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Lessened Incidence of Caries when Casein Replaces Milk in the Coarse Corn Meal Diet.

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Hoppert, Webber and Canniff[1] reported a diet which produced dental caries in rats. This diet consisted of coarsely ground yellow corn meal 60%, whole milk powder 30%, linseed meal 6%, alfalfa meal and NaCl 1%. Although these investigators considered this diet "adequate" in every particular, they found that from 90 to 100% of their rats developed dental caries in 16 weeks (112 days).

Dental pathologists do not regard this caries as merely "fracture caries," and no satisfactory explanation of its cause has been reported. This lack of explanation constitutes a challenge to every theory regarding the cause of dental caries today.

In our studies we have found that 60% of 200 carefully controlled rats developed dental caries in 100 days when fed the Hoppert, Webber and Canniff diet. In an attempt to gain further information regarding the cause of the caries produced by this diet, the following experiment was performed.

Fifty-six rats, 30 days old, from our own inbred stock, were fed the above diet modified by substituting commercial casein for the whole milk powder. Tap water *ad lib* was allowed, and the feeding was continued for 100 days. The animals were then sacrificed and examined under light and magnification for dental caries. One large and 5 small carious lesions were found (10⅔%).

The marked reduction of the incidence of dental caries which was observed when commercial casein was substituted for powdered whole milk seems to indicate that casein exerts an inhibitory action on the production of experimental dental caries in rats which are fed a coarse corn meal diet.

Whether this inhibitory action is due to the smaller amount of lactose, the relatively low alkaline reaction, or the relatively high protein of the casein diet is a question which can be answered only by subsequent investigation.

[1] Hoppert, C. A., Webber, P. A., and Canniff, T. L., *Science*, 1931, **74**, 77.