

[News](#)[Articles](#)[Videos](#)[Images](#)[Books](#)[Search](#)[Health & Medicine](#)[Mind & Brain](#)[Plants & Animals](#)[Earth & Climate](#)[Space & Time](#)[Matter & Energy](#)[Computers & Math](#)[Fossils & Ruins](#)

Science News

[Share](#) [Blog](#) [Cite](#)[Print](#) [Email](#) [Bookmark](#)

Neuromuscular Activation By Means Of Vibrations

ScienceDaily (May 22, 2008) — A researcher from the Universidad Politécnica de Madrid has collaborated with the University of Granada in the development of a research study on the possible effects of vibrations as a mean of neuromuscular activation to improve jumping performance. The results suggest that the effect could be dependent on the level of training.

See also:

Health & Medicine

- [Fitness](#)
- [Children's Health](#)
- [Human Biology](#)

Matter & Energy

- [Acoustics](#)
- [Physics](#)
- [Petroleum](#)

Reference

- [Acoustics](#)
- [Oscillation](#)
- [Nociceptor](#)
- [Phantom limb](#)

Lately, new technologies applied to improving performance and health have experienced a booming rise. One of those has been the use of vibrating platforms to improve athletic performance in general and muscular strength in particular.

The application of mechanical vibrations through technologies like vibrating platforms has been proposed by many recent studies as tool capable of increasing muscular performance. Nevertheless, the results offered are contradictory. This has motivated the group EFFECTS-262 of the Universidad de Granada, in collaboration with the

Facultad de Ciencias de la Actividad Física y del Deporte at the Universidad Politécnica de Madrid, to try to clear this situation by evaluating the possible effects of a short vibration on the jumping abilities of young adults of both sexes.

A group of 114 university students, 37 of them male and 77 female, with an average of 19.6 years of age has been used as test subjects for an experiment to evaluate the height reached by the subjects when jumping, and compare the results with the height reached after a short stimulation by the vibration platform.

The main parameters to be controlled, since they accurately represent the characteristics of the vibration training, are: the frequency of the vibrations (number of vibration cycles per second, measured in hertz Hz), the time duration of the training measured in seconds or minutes, the amplitude of movement of the vibration source measured in millimeters and the vibration charge that is generated (g).

The results of the study indicate that vibration stimuli ranging from 20 to 30 Hz and lasting from 90 to 120 seconds would generate a short decrease in the jumping heights achieved immediately after the application of the stimulation. However, such decrease seems to completely disappear after a short resting period. The test subjects recovered their normal jumping ability after a minute of recovery.

The researchers believe that vibration stimulation could cause a local temporal muscular fatigue that would be the cause of the decrease on the heights reached.

If the results from this study are compared with those presented by experiments with a similar focus, it could be suggested that such stimulation has stronger effects proportional to the level of the training that the subjects are accustomed to. The inclusion of test subjects with low training levels in this study could account for the decrease in jumping heights. The researchers involved concluded that in subjects that are not actively training, it is convenient to have resting periods of at least a minute after stimulation before jumping to their full potential.

Journal reference:

- Artero EG, España-Romero V, Ortega FB, Jiménez-Pavón D, Carreño-Gálvez F, Ruiz JR, Gutiérrez A, Castillo MJ. Use of whole-body vibration as a mode of warming up before counter movement jump. *Journal of Sports, Science and Medicine*, 6: 574-5, (2007).

Adapted from materials provided by [Universidad Politécnica de Madrid](#), via [AlphaGalileo](#).

Need to cite this story in your essay, paper, or report? Use



Neuromuscular stimulation on a vibration platform (model Galileo 900, Novotec, Pforzheim, Germany). (Credit: Image courtesy of Universidad Politécnica de Madrid)

Ads by Google

[Advertise here](#)

Fast Multipole Acoustics

Acoustic Analysis using the Fast- Multipole Boundary Element Method
ansol.us/Products/Coustyx

"How To Lose Belly Fat"

Melts 15lbs of Fat in 30 Days. As Seen On CNN.
www.FireYourFat.com

Boost Energy & Endurance

Research-Proven Dietary Supplement Get Up...Get Going...Keep Going...
www.WickedFastSportsNutrition.com

1 Trick to Lose Tummy Fat

I Tried For Years to Lose Tummy Fat Until I Found This 1 Ab Secret
www.truthaboutabs.com

Acoustics Multiphysics CD

Simulate acoustic-struct. systems Animated and narrated tutorials!
www.comsol.com/intro/acoustics

Related Stories

Scientists Identify Brain Regions Where Nicotine Affects Attention, Other Cognitive Skills

(Jan. 14, 2003) — Nicotine administration in humans is known to sharpen attention and to slightly enhance memory. Now scientists, using functional magnetic resonance imaging (MRI), have identified those areas of the ... > [read more](#)

Neurological Disease Raises Risk Of Complications From Flu

(Nov. 4, 2005) — As another flu season approaches, patients with neurological and neuromuscular disease are especially vulnerable to respiratory failure caused by influenza. Researchers from The Children's Hospital ... > [read more](#)



Bad Vibes Can Indicate Structural Damage In Bridges

(May 6, 2007) — By monitoring changes in vibrations of bridges it is possible to identify hidden cracks and fractures, according to engineers. Variations in the vibrations of a bridge could be a telling sign of its ... > [read more](#)

Study May Explain Why Exercise Helps Heart Failure Patients

(Apr. 27, 2006) — Aerobic training

one of the following formats:

- ☒ APA Universidad Politécnica de Madrid (2008, May 22). Neuromuscular Activation By Means Of Vibrations. *ScienceDaily*. Retrieved May 27, 2008, from <http://www.sciencedaily.com/releases/2008/05/080522082716.htm>
- ☐ MLA

is associated with a reversal of abnormal hormonal patterns that underlie many of the debilitating symptoms of heart failure, according to a new study in the May 2, 2006, issue of ... > [read more](#)



Carbon Nanotube 'Shock Absorbers' Excel At Dampening Vibration (Jan. 21, 2005) — Research on a new class of nanostructured materials used to reduce vibrations in mechanical equipment and electronic devices, being developed by a team of scientists at Rensselaer Polytechnic ... > [read more](#)

Search ScienceDaily

Number of stories in archives:
44,032

Find with keyword(s):

Search

Enter a keyword or phrase to search ScienceDaily's archives for related news topics, the latest news stories, reference articles, science videos, images, and books.

Ads by Google

[Advertise here](#)

Visual Learning

Model and simulate real-world problems to engage students
www.iseesystems.com/STELLA

MathType - Download Today

The premier Math authoring tool for MS Word, Web, and more!
www.dessci.com

Real Mind Power

Do Anything You Want, Achieve All Your Desires - Quickly And Easily
www.realmindpowerskills.com

[more top news](#)

Copyright Reuters 2008. See [Restrictions](#).

Free Subscriptions

... from ScienceDaily

Get the latest science news with our free email newsletters, updated daily and weekly. Or view hourly updated newsfeeds in your RSS reader:

[Email Newsletters](#)

[RSS Newsfeeds](#)

Feedback

... we want to hear from you!

Tell us what you think of the new ScienceDaily -- we welcome both positive and negative comments. Have any problems using the site? Questions?

Your Name:

Your Email:

Comments:

Click button to submit feedback:

Send It

[About This Site](#) | [Editorial Staff](#) | [Awards & Reviews](#) | [Contribute News](#) | [Advertise With Us](#) | [Privacy Policy](#) | [Terms of Use](#)
Copyright © 1995-2008 ScienceDaily LLC — All rights reserved — Contact: editor@sciencedaily.com