

BIOTIN DEFICIENCY IN THE YOUNG PIG

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Cunha et al. (1946) induced biotin deficiency in pigs fed semi-purified diets containing avidin. However, it was thought that, since biotin was widely distributed in feedstuffs and abundantly produced by the intestinal microflora, the supply of the vitamin would be sufficient to meet requirements. The report of a biotin-responsive condition in sows (Brooks et al. 1977) demonstrated that the supply of biotin is not always adequate and suggested that the biotin requirement of pigs should be evaluated. In the present experiment an attempt was made to induce biotin deficiency in young pigs without the inclusion of avidin in the diet.

Sixteen 2-3 kg live weight Landrace x Large White pigs weaned at 5 d of age were allocated to two diets: wheat-casein (WC) and cornflour-casein (CC) supplemented with minerals and vitamins according to National Research Council (1979) recommendations, except that biotin was added at 0 or 100 µg/kg. The pigs were fed ad libitum and housed in metabolism cages. At 94 d of age the pigs given the CC diet were sacrificed and the biotin concentrations of the liver and kidney were measured (Hood 1977).

The performance and concentrations of biotin in liver and kidney of young pigs given diets containing cornflour-casein (CC) and wheat-casein (WC) with and without a biotin supplement

Diet	Biotin supplement (µg/kg)	Weight gain (g/d)		Feed conversion ratio		Biotin (ng/g fresh wt)		Foot lesions†	
		(5-47 d)	(47-82 d)	(5-47 d)	(47-82 d)	Liver		(62 d)	(94 d)
						(94 d)	(94 d)		
CC	0	335	596	1.20	2.08	31	108	2.3	4.1
CC	100	350	659	1.22	2.00	248	515	0.6	0.5
WC	0	370	737	1.16	2.11	‡	‡	0.8	‡
WC	100	370	648	1.19	2.43	‡	‡	0.6	‡
SEM		15.1	76.6	0.03	0.15	16.9	40.4	-	-

† Assessed on a scale from 0 (no lesions) to 5 (very severe lesions).

‡ Not determined.

There were no differences in the weight gains and feed conversion ratios of the pigs given the supplemented or unsupplemented diet. The biotin contents of the livers and kidneys of the unsupplemented pigs were significantly lower ($P < 0.001$) than those of the supplemented pigs. Severe foot lesions were observed in all pigs given the unsupplemented CC diet but less severe lesions occurred in the pigs receiving the unsupplemented WC diet.

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