

# The Pettibon System™

Proven spine and posture correction

## Whole-Body Vibration: Putting It All Together

In July and September 2006, we introduced you to our Vibrating Wobble Chair™, our Vibrating Platform™, and the theory of vibration therapy. In this issue, Dr. Pettibon takes vibration theory further. He tells us about Whole-Body Vibration (WBV), and how WBV, hydration (which we talked about last month), and essential minerals work together for more effective spinal correction.

## Whole-Body Vibration

By Burl R. Pettibon, D.C., FABCS, FRCCM

### History of Vibration Therapy in Rehabilitation

Vibration therapy is not new. In a patent search, one can easily identify multiple patents going back many years. Dr. J. H. Kellogg was one of the first in the modern era (1800–1900) to utilize mechanical vibration as a modality to treat health problems, although the ancient Greeks used primitive methods to cause whole-body vibration (WBV). In 1960 Dr. Jan Biermann in Germany developed the forerunner of today's vibration methods. Later, the Russians utilized WBV to help their cosmonauts combat the effects of minimum gravity. In the 1970s, '80s, and '90s, the Soviet Union and the Dutch Olympic team trainers were the first to recognize the benefits of WBV to enhance athletic performances.<sup>2,4</sup>

There are several different models and methods for mechanical and electrical production of WBV in use at this time. We will be discussing *mechanical* whole-body vibration because electrical methods are not always painless and/or tolerated by patients. Presently, there are two methods of mechanical WBV in use; they are piston (straight up-and-down motions) and the triangle-oscillating method. Essentially, the triangle force is a wobbling force and may be more easily tolerated by patients. The Pettibon Vibrating Platform™, Wobble Chair, and Disc-Ease Decompression Traction Table™ utilize the oscillating-wobble method. At the present time, there is no published research proving one method superior to the other.

### Language and Physics

Whole-body vibration is a direct stimulation to the patient's muscles and nervous system, especially the cerebellum, the autonomic nervous system, and its reflexes. Over-stimulation (use over too long of a time) may result in sweating and fatigue, and, in rare instances, the patient may pass out. Because WBV is such a powerful tool, it is critical that those using it in their offices understand the terminology associated with its use and how to identify when over-utilization is approaching.

**Frequency** is the number of vibrations per second. Most platform vibrations are controlled and may vary from 10 up to 60 Hertz (Hz). To be effective, the Hz is varied to fit the patient's body type and changed as the patient's physical condition changes.

**Amplitude** is the distance the vibration forces the platform to travel,

## Newsletter

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From Sharon Freese-Pettibon,  
President of Pettibon System, Inc.

### Have You Called Jenn Yet?

And we don't mean Jenny Craig!

Jenn Hawkins handles The Pettibon Institute's course registration.

There are parallels, though, with the Jenny Craig approach to weight loss and The Pettibon System.

The weight-loss industry has lots of organizations promoting "magic bullet" claims. Sound little like some promotions for chiropractic techniques and products?

The Jenny Craig program is described as a "comprehensive 'Food-Body-Mind' solution that helps clients manage their weight by creating a healthy relationship with food, building an active lifestyle, and developing a balanced approach to living." That type of program takes time and commitment to achieve results. Just like The Pettibon System's comprehensive rehabilitation program for the spine's hard and soft tissues.

Learning The Pettibon System takes time and commitment too.

So what are you waiting for? Call Jenn today at (800) 766-4885!

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usually from 1 to 4mm.

**Time** is the duration a person is exposed to vibration and varies from individual to individual, dependent upon the Hz used and muscle activity of the individual during exposure to the vibration.

### Physiology

Whole-body vibration and/or vibration of any kind affects postural muscles rather than phasic muscles. Phasic muscles do not spasm or have tone.<sup>4,6</sup> Vibrations stimulate afferent fibers in the muscle spindles, causing reflex contractions, especially in loaded and/or stretched muscles. This increases muscle tone and eventually one's strength when performed on a regular schedule.<sup>6,7,8</sup> Electromyography (EMG) activity is greatly increased with vibration of loaded or stretched muscles over voluntarily contracted muscles, causing them to fatigue up to 50% faster.<sup>5,10</sup> Further, motor units of vibration-exercised muscles are better synchronized, resulting in greater control of balance and dexterity. Balance and dexterity may also be products of vibration-induced somatosensory, central motor, and hypothalamus stimulation.<sup>4</sup>

WBV has also been shown to cause spastic and splinted muscles to relax, and prevent further spasms of muscles that have been over-stimulated.<sup>3,4</sup> A Pulse Ox instrument can indicate when vibration efficiency of stretched and/or loaded muscles has plateaued. Therefore, over-stimulation by time and/or amount can be monitored so that vibration and traction can be discontinued in the fatigued patient as soon as the patient plateaus.

