Dr Graeme
health products
Serious Massagers for Professional Results

Practitioner guide

We originally developed our massagers to benefit our patients and enable us to provide better quality more effective and affordable care. With patients enjoying these benefits we shared this with colleagues so they could provide these benefits to their patients. Please allow us to share these benefits.

DrGraeme Massagers
331 Main St Bairnsdale (P.O. Box 914)
Bairnsdale Victoria 3875 AUSTRALIA
Phone: (Australia) (03) 51161298 (Overseas) +61351161298
Website: www.drgraeme.com
Email: graeme@drgraeme.com

The basics

The major areas of benefit

Interesting research summaries

Wish to try vibration massage? p.3

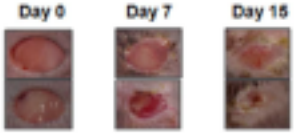
Treatment of trigger points: p.16

Sports and exercise: p.22

Functional rehabilitation: p.26

Health and wellness: p.25

Fibromyalgia: p.30



Assisting healing: p.34

Practitioners and students

Introduction

The DrGraeme massager business started back in 2007 with myself trying to build something useful for my patients, then sharing it with colleagues. The business has grown from there, but everything we do still comes from the perspective of benefiting patients and helping colleagues.

Getting a massager

We are happy to supply fellow professionals with massagers for their own use and to supply to patients or clients. We are also happy provide fellow professionals a sample massager to trial vibration massage, subject to conditions (see below).

Practitioner pricing

Please (Email us) for practitioner/wholesale pricing.

Ordering

Australia and New Zealand

To order simply phone us or (Email us) your requirements.

The UK and Europe

We have a practitioner only order page hidden from the rest of the website. (Email us) and we'll send you the link.

Sample massagers

We have always been happy to give colleagues a massager (to keep) to enable them to trial our massagers and evaluate the use of vibration massage. Our criteria are as follows. If you don't have a relevant degree or if someone else in a clinic that already has one please take advantage of our excellent practitioner pricing. To order a sample please (Email us) or use the form on our practitioner page.

Sample criteria

- Relevant degree qualification
- One per clinic only
- Application by practice principle preferred

Colleges and students

Colleges

It has been our pleasure to be able to support many of the universities and colleges training our future colleagues with massages for teaching, student clinics and research projects. If that is something of interest please email us.

Students

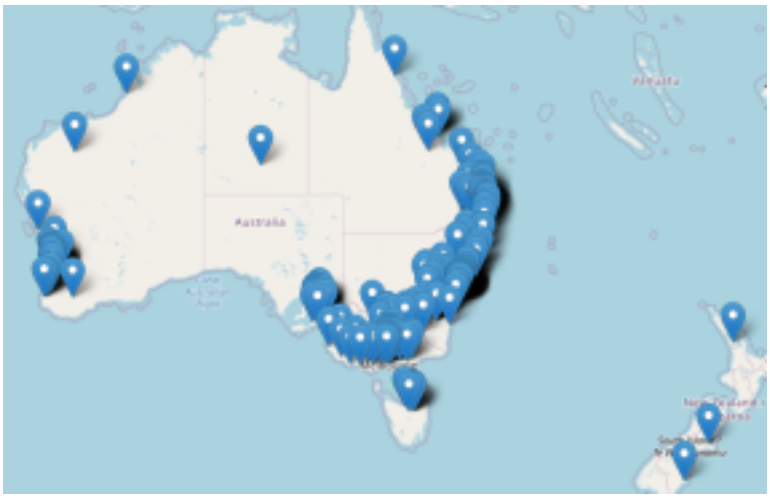
We have very heavily discounted massagers available for future colleagues. Please see our student page for details.

Our website

I've been a chiropractor in private practice for over 27 years, and the whole basis of our massager business is to provide something to help fellow professionals and their patients/clients. We try to do this with our website by providing content of patient education value and by sending potential patients/clients. Please consider helping by giving us a link from your website. Having people read the patient education material may be worthwhile, but importantly links help Google rate it higher which means we can send more people to clinics like yours.

Referring potential patients

Our website has lists and Google maps of clinics that may have our massagers, and our website encourages people to source massagers locally rather than from us. Last month our website sent over 200 people to the websites of local clinics. Our view is that most people looking for a massager will have some problem they wish to use it on, so if they contact you we recommend that you be caring and ask questions. You may be able to help them as a patient, and at the minimum they will now be aware of your clinic.



Our website sends over 200 people a month to client's clinics

Link to our website

Please consider adding a link from your website to our website or one of our articles. This will:

- refer people to potential patient education material
- encourage Google to send people to our website, which means more referrals to local clinics.

How to link

Simple link

Have your webmaster add in a simple link such as "we sell/use/recommend DrGraeme massagers". Feel free to use our logo or any pic from our website that has one of our massagers in it.

Linking and article

Have a read of some of our articles. Maybe some would be worthwhile for people visiting your website to read. Most have the theme that musculoskeletal problems are complex needing proper professional help, plus need correction and rehabilitation over and above pain relief. As an example our article *Why do trigger points keep coming back* is the feature article for that google search. People who search why their trigger points keep coming back are being told that their problem needs proper professional long term care.

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.

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.

Video summary

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 shouolder 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.

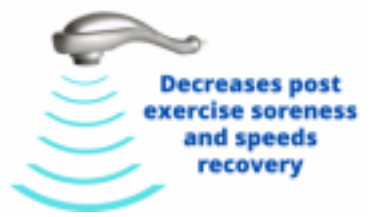
Stretching exercises are done to lengthen muscles to their proper operational length. This allows full movement and efficient function of the muscles. Clinical trials show that the application of vibration of 40-50 Hz produces a similar lengthening of muscles. There are two situations where this would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

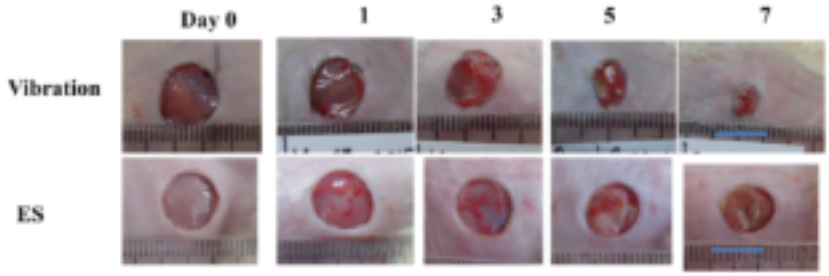
An example would be parts of the spine. Your spine is made of a chain of links. If one link is stiff it is practically impossible to isolate a stetch to that link only, however, a vibration massager can easily apply very localised vibration.



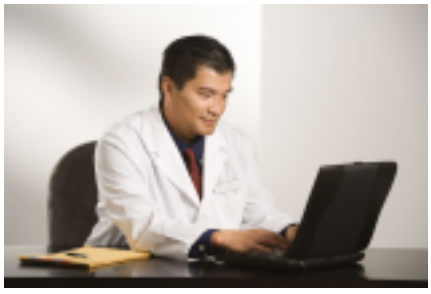
Strenuous exercise causes microscopic damage to your muscles. This results in post exercise soreness (also known as DOMS-delayed onset muscle soreness), and your muscles will suffer a loss of performance until recovered. Clinical trials (16-22) have shown that the application of vibration from 30-65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

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



Try this therapy

DrGraeme massagers were originally built by Dr Graeme for use in his clinic, and to prescribe to his patients for additional self use at home. Now these are used by colleagues and other professionals for similar purposes. If you are a professional and wish to try this therapy contact us for a professional rate or possibly a sample massager.

