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Comparative Activity of Vitamin H Curative of Egg-White Injury Administered Orally and Parenterally to Rats.

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The factor (vitamin H) curative of egg-white injury in rats is insoluble in water in its natural state as it occurs in liver, kidney or yeast. It can be extracted from yeast, however, by autolysis with water in the presence of toluene and from liver by proteolytic digestion or by hydrolysis at high pressure.¹⁻⁴ The curative action of vitamin H can be demonstrated by yeast, liver and kidney as such only in oral administration, because these substances cannot be given in any other manner. Their activity when they are parenterally administered,^{2, 3} however, can be shown by injection of concentrates in aqueous solution.

For the quantitative study of different concentrates, it became important to establish the comparative strength of vitamin H when it is administered orally and parenterally. The growth-promoting activity of riboflavin (lactoflavin) is independent of the way in which it is given, that is, whether orally or parenterally.⁵ On the other hand, it is a well-known clinical fact that the factor in liver curative of pernicious anemia is much more active in parenteral than in oral administration.

After the parenteral route proved to be more efficacious in preliminary bioassays of vitamin H concentrates, quantitative data were secured from experiments in which the preparation was tested simultaneously on two groups of rats; to one group it was administered orally, to the other parenterally. The samples tested were of different degrees of purification and had been prepared from yeast or liver. The dry residue contained in 1 oral rat day dose (unit) varied between 70 micrograms in sample K-554 and 150 mg in sample K-5. Rats in which the egg-white injury remained unin-

¹ Lease, J. G., and Parsons, H. T., *Biochem. J.*, 1934, **28**, 2109.

² György, P., in Pfaundler, M. v., and Schlossmann, A., *Handbuch der Kinderheilkunde*, Berlin, F. C. W. Vogel, 1935, **10**, 45.

³ Lease, J. G., *Z. f. Vitaminforsch.*, 1936, **5**, 110.

⁴ György, P., *J. Biol. Chem.*, 1937, **119**, xliii; György, P., *J. Biol. Chem.*, 1939, **131**, 733; György, P., Kuhn, R., and Lederer, E., *J. Biol. Chem.*, 1939, **131**, 745; Birch, T. W., and György, P., *J. Biol. Chem.*, 1939, **131**, 761.

⁵ György, P., *PROC. SOC. EXP. BIOL. AND MED.*, 1936-37, **35**, 207.

TABLE I.
Average Values Obtained in Testing the Curative Effect of Vitamin H for Egg-White Injury in Rats, by Oral and Parenteral Administration.

Preparation Tested	Source	Rat day dose administered	
		Orally, ml	Parenterally, ml
K-5	yeast	0.5	0.1
K-646	"	0.3	0.07
H-29	"	0.3	0.05
H-33	"	0.5	0.1
H-34	"	0.4	0.1
K-211	liver	0.6	0.2
K-223	"	0.75	0.15
K-554	"	0.6	0.12
H-169a	"	>0.125	0.035
H-4/35	"	0.6	0.2
H-5/35	"	1.2	0.3

fluenced by oral doses were given $\frac{1}{2}$ to $\frac{1}{4}$ of the same doses parenterally with beneficial effect.

The results of the quantitative experiments are summarized in Table I.

Conclusion. The factor (vitamin H) curative of egg-white injury in rats is 3 to 5 times more effective in parenteral than in oral administration.

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Immediate Reactions, to Anhydrides, of Wheal-and-erythema Type.*

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Immediate skin reaction in guinea pigs sensitized to proteins were observed by Zinsser.¹ Similar reactions in pigs sensitized to protein compounds of acyl chlorides have been produced by Landsteiner and Jacobs² although immediate reactions to acyl chlorides themselves were not observed. The present report deals with the production of

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¹ Zinsser, H., *J. Exp. Med.*, 1921, **34**, 495.

² Landsteiner, K., and Jacobs, J., *J. Exp. Med.*, 1936, **64**, 625.