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Effect of Viosterol on Excretion of Lead.*

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It is well known that large doses of viosterol cause a hypercalcemia and increased elimination of calcium from the body and good evidence is accumulating to the effect that the source of the excess of the calcium under such conditions is from the bone, at least when the diet is calcium poor.^{1, 2, 3} Since Aub⁴ has shown that the metabolism of lead parallels the metabolism of calcium, large doses of viosterol should promote the elimination of lead from the body. Experiments to determine the effect of large doses of viosterol on lead excretion in cats and guinea pigs and on lead storage, and the course of lead poisoning in guinea pigs were carried out. Throughout the series Viosterol Squibb 250D was used. All assays for lead were made by the Fairhall method. The guinea pigs were kept on a normal diet of oats, hay, cabbage, or lettuce. The cats were given low calcium diets consisting of meat and fish or vegetables. Viosterol dosage in the 2 cat experiments was 20 drops daily and in the case of the guinea pigs, 6 drops daily in 2 experiments and 10 drops daily in one.

In both cat experiments the excretion of lead was immediately increased after the administration of viosterol. In the first experiment the viosterol cats excreted more lead than the control group in each of 5 three-day periods. The difference between the groups was greatest in the second period when the viosterol cats showed a lead elimination 10 times greater than the control group.

In the second cat experiment the average daily excretion of lead per cat rose sharply in the first 3 day period after viosterol was begun and reached a peak in the fourth period. At the peak the amount of lead excreted per cat was 37 times greater than it had been in the control period. In the case of the guinea pigs, lead

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¹ Taylor and Weld, *Am. J. Physiol.*, 1931, **97**, 566.

² Brown and Shohl, *J. Biol. Chem.*, 1930, **86**, 245.

³ Hess, Benjamin and Gross, *J. Biol. Chem.*, 1931, **94**, 1.

⁴ Aub, Fairhall, Minot, Reznikoff, *Lead Poisoning*, 1926.

elimination after viosterol increased very slightly as compared with its increase in the cat experiments. This may possibly be accounted for by the relative resistance of guinea pigs to viosterol spoken of by Taylor and his associates.⁵

An experiment in which viosterol was given to 4 guinea pigs for one week prior to, and during lead administration, was undertaken to determine primarily whether the viosterol would have any protective action against lead poisoning. It was thought that by promoting rapid elimination the danger of poisoning might be lessened. Although the number of animals was small the result of the experiment seemed to indicate quite definitely the opposite of any protective effect; death occurring in all 4 viosterol pigs more promptly than in the case of 10 out of 11 controls.

A comparison was made between the amounts of lead retained in the bodies of guinea pigs which had been given viosterol before and during lead administration and the lead in the bodies of pigs which had received lead alone. Two viosterol pigs showed a considerably greater retention of lead in their bodies after death than was shown by the controls and 2 showed less.

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Absorption Rates of Galactose and Mannose.*

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The absorption rates of galactose and mannose were studied in rats and dogs using one hour as the absorption period. The rats were not fed during the 48 hours before being used but water was given as usual. One gram (2 cc. of a 50% sol.) of the sugar was given by stomach tube. Animals were killed by a blow on the head after which a ligature was tightly tied about the neck to prevent loss of sugar by mouth. The abdomen was then opened and ligatures placed about the oesophagus and lower end of ileum. This portion of the gastrointestinal tract was removed and the unabsorbed sugar washed out with warm water for quantity determinations.

⁵ Taylor, Weld, Branion and Kay, *Can. Med. Assn. J.*, 1931, **24**, 763.

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