References

1. *Poenaru D, Cinteza D, Petrusca I, Cioc L, Dumitrascu D. Local Application of Vibration in Motor Rehabilitation - Scientific and Practical Considerations. Maedica (Buchar) [Internet]. 2016;11(3):227–31. Available from: http://www.ncbi.nlm.nih.gov/pubmed/28694858%0Ahttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC5486165*
2. *Inaba R, Furuno T, Okada A. Effects of low- and high-frequency local vibration on the occurrence of intimal thickening of the peripheral arteries of rats. Scand J Work Environ Heal. 1988;14(5):312–6.*
3. *Lohman EB, Petrofsky JS, Maloney-Hinds C, Betts-Schwab H, Thorpe D. The effect of whole body vibration on lower extremity skin blood flow in normal subjects. Med Sci Monit. 2007;*

4. Maloney-Hinds C, Petrofsky JS, Zimmerman G. The effect of 30 Hz vs. 50 Hz passive vibration and duration of vibration on skin blood flow in the arm. Med Sci Monit [Internet]. 2008;14(3):CR112-6. Available from: http://www.ncbi.nlm.nih.gov/pubmed/18301353
5. Nakagami G, Sanada H, Matsui N, Kitagawa A, Yokogawa H, Sekiya N, et al. Effect of vibration on skin blood flow in an in vivo microcirculatory model. Biosci Trends. 2007;1(3):161–6.
6. DrGraeme. The presence and treatment of myofascial trigger points in chronic shoulder pain [Internet]. DrGraeme.com. 2018. Available from: https://www.drgraeme.com/articles/2018-articles/Practitioner/Shoulder-trigger-points.php
7. Bron C, De Gast A, Dommerholt J, Stegenga B, Wensing M, Oostendorp RAB. Treatment of myofascial trigger points in patients with chronic shoulder pain: A randomized, controlled trial. BMC Med. 2011;9.
8. Lundeberg T. Long-term results of vibratory stimulation as a pain relieving measure for chronic pain. Pain. 1984;20(1):13–23.
9. Rabini A, De Sire A, Marzetti E, Gimigliano R, Ferriero G, Piazzini DB, et al. Effects of focal muscle vibration on physical functioning in patients with knee osteoarthritis: a randomized controlled trial. Eur J Phys Rehabil Med. 2015;
10. Noma T, Matsumoto S, Etoh S, Shimodozono M, kawahira K. Anti-spastic effects of the direct application of vibratory stimuli to the spastic muscles of hemiplegic limbs in post-stroke patients. Brain Inj. 2009;23(7–8):623–31.
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. SANDS WA, MCNEAL JR, STONE MH, RUSSELL EM, JEMNI M. Flexibility Enhancement with Vibration. Med Sci Sport Exerc. 2006;38(4):720–5.
16. 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.
17. 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;
18. 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;
19. Kamandani R, Ghazalian F, Ebrahim K, Ghassembaglou N, Shiri Piraghaj M, Khorram A. The Effect of Acute Vibration Training on Delayed Onset Muscle Soreness in Young Non-Athlete Women. Heal Scope. 2015;
20. 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.
21. Lau WY, Nosaka K. Effect of vibration treatment on symptoms associated with eccentric exercise-induced muscle damage. Am J Phys Med Rehabil. 2011;
22. Veqar Z, Imtiyaz S. Vibration therapy in management of delayed onset muscle soreness. J Clin

Diagnostic Res. 2014;8(6):10–3.

23. *Germann D, El Bouse A, Shnier J, Abdelkader N, Kazemi M, Germann D, et al. Effects of local vibration therapy on various performance parameters: a narrative literature review. J Can Chiropr Assoc. 2018;62(3).*
24. *Gentili S, Uccioli L, Mugnaini S, Lella D, Richetta M, Magrini A. EFFECTS OF LOCAL VIBRATION THERAPY ON LOWER LIMB ' S SENSORIMOTOR CONTROL IN WORKERS SUFFERING FROM DIABETIC FOOT – STATE OF ARTS AND STUDY ON A NEW PREVENTION AND THERAPEUTIC SYSTEM .*
25. *Weinheimer-Haus EM, Judex S, Ennis WJ, Koh TJ. Low-intensity vibration improves angiogenesis and wound healing in diabetic mice. PLoS One. 2014;9(3):3–10.*
26. *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;*

Vibration massage vs percussion massager (massage guns)

Percussion massagers and massage guns have become a fad, and the terms percussion and vibration massage are often used wrongly used interchangeably In this article we will explain the difference, share and compare the benefits of each, then most importantly let you know how to tell which is which.

What is the difference between percussion and vibration massage

The easiest way to explain the difference is that percussion massage is like a jackhammer, while vibration massage is like one of these compactors. They both vibrate, but you get completely different effects. Lets look at those effects.

Comparing the scientifically proven effects of percussion vs vibration

Vibration massage has the host of scientifically proven effects and benefits seen in the previous article (1–26) Before doing the research for this article I wasn't aware of any scientifically proven benefits for percussion massage so I studied the websites that discussed the benefits of percussion massage. In every case, where they mentioned a scientific study, the study wasn't even percussion, they were of vibration.

To put this into perspective it's like jackhammer manufacturers claiming the benefits of vibrating the ground. Yes they vibrate, but but it's for the purpose of driving in the head, not vibration the ground. If you wanted to vibrate the ground you'd use a compactor, not a jack hammer.

Comparing the safety of percussion massage vs vibration massage

Comparing the safety of percussion and vibration massage is a no brainer. With vibration massage the vibrating pad sits on the surface and lets the vibrations soak in. Nothing is perfectly safe, but it's pretty close to it. On the other hand with percussion massage you're driving a head in like a jackhammer, and if you don't know what you're doing and aim it at injured tissue, blood vessels or nerves you can do some serious damage.

Comparing the effects of percussion and vibration massage breaking up scar tissue

Many websites and videos on percussion massage claim without providing any scientific evidence that percussion massage helps break up scar tissue and adhesion. They don't say whether it's old scar tissue or newly forming scar tissue, so lets look at each.

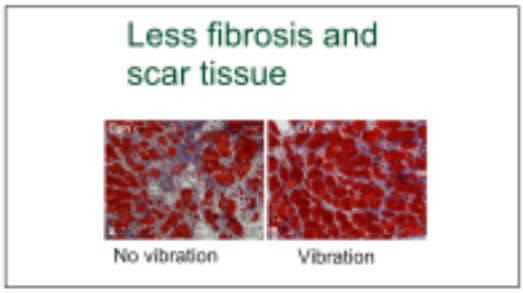
Old scar tissue

Scar tissue can stick things together and cause problems, and there's a technique called cross friction massage that's used to break it up (28). However, cross friction massage is actually tearing scar tissue, so it's extremely aggressive and painful. Unless you used a very powerful percussion massager with a hard head in a very aggressive and painful manner it's not going to

effectively break up scar tissue, and if it did, just by the very nature that it's deliberately damaging damaging tissue, so that should only be done by a professional who knows what he or she is doing.

Newly forming scar tissue

The good news is that, as this pic shows, vibrations alone have been scientifically shown to stop scar tissue forming (18). It doesn't need percussion. In fact the percussion head would probably do further damage to the healing tissues and cause more scar tissue.



The ability to effectively apply percussion and vibration massage

The previous sections give the relative benefits of percussion and vibration massage, but the effect of each also depends on how the therapy is applied. The big issue here is that most percussion massagers are massage guns.

Massage guns are promoted for self use. As this diagram shows the percussion effect from a percussion massager is directed straight out of the head, so you need to point it like a gun. If it's applied at an angle it's effect is minimised. Massage guns don't come with proper handles, so unless you are inspector gadget you can't point the gun properly on places like your back.

On the other hand, someour vibration massagers come with a proper handle to allow you to use them anywhere on your body.

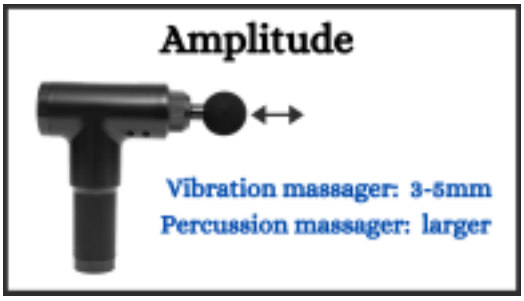
How to tell the difference between a percussion and vibration massager

So, if you're after a massager how do you tell the difference? There is some crossover between the two types of machine there are certain characteristics to look for.

The shape of the heads

The most obvious is the shape of the heads. Again, if you think jackhammer vs compactor your percussion massagers are going to have heads that look like they're for driving in, while vibration massagers will tend to have flatter heads designed for vibration transfer.

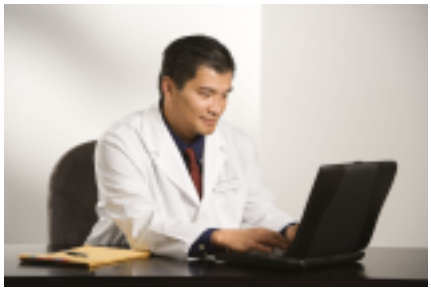
The amplitude of the head movement



The next thing to look at is the amplitude, which is how far the head goes up and down. You can easily see this if you look at the head side on while it's running. A good vibration massager will have an amplitude of about 3-5 mm, while a percussion massager will have more. Looking at our jackhammer and compactor again, a jackhammer head might go up and down a few cm to drive the head in, but if the big flat plate on the compactor went up and down that far it would just bounce around uncontrollably.

Other machines

In giving that info you will find massage guns with jackhammer heads that only go up and down a few mm. They aren't vibration massagers, but rather cheap knock offs. Think of buying a cheap and nasty jackhammer that you take home and is not much more effective than a wood pecker. You'll also find massagers that only vibrate up and down a mm or two. That's not enough to impart decent vibration so they're just buzzy toys.



Try a vibration massager

I hope you've worked out that massage guns and percussion massagers are a fad. If you are a professional and wish to try a decent vibration massager contact us for a professional rate or possibly a sample massager.

