

**Anorexia Characteristic of Lack of the Vitamin B Complex:
The Rôles of the Individual Components.**

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Fifteen dogs subsisted on an artificial food mixture consisting of the highly-purified Casein-Harris,³ sucrose, butter fat, lard, salt mixture and bone ash. The amounts of these ingredients were calculated according to the scheme described elsewhere.⁴ This diet is much more highly purified with respect to the water-soluble vitamin factors than any other ration hitherto employed in this laboratory for feeding experiments with dogs. When anorexia supervened, the following materials were tested for their potency in restoring the urge to eat: (1) a fuller's earth adsorbate⁵ containing the antineuritic vitamin B relatively free from the heat-stable G factor; (2) autoclaved yeast, devoid of the antineuritic substance (pigeon tests) but containing the antipellagra vitamin G (tests with young rats); (3) a concentrate of water-soluble vitamins present in milk⁶; (4) combinations of the adsorbate with the autoclaved yeast and milk vitamin concentrate respectively; (5) whole yeast⁷; (6) yeast vitamin powder (Harris) lot 1089⁸; (7) tikitiki⁸; (8) juice of canned tomatoes; and (9) vitavose.⁹

One hundred ninety-nine trials were made; their distribution among test substances is shown in the accompanying table.

It will be noticed that only 26% of the adsorbate tests were effective. This may be explained in two ways: either (1) the antineuritic vitamin is the sole effective agent, but there is variable elution of the

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³ From the Harris Laboratories, Tuckahoe, New York.

⁴ Cowgill, George R., *J. Biol. Chem.*, 1923, **56**, 725.

⁵ Kindly furnished by Dr. C. N. Frey, Fleischmann Research Laboratories, New York, N. Y.

⁶ Kindly supplied by Dr. G. C. Supplee, Dry Milk Company, Bainbridge, N. Y.

⁷ From the Northwestern Yeast Company, Chicago, Ill.

⁸ An alcoholic extract of rice polishings obtained from the Bureau of Science Manila, P. I.

⁹ From E. R. Squibb and Sons, New York, N. Y.

TABLE I.

Substance Tested	Total No. of tests	Effective Tests	
		Number	% of Total
Fuller's earth adsorbate	46	12	26
Tikitiki	10	10	100
Autoclaved yeast	11	0	0
Fuller's earth adsorbate and autoclaved yeast	53	32	60
Whole yeast	36	35	97
Yeast vitamin powder (Harris)	6	6	100
Milk vitamin concentrate	9	7	78
Fuller's earth adsorbate and milk vitamin concentrate	7	7	100
Vitavose	7	7	100
Tomato juice	14	13	93
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vitamin from the fuller's earth in the alimentary tract, or (2) another factor besides the antineuritic substance is required. In support of the latter view, we may offer the following considerations: these cases occurred either within the first month of subsistence on the diet, when tissue stores of the hypothetical agent may not have been exhausted, or when relatively enormous doses of the adsorbate were given, in which case the presence of the unknown factor as an "impurity" in the adsorbate would account for the results.

In view of the excellent results with tikitiki, a material practically devoid of the heat-stable vitamin G,¹⁰ it appears proper to conclude that this dietary factor plays no rôle. This is confirmed by the uniformly negative results obtained with autoclaved yeast.

The failure to get 100% positive tests in the trials with the combination of adsorbate and autoclaved yeast may be due to (1) the trial being made late in the experimental period (after 2 months) when tissue stores of the unknown substance may have been depleted, or (2) assuming autoclaved yeast to contain this substance, when subminimal amounts of such yeast were given.

It will be noticed that in only one case was whole yeast ineffective. This negative instance was without doubt due to administration of a subminimal dose; repetition with a slightly larger dose gave an excellent response. The yeast vitamin powder (Harris), lot 1089, proved efficacious in every trial.

The remaining tests cited in the table may be interpreted as supporting either of the following views: (1) the antineuritic vitamin is the sole etiological agent; or (2) another substance, not vitamin

¹⁰ Evans, H. M., and Burr, G. O., *J. Biol. Chem.*, 1928, **77**, 231.

G, is required to supplement the antineuritic factor in preventing and correcting the anorexia under investigation. In order to reach a decision concerning these possibilities, further experiments involving parenteral administrations of the antineuritic vitamin are planned.

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Hemophilia.

CARROLL LA FLEUR BIRCH. (Introduced by C. S. Williamson.)

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Hemophilia is limited to the male sex while it is transmitted through the unaffected female. Hence she must potentially have the disease. There are two possibilities. Is the disease manifest only in the presence of the male sex organs or are its symptoms held in abeyance in the presence of the female sex organs?

Two high grade hemophiliacs have been treated with ovarian extract. The first, age 10 years, had been under observation for 18 months prior to the institution of treatment. During this time he was admitted to the hospital several times in severe bleeding phases necessitating transfusion. The coagulation time of the blood usually exceeded one hour. Beginning May 5, 1930, he was given ovarian extract daily until January 1, 1931. He has remained symptom-free with normal blood findings to date (March 17, 1931).

This patient's older brother, the more severe hemophiliac of the 2, was placed on ovarian extract April 5, 1930. After his blood findings became normal (May 2, 1930) a fresh human ovarian transplant was made into the anterior abdominal wall. (The idea of the ovarian transplant was suggested by Dr. H. B. Thomas and he performed the operation.) There was no excessive hemorrhage at the time of the operation. This patient remained free from symptoms with normal blood findings until October 8, 1930, (5 months after the transplant) at which time he had a bleeding phase.

The blood platelets in hemophilia are normal in number and normal morphologically. The resistance of the platelets was measured just as the resistance of red blood cells by the fragility test. The 12 test tubes were arranged as for an ordinary fragility test with salt concentrations varying from 0.28% to 0.5%. Normal red cells