

# WHOLE BODY VIBRATION

## GOOD VIBES FOR YOUR HEALTH



Whole Body Vibration (WBV) has in recent years attracted much interest for its applications in healthcare, due to positive effects on circulation, muscle function, bone density, balance and mobility.

Russian scientists developed the technology in the 1970's to maintain muscle and bone strength in their cosmonauts. Ongoing research has been conducted in over 30 Universities worldwide including positive reports from recent studies by the European Space Agency.

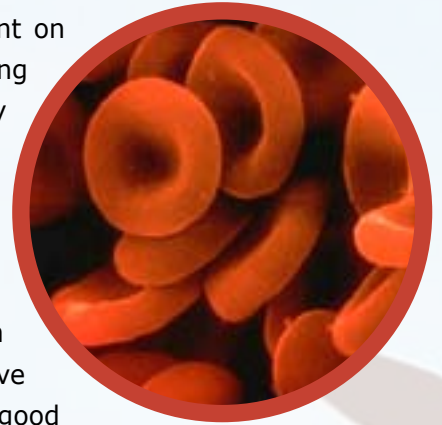
# GENERAL HEALTH

## Increases Circulation:

Good circulation is a key component of good health. All tissues are dependent on a good blood supply to deliver oxygen and essential nutrients while removing metabolic waste products. Swollen feet and ankles are one of the most easily visualized effects of poor circulation and in conditions such as diabetes this may lead to tissue death, gangrene and amputation. Improved circulation will improve skin condition and may assist in healing chronic conditions such as skin ulcers.

Effects on deeper tissues are not as obvious but just as detrimental. Ischaemic pain may be experienced in muscles due to poor circulation, and vascular changes have been shown in degenerative tendons. All organs are also reliant on good circulation. Recent research has even reported a link between poor circulation and alzheimers disease.

Studies on WBV have shown a **doubling in the speed of the blood flow** through the lower legs when standing on a vibrating platform (Kershan-Schindl et al 2001). Circulation through the hands, arms and trunk can simultaneously be increased on the Silver Mink through the use of the hand and body vibrators. Alternatively a peaceful rest on the Vibration bed system will assist with stimulation of the circulation throughout the whole body.



## Increases Release of "Happy Hormones":

WBV has been reported to increase the release of serotonin (the happiness hormone) and neurotrophines that have a stimulatory effect on the brain.

## Reflexology:

The footplates of the Silver Mink (shown on front page) and TY 510 (foot plate only) both have inbuilt curves that massage into the arches of the feet and between the 1<sup>st</sup> and 2<sup>nd</sup> toes covering all of the reflexology points for the soles of the feet. Eastern Medicine practitioners have used these points for centuries for stimulation of good health throughout the body.



# WOMEN'S HEALTH

## Bone Density

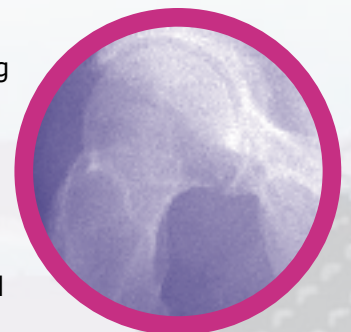
WBV has an exciting application in the management of osteoporosis. A number of medical studies have reported positive increases in bone density in both animals and humans. One research group who has spent over 20 years researching into bone density have demonstrated in an animal study an astounding 34.2% increase in bone density at the hip with a 45% increase in new trabeculae (bony struts within the bone) over a 12 month period of very low level vibration training (Rubin et al 2002).

## Incontinence

European studies have shown reduction in incontinence after regular WBV. Sitting on the footplate for just short periods will give direct stimulus to the pelvic floor muscles.

## Constipation/Haemorrhoids/Fissures

Females have a high incidence of these problems, particularly post pregnancy. Whole body vibration can assist by increasing the local circulation of the perineum and reducing muscular spasm or tightness.



