

vibration therapy

by Kerry Etkin

I first came into contact with the Power Plate at a Pilates Conference in September 2005. I went to a seminar on vibration therapy and, after the session, we were invited to experience the machine. So I stood on it to stretch my historically tight hamstrings. I was awed by the immediate change in my flexibility. My gut feeling was that I needed to investigate this form of therapy further as I was thinking it would be a fabulous adjunct to rehabilitative treatment in my clinic.

HISTORY OF VIBRATION THERAPY

Vibration therapy was initially used by Russian cosmonauts as a method of preventing demineralisation of bones following extended periods in space in a non-gravitational environment. Since then, its benefits have been realised in the fields of fitness, sport, medicine and cosmetics.

WHAT IS VIBRATION THERAPY?

Vibration therapy is a form of therapy that uses full/whole body vibration to enhance physical parameters such as strength, blood flow, balance, flexibility and neurological changes.

HOW DOES IT WORK?

Vibration therapy involves standing (and exercising) on a round, vibrating plate with a foam pad for 30-60 second intervals. The frequency of vibration can be set to 30-50 times per second (hertz) and the plate vibrates in three planes (forwards/backwards, side/side and up/down). This rapid change in the surface environment causes your body to constantly adapt, forcing it to recruit more muscle fibres and challenging your body's stabilisation mechanisms to maintain balance.

The increase in muscle fibre recruitment stimulates blood flow, which in turn affects flexibility. This joint flexibility is also increased as the stretch reflexes in your muscles fire to adapt to the moving surface. There are 50-60 active muscle contractions per second, but you don't need to move at all. This contracting and relaxing of the muscles happens almost completely subconsciously via the reflex bow and leads to neuromuscular learning and a fast development of muscle strength. The increase in muscle fibre recruitment increases your basal metabolic rate, affecting weight loss, joint mobility and muscle flexibility. The increase in blood flow to the area in contact with the pad allows for improved healing.

VIBRATION THERAPY FOR REHABILITATION

This is a relatively new form of therapy, so research is still in the early stages and not all of it has been conclusive. However, the results I've achieved in my clinic offer me great hope for the future. Here are some examples of how I use the Power Plate in my clinic:

To Assist with the Increase in Flexibility of Joints and Muscles - For Conditions such as Arthritis, Muscle Strains, Over-Use Injuries and Post-Operative Rehabilitation

Joints - The mobility of a joint is a measure in degrees of its available range of motion. The vibration affects this range of motion by loosening the passive structures within the joint, increasing its

Muscles - Due to the increase in both basal metabolic rate and blood circulation, there is an increase in muscle elasticity. However, this is just one mechanism that increases flexibility. The other mechanism is the effect on the neurological structures that affect muscle tension - the stretch-reflex unit and the Golgi tendon organs, causing a relaxation effect within the muscle and increasing muscle length.





Stability - For Scapular and Shoulder Instability, Lower Back Pain, Rehabilitation for Ankle Sprains

This is one area where I've seen remarkable clinical results. The plate challenges your balance, which causes the deep postural stabilisers to work harder to maintain a stable posture while performing an exercise. I've used the Power Plate extensively for patients with shoulder instability, in conjunction with other basic stabilising exercises, and I've seen great results.

TENDONOPATHY AND STRESS FRACTURES

These are other areas where I've seen some very interesting results. Due to the increased blood flow to the area in contact with the plate, there is an increase in waste product removal and oxygen delivery to the affected site. The sensation post-therapy is one of increased movement and overall reduction in perceived discomfort or immediate pain relief.

OSTEOPOROSIS

Weight-bearing exercise is one of the main ways to maintain healthy bone density. As the Power Plate can also vibrate in an up/down plane, the plate actually leaves your feet by approximately 2mm, 30-50 times per second, making it a great weight-bearing exercise without it appearing to be!

CONTRA-INDICATIONS

As with all therapies, there are contra-indications to using the Power Plate, including hip/knee replacements, pacemaker, fresh wound, acute disc herniation, pregnancy, epilepsy, severe diabetes, tumours/cancer, acute migraine, acute inflammatory processes and recently placed metal pins or plates. See www.powerplate.com for more details.

APPLICATION

At Align Physiotherapy, we use the Power Plate primarily as an adjunct to therapy. We have seen positive results for clients with chronic back and neck pain, obese clients unable to engage in traditional cardiovascular exercise, clients with joint hypermobility and/or instability and in osteopenic/osteoporotic clients.

I have now had the Power Plate in my clinic for 18 months and have watched its popularity grow with our clients. I think my initial gut feeling was right! I've seen the positive changes first-hand with my patients, both objectively and subjectively. I wait with anticipation for more research to be published on vibration therapy. In the meantime, I'll keep using it. My hamstrings have never felt better!

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Align Physiotherapy and Pilates is a multi-disciplinary clinic focusing on manual therapy in conjunction with exercise for a holistic approach to patient care. For further information call Align on 02 9326 3444 or visit their website www.align.net.au