

Sows in mid-gestation have reduced digestibility and retention of calcium and phosphorus compared with growing pigs

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Values for digestibility of Ca and P obtained in growing pigs are usually also applied to gestating sows, but data to demonstrate that digestibility values from growing pigs are also representative for sows are limited. Therefore, 2 experiments were conducted. In Exp. 1, effects of feed intake and physiological state on the apparent total tract digestibility (ATTD) of Ca and P were determined. Forty-eight multiparous gestating sows (BW = 226.1 kg) were fed 1.5 or 3.5 times the maintenance requirement for metabolizable energy (ME) and 24 gilts (BW = 51.5 kg) were fed 3.5 times the requirement for ME. Diets were based on corn, soybean meal, and full-fat or defatted rice bran. The level of feed intake did not affect ATTD of Ca and P in sows, but sows had reduced ($P < 0.001$) ATTD of Ca and P compared with gilts. Experiment 2 was conducted to compare basal endogenous loss (BEL), standardized total tract digestibility (STTD), and retention of Ca and P by sows and growing pigs. Forty-eight multiparous

gestating sows (BW = 245.9 kg) and 48 barrows (BW = 19.8 kg) were fed 4 diets that differed in concentrations of phytate and microbial phytase. Diets were based on corn, soybean meal, and full-fat rice bran. A Ca-free and a P-free diet were also formulated. Results indicated that the BEL of Ca and P from sows was greater ($P < 0.05$) than from growing pigs. Supplementation of phytase increased the STTD and retention of Ca and P if growing pigs were fed a high-phytate diet, but in sows, phytase increased the ATTD of Ca and P only in a low-phytate diet (3-way interactions, $P < 0.01$). Sows had less ($P < 0.001$) STTD and retention of Ca and P compared with growing pigs. In conclusion, gestating sows had greater BEL and reduced digestibility and retention of Ca and P compared with growing pigs.