THE ABSORPTION OF VITAMIN E IN GROWING PIGS

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There is limited information on the absorption of vitamin E, which suggests that it may be influenced by the lipid content of the diet (Akerib and Sterner 1971). Vitamin E is an important nutrient for pigs but its absorption has not been studied. In the present experiment, the effect of vitamin E absorption in pigs with high levels of two sources of fat in the diet was investigated.

Twelve pigs were weaned at 17 days of age and allocated to three experimental groups. They were fed a basal diet of wheat starch, skim milk, meat meal, soyabean meal, minerals and vitamins, which contained 0.5 mg α-tocopherol/kg. All diets were supplemented with 50 mg/kg dl-α-tocopherol acetate and 10 g/kg of vitamin E stripped soyabean oil was added in diet 1; 100 g/kg in diet 2; 100 g/kg tallow in diet 3.

The pigs were offered the diets ad libitum for 55 days and then for a further 7 days the same diets which were supplemented with chromic oxide (2 g/kg). The pigs were anaesthetized and slaughtered. The gastro-intestinal tract was removed and divided into 9 sections: stomach, 4 equal length small intestine sections (SI_1-SI_4), caecum, and 3 equal length large intestine sections (LI_1-LI_3). The contents were emptied, frozen and later analysed for vitamin E and chromium.

Absorption of vitamin E in the gastro-intestinal tract (%)

Diet	Stomach	SI_1	SI_2	SI_3	SI_4	Caecum	LI_1	LI_2	LI_3
1	14.80	62.11	61.24	70.80	71.27	71.32	70..74	68.80	72.60
2	18.33	50.95	60.98	67.11	71.63	69.63	69.77	67.25	73.58
3	18.13	42.61	62.41	65.42	67.09	64.33	66.48	66.95	74.33
SEM	3.33	8.00	3.36	3.64	4.11	3.98	2.73	1.96	2.02

The results in the table show that first quarter of the small intestine was the major site of vitamin E absorption and that there was no difference between diets. The total absorption of vitamin E was 73 to 74% the amount ingested which agrees with published data from humans and chickens (Kelleher and Losowsky 1970; Pudelkiewicz and Matterson 1971). Studies with rats (Akerib and Sterner 1970) have shown that vitamin E absorption is inhibited by lipids, particularly poly-unsaturated lipids, which is not in agreement with the results from the present experiment.

It may be concluded that low absorption of vitamin E is unlikely to limit pig production.

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