

## Nonruminant Nutrition: Nutritional Values II

**723 Diurnal variation of amino acid digestibility in pigs.** B. G. Kim\*<sup>1</sup> and H. H. Stein<sup>2</sup>, <sup>1</sup>*Konkuk University, Seoul, Republic of Korea*, <sup>2</sup>*University of Illinois, Urbana*.

The index method is widely used to avoid the quantitative collection of ileal digesta or feces in digestibility experiments. Diurnal variations of indigestible index and CP concentrations in ileal digesta samples have been reported. However, diurnal variations of ileal AA concentrations and ileal AA digestibility are unknown. Therefore, we determined the concentration of AA in ileal digesta and ileal digestibility of AA in various collection-time periods. Eight barrows with an initial BW of 34.6 kg (SD = 2.1) fitted with a T-cannula in the distal ileum were randomly allotted to a duplicated 4 × 4 Latin square design with 4 diets and 4 periods per square. Three diets contained corn, soybean meal, or distillers dried grains with solubles as the only source of AA in each diet. An N-free diet was also prepared. All diets contained 0.5% chromic oxide. Equal meals were provided at 0800 and 2000. Ileal samples were collected with 2-h intervals from 0800 to 2000 during the last 3 d of each 7-d period. The concentrations of Lys, Met, Thr, Ile, His, Leu, and Phe in ileal samples were affected ( $P < 0.05$ ) by collection time in pigs fed non-N-free diets during the 12-h collection. The apparent ileal digestibility of all indispensable AA (IAA) exhibited a quadratic response ( $P < 0.01$ ) that increased and then decreased by collection time in pigs fed non-N-free diets. The endogenous losses of all IAA except Trp and Arg decreased (linear and quadratic,  $P < 0.05$ ) by collection time. The standardized ileal digestibility of all IAA except Arg was also affected (linear and quadratic,  $P < 0.05$ ) by collection time. Standardized ileal digestibility of all IAA calculated from samples collected for 2 h from 6 h after feeding was comparable (less than 0.6 percentage unit deviation,  $P > 0.64$ ) to the 12-h digestibility value calculated using chromium and AA concentrations of the 12-h collection: Concentration, % =  $\Sigma$  (concentration, % × sample, g) ÷  $\Sigma$  sample, g. Overall, diurnal variations of AA concentration in ileal digesta and ileal AA digestibility exist, and we suggest that 2 h of ileal sample collection from 6 h after feeding may provide a fairly representative AA digestibility.

**Key Words:** collection period, ileal digestibility, index method