

THE WORLD, RESEARCHERS REPORT IN THE
Sept. 26 *Science*.

"This tells us that archaic humans were a lot more innovative than we give them credit for," says archaeologist Mark White of Durham University in England.

For almost 20 years, he says, scientists have argued about whether a way to make

believe. By whittling stones into dome-shaped chunks, toolmakers could strike off sharp flakes, possibly useful for cutting and slicing. That innovation may have let hunter-gatherers carry stone flakes instead of heavy hand axes.

Some researchers see such innovation

at the University of Connecticut in Storrs. Adler's team didn't uncover any bones at the site, so the researchers can't say who these hominids were.

But scientists do know that about 1.75 million years ago, African hominids invented a way to make stone tools

close inspection of the artifacts and dating of volcanic ash suggested that the ancient Eurasians were making both hand axes and stone flakes around 330,000 years ago, roughly the same time period of the earliest Levallois tools in Africa, Tryon says. ■

protection via working out. After three weeks of exercise, human volunteers' muscles produced more kynurenine-neutralizing molecules, biopsies from thigh muscles showed.

To get the benefits, people need to routinely challenge their muscles, which means regularly upping their exercise regimens, Lindskog says. An easy daily walk probably isn't rigorous enough to boost PGC-1 alpha 1 production. A subset of people with depression might benefit strongly from exercise therapy, or from drugs developed to target kynurenine or the molecules that interact with it, Miller says. And the benefits probably wouldn't stop at depression. People with cancer, autoimmune disorders or other diseases that involve inflammation might benefit from stronger muscles, he says. "All of those are going to be associated with high levels of kynurenine," he says. "And we now know that we can begin to possibly clear out the system by encouraging patients to exercise." ■

Muscles make natural antidepressant

Exercise blocks brain toxin linked to stress, mouse study shows

BODY & BRAIN

BY LAURA SANDERS

A powerful body can protect the brain, a new study suggests. Toned muscles filter a toxin to keep depression at bay, researchers report in the Sept. 25 *Cell*.

By discovering a previously unknown link between muscles and the brain in mice, the results provide compelling evidence for the healing power of exercise, says psychiatrist Andrew Miller of Emory University in Atlanta. "This paper really emphasizes 'strong body, strong mind.'" The finding also hints at new ways to treat brain disorders, he says.

Researchers have known that in response to a good workout, muscles produce a compound called PGC-1 alpha 1, which is a general do-gooder around the body. The compound prompts the body to make more blood vessels and

she says. "The brain was completely protected."

When produced in response to exercise, PGC-1 alpha 1 kicks off a chain of chemical events in muscles that culminates in neutralizing a stress-induced toxin called kynurenine. An injection of kynurenine, which travels easily between the body and brain, caused mice to show signs of depression, even when the animals weren't exposed to stressors. That result "suggests kynurenine may be a much more malignant molecule than we had previously appreciated," Miller says.

But PGC-1 alpha 1 in the muscle leads to conversion of kynurenine into a form that can't pass into the brain. The results show how muscle can have a profound effect on other organs, Lindskog says. "It's like a detoxifying organ, almost."

Mice that ran on an exercise wheel, covering more than four kilometers a night for eight weeks, also experienced benefits, the team found. And there are hints that people could achieve the same

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