

Research finds antimicrobials altering intestinal bacteria composition in swine

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Researchers from the University of Minnesota's College of Veterinary Medicine, concerned about the use of antibiotics in animal production, have found that antimicrobial growth promoters administered to swine can alter the kind of bacteria present in the animal's intestinal track, resulting in an accelerated rate of growth and development in the animals.

Antibiotics are routinely administered to swine to treat illness and to promote larger, leaner animals.

The results of the study, conducted by Richard Isaacson, Ph.D., [microbiologist](#) and professor within the University of Minnesota's College of Veterinary Medicine, alongside his U of M and University of Illinois research teams, were published yesterday in the journal *PNAS*.

To arrive at their results, the researchers tracked the effects of the antimicrobial Tylosin. The effects were observed in the feces of commercial pigs on two farms in southwestern Minnesota.

In young pigs receiving Tylosin, the intestinal bacterial composition changed and was similar to the composition naturally accredited to an older animal. These changes are linked to improved growth and stimulate an early maturation of the immune system.

"Bacterial composition drives the ability of animals to grow and thrive by contributing to digestion and metabolism," said Isaacson. "Because

the bacteria in more mature animals break down growth-promoting components in food more efficiently, younger animals are able to achieve adult size and an adult-like metabolic rate more quickly."

According to Isaacson, the question has now shifted to whether or not researchers can use this new understanding to recreate this ideal-growth composition in swine produced for [human consumption](#) without [antibiotic use](#).

Provided by University of Minnesota

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