

SHAKE, RATTLE & GROW

Training on a vibration platform can take your muscle growth off the Richter scale

■ By Jim Stoppani

Whole body vibration? Wipe that smile off your face; we know what you're thinking. Sounds like a pretty good thing, eh? Well, it is, but unfortunately not as the stimuli you might be envisioning. Fortunately, though, it may be the hottest thing out there to stimulate your muscle fibres into growing.

Not Your Typical Vibrator

A whole body vibration machine is a device that you can stand on, lie on, sit on or place your hands or any other part of your body on — stop smiling! — to transmit vibration to the body tissues you wish to stimulate. Most whole body vibration machines are about the size of a typical stair-stepper. The platform or “plate” that does the vibrating is about 32x20-inches. The control panel allows you to change the speed (or frequency) and the intensity of the plate's vibratory energy.

While this all sounds very futuristic, vibration therapy can be traced back to the 1700s. The more recent vibration devices, however, are modelled after technology that was developed to help Russian cosmonauts combat the degenerative effects that zero gravity has on muscle and bone tissue. It was later used by the Soviet Union's Olympic athletes during the 1970s.

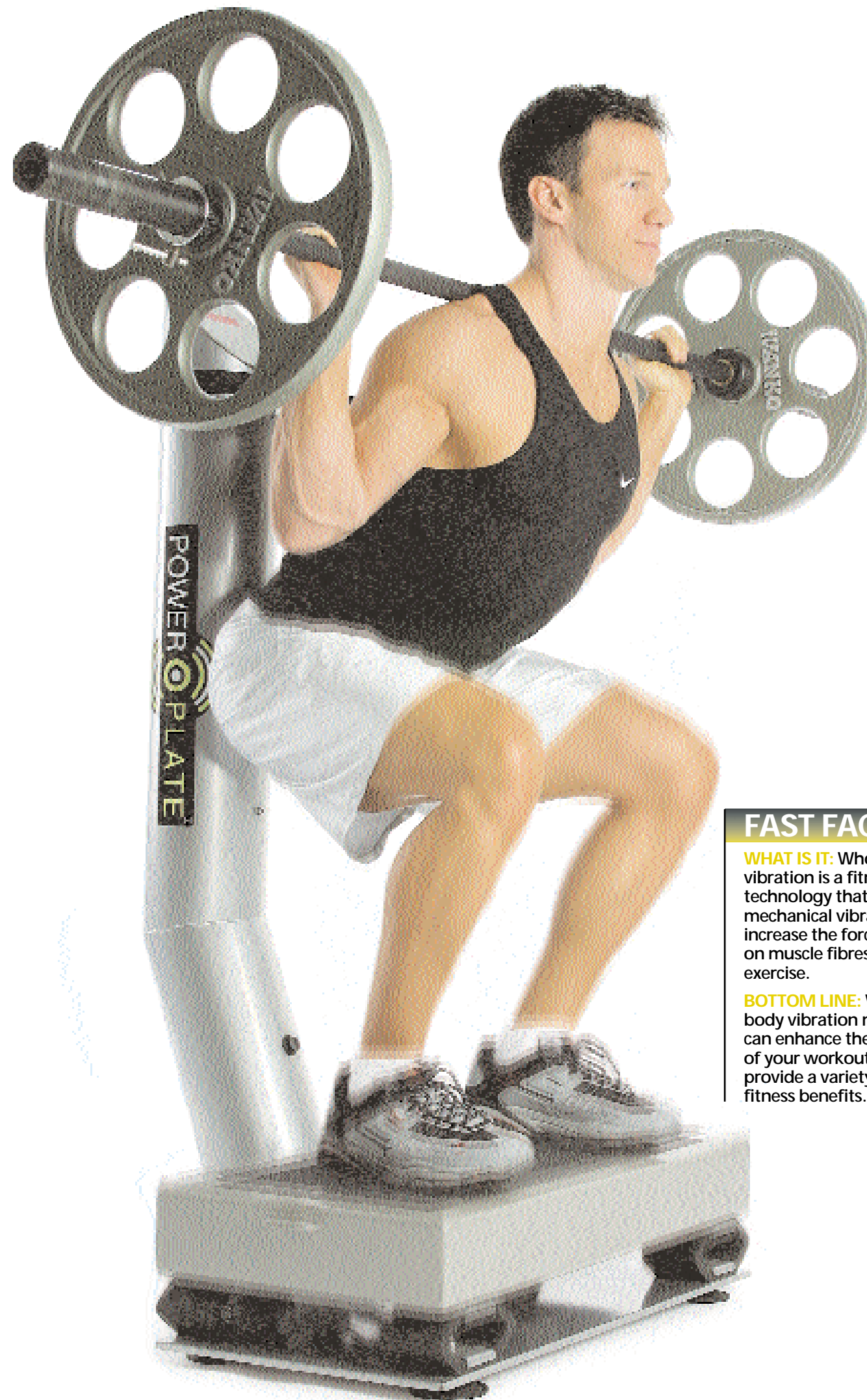
More Than a Feeling

How does this mechanical vibration turn into the potent

stimulus that may drive your muscle growth to new heights? While several theories exist, scientists still don't know exactly how it works on the body. They do know this: the energy from the mechanical vibration (of the plate) is transferred through the body. This energy can increase the force placed on the muscle fibres by more than 3 Gs (three times the force of gravity). So when you perform movements on the plate, you're getting more muscle fibre recruitment and that means more strength and more growth.