References

1. *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.*
2. *Zuil-Escobar JC, Martínez-Cepa CB, Martín-Urrialde JA, Gómez-Conesa A, Shin C, Oh H, et al. Muscles Recruitment Pattern in People with and Without Active Upper Trapezius Myofascial Trigger Points in the Standing Posture. J Phys Ther Sci . 2018;13(1):1–9.*
3. *BIERMAN W. INFLUENCE OF CYCLOID VIBRATION MASSAGE ON TRUNK FLEXION. Am J Phys Med Rehabil. 2006;*
4. *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;*
5. *SANDS WA, MCNEAL JR, STONE MH, RUSSELL EM, JEMNI M. Flexibility Enhancement with Vibration. Med Sci Sport Exerc. 2006;38(4):720–5.*
6. *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.*
7. *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;*
8. *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;*
9. *Kamandani R, Ghazalian F, Ebrahim K, Ghassembaglou N, Shiri Piraghaj M, Khorram A. The Effect of Acute Vibration Training on Delayed Onset Muscle Soreness in Young Non-Athlete Women. Heal Scope. 2015;*

10. *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.*
11. *Lau WY, Nosaka K. Effect of vibration treatment on symptoms associated with eccentric exercise-induced muscle damage. Am J Phys Med Rehabil. 2011;*
12. *Veqar Z, Imtiyaz S. Vibration therapy in management of delayed onset muscle soreness. J Clin Diagnostic Res. 2014;8(6):10–3.*
13. *Inaba R, Furuno T, Okada A. Effects of low- and high-frequency local vibration on the occurrence of intimal thickening of the peripheral arteries of rats. Scand J Work Environ Heal. 1988;14(5):312–6.*
14. *Germann D, El Bouse A, Shnier J, Abdelkader N, Kazemi M, Germann D, et al. Effects of local vibration therapy on various performance parameters: a narrative literature review. J Can Chiropr Assoc. 2018;62(3).*
15. *Gentili S, Uccioli L, Mugnaini S, Lella D, Richetta M, Magrini A. EFFECTS OF LOCAL VIBRATION THERAPY ON LOWER LIMB ' S SENSORIMOTOR CONTROL IN WORKERS SUFFERING FROM DIABETIC FOOT – STATE OF ARTS AND STUDY ON A NEW PREVENTION AND THERAPEUTIC SYSTEM .*
16. *Weinheimer-Haus EM, Judex S, Ennis WJ, Koh TJ. Low-intensity vibration improves angiogenesis and wound healing in diabetic mice. PLoS One. 2014;9(3):3–10.*
17. *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;*
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. *Sari Y, Saryono S, Sutrisna E, Hartono H. A Comparative Study of the Effects of Vibration and Electrical Stimulation Therapies on the Acceleration of Wound Healing in Diabetic Ulcers. J Ners. 2017;*
20. *Lohman EB, Petrofsky JS, Maloney-Hinds C, Betts-Schwab H, Thorpe D. The effect of whole body vibration on lower extremity skin blood flow in normal subjects. Med Sci Monit. 2007;*
21. *Maloney-Hinds C, Petrofsky JS, Zimmerman G. The effect of 30 Hz vs. 50 Hz passive vibration and duration of vibration on skin blood flow in the arm. Med Sci Monit [Internet]. 2008;14(3):CR112-6. Available from: http://www.ncbi.nlm.nih.gov/pubmed/18301353*
22. *Nakagami G, Sanada H, Matsui N, Kitagawa A, Yokogawa H, Sekiya N, et al. Effect of vibration on skin blood flow in an in vivo microcirculatory model. Biosci Trends. 2007;1(3):161–6.*
23. *Rabini A, De Sire A, Marzetti E, Gimigliano R, Ferriero G, Piazzini DB, et al. Effects of focal muscle vibration on physical functioning in patients with knee osteoarthritis: a randomized controlled trial. Eur J Phys Rehabil Med. 2015;*
24. *Noma T, Matsumoto S, Etoh S, Shimodozono M, kawahira K. Anti-spastic effects of the direct application of vibratory stimuli to the spastic muscles of hemiplegic limbs in post-stroke patients. Brain Inj. 2009;23(7–8):623–31.*
25. *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;*
26. *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.*
27. *Svinkin MR. Minimizing Construction Vibration Effects. Pract Period Struct Des Constr. 2004;9(2):108–15.*
28. Chamberlain GJ. Cyriax's friction massage: A review. J Orthop Sports Phys Ther. 1982;4(1):16–22.

Basic usage instructions

Controls

The General Purpose Massager has on/off button underneath, and a sliding variable speed control on top. The Deep Tissue Massager has a three position sliding control on top (off-slow-fast). The "button" underneath on a Deep Tissue Massager is not functional (provision for a control only)

Forget many of your manual techniques

Using a mechanical vibrating massager after using manual techniques is a bit like going from an axe to a chainsaw. You will need to forget a lot of manual practices.

- With a mechanical massager there is no need to press in or rub.
- There is no need to move the massager. You normally just sit the massager over the area to be massaged until it is finished, then move to the next spot. If you move the machine when massaging it is usually very slowly allowing the vibrations to “soak in”.

Machines require different techniques

Choice of heads

The heads are not for "digging in" like manual massage. When using manual massage one may use something like our smaller rounded head to help press in. With vibration it is actually the large flatter head that transmits the vibration best. The smaller rounded head can be used for some specialised uses, and to access parts that are harder to get to with the larger head. In the case of the multiple projection head the projections are not to penetrate or "dig in" with, but can be used to stop "pattering" over a larger area (discussed later).

Use over clothing or a cloth

Use over clothing or a cloth. This prevents skin irritation and minimises the risk of transmitting infection.

Use over cloth. Have the part being massaged relaxed and horizontal

Relax the part to be massaged

Massage is more effective if the muscle is relaxed and not under tension

Try to position the part to be massaged to be horizontal.

When the part being massaged is horizontal 1) the weight of the machine helps apply pressures, and 2) the weight of the machine does not need to be supported by the user. This makes it easier and reduces fatigue.

The massager contact

To get the maximum penetration the head of the massager should sit flat on the part to be massaged. At moderate speeds the weight of the machine should be enough to maintain contact. However, as speed increases the massager head will have a tendency to patter (bounce up and down). When this happens either slow the machine down, apply a moderate amount of pressure until the head stops pattering, or try the flat head with projections.

Duration

Clinical judgement should develop with usage. As a starting point try:

- a moderate speed setting
- 30 seconds for a moderate trigger point (60 for chronic deep trigger points such as those in the glutes)
- there may be multiple trigger points in an area, each needing an application of massage

Also, our massagers are sealed units which keeps out moisture and dust but keeps in heat. Please allow to completely cool after 15 minutes use. For clinicians using our massagers extensively we recommend using two machines and alternate usage.

Pain or discomfort

Whereas manual (eg. by hand) massage sometimes requires painful pressure to get to a deep spot, vibration massagers use vibration to penetrate. There is no need to press in or cause pain. In fact pain can cause muscles to tense which can work against massage. If pain or discomfort are experienced we recommend you either slow the massager to a comfortable level or cease.

Cord care

Our massagers are designed to be held and moved around, which can cause the cord to bend or twist. If a cord is bent sharply (usually where it joins into the machine) it can create a weakness. The cord will tend to bend preferentially in that spot. Eventually metal fatigue can cause the copper to crack. Personally, a very expensive high quality Bosche drill did the same shortly before writing this.We have fitted our massagers with super high quality cords capable of being bent 10,000 times without fail. However, nothing is indistructable. To help them last a very long time please don't pull or bend the cords excessively. If they are damaged the massager will stop and start when the massager or cord is moved around. If they do this stop using it immediately and have it repaired or replaced.

Dr Graeme health products
Serious Massagers for Professional Results

Trigger point treatment: deactivation or elimination

Why does pain from trigger points keep coming back? It's simple. They usually don't go. **So called "evidence based" treatments are based upon clinical trials that measure their success by whether they "de-activate" trigger points**. De-activate merely means revert them back to a state where they do not spontaneously cause pain. Of course they are still there. They will still shoot pain if pressed upon, then re-activate becoming painful when aggravated again. This is analagous to resetting a circuit breaker and leaving the fault.

