

Diminution of xanthine oxidase in goat milk after subcutaneous injection of sodium tungstate ($\text{Na}_2\text{WO}_4 \cdot 2\text{H}_2\text{O}$) By E. C. OWEN and I. DUNDAS, *Biochemistry Department, Hannah Dairy Research Institute, Ayr*

Xanthine oxidase (XO) catalyses the oxidation of purines to uric acid. It occurs in milk and in mammalian liver and has been shown to contain iron, molybdenum and FAD. Tungstate taken by mouth interferes with the production of this enzyme in the milk and liver of the goat without altering the output of riboflavine in the milk (Owen & Proudfoot, 1968). The details of this interference are not known, but it seems to depend on an antagonism in vivo between tungstate and molybdate. Mo and W are known to antagonize each other in other biological systems. The experiment now reported has shown that when a subcutaneous injection of a neutral aqueous solution of sodium tungstate is given to a lactating goat, the amount of XO in the milk is diminished for several days and then increases again. The results of a typical experiment are summarized in Table 1.

Table 1. *The effect of an injection of tungstate ($\text{Na}_2\text{WO}_4 \cdot 2\text{H}_2\text{O}$) solution in the goat on the XO titre of the milk*

Goat no.	Amount of tungstate injected (g)	Mean content* of XO in the milk		
		For 7 or 8 days before injection	For 5 or 6 days immediately after injection	From 6th to 12th day after injection
1	0.5	0.337	0.226	0.494
2	1.0	0.334	0.156	0.236

*Each XO value is the average result of duplicate analyses of the morning and evening milks obtained daily throughout each of the three periods, and is expressed in the units used by Owen & Proudfoot (1968).

REFERENCE

Owen, E. C. & Proudfoot, R. (1968). *Br. J. Nutr.* **22**, 331.

An evaluation of the diagnostic significance of some symptoms and physical signs in chronic iron-deficiency anaemia. By AUDREY A. DAWSON AND D. OGSTON, *Department of Medicine, University of Aberdeen*

A number of symptoms and physical signs are reputed to be common in anaemic patients; some of these are considered to be characteristic of iron-deficiency anaemia. This study was carried out to re-evaluate the symptoms and signs of anaemia in general, and iron-deficiency anaemia in particular.

As part of a larger survey, forty-six patients with chronic iron-deficiency anaemia were studied. The physical signs, but not the symptoms, were compared with those found in 111 non-anaemic hospital patients, admitted over the same period. The symptoms noted included general ones, for example, pallor, fatigue and insomnia, and those referable to the cardiovascular and central nervous systems, and to the gastro-intestinal tract. Only the recent onset of pallor showed a rising incidence with falling haemoglobin. The incidence of painful tongue was no higher than in other