

A Fair Shake

Vibration therapy can boost rehab results and athletic performance.
By Greg Thompson

With the focus squarely on evidence-based practice in today's rehabilitation world, therapists are justifiably suspicious of any equipment or modality that hasn't been fully proven. The relatively new technology of vibration plate therapy currently finds itself in that awkward space between anecdotal evidence and published research. Studies exist, but older methods and devices naturally have much more research to back them up.

While acknowledging that not all the evidence is in, some therapists have chosen to trust their gut, and their own eyes. "In its drive to be more evidence-based, physical therapists have kind of put their enthusiasm on hold," says **Alan Zane**, MPT, director of physical therapy at Arrowhead Orthopedics Physical Therapy in Redlands, Calif. "But we are seeing more studies that indicate vibration plates do work. When we first got into it, the cost was prohibitive."

Jay T Ellis, PT, DPT, CSCS, agrees that cost and fewer research studies have contributed to the relative scarcity of vibration plates across the country. But Ellis has been using vibration therapy for 5 years and it has led to better business and measurable results in his private practice, Ellis Physical Therapy, in Idaho Falls, Idaho.

"Any exercise that you can do on a flat, level, non-vibrating surface, you can do on a vibrating surface-and the vibration is going to amplify the effects," says Ellis. "The change of doing exercise on a vibration plate exhausts athletes faster and boosts strength by as much as 20 percent."

Clinicians should understand what is actually happening on a physiological level. In simple terms, Ellis believes that the act of flexing a muscle essentially goes from one repetition on stable ground to 20 or 30, due to the unit's movement patterns.

"The muscle twitches are acting and reacting so fast as you pull up into full flexion-at least that is my perception," says Ellis. "I am seeing an increase in strength at a faster rate. Biceps strength and curl strength show at least a 10 percent strength increase. Testosterone level is increasing at least 7 percent-and that goes right to building muscle. Bone density is showing an increase in some studies. Metabolic rate is increased at least 20 percent."

Ellis was skeptical at first, but his attitude changed quickly when he worked out on the machine. After acquiring a device, Ellis uses it primarily for athletes looking to boost sport-specific performance. He combined the device with a program that includes a high-speed treadmill and began training elite athletes.

"Athletic performance is what I got it for initially, but now I have total knee patients that I put on there and they are developing strength faster just by doing simple squats or step-ups and step-downs," says Ellis. "I am able to lay a person on the vibration unit with a pad, and I'm able to get muscle lengthening and



elongation for tight muscles and muscle knots that I'm able to break down more easily-with less effort from myself-because the vibration amplifies my technique. If I can amplify a gentle technique with the same or better result, I am going to do that."

Ellis has one piece of vibration equipment and a table unit that features a non-vibrating portion that surrounds the plate. He uses it for bulging or degenerative discs to promote hydration and healing, as blood flow comes back faster into the region. "We can work on lumbar and discs, low back, upper back, neck and shoulder problems," says Ellis. "There is a non-vibrating portion of the table, so the head and legs would be on the non-vibrating part of the surface, with essentially the spine on the vibrational surface. We use different settings-low amplitude or high amplitude-depending on what we are doing."

SCI APPLICATIONS?



Therapists at the Shepherd Center in Atlanta are adding weight to the rehab side of the equation with their vibration therapy work with patients who have spinal cord injuries (SCI). Clare Hartigan, MPT, a senior physical therapist at Shepherd, began using vibration therapy with SCI patients 3 years ago.

Hartigan heard about the therapy from James Shepherd, the current chairman of the board at the Shepherd Center. As an incomplete quadriplegic, Shepherd discovered the technology at a trade show and suggested it for use at the facility. Hartigan points out that hand-held vibration therapy is nothing new for physical therapy, so the concept of the larger full-body platform makes sense.

As a therapist at one of the largest SCI centers in the country, Hartigan agrees with Ellis' claim that vibration therapy amplifies the benefits of familiar exercises. Working with patients who have SCI and multiple sclerosis, Hartigan says the technology prompts better muscle response.

"We can stimulate the legs if someone is sitting in a wheelchair," says Hartigan. "We put the legs up on top of the platform while patients are sitting. We also transfer to the mat and work at different height levels for sit to stand."

In addition, you can work with patients in the standing position and they can hold on to the bar for pre-gait activities, says Hartigan. And it can be used for core work and trunk stability.

Another device sits next to hi-lo mat tables so patients can be positioned in prone (on the stomach) and bear weight on the vibration platform through the arms with pushups or just receive stimulation statically through the arms. Tone management is one benefit, depending on the intensity, says Hartigan. Hartigan uses lower frequencies-20 to 25 Hz for tone, 30 to 40 for strengthening and 50 for blood flow and circulation.

"We definitely see an increased muscle response," she says. "If I ask patients to work sit-to-stand and exercise while standing without weight on the platform, muscles will fire at a certain rate. If we put them on the vibration equipment and work sit-to-stand, the muscle response is much greater and patients typically do better."

For patients with high-level injuries, Shepherd's therapists occasionally get on the platform as the patient puts pressure on the therapist, essentially using the therapist to deliver the vibration. Hartigan compares it to completing an electrical circuit.

As therapists continue to explore the rehab potential of vibration therapy, the athletic performance application is thriving. For instance, **Bill Henry**, ATC, CSCS, is using the technology to achieve measurable results with athletes at Athlete's Edge in Vista, Calif. Athletes in their speed program perform a dead lift, squat or single-leg squat before moving to a treadmill run or jump movement, says Henry.

"We are attempting complex training . where the athlete activates a muscle group before performing a functional movement," Henry says. With high school-age male athletes, they see 50- to 70-pound increases with the dead lift weight during the first 2 months in the program. Athletes are also achieving steady, measured improvements in sprint times, agility, jumping and ball tossing, he says.

For Ellis, Zane and Henry, athletic enhancement is a cash-based business. For Zane, most athletes end up at the facility through word of mouth, which leads to repeat business.

For optimum athletic performance, Zane says the best time to start a program is 11 weeks prior to the tryout or showcase event. "It requires a commitment of time and money, and nowadays that is not easy for some," says Zane. "We also evaluate each athlete and use the time as an injury prevention program as well. For high school athletes who are serious about their sport, and possibly competing for a collegiate scholarship, we feel this can give them the advantage."

For reimbursement purposes on the rehab side, vibration therapy is billed as therapeutic exercise. "If it is hands-on manual therapy and one-on-one rehabilitation, Medicare and other insurance payers are not overly picky about what we use as long as we are gaining results," says Ellis. "They are going to be picky with some machines or modalities such as infrared or iontophoresis, but if you are doing exercises and manual therapy, they are going to give you the freedom to help patients."

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