CONTENTS

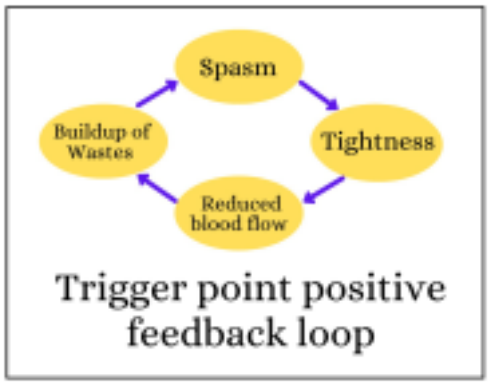
De-activating trigger points is like re-setting a circuit breaker and leaving the fault

Trigger point basics

What is a trigger point

Trigger points are described as being palpable lumps within taut bands of muscle that have characteristic pain referral patterns. They are a key issue in most muscloskeletal pain syndromes (1–4). They are thought to start from microscopic damage to muscles caused by injury or overuse, especially if blood flow is reduced due to chronic tightness. The science behind them can get quite involved, but in summary:

- part of the muscle goes into spasm forming a palpable lump.
- The spasm is locked on by a positive neurological feedback loop.
- Because the spasmed part of the muscle is shortened the remainder of the muscle becomes tight.
- With tightness restricting blood flow and the continued contraction of the spasmed section of muscle there is a build up of neurotransmitters and metabolic wastes, and a depletion of oxygen and nutrients.



Trigger point positive feedback loop

Active vs Latent (non-active)

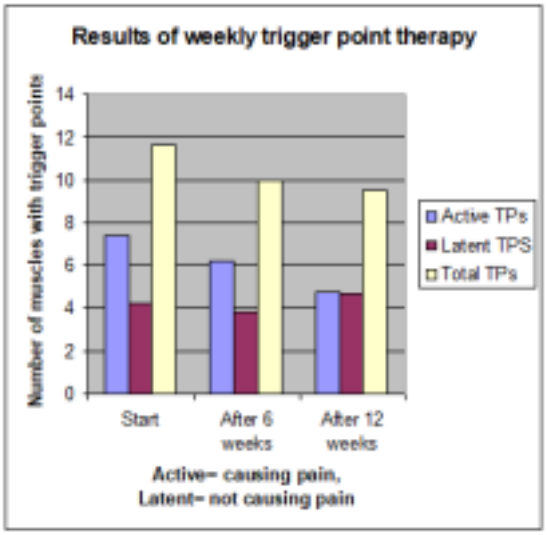
Trigger points are describes as being active or latent (non-active). This is arguably misleading because as discussed in our section on latent trigger points, although not spontaneously painful latent trigger points actively cause a host of other problems. When a latent trigger point starts shooting pain in addition it is then called "active".

How common are "non-active" trigger points

Overuse and chronic tightness of muscles are a major cause of trigger points, and they can exist in their latent state not noticed. Because of this trigger points are highly prevalent in asymptomatic people (5).

Clinical trials of trigger point therapy

There have been huge numbers of trials into the efficacy of trigger point treatments. What they typically do is identify the trigger points then apply a course of treatments. As confirmed in the quote below, they measure "success" by whether they de-activate the trigger points. By definition, a trigger point is "active" when it spontaneously produces pain, so the goal is to reduce pain. The researchers do things like use various questionnaires relating to pain and disability. **They very conveniently neglect to check or note whether the trigger points were still present**. If pain is reduced the trial is published as a success, regardless of whether the offending trigger points are still there.



Researchers would surely find this information (9) during their literature search: but leave it out.

The three trials we found that did check for trigger points clearly show that most trigger points remain, and of course as discussed in the section on latent trigger points they will continue to cause issues then eventually re-aggravate and become painful again.

To quote a review of trigger point therapies: (7)

> ***"Most physical therapy treatments of MPS (myofascial pain syndromes) are targeted at deactivation of MtrPs (myofascial trigger points)."***

Poor and misleading treatment plans

We would strongly argue that following these protocols is not only poor practice, it is highly misleading. To illustrate this we will show two different ways the facts from facts from trial (8) could be presented to a patient. Which is the most honest?

The facts.

A course of three weekly applications of dry needling gave symptomatic relief. Checking post trial found that 71% of the original trigger points were still present.

Version one

"Make three weekly appointments for dry needling. It is a clinically proven treatment so you should feel a lot better".

Version two

"I'll give you three sessions of dry needling. You'll feel better, but 71% of your problems will still be there. They'll still be causing you some issues but you won't feel them, then probably the next time you do something they will start hurting again so you can make an appointment for three more sessions of dry needling"

Where does omitting that trigger points remain fit in?

The three exceptions

We were able to find three trials that investigated the presence of trigger points after therapy. Note that all found that the majority of trigger points were still there after a course of treatments.

Trial one (8)

52 active trigger points were treated with three weekly applications of dry needling. Symptoms were of course reduced. However, after treatment 11 were still active, 26 had deactivated, and only 15 (29%) were eliminated.

Trial two: (9).

Patients received 12 weekly therapy sessions, with each using multiple trigger point therapies. This is way in excess of what happens in most clinical practices, both in the number of sessions and what was done at each session. Patients did report symptomatic relief, but upon examination approximately 2/3 of the trigger points remained.

Trial three (10)

Patients were given three sessions of manual therapy plus a home exercise program. After treatment 32% of trigger points were eliminated

Latent trigger points are still a problem

Apart from being just one step from becoming symptomatic, having part in continuous spasm with reduce blood will of course be detrimental for the muscles, and the hypertonicity and reduced functionality will adversely effect posture and biomechanics. Even without referring pain, the consequences of latent trigger points have been summed up as follows. (5)

- restrict ranges of motion
- cause muscle weakness
- cause muscle fatigue
- alter muscle activations
- induce muscle cramps, and
- affect posture and joint function, creating further issues.

On top of that, scientists are now finding that latent trigger points still produce sub-threshold levels of pain that over time sensitises the nervous system. This is a major cause of issues such as fibromyalgia and migraines (6).

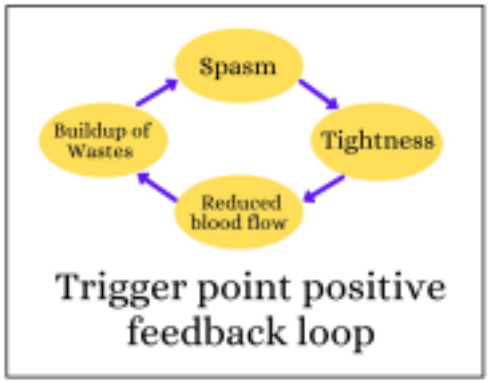
Our solution for treatment of trigger points

In the absence of clinical trials whose goal it to eliminate trigger points we've combined our own clinical experience with what has been learned about the pathophysiology of trigger points, and the results of trials that have been conducted. The folloing is the strategy we've used.

Overall strategy

In the following section we will discuss the trigger point therapy that can be used, but it is most important to remember that trigger points are usually part of a more complex musculoskeletal problem, and there are usually things that cause or aggravate them that need to be identified and addressed. Because of this therapy alone is usually not enough. **The safe and effective way to eliminate trigger points is to have a professional manage the overall issues and advise patients/clients on aspects of self therapy**.

Effective treatments



To understand effective trigger point treatments we need to have a basic understanding of what they are and how they form. As this diagram shows they start with part of the muscle going into spasm, which causes tightness restricting blood flow. This causes a build up of toxic wastes which causes further spasm. This keeps going around in circles getting gradually worse over time. To break this loop an effective treatment needs to address one or more of these issues. It is for this reason that there so many different therapies used to treat trigger points and trigger point related pain. We have massage techniques, dry needling, lasers, stretch and freeze therapy, and the list goes on. As long as they address at least one issue they will have some effect (27,28)

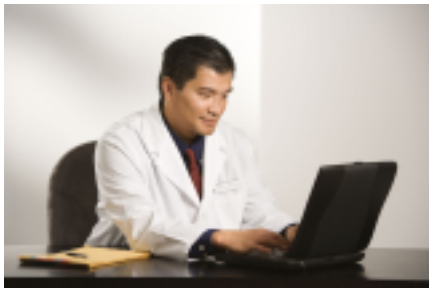
Number of treatments

The trial results discussed above show 3-12 sessions of therapy reduce pain but eliminate less than one third of trigger points. Therefore a very large number of treatments are necessary to eliminate trigger points properly. Because of this it is best if some therapy can be self applied, or it will become very expensive.

Our choice of therapy

Vibration massage has been scientifically proven to address all the major issues of a trigger point. It disrupts spasm, relaxes muscles, increases blood flow, and the increased blood flow flushes the build up of wastes. For more details please see our article: The scientific effects of vibration massage with clinical applications.

Further, it takes no special skill or knowledge to apply vibration massage, so it is ideal for home use. Because of the large number of therapy applications needed effective treatment needs to include some home treatment, otherwise it becomes unaffordable and inconvenient.



Try this trigger point treatment strategy

If you are a professional and wish to try a this therapy contact us for a professional rate or possibly a sample massager.

