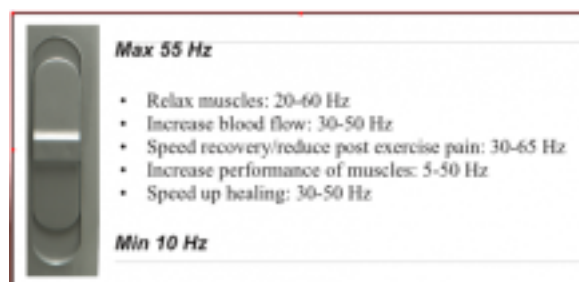


The scientifically proven effects of vibration massage- with clinical applications

When you use vibration massage what do the vibrations actually do? This article discusses the many scientifically proven effects, and what these effects may be useful for. This information helps work out whether vibration massage will be of benefit, and helps clinicians work out the best therapy for their patients or clients. For a summary please see [our video](#)

Vibration frequencies

Scientists measure the frequency of vibrations in Hz (cycles per second). To keep it simple, scientist found the best effects at from 30-50 Hz, which is approximately 80-90% of full speed on one of our General Purpose Massagers.



Normal therapeutic applications of vibration have been shown to significantly increase blood flow (3) (4) (5). In one trial vibrations both 30 and 50 Hz were shown to substantially increase peripheral blood flow, with 50 Hz giving the superior results, having a more rapid and longer lasting effect. 30 Hz vibration slowly increased blood flow, which lasted for about 7 minutes. 50 Hz increased blood flow more rapidly, and was still increased 15 minutes later.



Various studies have shown that the application of vibration massage in the range of 20-60 Hz causes muscles to relax. This is the therapeutic range our massagers work in. Vibrations from 100-200 Hz have been shown to cause muscles to contract (1).

Clinical applications

The relaxation of muscles and increasing blood flow are the cornerstone of most types of massage therapy, whether it is simple relaxation, relieving tight tired muscles after a hard days work, or as part of a rehabilitation program. Science tells us that vibration massage does this well, especially at around 50 Hz (90% of full speed on a General Purpose Massager).



The main way vibration massage helps reduce pain is to help address the causes of pain, such as tight sore muscles and trigger points (tender lumps in muscles). However, the application of stimulation at 100 Hz has been shown to neurologically block pain, which is the same principle used by a TENS machine (8). As an example, a trial showed that repeated applications of 100 Hz massage to the distal quadriceps muscles (just above the knee) produced a considerable reduction of symptoms in those with osteoarthritis of the knees (9). Our Dr Graeme Massagers do not run at this frequency. Apart from the issues relating to masking pain rather than addressing the cause, as previously stated 100 Hz causes muscles to contract (tighten) rather than relax.



Cramps and spasms are caused by neurological reflexes. These are generally useful. As an example stretch reflexes stimulate your muscles to tighten when rapid or excessive stretching is detected. This is an excellent protective mechanism that prevents muscles from being overstretched and damaged. However, these can "lock on" abnormally in the case of muscle cramps or spasms, and is a core problem in (myofascial) trigger points: arguably the most common cause of conditions such as back, neck and shoulder pain.

Vibration in the range of 30-50 Hz has been shown to temporarily suppress this reflex (1, 10). The main use of this is for the treatment of trigger points (see clinical applications to the right (or below on a mobile)).

"Elite" stretching

Gymnasts gymnasts have also used the application of 30 Hz vibration to inhibit the stretch reflex, achieving superior results when stretching (15). What they did was temporarily shut down the body's protective mechanism against overstretching. This may have merit for elite gymnasts in a controlled setting, but otherwise not something we would recommend.

application: trigger points

Trigger points are arguably the most common cause of musculoskeletal pain such as back, neck and shoulder pain. They are those tender lumps in muscles that shoot pain when pressed upon. Scientists have found that to treat these you need to:

- disrupt the muscle spasm
- relax the muscle, and
- increase blood flow

Vibration massage is an extremely effective treatment because it is scientifically proven to address all three issues at once.



Stretching exercises are done to lengthen muscles to their proper operational length. This allows full movement and efficient function of the muscles. Clinical trials show that the application of vibration of 40-50 Hz produces a similar lengthening of muscles. There are two situations where this would be extremely useful.

To protect an injury

An example would be while an injured ankle was healing. Conventional stretches could no be used as they would further damage the joint, however, vibration could be applied to the calf muscles to prevent them shortening.

Where it is difficult to stretch

An example would be parts of the spine. Your spine is made of a chain of links. If one link is stiff it is practically impossible to isolate a stretch to that link only, however, a vibration massager can easily apply very localised vibration.



Strenuous exercise causes microscopic damage to your muscles. This results in post exercise soreness (also known as DOMS- delayed onset muscle soreness), and your muscles will suffer a loss of performance until recovered. Clinical trials (16-22) have shown that the application of vibration from 30-65 Hz either before or after exercise will result in:

- less soreness
- a reduction in blood chemicals that result from cell membrane damage, tissue necrosis and muscle cell damage
- a reduction in the temporary loss of muscle performance.

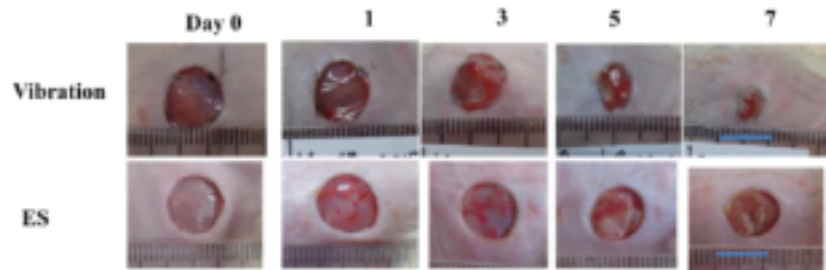
Clinical applications

Everyone who works out or plays sports seriously will suffer stiffness and soreness after. Vibration massage does exactly what your muscles need: relaxes them and stimulated blood flow to flush the wastes and bring in nutrients. These clinical trials show that if you use a massager before, after and during recovery you will likely be far less sore and recover faster. This is simple to do and has practically no ongoing cost.

For further information check out our video below, or our [Sports and Exercise Guide](#)



There has been so much scientific research done on the effect of vibration on healing, ranging from bone fractures through to wound healing, muscle and nerve repair. Scientists have typically regulat short term applications of vibration such as applying 45 Hz for 20 minutes per day. We've put an example of the results below. Check out the rest at [Assisting Healing](#)



The healing of a wound when vibration is used vs healing with an alternate therapy electrical stimulation

Clinical applications

The clinical trial results are truly amazing. Vibration stimulation is used already to help the healing of bone fractures, but this shows it would be incredibly beneficial for muscle, wounds, nerves and other tissues.

The protocols used in these trials were very simple, and something you could easily replicate. 45 Hz for about 20 minutes per day is simply applying a General General Purpose Massager set at about 80%. There would obviously be considerations such as not applying vibration directly to a wound or injury before structurely sound, so any uasge would be subject to professional advice, but the huge potential benefits would make it a very real consideration.

Practitioners

If your are a practitioner interested in trying vibration therapy or vibration massage please see our practitioner page for our practitioner guide, a possible sample machine to try, or our practitioner pricing.

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