Compounds in apple peel, tomato may prevent muscle wasting

The compounds were found to counteract a protein that causes muscles to age.
By Stephen Feller  |  Sept. 10, 2015 at 11:51 AM

IOWA CITY, Iowa, Sept. 10 (UPI) -- Researchers at the University of Iowa discovered a protein that causes aging in muscles, and found that compounds in apple peels and tomatoes can counteract the effects of the protein, according to a new study.

The largest cause of muscle weakness and atrophy is aging, and researchers said they may be able to help muscles recover from the effects of aging using the compounds.

"Many of us know from our own experiences that muscle weakness and atrophy are big problems as we become older," said Dr. Christopher Adams, a professor of internal medicine at the University of Iowa, said in a press release. "These problems have a major impact on our quality of life and health."
The researchers started off by identifying the effect that ursolic acid from apple peels and tomatidine from green tomatoes as being effective to prevent muscle wasting caused by starvation or inactivity.

Elderly mice with muscle weakness and atrophy were fed diets lacking or containing either 0.27 percent ursolic acid or 0.05 percent tomatidine for two months. Both compounds were found to increase muscle mass by about 10 percent and increased muscle strength by 30 percent -- the equivalent of returning muscle ability to that of a young adult.

Further study of the mice revealed that the compounds turn off genes that are controlled by the transcription factor ATF4. To test this, the researchers engineered mice that lacked ATF4 and found their muscles were resistant to the effects of aging, similar to mice treated with ursolic acid or tomatidine.

The researchers plan to investigate ways to get both compounds into foods, supplements or drugs that can be used to preserve muscle mass and strength, or restore it, as people age.

The study is published in the Journal of Biological Chemistry.