References

1. *Uemoto L, Nascimento De Azevedo R, Almeida Alfaya T, Nunes Jardim Reis R, Depes De Gouvêa CV, Cavalcanti Garcia MA. Myofascial trigger point therapy: Laser therapy and dry needling. Curr Pain Headache Rep. 2013;17(9).*
2. *Denneny, Diarmuid et al. Trigger point manual therapy for the treatment of chronic noncancer pain in adults: a systematic review and meta-analysis. Arch Phys Med Rehabil. 2019;100(3):562–77.*
3. *De Las Peñas CF, Sohrbeck Campo M, Fernández Carnero J, Miangolarra Page JC. Manual therapies in myofascial trigger point treatment: A systematic review. J Bodyw Mov Ther. 2005;9(1):27–34.*
4. *Bron C, De Gast A, Dommerholt J, Stegenga B, Wensing M, Oostendorp RAB. Treatment of myofascial trigger points in patients with chronic shoulder pain: A randomized, controlled trial. BMC Med. 2011;9.*
5. *Boyles R, Fowler R, Ramsey D, Burrows E. Effectiveness of trigger point dry needling for multiple body regions: A systematic review. J Man Manip Ther [Internet]. 2015;23(5):276–92. Available from: http://dx.doi.org/10.1179/2042618615Y.0000000014*
6. *Tough EA, White AR, Cummings TM, Richards SH, Campbell JL. Acupuncture and dry needling in the management of myofascial trigger point pain: A systematic review and meta-analysis of randomised controlled trials. Eur J Pain [Internet]. 2009;13(1):3–10. Available from: http://dx.doi.org/10.1016/j.ejpain.2008.02.006*
7. *Cagnie B, Castelein B, Pollie F, Steelant L, Verhoeyen H, Cools A. Evidence for the use of ischemic compression and dry needling in the management of trigger points of the upper trapezius in Patients*

with Neck Pain: A Systematic Review. Am J Phys Med Rehabil. 2015;94(7):573–83.

8. *Espejo-Antúnez L, Tejeda JFH, Albornoz-Cabello M, Rodríguez-Mansilla J, de la Cruz-Torres B, Ribeiro F, et al. Dry needling in the management of myofascial trigger points: A systematic review of randomized controlled trials. Complement Ther Med . 2017;33(December 2018):46–57.*
9. *Rickards LD. The effectiveness of non-invasive treatments for active myofascial trigger point pain : A systematic review of the literature 2006;9:120–36.*
10. *Hakgüder A, Birtane M, Gürcan S, Kokino S, Tura FN. Efficacy of Low Level Laser Therapy in Myofascial Pain Syndrome: An Algometric and Thermographic Evaluation. Lasers Surg Med. 2003;33(5):339–43.*
11. *Shah J et al. Myofascial Trigger Points Then and Now: A Historical and Scientific Perspective. HHS Public Access. 2015;7(7):746–61.*
12. *Jafri MS. Mechanisms of Myofascial Pain. Int Sch Res Not. 2014;2014:1–16.*
13. *Zhuang XQ, Tan SS, Huang QM. Understanding of myofascial trigger points. Chin Med J (Engl). 2014;127(24):4271–7.*
14. *Bron C, Dommerholt JD. Etiology of myofascial trigger points. Curr Pain Headache Rep. 2012;16(5):439–44.*

Dr Graeme health products
Serious Massagers for Professional Results

The sports and exercise guide to vibration massage

Introduction

This guide is to introduce you to the huge benefits of using your own personal use vibration massager for those who play sports or exercise. The uses we cover include:

warm ups
stretching
rehabilitation
post exercise and recovery
increasing performance
trigger points and muscular pains

The scientific basis

The uses discussed are all based upon clinical trials and the scientifically proven effects of vibration. For more information please see our guide *The scientifically proven effects of vibration massage with clinical applications*

When you use a vibration massager the vibrations have the scientifically proven effects shown above

Warm ups

The purpose of a warm up 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.

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

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 how to reduce post exercise soreness and speed recovery please see or article *Summary of research on the effect of vibration massage on post exercise muscle soreness and recovery*

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

- Where it is difficuly to stretch: eg. where it is hard to isolate the muscle you 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.

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, such as:

- warm ups lengthening muscles to optimal operating length and flushing them with blood.
- helping eliminate performance robbing trigger points (see next section).
- less soreness and faster recovery after sports or training
- reducing injuries.

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

(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.

VS

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

- Create tightness in the muscle, restricting performance, predisposing muscle to tearing, and causing pain where the muscles attach (eg.tennis elbow).
- Cause muscles to under-perform 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.

Because of their importance we have several videos on what trigger points are and how they are treated.

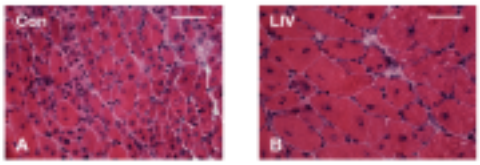
Rehabilitation

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 *Assisting 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. As discussed previously, vibration massage is able to lengthen muscles similarly to that done by stretching exercises, and is an excellent trigger point therapy.

The health benefits of massage

We originally developed our massagers for home use to allow the practically unlimited quality soft tissue therapy needed to help rehabilitate musculoskeltal conditions. However, massage is also used for it's health and wellness related benefits. One of the best examples of these are the "chair massages" some companies provide for their employees, and other regular massages such as those provided at day spas. We managed to find 28 trials of massages used for health and wellness. The main benefits are listed below, and the results of the trials are summarised in a table in our web article The health benefits of massage (the table is too large to reproduce here).

List of scientifically demonstrated benefits of massage

- Improving sleep
- Reducing fatigue
- Work related aches and pains
- Reducing blood pressure and heart rate
- Reducing anxiety
- Reducing occupational stress
- Depression
- Nausea in cancer patients

Dr Graeme health products
Serious Massagers for Professional Results

Functional rehabilitation

Overview

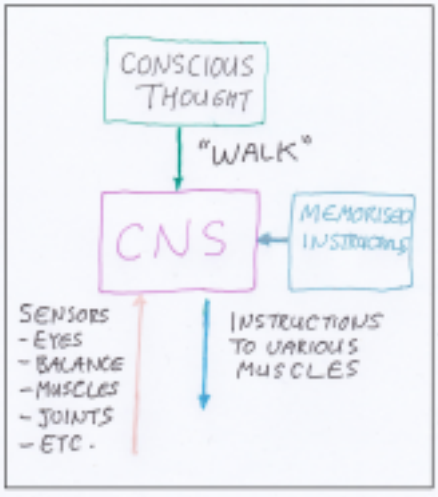
Optimal function for a human musculoskeletal system is were structures are in balance, stress on joints and other tissues is minimised, and biomechanics is optimised. Dysfunction is where this is changed, which creates abnormal stress and loads on various tissues and structures. This can lead to pain, injury and degeneration. In this article we discuss what causes dysfunction and how it can be corrected

Consider function like a wheel alignment: correct alignment drives well and lasts optimally, while out of alignment causes poor handling and rapid wear

Normal functional control

This diagram shows how neurological control works using the simple example of walking.

- You consciously decides to walk. You do not need to think about things like when to contract your hamstring muscles or what angle your ankle joint needs to be. Your Central Nervous System (CNS) takes care of all of this.
- Your CNS has access to memorised instructions on how to walk. It uses these, while constantly monitoring feedback from various sensors around your body.
- Based upon the memorised instructions and feedback the CNS sends out coordinated instructions to the many muscles needed.



Normal functional control

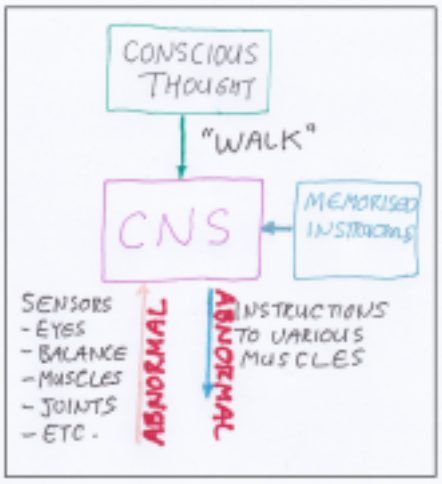
How dysfunction occurs

When sensory input is altered the CNS will alter instructions to compensate. A noticable example would be the case of an injured ankle. The CNS would re-organise the control of muscles to produce a limp, transferring much of the load to the other side. However, any alteration of sensory input or imparement of a functional element element will cause the CNS to alter it's output causing dysfunction. Examples include:

- injuries
- muscular issues (eg. shortening, trigger points)
- joint issues (eg. restrictions, abnormal sensory feedback)

Example

Later in this article we describe research showing how the presence of trigger points dramatically altered the control and coordination of shoulder muscles.



Abnormal sensory input creates compensations

How to correct dysfunction

What will not work

Before we discuss how to correct dysfunction, lets look at two commonly used ways that wont.

Rest and medication

Injuries and pain syndromes typically involve dysfunction. Rest and medication may help heal an injury and relieve pain, however they rarely address the issues that cause dysfunction.

"Corrective" exercises

It is important to realise that control of activation of muscles is predominately under the control of the CNS. Conscious efforts can do little to change this. Put simply, if sources of abnormal sensory input remain the CNS will find away to alter the control of muscle to compensate.