# REHABILITATION

## Musculoskeletal

Whole body vibration is a valuable tool in musculoskeletal rehabilitation for a number of reasons:

### Reduces muscle spasm and tightness

Tightness or spasm in a muscle creates excessive stress across the joint it surrounds and also reduces the blood flow through the muscle. Failure to adequately remove metabolic waste products from the muscle leads to a chemical irritation of small nerve fibres carrying pain information to the brain. Pain causes more muscle spasm and so the cycle continues. WBV will assist in reducing spasm or tightness through the relaxation and heating effects of the vibratory massage, and removal of waste products through increased circulation. Direct vibratory massage can be achieved to almost all parts of the body with the Silver Mink or TY 510 by varying your position or using the massage strap.



### Increases flexibility

Through the mechanical and heating effects of vibration, joint restrictions can be reduced and increased movement achieved eg stiff ankle after sprain.

Stretching muscles with superimposed vibration has been shown to be more than 3x more effective than stretching alone (Issurin et al 1994). Regular stretching with vibration will achieve greater gains in a shorter time period.

### Improves posture and reactivation of deep stabilizing muscles

Reduced awareness of spinal position has been demonstrated in people suffering with lower back pain. This makes it difficult to accurately achieve an ideal postural position. Regular training with whole body vibration has been shown to improve awareness of lower back posture (Fontana et al 2005).

The deep muscles around the joints involved in joint protection and stability (eg core trunk muscles transversus abdominis and multifidus) are heavily reliant on sensory input in order to determine the ideal length and tension they should be maintaining for optimal joint health. Vibration training is thought to increase the amount of sensory stimulation and activate automatic reflexes to allow improved muscle function. The activation of deep stabilizing muscles has been shown to be an integral part of recovery from spinal pain and reduction of recurrence.

### Reduces Pain and Disability

Pain is reduced due to all of the effects described above.

Rittweger et al (2002) significantly reduced pain and disability in patients with lower back pain after 3 months of vibration training. WBV also stimulates the release of cortisol which has an anti-inflammatory effect.

## Neurological

WBV may assist with normalisation of muscle tone and reduction of contracture or rigidity in people with cerebral palsy, multiple sclerosis, Parkinson's or following a stroke. People with spinal injury or spina bifida can also benefit from the effects of improved circulation and skin colour.

# SPORTS APPLICATIONS

Exercising on a vibrating platform stimulates the use of more muscle fibers than normal (neural potentiation) providing a more effective workout in a shorter period of time. Circulatory effects also make this a valuable tool in recovery after training or competition. Some football clubs use WBV at halftime or in-between weights sets at the gym to allow quick recovery for the next bout of activity.

Effects on increasing flexibility will also improve performance and reduce injury risk. Use of WBV will also speed recovery from injury.



## AGED HEALTH

Poor mobility, balance and bone density in the elderly frequently leads to falls, fracture and a loss of independence. Runge et al (2000) showed improvements of up to 36% in the ability of elderly people to rise from their chair after standing on a vibrating platform for only 6 minutes, 3 times a week over a 2 month period.

The effects of WBV on improving balance and bone density reduces the incidence of osteoporotic fracture enabling longer term maintenance of independence. Improved general health will also be experienced through the positive circulatory and hormonal effects.



## COSMETIC APPLICATIONS

Decreases in body fat and cellulite have been reported with regular WBV. Mechanisms for this may be hormonal due to stimulation of release of Human Growth Hormone and cortisol which are involved in mobilizing fat stores. Exercising on the platform will provide gains in muscle bulk which will in turn reduce percentage of body fat and increase number of calories burnt during exercise. Metabolic rate will also be increased.

Cellulite mobilization is thought to be assisted with the additional use of the vibration body strap applied directly to problematic areas.

Any weight loss programme will of course require attention to diet to achieve an appropriate balance between energy expenditure and calorie intake.

## SAFETY

As WBV has been shown to achieve its effects without an increase in blood pressure it is a very safe form of exercise. The absence of impact forces associated with running or walking mean that WBV allows weight bearing exercise to be performed with much less chance of pain or aggravation of arthritis or other musculoskeletal conditions.



Whole body vibration is not suitable for those with a pacemaker, recent fracture, acute thrombosis (clots), gall or kidney stones, malignant tumors or epilepsy.



If you have any metallic implants consultation with your doctor is advised prior to using WBV. The effects during pregnancy are yet uncertain so it is probably best to avoid WBV during pregnancy.

### References

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