

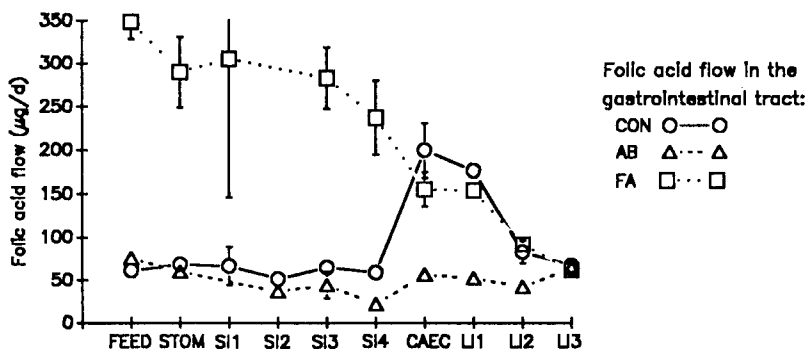
FOLIC ACID FLOW IN THE PIG

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Folic acid is a water soluble, B group vitamin which functions as a coenzyme in the synthesis of a large group of compounds including DNA. Like other B group vitamins, it can be microbially synthesised in the intestines, and this together with the folic acid naturally occurring in feedstuffs, is normally considered sufficient to meet the requirement of the pig. This study was designed to investigate the contribution of microbial folic acid to the requirement of the growing pig.

Twelve pigs were weaned at 3 days and allocated to three groups. The first group was fed a basal diet of cornflour, casein and a vitamin and mineral premix without folic acid (CON). The second group received the same diet, plus phthalylsulfacetamide, at 200 mg/kg LW/day (AB). This antibiotic reduces microbial growth in the intestines and thus suppresses folic acid synthesis. The third group was fed the basal diet plus a supplement of 0.36 mg folic acid/kg diet (FA). The basal ration contained 0.05 mg folic acid/kg.

The pigs received the diets for 95 days, and then for a further 9 days the same diets were supplemented with chromic oxide (1 g/kg). The pigs were slaughtered and their gastrointestinal tract removed and divided into 9 sections; stomach (STOM), 4 small intestine sections (SI1-SI4), caecum (CAEC) and 3 large intestine sections (LI1-LI3). The contents were removed, frozen and later analysed for dry matter, folic acid and chromium. The flow of folic acid in the digestive tract is shown in the figure.



The flow of folic acid through the small intestine of the folic acid supplemented pigs was higher than in the other pigs, and its apparent absorption was 0, 15, 30 and 55% of the total absorption from the small intestine in each of the four sections. There was synthesis of folic acid in the caecum and large intestine of the pigs given the control diet and a smaller amount in the pigs given the diet supplemented with antibiotic. There was no apparent absorption of folic acid from the large intestine of the pigs given the antibiotic supplemented diet, but the apparent absorption of folic acid from the large intestine was 60 and 66% for the pigs given the control diet and folic acid supplemented diet respectively.