

EFFECT OF TYPE OF ILEAL CANNULA ON AMINO ACID DIGESTIBILITY IN PIGS

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Amino acid digestibility in the pig is more accurately measured from contents at the end of the small intestine (terminal ileum) than in faeces (Low 1980). Ileal digestibility studies have usually employed re-entrant cannulae to divert the entire flow of ileal digesta outside the pig for accurate measurement and sampling. However, the difficulty involved in maintaining and collecting from re-entrant ileal cannulas is a major hindrance to the regular measurement of amino acid digestibility in feed evaluation studies. Many of the problems such as blockages and high labour use that are encountered with the re-entrant cannulae can be overcome by the use of a simple or T-shaped cannula. Although there is a reliance on non-absorbed dietary markers for the calculation of digestibility using simple cannulae, recent work by Zebrowska *et al.* (1978) indicated that Cr_2O_3 could be used as a marker to determine digestibility using pigs prepared with simple cannulae. The present paper reports a comparison of simple and re-entrant ileal cannulae for measuring amino acid digestibility in pigs.

Six pigs were used at a live weight of about 65 kg. Three pigs were prepared with a re-entrant cannula and three with a simple cannula in the terminal ileum. Pigs were given three diets, each offered at 12 h intervals for 14 d with digesta collected on days 10, 12 and 14. For pigs with re-entrant cannulae, digesta were totally collected for 12 h periods between feeds, but from those with simple cannulae, digesta samples were collected at 2.3, 4.4, 6.5 and 8.4 h after feeding. The major ingredients of the diets were wheat, wheat and lupin or wheat and meat and bone meal; Cr_2O_3 was added to each diet as a marker. The digestibility results are presented in Table 1.

TABLE 1 Apparent ileal digestibility values determined with simple or re-entrant cannulas (%)

	Cannula type		LSD ($P < 0.05$)
	Re-entrant	Simple	
Dry matter	70.6	68.8	2.8
Nitrogen	79.4	80.0	2.7
Average of amino acids	80.9	81.6	1.3

There were no significant differences in ileal digestibility coefficients between the re-entrant and simple cannulae. Furthermore, there appeared to be an equally small error associated with each method of determining amino acid digestibility: the average standard deviations for the digestibility of amino acids were 1.9 and 1.2 for the re-entrant and simple cannulae, respectively.

The results of the present work confirm those of Zebrowska *et al.* (1978) and indicate that the utility of ileal digestibility studies can be increased by the use of simple rather than re-entrant cannulae.

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