

# Turmeric extract suppresses fat tissue growth in rodent models

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Curcumin, the major polyphenol found in turmeric, appears to reduce weight gain in mice and suppress the growth of fat tissue in mice and cell models. Researchers at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts University (USDA HNRCA) studied mice fed high fat diets supplemented with curcumin and cell cultures incubated with curcumin.

"Weight gain is the result of the growth and expansion of [fat tissue](#), which cannot happen unless new [blood vessels](#) form, a process known as angiogenesis." said senior author Mohsen Meydani, DVM, PhD, director of the Vascular Biology Laboratory at the USDA HNRCA. "Based on our data, curcumin appears to suppress angiogenic activity in the fat tissue of mice fed high fat diets."

Meydani continued, "It is important to note, we don't know whether these results can be replicated in humans because, to our knowledge, no studies have been done."

Turmeric is known for providing flavor to curry. One of its components is curcumin, a type of phytochemical known as a polyphenol. Research findings suggest that phytochemicals, which are the chemicals found in plants, appear to help prevent disease. As the bioactive component of turmeric, curcumin is readily absorbed for use by the body.

Meydani and colleagues studied mice fed high fat diets for 12 weeks. The high fat diet of one group was supplemented with 500 mg of

curcumin/ kg diet; the other group consumed no curcumin. Both groups ate the same amount of food, indicating curcumin did not affect appetite, but mice fed the curcumin supplemented diet did not gain as much weight as mice that were not fed curcumin.

"Curcumin appeared to be responsible for total lower body fat in the group that received supplementation," said Meydani, who is also a professor at the Friedman School of Nutrition Science and Policy at Tufts. "In those mice, we observed a suppression of microvessel density in fat tissue, a sign of less blood vessel growth and thus less expansion of fat. We also found lower blood cholesterol levels and fat in the liver of those mice. In general, angiogenesis and an accumulation of lipids in fat cells contribute to fat tissue growth."

Writing in the May 2009 issue of the *Journal of Nutrition*, the authors note similar results in cell cultures. Additionally, curcumin appeared to interfere with expression of two genes, which contributed to angiogenesis progression in both cell and rodent models.

"Again, based on this data, we have no way of telling whether curcumin could prevent fat tissue growth in humans." Meydani said. "The mechanism or mechanisms by which curcumin appears to affect fat tissue must be investigated in a randomized, clinical trial involving humans."

More information: Ejaz A, Wu, D, Kwan P, and Meydani M. *Journal of Nutrition*. May 2009; 139 (5): 1042-1048. "Curcumin Inhibits Adipogenesis in 3T3-L1 Adipocytes and Angiogenesis and Obesity in C57/BL [Mice](#). 919-925."

Source: Tufts University

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