A recent study by Finnish scientists supports this concept. They report in *Medicine & Science in Sports & Exercise* that untrained volunteers performed activities such as light squatting, standing erect, standing with knees slightly bent, light jumping, alternating bodyweight from one leg to the other, and standing on their heels during four minutes of vibration exposure. Four months of whole body vibration training (four minutes per day, 3–5 days per week) enhanced subjects' jumping power and leg strength. These results have been confirmed in other laboratories; Italian, Australian and Israeli scientists have found similar increases in the leg strength of athletes following vibration training.

Yet there's more. Not only does the mechanical vibration stimulate the muscle fibres directly, but it also stimulates them indirectly by enhancing the production of the anabolic hormones growth hormone and testosterone. This is similar to what happens during a typical weightlifting workout. What isn't typical with vibration training is the effect it has on the catabolic



FAST FACTS

WHAT IS IT: Whole body vibration is a fitness technology that uses mechanical vibration to increase the force placed on muscle fibres during exercise.

BOTTOM LINE: Whole body vibration machines can enhance the impact of your workouts — and provide a variety of fitness benefits.

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hormone cortisol. Cortisol increases during a weightlifting workout, leaving the anabolic hormones to battle this adversary in an effort to prevent muscle breakdown and hopefully turn on muscle growth processes. As Carmelo Bosco, PhD, DU, reported in the *European Journal of Applied Physiology*, male volunteers exhibited a decrease in cortisol levels (along with an increase in growth hormone and testosterone) following 10 60-second sets on a Nemes Bosco System vibration plate.

And still there's more. Other studies on vibration exercise have shown that this unique stimulus is effective at increasing flexibility, bone density and blood flow to the areas stimulated. A recent study using another vibration machine, the Galileo 2000, discovered that 12 weeks of vibration therapy significantly reduced chronic lower back pain in adult sufferers. The

scientists were somewhat surprised at the effectiveness of the vibration exercise and suggest that this opens up several new possibilities for vibration training.

Given all these potential benefits, you'd have to wonder about side effects. While vibration training is safe for most people, those who are pregnant, or who have acute thromboses, pacemakers, stress fractures, fresh bone fractures, joint replacement, kidney stones or gallstones should not use these devices. In some cases, the vibration may cause severe itching in the parts of the body exposed to the vibration stimulus. A major drop in blood pressure also may occur in those who start at too high an intensity. Starting off with the minimum setting and gradually working up in intensity and duration is essential.



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Harnessing the Power

So what do you do when you jump on one of these bad boys, besides hold on and enjoy the ride? Mark Verstegen, founder of Athletes' Performance, an elite training facility for professional athletes at Arizona State University (Tempe), uses a vibration machine called Power Plate in a number of ways with his clients. He reports: "It's a very versatile piece of equipment that can enhance an athlete's performance on and off the field. We routinely use it for a warm up before a typical workout, as it increases blood flow and anabolic hormone release. For this same reason, it is effective as a cool down device that aids in recovery. But on its own, it enhances

flexibility, stability and proprioception [the ability to sense the position and movement of the body and its parts], as well as strength, speed and power."

Chris Verna, ATC, owner of Chris Verna Training (Boca Raton, Florida) agrees: "Our athletes are making great progress by using the Power Plate. It adds greater force to sport-specific movements and is useful for balance training or as a rehabilitation adjunct for many sport-related injuries. I even have a female client who has lost a major amount of weight, including a lot of cellulite, over several months of vibration training." While some do train with additional weight on the Power Plate, it is not recommended for use with heavy weights. Others cycle their training by alternating weightlifting days and vibration training days. Yet, while vibration training can be a great adjunct to your existing programme, you should not use it as a replacement.

The Movers and Shakers

If all this talk about muscle strength and growth has you ready to run out and jump on a vibration machine, you're in good company. Interest in vibration technology is catching on fast among professional athletes, trainers and celebrities around America. The wave of interest has turned this once-obscure training device into one of the fastest-growing fitness trends since Spinning.

Currently, the Power Plate is the only vibration exercise machine available in the United States, in select locations at Gold's Gym, 24 Hour Fitness, Spectrum Club and Marriott hotels. For more locations and other information regarding the Power Plate, go to www.powerplateusa.com. In Europe, the complete line of Galileo vibration exercise machines is available through Novotec Maschinar GMBH. For more information, visit www.galileo2000.de. Another European version, the Nemes Bosco system, is made by Nemesis. For more information, visit www.nemes.nl. M&F



Crunch



Push-Up

The Vibrating Lab

Vibration training has been shown in the laboratory to provide the following benefits.

MEASURE	PERCENT CHANGE
Leg extension strength ¹	↑ 15%
Biceps curl strength ²	↑ 10%
Jump height ³	↑ 9%
Growth hormone ⁴	↑ 361%
Testosterone ⁴	↑ 7%
Cortisol ⁴	↓ 32%
Lower back pain ⁵	↓ 66%

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