

GOOD VIBRATIONS

Vibration training has been around for some time and recently hit the headlines when Madonna and Kylie Minogue announced they were devotees of the system which involves performing exercise whilst standing on a vibrating platform or connected in some way to a vibrating device. Manufacturers of vibration equipment point out that results can be obtained in much less time compared to using vibration-free equipment.

We asked **Dr Paul Sumners**, who is engaged in vibration training research and product development at South Bank University, if this was just good sales copy or good vibrations? Here is his response...

Clearly this message must have some basis in fact. However, the data is very inconsistent largely due to the variety of vibration application methods such as vibrating platforms, vibrating dumbbells, and targeted vibration equipment. Additionally the protocols followed during vibration training such as resting vibration, static exercise with vibration and dynamic exercise with vibration also make conclusions difficult to draw. Researchers at London South Bank University have published a paper in a peer-reviewed journal demonstrating that during and subsequent to a single set of leg extension exercise with vibration (Vibrex, Exoscience Ltd.) at 35% of 1-repetition maximum (1-RM), subjects

responded in a similar manner to the responses observed subsequent to the subject performing a single set of leg extension at 70% 1-RM without vibration. The training studies are not finished yet but this result suggests that lowering the exercise intensity (weight lifted) and adding a vibration stimulus could lead to similar benefits as high intensity resistance training. It is still very early days for vibration research and application but the important principle appears to be reducing the stimulus quantity and increasing the stimulus quality. For these reasons we would always recommend that someone interested in using vibration for training, especially at the elite level, consults qualified practitioners as part of a

training programme such as the Human Performance Centre at London South Bank University.

So what is it about vibration training that could potentially lead to the benefits described above? Well probably the easiest way to think about vibration training is to remember when you have been to the doctors and the doctor has performed the knee tendon tap causing your lower leg to jump up. This response is called a stretch reflex. The stretching of the muscle or tendon is sensed by receptors and sends a very fast signal to the spinal cord which responds by causing a very strong muscular contraction, and if this tendon tap is superimposed on a maximal voluntary contraction extra force can be

produced. Now imagine doing this knee tap 20-30 times a second whilst performing exercise. This could lead to greater levels of muscular activation than voluntary contractions alone. Certainly we have seen shifts in muscle recruitment patterns towards greater activation of fast powerful muscle fibers than in normal non-vibrated contractions, leading to the suggestion that combining training with vibration could lead to a greater training stimulus and therefore greater performance gains.

The current methods of vibration delivery do have their limitations. The most common method of vibration training is that of vibrating platforms that

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the user performs exercises on. These devices have been used often in research but the results produced, although offering potential, are not consistent. Many users also can't use these devices as they can cause nausea, and if used incorrectly can cause the vibration to be sent straight up the spine to the base of the skull (as this user found out to his cost!). For these reasons we prefer the idea of targeted vibration directly to the exercising muscle ensuring a more specific training stimulus and eliminating any of the unpleasant side effects.

We have recently released a targeted vibration device for the respiratory system called Youbreathe (see review on page 50) which causes the airflow into and out of the lungs to be pulsatile stimulating the stretch reflex of the respiratory muscles. Preliminary results look very exciting with similar acute responses to those seen in the leg training above. Youbreathe is currently being used by elite cyclist, tri-athletes, footballers and rugby players who all report perceptible benefits for their sports performance. More trials are under way with plans to continue clinical trials with the aim of reducing symptoms of cardio-respiratory disease such as coronary heart disease, asthma and COPD.

In conclusion, vibration training certainly seems to offer the possibility of



increasing the exercise return on investment, getting more back for a given effort, but it is still too soon to draw conclusions about how to train with vibration and what vibration method to use. We strongly recommend taking

advice from qualified practitioners and including vibration training in a complete training programme. Certainly vibration training seems to offer the greatest potential for rehabilitation on clinical populations such as the elderly. **UF**

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