

What's *Shaking* with Vibration Training?

BY KIM GOSS

The bottom line on a new type of exercise



T*o boldly go where no one has gone before* is the famous Star Trek motto and is one that we've informally adopted at BFS. Besides promoting a simple, sound training program for young athletes, we like to explore many of the exciting new advances in athletic training — advances such as vibration training.

We decided to look into vibration training because the reports we're getting from our BFS field reps indicate that it is one of the hottest trends in the health club industry. Did you know that many professional sports teams, such as the Oakland Raiders and the Tennessee Titans, use vibration platforms to give their athletes an edge? So, we've got to ask: Is vibration training a fad, or is it

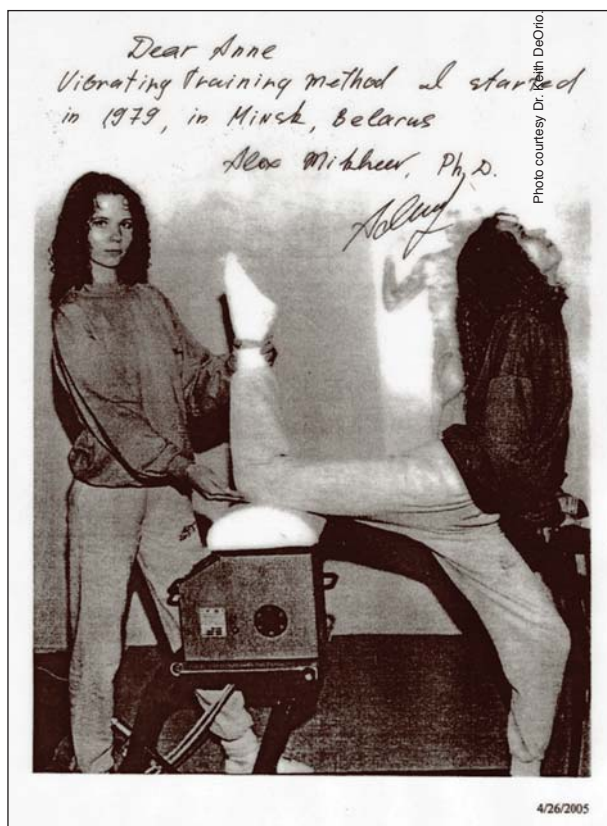
an exciting form of fitness and athletic performance training? Here are some answers.

Vibration training, if you haven't heard of it before, is a mechanical stimulus, typically administered through a base platform that moves up and down to transfer the vibrations to the body. You can receive the effects of vibration training by standing, sitting, lying, or placing your hands on the platform. Straps also can be attached to these platforms so you can perform specific exercises for the upper body.

There are several terms you'll need to know when discussing vibration training. For example, *amplitude* is how high the platform moves, *frequency* is the number of times the platform moves per

second, and *duration* is how much time you spend on the platform. Trainers use these terms to develop precise workout protocols to achieve specific goals. For example, workout sets for beginners might be performed over a shorter time period (duration) than they would be for advanced trainees.

One of the founders of vibration training is Dr. John Harvey Kellogg, who developed a vibrating chair in the late 1800s. What Kellogg and other scientists discovered was that mechanical vibration could alleviate pain, and so vibration therapy was put to use to treat physical discomfort. In the 20th century, scientific research was undertaken by the Russians on the influence of vibration on bone growth.



The Russians were pioneers in the practical applications of vibration training.

FIGURE 1:

Documented Benefits of Vibration Training

- Reduced stress
- Better flexibility
- Enhanced balance
- Increased bone density
- Improved muscle strength
- Improved lymphatic drainage
- Increased flexibility, coordination and mobility
- Increased nutrient uptake and utilization by the body and brain
- Increased oxygen distributed to the tissues, especially the brain
- Increased burning of body fat through increased metabolism
- Improved body detoxification, including heavy metals
- Increased muscle recovery after exercising
- Improved circulation to all body parts
- Enhanced collagen and skin quality
- Healthier neurometabolism
- Improved mood
- Improved libido

This Russian research was important because their cosmonauts were experiencing rapid, significant degenerative conditions during their missions, such as decreases in bone density. Vibration

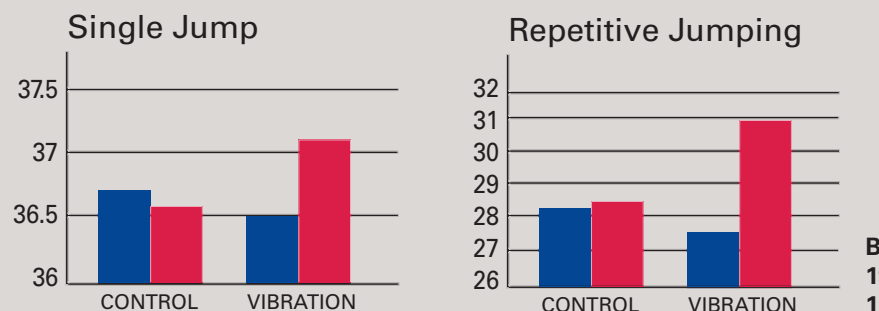
training solved this problem to the degree that two cosmonauts were able to spend more than 438 days in space, compared to a record of 188 days by US astronauts. More recently, the rise in

the median age of the nation's population during the past few decades has been providing additional impetus for increased research into the connection between vibration training and bone