### Associated Neural Increases

Neural drive is greatly enhanced by WBV and has been shown to increase blood flow as well as to affect the production of various hormones, motor-unit recruitment, and micro-traumas that are involved and necessary for muscle rehabilitation.<sup>4</sup>

Research has shown that the prescription of correct vibration (Hz) and time in concert with various weighted maneuvers during rehabilitation training increases the following:

1. The essential human growth hormone IGF-1 by 361%<sup>10</sup>
2. Testosterone by 7%<sup>10</sup>
3. Blood flow by up to 100%<sup>11</sup>
4. Leg strength by 15%<sup>7</sup>
5. Bicep strength by 10%<sup>8</sup>

Vibration resulted in a decrease of low back pain by 66%<sup>12</sup> as well as a decrease in production of the fat-causing stress hormone, Cortisol, by 32%.<sup>10</sup>

### Contraindications and Impediments

As in all clinical applications, the use of WBV is patient-specific. There are a number of system components contributing to the success of WBV. The following has been shown to *adversely* affect its success:

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1. The patient is dehydrated and/or not completely rehydrated before vibration therapy.
2. The pH of the water consumed is acidic rather than alkaline.
3. The patient is vitamin- and/or mineral- (especially RealSalt™) deficient, causing an electrolyte imbalance.
4. The patient's muscles are not warmed up, and the joints and white tissues are not stretched before they are vibrated and/or tractioned.
5. The patient vibrates too long, resulting in muscle and/or nervous-system fatigue.
6. The amplitude of the vibration is too great.
7. The patient is vibrated without loading his or her muscles.
8. Full-range stretching and motions to remix fluids with discs' nucleus material do not immediately follow whole-body vibration therapy.

Clinical researchers at The Pettibon Institute have concluded that dehydrated patients respond entirely differently to vibration therapy than patients whom we have forced to drink adequate amounts of water prior to vibration. But one part of dehydration that we have only briefly mentioned is the depletion of essential minerals.<sup>3</sup>

### **Essential Minerals**

Viable conclusions on whole-body vibration can only be determined if a patient is well hydrated *and* has an adequate intake of essential minerals for electrolyte balance before receiving vibration therapy and testing.

The following minerals are essential for musculoskeletal restoration and function as well as pain reduction and elimination:<sup>13</sup>

### **MSM**

Reduction and elimination of pain should be an important first step in patient care, spinal rehabilitation, and correction. MSM is a nutritional supplement that supplies biologically active sulfur, an essential mineral nutrient for all body functions but especially for musculoskeletal conditions.

In the book, *The Miracle of MSM: The Natural Solution For Pain*,<sup>13</sup> the authors explain:

1. MSM helps relieve the following pain problems: Arthritis (osteoarthritis), back pain, headaches, fibromyalgia, muscle pain and athletic injuries, tendonitis, carpal tunnel syndrome, temporomandibular joint syndrome, dental pain, heartburn, and hyperacidity.
2. MSM helps relieve the following allergies: Pollen, asthma, sinusitis, and food allergies.
3. MSM helps relieve other pain problems: Rheumatoid arthritis, lupus, interstitial cystitis, and sclerodema.
4. The Pain and Side-Effect Epidemic: In the past, treatments of pain typically revolve around pharmaceutical drugs and have contributed to sales that have made the pharmaceutical industry the nation's most profitable industry. Medical authorities caution physicians about the

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use of nonsteroidal anti-inflammatories (NSAIDs) for pain. NSAIDs frequently cause ulcers, serious side effects, and even death. In addition, they often lead to many more health problems than they help. Unhealthy weight gain, high blood pressure, changes in facial features, and diabetes are just a few of the pages and pages of side effects of NSAIDs. MSM has no side effects and is no more toxic than pure water.

5. MSM is often so effective for pain relief that doctors are able to lower or even discontinue the patient's pain medication.
6. All new patients should be prescribed MSM with adequate water intake. The amount of MSM varies with each person: 6 to 20 or more grams per day are often needed at the beginning of care. When the patient is taking too much MSM, he/she will have a slightly upset stomach and will salivate excessively. If this happens, reduce the dosage.

