

Appendix 1: Whole Body Vibration

By Becca Chambers

Whole body vibration (WBV) was first developed in Russia in the 1970's, which probably not coincidentally was when their athletes suddenly started winning gold medals at the Olympics, and their cosmonauts could stay in space of exercising on the vibrating platform of one of these powerful machines gives you the benefits of one hour of conventional weight lifting, including increasing explosive muscle power, increasing bone density, balance, flexibility, and coordination, and helping you lose weight by increasing your metabolism (www.bodyvibeusa.com). At the same time it also works like a massage, reflexology, acupuncture and a powerful detoxification system. In ten minutes it is as if you spent the entire day at a health spa working out and getting treatments.

Several factors combine to make WBV such an intensive workout system. First, when you get into an exercise position on the vibrating plate, such as a squat, every muscle fiber in your legs will be tensing and relaxing at the same rate the machine is vibrating, usually 20-50 times per second. That adds up to 1–3000 repetitions per minute: little tiny reps, but this is still much more work for your muscles than just holding a position. Second, if you do a non-vibrating position only a fraction of the total muscle fibers in that part of your body will actually engage (for example in a squat about 40% of the leg muscle engage) while if you are vibrating, involuntarily, 100% of the relevant muscle fibers will be working. Third, holding weight against vibration increases the effect of gravity so that you are suddenly holding 2–3 times your weight, depending on the amplitude of the vibration.

The combination of these three factors results in an intensive workout where, by the end of 1 minute, your muscles will likely be screaming for relief (you can make it much easier if you want to). You can also vary the type of exercise position to change which muscle groups must work. For example, you can do push-ups for upper body strength, or sit on the plate in a V shape position to work the abdominal muscles. There are endless variations of positions to work all different muscle groups. Generally people do 1 minute intervals in numerous different positions to achieve the effect of a full body workout in just 10 minutes. One important health benefit WBV does *not* provide is aerobic exercise, so one should also continue with some sort of aerobic exercise.

Whether you work out on a vibrating plate or just stand on it, you will be receiving enormous benefits regardless. All your muscle fibers are both tensing and relaxing with each vibration, so the machines are also working like a deep massage. In fact most people just standing on the machines will say it feels like a pleasant deep massage from head to toe all at once. This effect is why WBV increases flexibility at the same time as muscle strength.

This is also a major reason why WBV works as a detoxification (aka detox) system. All those muscle fibers tensing and relaxing, “massage” your lymph system, moving the lymph along in its journey through your body. As the lymph system is one of the major detox routes in your body this process can increase the amount of detoxing dramatically, in fact the detox effect is so great that this is usually the limiting factor in terms of how much vibration a person can tolerate without feeling worse instead of better.

The bone density effects have been studied extensively and are the focus of much ongoing research. It is signals, transmitted to your bones through your muscles straining against gravity, which triggers your body to produce denser, stronger bones. WBV with its intensive 1–3000 signals per minute, even if all you do is stand on a plate, is a valuable tool in combating bone density loss.

Also valuable are the proven hormonal changes that have been observed. Human growth hormone increases, a major anti-aging, rejuvenation and repair hormone. At the same time cortisol, the major stress and aging hormone decreases, and testosterone, especially in men, increases. These hormonal changes help increase healing in all areas of the body. They likely contribute to the success of WBV in physical therapy for many joint issues, and perhaps also for the numerous anecdotal reports of increased libido and sexual pleasure for both men and women.

WBV's most profound effects are on your nervous system, and I believe also on your "energy" or "life force," though its effects on life force have not been scientifically proven at this point. WBV is a massive stimulation of your nervous system every time you use it, and just as your muscles grow and get stronger with use, so does your nervous system. WBV stimulates the creation of more and more connections between neurons in your brain. As this is one component of intelligence, the more you use WBV, the smarter you actually get. This nervous system stimulation is also why balance and coordination improve. A potentially life-changing benefit for some is the increase in the neurotransmitters serotonin and norepinephrine (this has been shown scientifically in animal studies, and there are endless anecdotal reports of improved mood amongst people using WBV). Serotonin is a critical neurotransmitter involved in a calm and happy mood—it is the neurotransmitter that most antidepressants regulate).

As for your "energy," or life force, ("chi" in Chinese medicine), I have come to realize during my many years in natural health that this is the most profound and guiding force for your entire health and life. Energy sensitive people can sense and feel that every time you use WBV you are "balancing" and unblocking the energy flow in all your "energy meridians" (these are the different energy pathways associated in Chinese medicine, with different organs and systems in your body) and your "chakras" (swirling centers of energy in your body associated, in Indian teachings, with different aspects of life and health). This is similar to what acupuncture does, however, a unique effect when using WBV is that you also increase the total amount of "energy" in your system—at least many energy sensitive people believe this.

In some ways the energy effects of WBV are similar to the chemical detox effects mentioned earlier. It helps release from your energy field negative energies that have been buried and incorporated into your very tissues. However, like the chemical detox effect this process can be stressful for the body and mind. Old problems may suddenly resurface and/or become severe. I believe WBV should only be used with caution and knowledgeable guidance.

Exactly *how* all these "energy" effects could be happening was a mystery to me for quite some time. Physicists have known for a long time that all matter (including human beings) has an electrical energy which can be measured, because all matter is made of vibrating positive and negative particles, which creates an electrical charge. But WBV is a *mechanical* vibration (the platform you stand on is physically moving 1–4 millimeters, 20–70 times per second), not electrical, so how can it change a person's electrical energy? A couple of years ago as I was reading the book

Blueprint for Abundant Health and Energy,” by Dr. Norman Shealy, M.D, I believe I found the answer. Your body is essentially a “living matrix” in the sense that it is a highly organized molecular structure (like a crystal), and one of the properties of a crystal is “piezoelectricity”—the ability to turn mechanical vibration into electrical vibration (212). This is how liquid crystal display screens (LCDs) work. And because your body has great wisdom through this inner energy, you will automatically turn the mechanical vibration into the exact, but different electrical vibrations needed for each part of your body.

One final and important point should be made here. It is critical to use a vibration machine that is powered by only one motor. Many manufacturers make machines that have two motors as they can achieve a greater amplitude of vibration with two motors, which creates a more intense workout. However using a two motor machine can actually cause detrimental effects on brain and body health (www.bodyvibeusa.com).

Two motors can never be properly synchronized. As a result, if you stand on a two motor system you, and your brain, will become desynchronized over time. This can lead to a host of undesired side effects, such as, fatigue, muscle weakness, sleep disturbances and even immune system imbalance, just to name a few. A one motor system is always 100% synchronized with the plate, as long as it is not a weighted single motor, which is sometimes used to gain greater amplitude. Weighted single motors are not as bad as two motors but they still can throw the body out of balance as can tilting vibration machines. A single motor, non-weighted, 100% synchronized vibration, will synchronize the body and brain, helping to put your body into a whole brain functioning state.

I personally know this synchronization issue to be not only true but of critical importance. The first machine I used was a two motor machine, and while I did feel better and see improvements the first year, I then developed an overwhelmingly debilitating nerve and muscle problem which took several years and a great deal of work and money to recover from. I would not recommend anybody, except perhaps a professional athlete whose career depends on achieving the greatest strength possible, to use a two motor machine. And in that rare case I would recommend concurrent use of a single motor machine to counteract the two motor desynchronization effect, as well as lots of nutritional supplements and careful monitoring by a knowledgeable expert.

In summary, I believe WBV has the potential to help many people in innumerable ways, but it is an enormously powerful system, way more powerful than it appears to the average person. It should be used with caution and proper guidance to realize its vast potential.