

The sports and exercise guide to vibration massage

The journal article *Sports massage: a comprehensive review* (1) discusses many uses of massage for those who play sports and exercise. Unfortunately due to the cost of professional massage therapists very few get to take full advantage of this. Vibration massage is a therapy that can be self applied, and when used appropriately is highly effective, making all these uses possible for most people who play sport or exercise.

In this guide we briefly discuss the science that underpins vibration massage, then discuss the individual uses along with some extra benefits that apply to vibration massage.

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Professional massage therapists do an excellent job, but availability is limited by cost

The scientific basis

When used correctly vibrations penetrate deep into muscles and other tissues. Scientist have found that the vibrations have the effects shown in the diagram. For further information please see our guide *The scientifically proven effects of vibration massage with clinical applications*



Summary of the scientifically proven effects of vibration massage

Warm ups

The purpose of a warmup is to prepare your body for exercise, enabling full performance and minimising your risk of injury. Vibration massage is proven to increase blood flow, plus relax and lengthen your muscles, allowing optimum performance and decreasing the risk of injury. Clinical trials have also shown that if you use vibration massage before exercise it will reduce post exercise soreness and speed recovery.

Post exercise/ recovery

Clinical trials have found that if you use vibration massage either before or after strenuous exercise you will be far less stiff and sore, and you will recover faster. This can be attributed to the vibrations:

- causing muscles to relax
- stimulating increased blood flow, flushing out the chemicals that result from tissue breakdown, while bringing in oxygen and nutrients
- increasing healing

For further information on how to reduce post exercise soreness and speed recovery please see *our article Vibration massage helps reduce delayed onset muscle soreness (DOMS) and speeds recovery*

"Stretching" muscles

Clinical trials have found that applying vibration massage to muscles causes them to lengthen (stretch) the same amount as stretching does. We do not advocate replacing stretching, but there are circumstances where vibration would be preferred (11-14).

- Where it is difficult to stretch: eg. where it is hard to isolate the muscle you need get into a difficult position.
- Where you are injured: eg. "stretching your calf muscles when you have an injured ankle.
- Where it is more convenient: eg. relaxing in your lounge chair.



Vibration massage as part of your warmup will help prepare your muscles, reduce the risk of injury, plus reduce post exercise soreness and speed recovery



Vibration massage is proven to reduce post exercise soreness (DOMS) and speed recovery



Clinical trials show vibration massage "stretches" muscles the same as stretching exercises do.

Increasing performance

Scientists have found that applying vibration allows the nervous system to recruit more muscle fibres, increasing strength and power. This may be important for elite athletes, however for normal circumstances people will get the most benefits from vibration massage helping eliminate things that inhibit performance. For example:

Warmups

Using vibration massage as part of a warmup routine will help prepare your body for optimal performance.

Trigger points

As discussed in the following section (myofascial) trigger points inhibit muscular function. By helping treat these, vibration massage will help eliminate their performance robbing effects.

Post exercise and recovery

Post exercise soreness and fatigue temporarily reduce one's ability to train. By reducing pain and speeding recovery vibration massage allows training sooner.

Injuries

Injuries can prevent one from training or performing. Vibration massage can help reduce or eliminate these effects by helping prepare for exercise to prevent injury, and recover from injury should one occur.

(Myofascial) trigger points

Trigger points are those tight lumps in muscles massage therapists find. Overuse of muscles is a common cause, so those who play sports or exercise usually have many. Trigger points can eventually cause pain, but even when they only hurt when therapists press on them they still do the following. (15,16)

- Create tightness in the muscle, restricting performance, predisposing muscle to tearing, and causing pain where the muscles attach (eg.tennis elbow).
- Cause muscles to underperform and rapidly fatigue.
- Quickly cause pain upon exertion.
- Delays the reaction of muscles, altering "timing".
- Causes the body to alter posture and biomechanics in compensation, reducing efficiency and predisposing to injury.

For further information on trigger points and how they are treated please see our article *Trigger point basics*.



Vibration has been shown to increase the strength and power of muscles, but it's most important use would be to help maintain injury free and optimal performance



VS



Vibration massage is an effective scientifically proven for treating trigger points and other muscular problems.

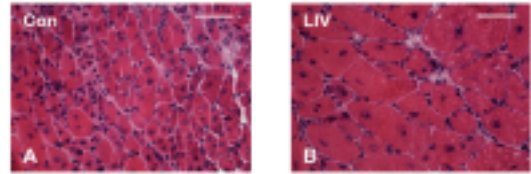
Rehabilitation

Rehabilitation is a complex issue and should always involve professional help. However, as a guide there are two areas of huge potential benefits from using using your vibration massager.

1. *Assisting healing*
2. *Functional rehabilitation*

Assisting healing

Scientists have found that applying vibration for as little as 20 minutes a day can dramatically can hugely speed up and improve healing. As an example the pictures to the right compares muscle the has healed normally (CON) with muscle that has been given 20 minutes a day of vibration (LIV). There are a lot more equally impressive examples in our research summary *Does vibration massage help healing.*



The oval shapes are healing muscle fibres. Note that the one's treated with vibration (LIV) muscle fibres have grown much larger.