### **RealSalt™**

For proper function and electrolyte balance, the body requires an adequate amount of RealSalt. Patients who are salt-deprived complain of unexplained aches, especially headaches. There is an onset of muscle cramping, especially of the large muscles, which usually occurs in the legs and particularly at night. This cramping indicates the need for digestible salt.

Ordinary table salt has been cooked and contains added preservatives. It does not have the 84 trace minerals that are needed for digestion and other bodily functions. It is, therefore, not good for human consumption and may cause arterial diseases, high blood pressure, and other complications.

Natural salt is uncooked, has no preservatives, and is essential for electrolyte production, which is necessary for neural activity and function. The cooking of salt and addition of preservatives changes its composition, taste, and metabolic functions.

We recommend that patients be informed of the possible bad effects of using regular table salt and told to use only the natural mineral salt that contains 84 trace minerals. It is called RealSalt or goes by other trade names. RealSalt contains the 84 minerals that are essential to the human body.<sup>3</sup>

To insure proper amount of water and salt consumption, we recommend that patients be instructed to drink one or more ounces of water saturated with RealSalt each morning, followed by 16 ounces of pure water.

When a person overdoses on salt, his or her feet begin to swell and cravings disappear. To correct foot swelling, simply reduce the amount of daily salt intake until the feet no longer swell.

### **Calcium**

Calcium is needed for the structure and functions of most body tissues.<sup>1</sup> When the patient is calcium-deprived, several different tissues react. Often, the first reaction is inflammation and bleeding. The gums bleed, with resulting bad breath and periodontal disease, and muscles go into tetany with cramps, spasms, and splinting. Spasms usually start with the large muscles of the legs, especially after the patient has been working and perspiring and then attempts to relax. Patients needing calcium usually don't sleep well or soundly.

Humans can only utilize calcium in the presence of water-soluble vitamin

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D.<sup>1</sup> The Pettibon Institute has found that 30 to 90mg per day of 100% pure sea “Coral Calcium” satisfies the needs of most patients who are calcium-deprived. We have found that the best time to take the calcium and vitamin D is just before bed. The best source of vitamin D is cold-water fish oils such as cod liver oil.<sup>3</sup>

### ***Magnesium***

Magnesium prevents the calcification of soft tissues. It protects the arterial linings from stress caused by sudden blood pressure changes. Magnesium is a vital catalyst in enzyme activity, especially the activity of those enzymes involved in energy production. A deficiency of magnesium interferes with the transmission of nerves and muscle impulses, causing irritability, nervousness, depression, dizziness, muscle weakness, twitching, and premenstrual syndrome (PMS). Magnesium aids in maintaining the body's proper pH balance and normal body temperature.<sup>1</sup> NOTE: Calcium and magnesium should be taken at a 5:3 calcium-to-magnesium ratio; they should be taken daily but not necessarily at the same time.

### ***Glucosamine Sulfate and Glucosamine Hydrochloride***

Glucosamine sulfate and glucosamine hydrochloride have proven to play an important role in good joint health, demonstrating the ability to build joint cartilage in over 300 studies and 20 clinical trials.<sup>1</sup> Glucosamine hydrochloride is more effective in senior citizens and weekend athletes.<sup>1</sup> NOTE: Glucosamine has been shown to increase LDL cholesterol levels in some individuals.<sup>4</sup>

### ***Chondroitin Sulfate***

Chondroitin sulfate is an important element in the creation of cartilages and the tough yet flexible connective tissues which act as cushions in joints. Chondroitin sulfate attracts water to the proteoglycans of joints and discs and holds it there.<sup>1</sup>

### ***Potassium***

Potassium is a mineral that is important for a healthy nervous system and a regular heart rhythm. It helps prevent stroke, aids in proper muscle contraction, and works with sodium to control the body's water balance, to stabilize blood pressure, and to transmit electrochemical impulses.<sup>1</sup>

### ***Growth Hormone Support***

Growth hormone support contains the amino acids agrinine and ornithine. These amino acids support healthy growth hormone production. Growth hormone is naturally released by the pituitary gland in response to sleep and exercise in order to help replenish tissues. It supports muscle protein synthesis, moderates the breakdown of muscle tissues, and promotes fat utilization for energy.<sup>1</sup>

### **Conclusion**

Establishing proper water, vitamin, and mineral content in the patient is the important first step in spinal form and function correction.

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