

Vibration Therapy

Whole body vibration brings a new buzz to routine rehabilitation.

By Vivian Eisenstadt, MAPT, OCS

If you're like most rehab practitioners, you've had your share of frustrating cases and catch-22s. Consider the patient who compensates with his back muscles despite repeated instructions to squeeze the lower abs. Or what about the obese person who could lose weight and become more energized from a walking program, but who's too heavy and lethargic to begin one?

Clinicians are always looking for ancillary methods to help deliver care to patients and send them on the road to recovery. Modern technology can provide multi-system answers to many issues and deliver new tools to facilitate recovery in patients who have plateaued.

Recently, many rehab clinicians have started investigating the secrets of whole body vibration (WBV), in which patients stand on a platform that provides gentle to challenging constant vibration that reverberates through the body.

Originally developed for Russian cosmonauts to preserve muscle and bone mass in zero gravity conditions, WBV is gaining confidence among health practitioners-particularly those who treat athletic populations, and people compromised by disease, age or disability.

WBV is already employed extensively in Europe and Asia. And practitioners in the United States are becoming aware of its systemic effects and therapeutic applications.

BODIES IN MOTION

Vibration therapy units are either motor-generated plates or vibrational models.

Motor-oriented units move in horizontal and vertical planes. This is beneficial for athletes who want to challenge multiple planes of motion. The downside of this training is possible horizontal shearing on the body in higher Hz ranges.

Vibrational sound or piston models operate in the vertical plane only, reproducing the effects of gravity. This can benefit an older population and those recovering from injury. Vibrational models also allow patients to experience higher Hz ranges to allow higher tolerances and more systemic and cellular benefits. WBV machines typically range from 3 to 50 Hz.

Like aerobic and anaerobic exercise, whole body vibration increases physical strength, dexterity and endurance. Heightened circulation increases oxygen uptake, while mechanical oscillations create tendon stretch reflexes to stimulate involuntary muscle contractions throughout the body.

Comparable to weight repetitions at the gym, WBV can increase muscle strength and work tolerance with less effort and time for the same movement. In some cases, WBV can boost muscle strength more than ordinary weight training in a shorter time period.

WBV can also be a therapeutic adjunct for people with paraplegia, cerebral palsy and muscular dystrophy. By stimulating muscles that the brain can't control, WBV helps minimize lower body atrophy and, in some cases, reconnect the signal from the brain with previously atrophied muscles. Patients with postural problems often report new awareness and control over lower abdominal muscles after WBV sessions.

In addition to whole body strengthening and improved endurance, WBV provides other key advantages.

- *Balance and coordination.* During WBV, the moving plate excites stretch receptors and tendon reflexes in joints, promoting increased receptor activity and challenging balance and coordination in a safe environment. Single-leg activities during WBV promote improved static and dynamic balance through that lower extremity.

- *Bone density.* WBV can quell the effects of osteoporosis by balancing hormones and increasing mechanical stressors on bones via involuntary muscle contractions.

- *Joint pain.* The vertical movement stretches joints, thereby increasing space and replacing fluid between the bones, while raising critical blood flow to an area.

Intermittent pressure stimulates optimal cartilage function. Like a sponge repeatedly squeezed underwater, synovial fluid is repeatedly pumped through cartilage. This improves joint mobility, eases joint stress and relieves tension.

- *Pelvic floor instability.* Pregnancy can soften connective tissue and pelvic floor musculature. Vibrational therapy quickly returns the hormonal system to balance while firming connective and muscle tissue.

- *Postoperative recovery.* Improved blood and lymph circulation via WBV speeds healing after surgery or trauma. Serotonin release calms a patient, while HGH release speeds recovery. WBV also inhibits the loss of muscular strength during the postop period.

PROVIDING SYSTEMIC BENEFITS

In addition to these specific applications, whole body vibration can return a range of systemic benefits, leading to a healthier, pain-free body.

- *Cardiovascular system.* By stimulating muscle contractions, WBV promotes blood flow to increase cardiac output and overall circulation. Current research continues to demonstrate that blood cells individualize and resist clumping as a result of WBV.

- *Nervous system.* WBV stimulates proprioceptors to trigger muscle and joint contractions.

- *Lymph drainage and detoxification.* The lymphatic system connects every organ to purify the body and strengthen immunity. The system works via the

pumping action of movement and exercise, which is often limited by a sedentary lifestyle and poor nutrition.

Vibration therapy stimulates lymph drainage to promote detoxification and strengthen the immune system. Some new WBV models are shaped like beds and chairs to promote healing in bedridden or nonweight-bearing patients.

- *Hormonal balance.* WBV increases the release of human growth hormone, serotonin, neurotrophin, testosterone and IGF-1, which factor into regeneration and repair. This can be helpful during significant life transitions such as menopause.
- *Aesthetic benefits.* Regular use of WBV can result in a trimmer, shapelier body. By increasing metabolism, blood flow and lymph drainage, WBV can dissolve excess body fat. Stagnant fat deposits are stimulated and metabolized, and HGH is elevated.

Many patients find WBV sessions more efficient than lengthy aerobic workouts. The modality can motivate overweight patients and allow those with low back pain, painful joints and other health problems to reap the rewards of an exercise plan.

You can bill for WBV under CPT codes 97110, 97112 and 97530.

Contraindications include serious cardiovascular conditions, pacemakers, pregnancy, recent surgery, epilepsy, severe diabetes, acute hernia or the presence of metal implants that may loosen. Also, patients with discopathy, spondylolysis, recent infections, active tumors, painful herniated disks and recently placed IUDs, metal pins or plates should avoid WBV therapy.

Vibration therapy is still a new concept and much research is yet to be performed. However, the consistent findings to date are compelling. As a health care provider with over 18 years experience treating patients from the frail elderly to the ultra-conditioned athlete, I've witnessed the universal applications of this unique treatment. Take the time to investigate the range of benefits that can accompany this technology.

Resources

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