Functional Rehabilitation

Functional rehabilitation is the process of restoring normal neurological control and biomechanical function. This is a complex area so we recommend reading or article *Functional Rehabilitation*. However, in summary neurological control is impeded or altered when it needs to compensate for any functional element not working correctly. A relevant example would be the need to compensate for a muscle unable to lengthen or contract normally. The previously mentioned (myofascial) trigger points do this. Vibration massage is an excellent treatment to help remedy these issues.

Implementation

Vibration massage is a highly effective therapy. However, people forget the simple principle below inhibiting it's effective implementation.

Manual massage relies on physical penetration and movement, whereas vibration massage uses vibrations to penetrate and have their therapeutic effect

The problems

The usage of manual massage techniques

Years ago lumberjacks stopped using axes and started using chainsaws. Of course it was obvious that they needed to use different techniques. However, we have people using vibration massagers with their old manual massage techniques. Instead of letting the vibrations penetrate and have their effect users poke heads in and move the machines around.

Poor quality and ineffective massagers (massage guns)

It seems as though a lot of massagers and massage guns are designed around using those old manual massage techniques.

- most have heads designed to push in
- many have a large vibration amplitude (how far the head goes up and down) which has a jackhammer rather than vibration effect
- many are low powered and poorly performing, requiring the head to be dug in to have an effect
- The handles of massage guns do not allow effective usage on large parts of your body

The solution

We recommend that you watch our two videos below to help choose an effective massager and use it in an effective manner



https://youtu.be/3AZpJ_kHLVM



https://youtu.be/EVb6_4LCGi0

References

1. Moraska A. *Sports massage: A comprehensive review. Journal of Sports Medicine and Physical Fitness.* 2005.
2. Imtiyaz S, Veqar Z, Shareef MY. *To compare the effect of vibration therapy and massage in prevention of delayed onset muscle soreness (DOMS). J Clin Diagnostic Res.* 2014;
3. Bakhtiary AH, Safavi-Farokhi Z, Aminian-Far A. *Influence of vibration on delayed onset of muscle soreness following eccentric exercise. Br J Sports Med.* 2007;41(3):145–8.
4. Kamandani R, Ghazalian F, Ebrahim K, Ghassemlou N, Shiri Piraghaj M, Khorram A. *The Effect of Acute Vibration Training on Delayed Onset Muscle Soreness in Young Non-Athlete Women. Health Scope.* 2015;
5. Broadbent S, Rousseau JJ, Thorp RM, Choate SL, Jackson FS, Rowlands DS. *Vibration therapy reduces plasma IL6 and muscle soreness after downhill running. Br J Sports Med.* 2010;44(12):888–94.
6. Lau WY, Nosaka K. *Effect of vibration treatment on symptoms associated with eccentric exercise-induced muscle damage. Am J Phys Med Rehabil.* 2011;

7. Kim J-Y, Kang D-H, Lee J-H, O S-M, Jeon J-K. *The effects of pre-exercise vibration stimulation on the exercise-induced muscle damage. J Phys Ther Sci.* 2017;29(1):119–22.
8. Veqar Z, Imtiyaz S. *Vibration therapy in management of delayed onset muscle soreness. J Clin Diagnostic Res.* 2014;8(6):10–3.
9. Sethi V. *Literature review of management of delayed onset muscle soreness (doms). Int J Biol Med Res.* 2012;3(1):1469–75.
10. Poenaru D, Cinteza D, Petrusca I, Cioc L, Dumitrascu D. *Local Application of Vibration in Motor Rehabilitation - Scientific and Practical Considerations. Maedica (Buchar).* 2016;11(3):227–31.
11. Bakhtiary AH, Fatemi E, Khalili MA, Ghorbani R. *Localised application of vibration improves passive knee extension in women with apparent reduced hamstring extensibility: A randomised trial. J Physiother.* 2011;
12. Atha J, Ph D, Wheatley DW, Sc B. *JOINT MOBILITY CHANGES DUE TO LOW FREQUENCY VIBRATION AND STRETCHING EXERCISE * (b) Astride standing : head pressing to alternate knees (d) Rear lunge , with toe rest : calf and leg stretching. October.* 1974;26–35.
13. BIERMAN W. *INFLUENCE OF CYCLOID VIBRATION MASSAGE ON TRUNK FLEXION. Am J Phys Med Rehabil.* 2006;
14. Hinman MR, Lundy R, Perry E, Robbins K, Viertel L. *Comparative effect of ultrasound and deep oscillation on the extensibility of hamstring muscles. J Athl Med.* 2013;
15. Celik D, Mutlu EK. *Clinical implication of latent myofascial trigger point topical collection on myofascial pain. Curr Pain Headache Rep.* 2013;17(8).
16. Celik D, Yeldan P. *The relationship between latent trigger point and muscle strength in healthy subjects: A double-blind study. J Back Musculoskelet Rehabil.* 2011;24(4):251–6.
17. Clark MA, Lucett SC. *NASM Essentials of Corrective Exercise Training. Lippincott Williams & Wilkins;* 2011.
18. Corbiere TF, Weinheimer-Haus EM, Judex S, Koh TJ. *Low-intensity vibration improves muscle healing in a mouse model of laceration injury. J Funct Morphol Kinesiol.* 2018;3(1):1–14.
19. MEI R, XU Y, LI Q. *Experimental Study on Mechanical Vibration Massage for Treatment of Brachial Plexus Injury in Rats. J Tradit Chinese Med.* 2010;

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