If the CNS (Central Nervous System) receives abnormal sensory information or that a functional element is not working it will perform exercises in a compensatory manner

What will work

Put simply, if the source of abnormal sensory input is removed or normalised the CNS will re-program and may even return to normal function without any further intervention. If the condition is chronic further assistance such as exercises may be needed to help "reprogram", or rehabilitate functional elements that may have deteriorated. Lets look at three examples.

Example One: functional restoration following the treatment of trigger points

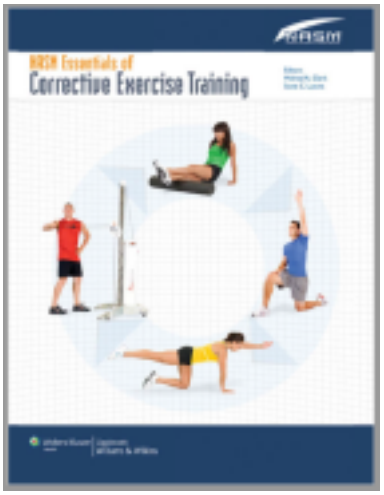
Abduction of one's shoulder requires the coordinated effort of many muscles. (myofascial) trigger points are known to inhibit the normal function of muscles. A trial found that when trigger points

were present they substantially altered the activity of the muscles resulting in un-coordinated joint movement. When the trigger points were treated the neurological control reverted back to normal (4). There has been a huge amount of research showing that these trigger points are both highly prevalent (even in asymptomatic people) and cause considerable functional abnormalities (5-17).

Example two: USA's National Academy of Sports Medicine (NASM) guidelines

The USA's National Academy of Sports Medicine in their publication NASM's Essentials of Corrective Exercise Training (1) advise that to remove impediments for normal function the following procedures be included into correction exercise plans. We consider these a big improvement on the common practice of prescribing "corrective exercises" without any considerations, but it neglects to mention the very important articular considerations discussed in the next example.

1. Inhibitory techniques to relax hypertonic muscles
2. Lengthening techniques for contracted muscles
3. Activation and integration techniques



National Academy of Sports Medicine advises to restore functional elements as part of any corrective exercise program

Example three: Clinical trial

In clinical trials comparing the use of exercise alone and exerises plus manual therapies that help address muscular and articular function abnormalities, the results were far superior when the manual therapies were included (2,3). This shows the extreme importance of addressing articular functional issues. The evaluation and correction of these requires specialised knowledge and training, such as that posessed by a Chiropractor, Osteopath or a specialist Physiotheapist.

References

1. *Clark MA, Lucett SC. NASM Essentials of Corrective Exercise Training. Lippincott Williams & Wilkins; 2011.*
2. *Bang MD, Deyle GD. Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome. J Orthop Sports Phys Ther. 2000;*
3. *Yemul SR. Sunita R Yemul COMPARISON OF SUPERVISED EXERCISE WITH AND WITHOUT MANUAL PHYSICAL THERAPY FOR PATIENTS WITH SHOULDER IMPINGEMENT SYNDROME. J Cur Res Rev [Internet]. 2013;05(05):5. Available from: https://pdfs.semanticscholar.org/58be/5f3ab071d954be4023e27183421c71ecb83f.pdf*
4. *Lucas KR, Rich PA, Polus BI. the Effects of Latent Myofascial Trigger Points on Muscle Activation Patterns During Scapular Plane Elevation. Jclb [Internet]. 2007;25(8):765–70. Available from: http://dx.doi.org/10.1016/j.clinbiomech.2010.05.006*
5. *Zuil-Escobar JC, Martínez-Cepa CB, Martín-Urrialde JA, Gómez-Conesa A, Shin C, Oh H, et al. Muscles Recruitment Pattern in People with and Without Active Upper Trapezius Myofascial Trigger Points in the Standing Posture. J Phys Ther Sci [Internet]. 2018;13(1):1–9. Available from: http://dx.doi.org/10.1016/j.pmrj.2016.03.004*
6. *Florencio LL, Ferracini GN, Chaves TC, Palacios-Ceña M, Ordás-Bandera C, Speciali JG, et al. Active Trigger Points in the Cervical Musculature Determine the Altered Activation of Superficial Neck and*

Extensor Muscles in Women with Migraine. Clin J Pain. 2017;33(3):238–45.

7. *Bohlooli N, Ahmadi A, Maroufi N, Sarrafzadeh J, Jaberzadeh S. Differential activation of scapular muscles, during arm elevation, with and without trigger points. J Bodyw Mov Ther [Internet]. 2016;20(1):26–34. Available from: http://dx.doi.org/10.1016/j.jbmt.2015.02.004*
8. *Chiarotto A, Clijsen R, Fernandez-de-las-Penas C, Barbero M. The prevalence of myofascial trigger points in spinal disorders: a systematic review and meta-analysis. Physiotherapy. 2015;*
9. *Kaya Mutlu E, Birinci T, Dizdar G, Ozdincler AR. Latent Trigger Points: What Are the Underlying Predictors? Arch Phys Med Rehabil. 2016;*
10. *Zuil-Escobar JC, Martínez-Cepa CB, Martín-Urrialde JA, Gómez-Conesa A. The Prevalence of Latent Trigger Points in Lower Limb Muscles in Asymptomatic Subjects. PM R. 2016;8(11):1055–64.*
11. *Celik D, Mutlu EK. Clinical implication of latent myofascial trigger point topical collection on myofascial pain. Curr Pain Headache Rep. 2013;17(8).*
12. *Fernández-De-Las-Peñas C, Gröbli C, Ortega-Santiago R, Fischer CS, Boesch D, Froidevaux P, et al. Referred pain from myofascial trigger points in head, neck, shoulder, and arm muscles reproduces pain symptoms in blue-collar (Manual) and white-collar (Office) workers. Clin J Pain. 2012;28(6):511–8.*
13. *Fuentes-Márquez P, Carmen Valenza M, Cabrera-Martos I, Ríos-Sanchez A, Ocon-Hernández O. Trigger points, pressure pain hyperalgesia, and mechanosensitivity of neural tissue in women with chronic pelvic pain. Pain Med (United States). 2019;20(1):5–13.*
14. *Roach S, Sorenson E, Headley B, Juan JGS. Prevalence of Myofascial Trigger Points in the Hip in Patellofemoral Pain. Arch Phys Med Rehabil [Internet]. 2013;94(3):522–6. Available from: http://dx.doi.org/10.1016/j.apmr.2012.10.022*
15. *Castaldo M, Ge HY, Chiarotto A, Villafane JH, Arendt-Nielsen L. Myofascial trigger points in patients with whiplash-associated disorders and mechanical neck pain. Pain Med (United States). 2014;15(5):842–9.*
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.*

Dr Graeme health products
Serious Massagers for Professional Results

How scientists have successfully treated fibromyalgia

The fibromyalgia story

Years ago doctors had patients complaining of widespread pain, but could not find anything wrong. It is very un-doctor like to say they knew nothing so they put in the diagnosis manual that if anyone had widespread pain for a while and the tests came back negative it was called "fibromyalgia". This was a boon for doctors and drug companies (1,2)

- doctors got to sound authoritative when they knew nothing
- specialists and testing laboratories make a fortune "diagnosing" this condition
- drug companies are happily selling symptom relieving drugs to patients who will never get better

Then, over a decade ago several scientists worked out what causes fibromyalgia and even successfully treated it, but it takes a while for such knowledge to get through to doctors. For example, it took 14 years from when Penicillin was discovered to when doctors started using it. In the case of the fibromyalgia doctors and drug companies are on a good thing, so they are in no hurry. In this article we'll share with you what the scientists found and what you can do.

It's true

It's true that "fibromyalgia" means "I know nothing". This advice from the American College of Rheumatology confirms:

- diagnosis based on the patients symptoms means is you say you have have widespread soreness
- all they know is "research suggests that the nervous system is involved"
- there are no tests to detect it
- there is no cure
- all they can offer is medications to reduce the symptoms

American College of Rheumatology
Empowering Rheumatology Professionals

Fast Facts

- Fibromyalgia affects two - four percent of people, women more often than men.
- Fibromyalgia is not an autoimmune or inflammation based illness, but research suggests the nervous system is involved.
- Doctors diagnose fibromyalgia based on all the patient's relevant symptoms (what you feel), no longer just on the number of tender places during an examination.
- There is no test to detect this disease, but you may need lab tests or X-rays to rule out other health problems.
- Though there is no cure, medications can reduce symptoms in some patients.
- Patients also may feel better with proper self-care, such as exercise and getting enough sleep.

