Benefits of Post Exercise Massage (LA Times Article)

Study works out kinks in understanding of massage

Scientists identify the mechanism behind the therapy's benefits, comparing biopsies to show that the interaction with muscle proteins reduces inflammation and helps cells recover.

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Everyone knows that it can feel really good to get a massage.

Now scientists may have figured out why, by identifying how massage switches genes on and off, thus reducing inflammation and coaxing muscle adaptation to exercise.

The discovery provides strong evidence that massage merits further study as a treatment for injuries and chronic disorders, said Dr. Mark Tarnopolsky, a researcher at McMaster University in Ontario, Canada, and lead author of a study about the research released Wednesday.

Tarnopolsky, who has studied the cellular effects of exercise for decades, performed muscle biopsies in both legs of healthy young men before and after they'd undergone strenuous exercise, and then a third time after massaging just one leg in each individual.

Comparing tissues from each subject's massaged leg with tissues from his unmassaged leg, Tarnopolsky and his team found that massage therapy reduced exercise-related inflammation by dampening activity of a protein called NF-kB.

Massage also seemed to help cells recover by boosting amounts of another protein called PGC-1alpha, which spurs production of new mitochondria — tiny organelles inside cells that are crucial for muscle energy generation and adaptation to endurance exercise.

Other proteins with similar roles were influenced by massage as well. And the finding tossed cold water on one widely held belief that massage eases pain by helping the body clear away lactic acid buildup after exercise. The team saw no effect of massage on lactic acid concentrations.

If future studies show positive results, that could encourage more medical plans to pay for massage therapy, said UCLA alternative medicine expert Dr. Mary Hardy, who was not involved in Tarnopolsky's research.

"This kind of work should be useful in getting these therapies reimbursed," she said.

Thomas Birk, an associate professor of physical therapy at Wayne State University in Detroit, who has studied the physiological effects of massage in patients with HIV, said that the study, published in the journal Science Translational Medicine, was the first he had seen that drilled down to cellular basics.

"We knew there was something going on, but we couldn't get to it a decade ago," he said, because the technology to probe the smallest structures of the body didn't yet exist.

Birk said that more research would be needed for practitioners to figure out the right massage methods, pressures and depths to treat particular conditions.

Tarnopolsky, who says exercise is the best way to reverse damage caused by common conditions including diabetes, obesity and aging, is an athlete himself, and is competing this week in the Ski Orienteering World Cup in Lake Tahoe.

"I need a massage now," he joked Wednesday, after a tough morning of sprints.

He said that seeing massage tables set up at marathon finish lines, and asking massage therapists whether they knew of a scientific basis for the treatment's results (most didn't), led him to think about doing this research. The team had to cobble together money to conduct the experiment. "There's so little data, we couldn't convince anyone to fund this," he said.

Coauthor Simon Melov, who studies the biology of aging at the Buck Institute for Research on Aging in Novato, Calif., and collaborates frequently with Tarnopolsky, said he initially thought the idea was crazy.

But now that the researchers have identified how massage reduces inflammation, he said, he is eager to see how it might be used to complement or replace anti-inflammatory medications such as ibuprofen in treating injury, or to counteract the generalized inflammatory responses associated with normal aging.

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