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Fate of Acacia after Acacia-Saline Injections.

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Although acacia has been used extensively for intravenous injection in shock and more recently in nephrosis, its ultimate fate in the organism is unknown.

In the course of some experiments on the effect of repeated injections of gum acacia on rabbits, it was found that acacia disappeared from the blood after 3 to 4 days and that none appeared in the urine except in traces after administration of as much as 10 cc. of 30% solution. The following experiments were carried out to determine what had happened to it.

Two to 10 cc. of a 30% solution of acacia were injected into the heart of rabbits every third day until from 5 to 25 gm. had been given. The animals were killed and the kidney, spleen, liver, and a piece of leg muscle were removed for analysis. The tissues were weighed at once, minced, and a weighed sample was ground with sand. This was extracted with 20% trichloracetic acid followed by hot water, and the filtrates were combined in a volumetric flask. Acacia was determined in aliquot portions by the method of Youngburg.[1] The Youngburg method was checked with solutions of acacia and found to yield 13.5% furfural. This was the factor used in calculating the acacia values. The values for acacia in the liver ranged from 60 to 70%. The results in all experiments are probably plus or minus 10%. Determinations on control animals gave small blanks for pentose, possibly from nucleotides.[2] All pentose values were calculated to acacia for purposes of comparison.

In one of 5 strictly comparable experiments a 2 kg. rabbit was injected with 3-4 cc. of a 30% acacia solution every third day until 4.8 gm. had been given. From the analyses of tissues of this animal and of a control approximately the same weight (Table I) it ap-

TABLE I.

	Total Tissue (gm.)			Acacia Mg./Gm. Tissue			
	liver	spleen	kidney	liver	spleen	kidney	muscle
Control	48.7	2.0	16.0	10.4	6.6	3.5	3.5
No. 7	85.0	2.0	11.0	48.3	21.1	5.6	3.5

[1] Youngburg, G. E., *J. Biol. Chem.*, 1927, **73**, 599.

[2] Kerr, S. E., and Blish, E. J., *J. Biol. Chem.*, 1932, **98**, 200.

pears that about 60% of the acacia was retained by the liver, a smaller proportion by the spleen, and much smaller amounts by kidney and muscle.

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On the Fatty Acids Essential in Nutrition.*

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Within the last few years a number of laboratories have published data in support of the view that diets quite low in fat are not complete. This is a reversal of the view held 10 years earlier. Working with diets extremely low in fats, Burr and Burr[1] showed that a disease supervened which could be cured by the addition of small amount of unsaturated fats or pure linolic acid. An examination of their data and that of other workers led to the postulation of essential fatty acids which could not be synthesized in adequate quantities by warm blooded animals. Their results have been repeated, partially or in full, by several workers. However, some workers [2, 3, 4, 5] have encountered scaly skin and necrotic tails in rats which were not curable by fat and this has led them to the view that we, too, are dealing not with a fat deficiency, but possibly with a vitamin B factor. There is no evidence that scaly skins and necrotic tails are specific for any single deficiency. Therefore, the production of these symptoms by one method does not preclude ready production by another.

Since all work in this laboratory strengthens the belief in beneficial effects of certain fats and fatty acids, it seems well at this

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[1] Burr, G. O., and Burr, M. M., *J. Biol. Chem.*, 1929, **82**, 345. The diet is made of purified casein, sucrose, salt mixture, supplemented by concentrates of vitamins A, D and E fed on whole dried yeast (ether extracted) of proven high quality (Northwestern).

[2] Hume, E. M., and Smith, H. H., *Biochem. J.*, 1931, **25**, 300.

[3] Gregory, E., and Drummond, J. C., *Z. f. Vitaminforschung*, 1932, **1**, 257.

[4] Funk, C., Caspe, S., and Caspe, H., PROC. SOC. EXP. BIOL. AND MED., 1931, **28**, 816.

[5] Roche, A., and Roche, J., *Comp. Rend. Soc. Biol. Paris*, 1932, **109**, 463.