Special strength training and rehabilitation exercises can be performed with vibration platforms. Left to right, curls for the biceps, V-ups for the abdominals, lunges for the thighs, and heel raises using a foam roller (which require a spotter to stabilize the foam roller). Supervising the lunge is Dr. Keith DeOrio, one of the foremost experts in the world on vibration training, while spotting the calf raise is accomplished Canadian strength coach Paul Gagné.

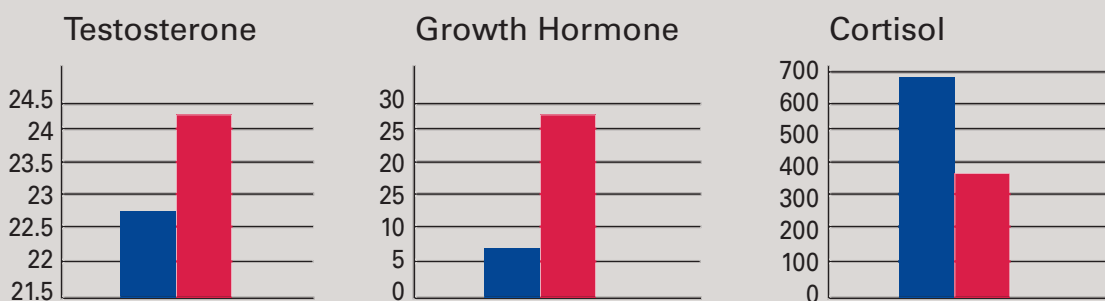
Effect of WBF on Vertical Jump



Bosco et al,
1998, *Biol Sport*,
15:157-164

Figure 2. Vibration training has been shown to produce significant improvements in increasing single and repetitive vertical jumping ability. It can also increase testosterone and growth hormone, which are involved in strength and muscle development, and decrease the stress hormone cortisol.

Hormonal Changes after WBV



Bosco et al,
Eur J Appl Physiol, 2000,
81:449-454-164



Through use of a neuromuscular response called the stretch reflex, static flexibility exercises and massages are more effective with vibration training. Demonstrated on the top row is a stretch for the lower back and hamstrings (left), and a stretch for the inner thighs (adductors). Shown below is a massage for the quads (left) and one for the upper back (latissimus dorsi).



density. In fact, users have reported gains of as much as four to seven pounds in bone density after extended periods of vibration training!

As far back as the '70s, research showed that vibrations transferred to the body will cause a *stretch reflex*, in which the muscles contract continuously. During the '70s, this discovery was put to use by the Russians in improving performance in sports by increasing muscle strength, flexibility and recuperation capacity. However, in the western world at this time this new form of training was largely unknown.

The documented benefits are still coming in, as reported in more than 200 published studies. These benefits are summarized in Figure 1 and Figure 2. There are a few contraindications, which include individuals who are pregnant or epileptic or who have synthetic implants such as pacemakers. Further, it's important to use vibration machines that are properly designed.

One of the foremost authorities on the medical applications of this type of training is Keith DeOrio, a medical doctor from Santa Monica, California. Dr. DeOrio is a proponent of vibration training and reports positive outcomes with his patients. He cautions, however, that if the frequency of the machines is set too low (between 5 and 20 Hz), there is the potential to damage vital organs. He is also adamantly against using dual motor or tilting units. "A single motor provides the optimum brain-body-machine synchronization possible," says DeOrio. "Dual-motor or tilting units can cause brain desynchronization, and over time that can have adverse effects on health." As long as the chosen vibration unit has the approved range of frequencies (higher than 20 Hz), Dr. DeOrio adds, vibration training is safe and offers a range of easily achieved advantages.



Using straps enables athletes to perform various rehabilitation exercises on vibration platforms, such as this great one for the rotator cuff muscles that externally rotate the shoulders. This exercise is also effective in correcting round shoulders.

For athletes, vibration training offers promising benefits in terms of increases in vertical jump, strength, power, running speed, balance and flexibility. It can also increase testosterone and growth hormone and can decrease the stress hormone cortisol. Vibration platforms can also be used for restorative massage and rehabilitative exercises.

Based upon the extensive research and positive testimonials available, vibration training can be a positive adjunct to an athlete's training. Is it time for you to boldly go... into vibration training? **BES**



Our models for this feature are Chloe Van Tussenbroek (standing) and Victoria Messer (seated). Chloe is a Level 10 gymnast and Victoria has been a cheerleader.