

Whole Body Vibration – Consumer Basics

Whole Body Vibration exercise is becoming a popular method of training, and for good reason, not only can vibration training work your muscles in a way that conventional training cannot, but also using a vibration machine has numerous proven therapeutic benefits too.

As more and more companies appear on the market each week, most giving conflicting information, it becomes difficult for consumers to know who to believe. In this article I hope to share some basic information backed by evidence as a guide for consumers when purchasing a Whole Body Vibration machine.

The first thing you need to understand before buying a vibration machine, is that there are basically just two types of vibration machines available, pivotal and vertical. A pivotal vibration plate vibrates from a centre axis in a see-saw like action. A vertical vibration plate vibrates straight up and down in a jack hammer like action. Both machines have proven benefits, and there is very little, if any, evidence to suggest one method is better than the other. As a consumer you will find marketers will tell you one method is better than the other, if you find this, ask for evidence and don't take just their word for it. Personally I prefer pivotal vibration, with vertical vibration I feel there is too much unwanted vibration in the head, however I know others that prefer vertical vibration. I always suggest trying both methods first and see what you prefer. Pivotal platforms are sometimes referred to as oscillating platforms, as vertical platforms are sometimes referred to as lineal platforms.

Both platform types can have two variables that can be adjusted to produce different vibratory effects. The two variables of a vibration platform are,

1. Amplitude (vertical displacement)
2. Frequency (platform speed)

By adjusting either of these two variables we also change things such as, the number of times per second our muscles contract, the amount G force exerted on our body, the degree of difficulty in stabilising, the flow of blood through our body etc. Research and common sense tell us that different frequencies will have different effects on our body. Depending on what effects you are hoping to benefit from, will determine what frequency you should run your machine.

Next it is important to understand the recommended, researched, and safe variables when using each type of vibration platform.

For pivotal vibration the frequency range should be between 1 and 30Hz, the amplitude range should be no greater than 6.5mm (13mm maximum displacement).

For vertical vibration the frequency range should be between 25 and 50Hz, the amplitude range should be no greater than 3mm (6mm maximum displacement).

If you find a platform that has listed specifications outside of this range, chances are the specifications are incorrect, or the machine could likely produce harmful effects.

Today the biggest threat to consumers appears to be coming from the pivotal machine market. For this reason, and for the fact that I prefer a pivotal unit, I will now discuss pivotal machines only.

When purchasing a pivotal vibration machine, you should always ensure the platform has a full range of frequency, many machines being sold on the market today only reach frequencies below 20Hz. Such machines often make claims based on research that was performed on frequencies beyond the limits of their machine. Below is just a small sample of extracts from studies on a pivotal unit, indicating the frequency that was used.

The frequency of the vibrations used in this study was set at 26Hz
Adaptive responses of human skeletal muscle to vibration exposure.

In a parallel experiment (Bosco et al. in press) it has been noted that during vibration at 30 Hz the EMG signal of the biceps brachii muscle reached its greatest activity, thus this frequency was chosen in the present study
Influence of vibration on mechanical power and electromyogram activity in human arm flexor muscles.

The treatment group underwent whole body vibrations at a frequency of 26 Hz

New trends in science: The use of vibrations for enhancing performance

Objective: To test whether training on a high-frequency (28Hz) vibrating platform improves muscle power and bone characteristics in postmenopausal women.

Conclusion: Reflex muscular contractions induced by vibration training improve muscle power in postmenopausal women.

High-Frequency Vibration Training Increases Muscle Power in Postmenopausal Women

The whole vibration stimulus from the sole of the left and right feet was 3 minutes one time (shake frequency 25Hz) X 3 sets with a set interval was 10 minutes

Effect of Whole Body Vibration Stimulus and Voluntary Contraction on Motoneuron Pool

Vibration frequency was gradually increased during the first minute from 0 to 26 Hz and maintained at that frequency for the remaining five minutes.

Acute Effects of Whole-Body Vibration on Lower Body Flexibility and Strength

Vibration was with an amplitude $a=1.05$, a frequency of 26Hz, and hence a peak acceleration of 147 ms, or 15g.

Acute Physiological Effects of exhaustive WBV exercise in man

As you can see, a large number of studies suggest using a vibration platform at higher frequencies is beneficial for increasing muscle and strength. Therefore it is this one of the benefits you are looking for, it is important your machine can produce these higher frequencies. Not only that but, as you can see below research also suggests that the higher range of frequencies have far more benefits than the lower frequency range.

5-10Hz Optimum frequency range for,
Balance and Stability

11-16Hz Optimum frequency range for,
Relaxation of muscles
Injury rehabilitation
Blood circulation and lymphatic drainage
Mobilisation of joints
Healing scar tissue

17-22Hz Optimum frequency range for,
Muscle strength
Improved Co-ordination
Blood circulation and lymphatic drainage
Incontinence

23-30Hz Optimum frequency range for,
Muscle strength
Hormonal changes
Neurological stimulation
Increased mobility
Increased bone density (low amplitude)
Blood circulation and lymphatic drainage
Decreased lower back pain
Improved muscle tone

Ensuring a pivotal machine has a full range of frequency is just one of many factors you should check before buying a vibration machine. Other factors include ensuring the machine can give you a frequency reading, ensuring the machine gives an accurate reading of frequency. For more information and information on other factors please read more on our website.

About the Author

[HyperVibe](#) have spent many years researching, developing, and training with [Whole Body Vibration](#) machines and it's designed in Australia by a team of health and fitness experts. Vibration training is still in its infancy and HyperVibe fully supports the need for more research and science behind Whole Body Vibration.

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