

Research shows safe dosages of common pain reliever may help prevent conditions related to aging

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Dr. Eric Blough and his colleagues at Marshall University have shown that acetaminophen ingestion, at least in animals, can be safely used for the treatment of age-related muscle loss. Credit: Rick Haye, Marshall University

Recent studies conducted by Dr. Eric Blough and his colleagues at Marshall University have shown that use of the common pain reliever acetaminophen may help prevent age-associated muscle loss and other conditions.

Their study examined how acetaminophen may affect the regulation of [protein kinase B \(Akt\)](#), an enzyme known to play an important role in

regulation of cellular survival, proliferation and metabolism.

The researchers' data indicates that aging skeletal muscles experience a decrease in the proper functioning of the enzyme and that acetaminophen intervention in aged animals could be used to restore Akt activity to a level comparable to that seen in young animals. In turn, this improvement in Akt activity was associated with improvements in muscle cell size and decreased muscle cell death.

"Using a model that closely mimics many of the age-associated physiological changes observed in humans, we were able to demonstrate that chronic acetaminophen treatment in a recommended dosage is not only safe but might be beneficial for the treatment of the muscle dysfunction many people experience as they get older," said Blough, an associate professor in the university's Department of Biological Sciences.

The lab's work, which was published in the July 29 issue of the international research journal [PLoS One](#), is the first study to show that acetaminophen ingestion, at least in animals, can be safely used for the treatment of age-related muscle loss. This finding could have far-reaching implications, given the fact that people age 65 and older make up the fastest-growing segment of the U.S. population.

Additional research in their laboratory, which was published in the March issue of the journal *Diabetes/Metabolism Research and Reviews*, demonstrates the medication may also be useful in diminishing the severity of age-associated hyperglycemia, commonly referred to as high blood sugar.

"It is thought that acetaminophen may exert its action by decreasing the amount of reactive oxygen species," explained Dr. Miaozong Wu, the lead author and a postdoctoral fellow in Blough's lab. "Given the finding

that increases in reactive oxygen species may play a role in the development of several age-associated disorders, it is possible that acetaminophen could be used to treat many different types of conditions."

Dr. John Maher, vice president for research and executive director of the Marshall University Research Corporation, said, "These findings are yet another indication that Marshall's researchers are conducting vital research in areas of great importance to human health and safety. I could not be more pleased and wish Dr. Blough and his team continued success."

According to Blough, scientists in his lab will now turn their attention to examining other physiological systems, such as the heart and blood vessels, to see if [acetaminophen](#) therapy might have similar benefits for people with cardiovascular disease.

Source: Marshall University

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