

# FOREVER ACTIVE

PERSONALIZED FITNESS AND WELLNESS FOR MEN 50+



## Whole Body Vibration– An Effective Exercise Tool?

### Introduction

The Older Adult faces many physical challenges such as a loss of muscle strength, neuromuscular coordination, balance and agility, cardio vascular and respiratory weakness, osteoarthritis, impaired eye sight, hearing loss and metabolic conditions such as diabetes. Each of these individually is a challenge to overcome to remain active and functional, but when they are combined, as is the case with many older adults, the barriers to a high quality of life can seem almost insurmountable. There is ample empirical and scientific evidence to support exercise as the most effective way to maintain health and vitality but when faced with so many physical, not to mention mental and emotional factors like dementia and depression, the older adult is often severely limited in his or her ability to participate in exercise.

Whole Body Vibration (WBV), is a relatively new exercise intervention that may address many older adults’ physical needs while overcoming many of the obstacles to exercise mentioned previously. This newsletter will examine the feasibility of using WBV as an effective exercise tool.

### Addressing the Physical Needs for the Older Adult

Older adults, to maintain functional independence, must be able to perform “Activities of Daily Living” such as walking, getting into and out of chairs, climbing stairs, reaching over their heads, bending over to pick things up and carrying objects. As well, to maintain a high quality of living, the older adult must minimize the risk of falling. As a result, the older adult must exercise. The old saying, “use it or lose it” is never more true than when discussing the older adult’s ability to stay functionally active.

Exercise and **Whole Body Vibration (WBV)** must address the following four elements if it is to meet the needs of the older adult;

1. Muscle strength— especially in the legs, arms and shoulders.
2. Flexibility– especially in the shoulders and lower back and neck.
3. Balance, agility and coordination– this is largely dependent on muscle and neurologic stimulation and conditioning.
4. Aerobic capacity— cardio vascular and respiratory capacity is often compromised with the older adult and leads to functional fatigue.



### Did You Know

#### Not all WBV Machines are the Same

The market place is loaded with different types of WBV machines that produce vibrations in different ways;

1. Vertical Displacement machines – move up and down.
2. Triplaner Machines – provide vibrations up and down, forward and backward and side to side.
3. Centrally Pivoting Machines – offer a seesaw, or teeter-totter stimulus.

#### Two Popular Machines

1. Hypervibe – centrally pivoting machine.  
[www.hypervibe.com](http://www.hypervibe.com)
2. Power Plate – Triplaner vibrating machine.  
[www.powerplate.com](http://www.powerplate.com)

## Whole Body Vibration Stimulates Reflexes which Create Positive Physiological / Hormonal Responses to Fight Aging

Naturally produced Growth Hormone maintains bodily functions such as tissue repair, muscle growth, brain function, bone density development, skin thickness, energy, and metabolism, throughout life. As we age, GH levels diminish and associated body functions suffer (1). Researchers who focus on anti-aging, have been searching for ways to maintain and increase GH levels as we age.

Interestingly, deconditioning affiliated with aging is similar to the deconditioning experience in a weightless environment in space travel. Whole Body Vibration (WBV) which involves destabilization of the body through vibration, was first developed by Soviet scientists in an effort to heal cosmonauts from the deconditioning (muscle atrophy, bone loss, etc.) that occurs with prolonged weightlessness (2). Through research they noticed that even when



an individual is too weak to voluntarily contract a muscle to move it, their reflexes engage the muscle. The scientist then designed a vibration platform to destabilize the body in order to engage reflexes to restablize the body. It was discovered that this destabilization / restabilization neuromuscular reflex process had a more powerful effect (more than double) on the Growth Hormonal balance of the body than regular exercise (3,4).

### References

1. Rudman, D., et al, "Effects of Human Growth Hormones in Men over 60 Years. New England Journal of Medicine; 323:1-6, 1990.
2. Rittweger, J., "Vibration as an exercise modality:how it may work, and what its potential might be". European Journal of Applied Physiology; 108(5): 877-904, 2010.
3. Bosco, C. et al, "Hormonal Responses to Whole-body Vibration in Men", European Journal of Applied Physiology; 81:449-454, 2000.
4. DiLoreto,C. et al, "Effects of Whole– Body vibration exercise on the endocrine system of healthy men". Journal of Endocrine Investigation; 27(4): 323-327, 2004.

## Protocols for Effective Whole Body Vibration

The following are suggested frequencies (Hz) for various physical conditions. Start with exercise sessions of 30 sec to a minute and progress the length and frequency of your sessions as you adapt to the exercise.

**Please Note:** it is suggested that you consult your medical doctor to rule out any medical condition (infections, heart condition/pacemaker) that may make WBV contraindicated.

Frequency	Condition Treated
6-8 Hz	<ul style="list-style-type: none"> <li>• Balance &amp; Stability</li> </ul>
9-14 Hz	<ul style="list-style-type: none"> <li>• Relaxation of muscles</li> <li>• Injury rehabilitation</li> <li>• Blood circulation</li> <li>• Lymphatic drainage</li> <li>• Mobilization of joints</li> <li>• Healing scar tissue</li> </ul>

Frequency	Condition Treated
15-22 Hz	<ul style="list-style-type: none"> <li>• Muscle strength</li> <li>• Blood circulation</li> <li>• Lymphatic drainage</li> </ul>
23-28 Hz	<ul style="list-style-type: none"> <li>• Muscle strength</li> <li>• Hormonal changes</li> <li>• Neurological stimulation</li> <li>• Increased bone density</li> </ul>