

Stimulating muscles may improve musician's dystonia

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Therapy that stimulates the hand muscles may help treat the condition called musician's dystonia, a movement disorder that causes muscle spasms in musicians, according to a study published in the December 26, 2007, online issue of *Neurology*, the medical journal of the American Academy of Neurology.

Musician's dystonia occurs in musicians who have practiced particular complicated movements for years. The muscle spasms are usually painless and generally occur only when playing the instrument.

For the study, researchers applied low-amplitude vibration to the hand muscles in 24 people: six who had musician's dystonia, six professional musicians with no dystonia, six healthy non-musicians, and six people with writer's cramp, which is another type of dystonia that occurs in people while they write.

Using transcranial magnetic stimulation, the researchers evaluated the reaction in the sensorimotor area of the brain back to the muscle during vibration of a single hand muscle. In healthy people, the vibration of a muscle increases the amount of brain messages back to the muscle and at the same time reduces the amount of messages to muscles that did not receive vibration. In people with musician's dystonia, vibration in any one hand muscle increases the amount of messages to all hand muscles. In writer's cramp, vibration to one muscle has no effect on any muscle.

Now, in an intervention that lasts only 15 minutes, muscle vibration was

applied to a thumb muscle, and the participant's attention was either directed on that muscle itself or away from it. The reaction of the brain's sensorimotor areas to the muscles was then tested again using transcranial magnetic stimulation.

“Our hope is that stimulation can retrain how the brain responds,” said study author Karin Rosenkranz, MD, with UCL Institute of Neurology in London, United Kingdom.

The study found that the vibration intervention in which subjects had to attend to their thumb muscle tended to restore a more normal pattern in the sensorimotor area of the brain in people with musician's dystonia. This effect was less pronounced in the people with writer's cramp.

“More research is needed to see if prolonged use of stimulation can improve hand motor function,” Rosenkranz said. “These results also suggest that the underlying mechanism of the disorder may be different in musician's dystonia and writer's cramp.”

Source: American Academy of Neurology

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