influence of food fat may be divided into 2 categories: (1) in the intestinal mucosa and in the liver the phospholipid is involved in the absorption and assimilation of fat and undergoes an immediate change in composition during the absorption of a characteristic fat; (2) in all tissues studied (mucosa, liver, smooth and skeletal muscle) the degree of unsaturation of the phospholipid fatty acids is characteristic of the type of diet fed over a considerable period of time. This latter influence is probably the result of the utilization of the fatty acids of the food for the repair of the phospholipid broken down by the continuous wear and tear of cellular protoplasm.

The data presented in the accompanying table show that the type of diet has a distinct and uniform influence on the constitution of the phospholipid synthesized by young growing rats. Likewise the values given for the iodine numbers of the fatty acids of the neutral fat show the unmistakable influence of diet, thus confirming the findings of Shioji[2] and Anderson and Mendel.[3]

Two facts are outstanding. It is evident that the neutral fat of the young control rats is similar in composition to that synthesized

[1] Sinclair, R. G., PROC. SOC. EXP. BIOL. AND MED., 1929, xxvi, 436; *J. Biol. Chem.*, 1929, lxxxii, 117.

[2] Shioji, E., *J. Biochem.*, Japan, 1924, iv, 43.

[3] Anderson, W. E., and Mendel, L. B., *J. Biol. Chem.*, 1928, lxxvi, 729.

TABLE I.

Influence of Diet on Lipids of the Rat.

Group*	Growth period	Live weight			Phospholipid fatty acids			Neutral fat			Unsaponifiable
					Weight in			Weight in moist tissue	Fatty acids		Weight in moist tissue
		Initial	Final	Increase	Moist tissue	Dry tissue	Iodine No.		%	Iodine No.	
	days	gm.	gm.	%	%	%		%			%
Controls		32.5			1.17	6.78	121	6.80	95	63	0.323
		34.5			1.19	6.76	124	7.26	95	63	0.334
		21.5†			1.26	6.98	120	0.79	94	76	0.488
A	31	31.5	91.0	189	1.03	4.35	104	6.46	96	64	0.374
	31	30.0	98.0	227	1.00	4.34	103	6.08	96	63	0.325
	35	26.0	80.5	210	0.97	4.26	102	11.49	96	62	0.317
B	23	32.5	97.5	200	1.01	4.88	124	10.20	98	83	0.452
	23	27.0	87.0	222	1.04	4.92	124	9.70	97	82	0.374
	35	25.5	83.0	226	0.98	4.62	125	11.43	96	81	0.275

* Diet for Group A consisted of: 40% fat-free casein, 56% cane sugar, 4% Osborne-Mendel salt mixture.
Diet for Group B consisted of: 40% fat-free casein, 26% cane sugar, 4% Osborne-Mendel salt mixture and 30% olive oil.
Each rat received daily 0.5 gm. Northwestern dry yeast (extracted with ether) and 0.4 mg. of Oscodal.
† This rat fasted for one day before death.

by the rats raised on a totally fat-free diet, while the phospholipid fatty acids of the latter are distinctly more saturated than those of the controls. This suggests that in the young controls (which had only recently been weaned) the neutral fat was synthesized from carbohydrate, but that the food contained a sufficient amount of unsaturated fatty acids to produce a highly unsaturated phospholipid.

The fact that the addition of olive oil to the fat-free diet causes

the synthesis of a highly unsaturated phospholipid is in agreement with the observation of Eckstein[4] that oleic acid stimulates the production of arachidonic and linoleic acids.

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Effect of Inanition on the Phospholipid Fatty Acids of the Rat.

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Terroine and Belin[1] have asserted that the lipid component of the *élément constant* of whole animals and individual tissues represents the phospholipids of normal animals, and that the degree of unsaturation of the fatty acids of the *élément constant* (*i. e.*, the phospholipid) is an invariable characteristic, quite independent of the type of diet. The latter assertion is quite at variance with the observations of the author.[2]

The *élément constant* of Terroine represents the residual substance of animals which have died of inanition. On the other hand, the data obtained by the author apply solely to the acetone-insoluble lipids of normal, well-fed animals. This distinct difference suggests the possibility that normal animals contain reserve phospholipid which alone is influenced in its composition by the type of diet and which disappears on fasting.

The data in the accompanying table show that in fasting rats the decrease in phospholipid fatty acids is roughly proportional to the decrease in the weight of the animal, or, in other words, the percentage of phospholipid in the whole rat remains relatively constant. Furthermore there is no change in the composition of the phospholipid during fasting, the iodine number of the fatty acids remaining constant.

These facts indicate that the phospholipid of normal animals does not consist of a stable portion, invariable in amount and in composition, and a labile reserve portion. On the contrary these data strengthen the opinion that the phospholipids are vital constituents

[4] Eckstein, H. C., *J. Biol. Chem.*, 1929, lxxxi, 613.

[1] Terroine, E. F., and Belin, P., *Bull. Soc. chim. biol.*, 1927, ix, 12.

[2] Sinclair, R. G., PROC. SOC. EXP. BIOL. AND MED., 1929, xxvi, 436; *J. Biol. Chem.*, 1929, lxxxii, 117.