Missouri Branch.

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Studies of Experimental Streptococcus Arthritis. IV. Effect of Sodium Salicylate on Skin Allergy.

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The effect of sodium salicylate on the development of dermal allergy in the presence of hemolytic streptococcal arthritis was studied because this drug is commonly employed in the treatment of acute rheumatic fever, and because the studies of Swift[1] concerning the pathogenesis of this disease support the idea that allergy to streptococci of various kinds is a factor in its production.

As previously reported by us,[2] the production of arthritis in rabbits by the inoculation into a knee joint of 0.1 cc. of 24 hour broth culture of hemolytic streptococcus will be followed, in 6 days, by the appearance of a strongly positive local reaction to intradermal injection of a filtrate of a 5 day culture in Harley's medium. This skin reaction takes 12 to 24 hours to develop. All rabbits were tested previous to the experiment and found to give no such reaction.

In this study 24 rabbits were employed, 12 of which received sodium salicylate and 12 were used as controls. Of those which received sodium salicylate, 6 received the drug for a considerable period before receiving an intra-articular injection of 0.1 cc. of culture of hemolytic streptococcus; and 6 rabbits received the drug and the culture at the same time. The dose of sodium salicylate was 0.2 gm. per kilo in 4% solution and was given intravenously. The first series of 6 received 8 daily injections of salicylate and after an interval of 12 days, during which the animals were in good health, received 6 more injections given at 2 day intervals. After the injection of streptococci into the knee joint, 3 more daily injections of

[1] Swift, H. F., Derick, C. L., and Hitchcock, C. H., *J. Am. Med. Assn.*, 1928, xc, 906.

[2] Kinsella, R. A., and Hagebush, O. E., PROC. SOC. EXP. BIOL. AND MED., 1929, xxvi, 642.

sodium salicylate were used and 3 days later skin tests were made. At this time 3 of the series were dead. The 3 survivors showed completely negative tests. Two of these animals were tested at intervals of a week and gave 2 more negative tests before dying; the other gave 3 more negative tests before dying. The animals receiving salicylate died more readily than the controls.

In the second series of 6 rabbits, the animals received the injection of salicylate 24 hours before the intra-articular injection was made. Thereafter 4 daily injections of salicylate were given and 4 animals survived. These were tested 8 days after arthritis was produced, and gave negative tests. Four further daily injections were made and 2 surviving rabbits gave negative tests.

Twelve control rabbits were used which gave strongly positive skin reactions 6 days after arthritis was produced, and the reactions remained positive. The arthritis was highly fatal to all the animals but more so to those animals receiving salicylate.

The conclusion is supported, that the intravenous injection of sodium salicylate prevents the development, in rabbits having a streptococcal arthritis, of a positive skin reaction to filtrate of hemolytic streptococcus culture.

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Nutritional Factors Affecting Growth of Rats on Diets Containing Sodium Benzoate.

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In a recent report[1] it was shown that survival and growth of young rats on diets containing sodium benzoate were possible only if the diets furnished the nutrient materials necessary for growth and especially a supply of glycine, or of a precursor, adequate for the detoxication of the benzoate and for the formation of new tissue proteins. In connection with these experiments, it was noted that certain toxic benzoate diets were less toxic if the rats were kept in cages resting on shavings rather than in raised cages.[2] This fact suggested that glycine or some other dietary factor was obtained by the rats from the excreta or from the shavings. In these experi-

[1] Griffith, W. H., *J. Biol. Chem.*, 1929, lxxxii, 415.

[2] Griffith, W. H., *J. Biol. Chem.*, 1928, lxxviii, 24.