

Discovery could help fight human obesity

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A Texas AgriLife Research scientist and fellow researchers have discovered that arginine, an amino acid, reduces fat mass in diet-induced obese rats and could help fight human obesity.

"Given the current epidemic of obesity in the U.S. and worldwide, our finding is very important," said Dr. Guoyao Wu, an AgriLife Research animal nutritionist in College Station and Senior Faculty Fellow in the department of animal science at Texas A&M University.

The research found dietary arginine supplementation shifts nutrient partitioning to promote skeletal-muscle gain, according to the researchers. The findings were published recently in the *Journal of Nutrition* (jn.nutrition.org).

In laboratory experiments, rats were fed both low-and high-fat diets. They found that arginine supplementation for a 12-week period decreased the body fat gains of low-fat and high-fat fed rats by 65 percent and 63 percent, respectively. The long-term arginine treatment did not have any adverse effects on either group.

"This finding could be directly translated into fighting human obesity," Wu said. "At this time, arginine has not been incorporated into our food (but could in the future)."

Arginine-rich foods include seafood, watermelon juice, nuts, seeds, algae, meats, rice protein concentrate and soy protein isolate, he said.

The research suggests that arginine may increase lean tissue growth. In pigs, it was found that dietary arginine supplementation reduced fat accretion (growth) but increased muscle gain in growing/finishing pigs without affecting body weight.

Another important observation according to the research was that dietary arginine reduced serum concentrations of branched-chain amino acids.

"This metabolic change is likely beneficial because elevated concentrations of branched-chain amino acids may lead to insulin resistance in obesity. Additionally, arginine can stimulate muscle protein synthesis, a biochemical process that requires large amounts of energy," Wu said. "Thus, dietary energy would be utilized for lean tissue rather than fat gain."

Source: Texas A&M AgriLife Communications

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