The scientist's understanding of fibromyalgia

Sensitisation of the nervous system

Scientists have found that fibromyalgia is caused by your nervous system being bombarded by other pain signals over a long period of time until it becomes sensitised. When this happens normal stimuli becomes painful, painful stimuli are amplified, and because the nervous system controls most of your body's functions you get may seemingly unrelated symptoms (3,4). They found the major cause of this pain that bombards the nervous system to be (myofascial) trigger points. We'll discuss them later, but lets take a step by step look at fibromyalgia.

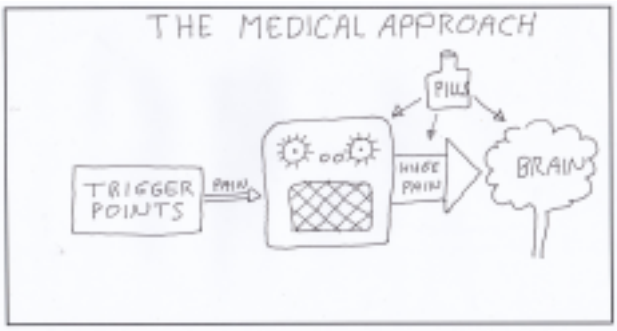
How fibromyalgia forms

This diagram shows how pain from undiagnosed or inadequately treated trigger points bombard the nervous system until it becomes sensitised. Once sensitised the nervous system acts like a big amplifier, so small pain becomes large pain. Trigger point don't show up in medical tests and are largely unrecognised by doctors so they "diagnose" fibromyalgia and tell you to take symptom relieving drugs. The drug companies are very happy.

Trigger points sensitise the nervous system

Medical treatment for fibromyalgia

The medics recognise that the nervous system has become sensitised, and that the brain is receiving massive pain signals. Their solution is to have a shopping list of drugs and therapies that reduce pain and reduce the sensitivity of the nervous system.

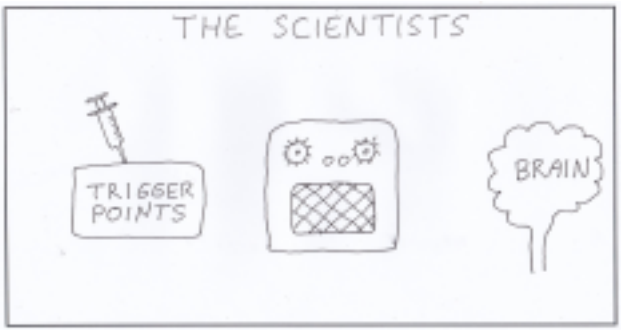


Medics treat the sensitisation and pain

How the scientists treated fibromyalgia

The way scientists treated fibromyalgia was to simply inject the trigger points with anaesthetic. That stopped them bombarding the nervous system with pain so it stopped acting like an amplifier and the fibromyalgia faded away (5).

Injecting trigger points with anaesthetic does not have a long lasting effect. It is excellent for investigating and proving a theory, but not a permanent solution. The permanent solution is to eliminate trigger points.



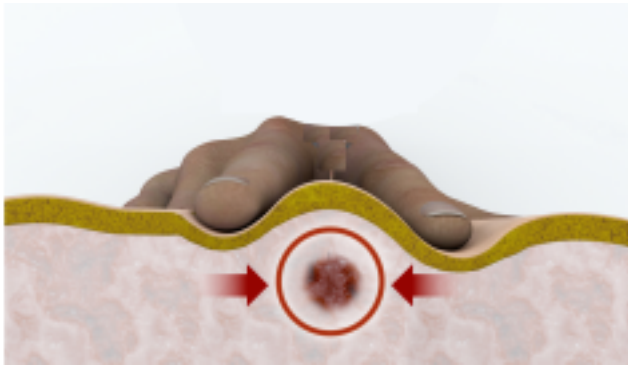
Scientists treated the cause of pain

Trigger points

The scientists found that eliminating the pain from trigger points relieved fibromyalgia, so eliminating the trigger points should go a long way towards eliminating fibromyalgia, so lets look at what trigger points are and how they are treated.

What are trigger points

Trigger points are those tender lumps in muscles that shoot pain when pressed upon. Although they are easily found by therapists and arguably the biggest cause of pain such as back, neck and shoulder pain they do not show up in standard medical tests and are barely mentioned in medical journals. As a consequence pain from these too often goes undiagnosed and/or inadequately treated. This allows them to bombard the central nervous system over the long time necessary to cause sensitisation.



Trigger points are the tender lumps in muscles therapists find

The treatment of trigger points

We have a lot information on treating trigger points elsewhere in this guide. However, the key issue is that they need repeated therapy over time. The use of vibration massage is the only very effective therapy we are aware of that can easily be self applied, making the large number of applications necessary convenient and affordable (6-8).

Special considerations

- The treatment of trigger points prior to the development of fibromyalgia requires a process over time.
- Once fibromyalgia has developed we have the following further considerations.

The condition will have been there longer, hence be more entrenced and harder to treat.
Sensitisation will cause patients to be less tolerant to treatment.

Concluding remarks

Once fibromyalgia develops treating the underlying cause becomes a lot more difficult, but the only other choice is a lifetime of suffering and symptom relieving medications. It would be far better if trigger points were properly diagnosed and treated before this happens.

References

1. *Di Franco M, Iannuccelli C, Bazzichi L, Atzeni F, Consensi A, Salaffi F, et al. Misdiagnosis in fibromyalgia: A multicentre study. Clin Exp Rheumatol. 2011;29(6 SUPPL. 69).*
2. *Sarac A, Gur A. Complementary and Alternative Medical Therapies in Fibromyalgia. Curr Pharm Des. 2005;*
3. *Giamberardino MA, Affaitati G, Fabrizio A, Costantini R. Myofascial pain syndromes and their evaluation. Best Practice and Research: Clinical Rheumatology. 2011.*
4. *Borg-Stein J. Management of peripheral pain generators in fibromyalgia. Rheum Dis Clin North Am. 2002;May:28(2):305–17.*
5. *Affaitati G, Costantini R, Fabrizio A, Lapenna D, Tafuri E, Giamberardino MA. Effects of treatment of peripheral pain generators in fibromyalgia patients. Eur J Pain. 2011;*

6. *Lauche R, Cramer H, Haüser W, Dobos G, Langhorst J. A Systematic Overview of Reviews for Complementary and Alternative Therapies in the Treatment of the Fibromyalgia Syndrome. Evidence-based Complement Altern Med. 2015;2015(August).*
7. *Tsao JCI. Effectiveness of massage therapy for chronic, non-malignant pain: A review. Evidence-based Complementary and Alternative Medicine. 2007.*
8. *Li YH, Wang FY, Feng CQ, Yang XF, Sun YH. Massage therapy for fibromyalgia: A systematic review and meta-analysis of randomized controlled trials. PLoS One. 2014;*

Dr Graeme health products
Serious Massagers for Professional Results

Assisting healing

Contents

Video summary

Using these benefits

This is general information. For specific advice one should consult a professional familiar with his or her needs. The scientists have achieved these remarkable results by applying vibration in the range of 35-50Hz, with applications of 15-30 minutes per day. This is about 60-95% of full power in a General Purpose Massager. Usage would need to be done so as not to cause futher injury. For example, vibration should be applied away from an injury, then moved closer as the injured part was able to tolerate it.

Please also note that some research involving making deliberate injuries was done on animals such as sheep, mice and rats. Similar effects in humans are likely, but not proven.

Summary of effects

Healing bone fractures

There have been a large number of trials investigating the effect of vibration on the healing of bone fractures. Therapeutic applications have generally been in the range of 35-45Hz, with applications of 20-30 minutes per day. Researchers have viewed healing on xrays, measured various blood chemical levels and noted the number of osteoblasts (bone producing cells). All trials showed that the application of vibrations sped up healing remarkably (1–9)

Wound healing

We found two trials that measured the effect of vibrations on wound healing. The results are illustrated in the following pictures. As healing is an issue for diabetes sufferers due to impaired circulation the researcher were interested about whether vibration's effect of increasing blood flow would help (10,11)

Muscle injury

A study into the effect of vibration on the healing of muscles used applications of 45 Hz for 30 minutes a day. As shown in the following pictures this resulted in a remarkable increase in the size of muscle fibres and reduction in the amount of fibrosis (12)

Nervous tissue

Scientist investigating the effect of vibration on the healing of nervous tissue by deliberately injuring the brachial plexus on a large number of mice (13) . What the found was truly remarkable. We've reproduced their summary of findings in an appendix, but in summary the vibration was found to:

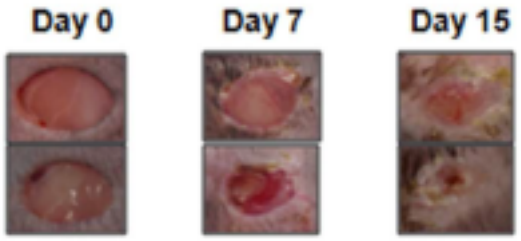
- accelerate the formation of new skin and tissues, speeding the closure of wounds
- accelerate the formation of new blood vessels
- increase blood flow and increase the permeability of capillaries allowing more blood to the tissues
- increase the production of Growth Factor and various other growth related hormones.
- promotes the repair and regeneration of nerves
- increase the activity of various other chemicals needed for growth and repair

The pictures

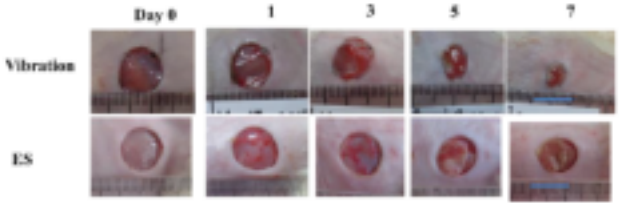
Wound healing

We found two trials that measured the effect of vibrations on wound healing. The results are illustrated in the following pictures. As healing is an issue for diabetes sufferers due to impaired circulation the researcher were interested about whether vibration's effect of increasing blood flow would help (10,11)

The two sets of pictures to the right show healing using vibrations compared with healing without vibrations. The vibration applied was 45 hz for 10-25 minutes per day. 45 hz is the vibration applied by our General Purpose Massagers at approximately 75% of full power.



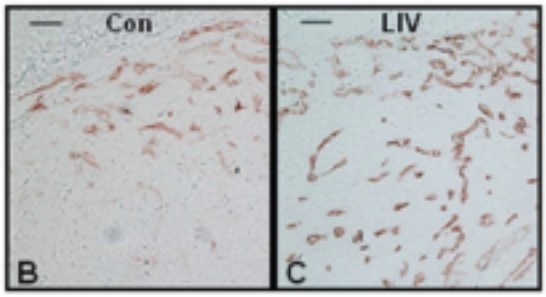
Vibration was used to help healing the bottom wounds



Vibration was used to help healing the top wounds

Formation of blood vessels (11)

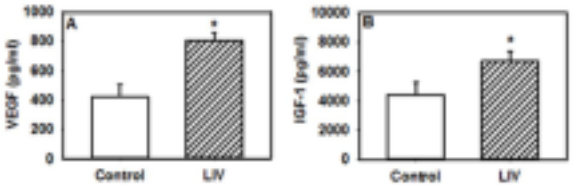
In one of the trials the formation of blood vessels was investigated. In these pictures the darker lines are the blood vessels. It shows that vibration (LIV) cause the growth of a lot more blood vessels.



Vibration cause the growth of more blood vessels

Level of growth hormones (11)

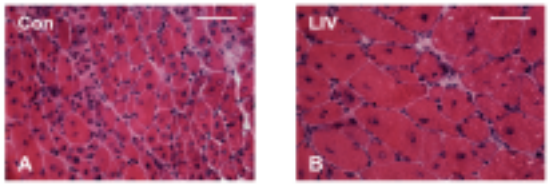
These graphs show the effect of vibration on the levels of various growth hormones. Vibration of 45 Hz for 30 minutes a day caused a remarkable increase.



Vibration cause the production of a lot more growth hormones

Muscle fibres (12)

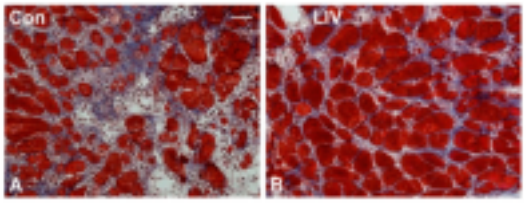
This photo shows the effect on healing muscle of 45 Hz vibration for 30 minutes per day. It shows muscle fibres in cross section. Those receiving vibration have clearly grown much larger.



Vibration caused the muscle fibres to grow much faster

Fibrosis (12)

From the same trial. In these photos the lighter staining represents fibrous scar like tissue, while the red is the muscle fibres. This clearly shows that the application of 45 Hz vibration for 30 minutes per day resulted in healing and muscle growth with far less scar tissue.



Vibration caused the muscle to heal with much less scar tissue

Appendix One: results in the scientist's own words

The following is a direct summary from the trial testing the effects of vibration on the healing of injured nerves. There are a few technical terms, but overall it's pretty easy to understand (13).

Effect of Mechanical Massage Treatment on Muscles of Limbs

Mechanical vibration massage treatment has obvious effect on muscular atrophy induced by nerve root injury. It can dilate capillary, increase volume of blood flow, so as to greatly improve blood supply and nutrition in local tissue; It can make the wall of micrangium rhythmically flatten and restore, accelerating flow of blood; And it can promote contraction and extension of muscle fibers, strengthen muscular tension, elasticity and tolerance, so, it can prevent and cure muscular atrophy.

Effect of Mechanical Massage on Secretion of NGF (Nerve Growth Factor- a growth hormone)

Benign stimulation of mechanical vibration massage can activate the response of nerve immune and neuroendocrine systems, and transmit the signals to the submandibular gland through complicated ways, promoting secretion and storage of NGF in the submandibular gland. Finally, NGF is transported to brachial plexus root injury area through digestive, circulative and nerve systems.

Effect of Mechanical Massage on Repair of Injured Nerves

Mechanical vibration massage can effectively promote the repair of myelin sheath and axes of injured brachial plexus in the rat. It can effectively improve blood circulation of the injured myelin sheath, promote proliferation of SC and survival of the cell body of injured neurons, so as to form a necessary regenerative micro-environment early for repair of nerve, and it induces stress responses of immune and neuroendocrine systems in the rat,promotes secretion of NGF in this gland, and it can improve peripheral nerve units and excite peripheral nerves, so as to accelerate their conduction reflection.

Effect of Mechanical Massage on Na+, K+-ATPase Activities

Na+, K+-ATPase activity on the surface of muscular cell membrane is an important limited factor for excitability and contractile strength of muscular cells. After skeletal muscles lose nervous innervation, generation of ATP is hindered, so Na+, K+-ATPase activity decreases. Under the mechanical massage stimulation, the muscular cells cultured in vitro show increases in stress-related gene expression and protein synthesis, leading to adaptability reconstruction of structures and contractile characters of the muscular cells, which are closely related with activation of Na+, K+-ATPase, and influences the distribution and functional activity of Na+, K+-ATPase on the surface of muscular cell membrane. In brief, mechanical vibration massage can promote the regeneration and recovery of the brachial plexus, and effectively slow down the decrease of Na+, K+-ATPase activities induced by the nerve injury, preventing muscular atrophy, and it promotes the generation of submandibular gland NGF, providing a favorable environment for regeneration of nerve"

References

1. *Zhao B, Li R, Cheng S, Dong X, Tan L, Chen Y, et al. Intermittent low-magnitude high-frequency vibration promotes osteogenic protein expression and inhibits osteoclastogenic cytokine secretion in osteoblasts. Biomed Res. 2018;*
2. *Tan L, Li YH, Zhao B, Li Y, Zhu D. Intermittent low-magnitude high-frequency vibration enhances biological and radiological parameters during fracture healing in sheep. Int J Clin Exp Pathol. 2017;*
3. *Mu D, Yu J, Lin J, Li C, Hao B, Gu F, et al. Intermittent vibrations accelerate fracture healing in sheep. Acta Cir Bras. 2019;*
4. *Wang J, Leung KS, Chow SKH, Cheung WH. The effect of whole body vibration on fracture healing – a systematic review. European Cells and Materials. 2017.*
5. *Bilgin HM, Çelik F, Gem M, Akpolat V, Yıldız İ, Ekinci A, et al. Effects of local vibration and pulsed electromagnetic field on bone fracture: A comparative study. Bioelectromagnetics. 2017;*
6. *Li Y, Liu G, Yu J, Li C, Tan L, Hao B, et al. Effects of continuous or intermittent low-magnitude high-frequency vibration on fracture healing in sheep. Int Orthop. 2018;*
7. *Shi HF, Cheung WH, Qin L, Leung AHC, Leung KS. Low-magnitude high-frequency vibration treatment augments fracture healing in ovariectomy-induced osteoporotic bone. Bone. 2010;*
8. *Ho-Kiu Chow. Low-Magnitude High-Frequency Vibration (LMHFV) Enhances Bone Remodeling in Osteoporotic Rat Femoral Fracture Healing. J Orthop Res. 2011;23:746–52.*
9. *Leung KS, Shi HF, Cheung WH, Qin L, Ng WK, Tarn KF, et al. Low-magnitude high-frequency vibration accelerates callus formation, mineralization, and fracture healing in rats. J Orthop Res. 2009;*
10. *Sari Y, Saryono S, Sutrisna E, Hartono H. A Comparative Study of the Effects of Vibration and Electrical Stimulation Therapies on the Acceleration of Wound Healing in Diabetic Ulcers. J Ners. 2017;*
11. *Weinheimer-Haus EM, Judex S, Ennis WJ, Koh TJ. Low-intensity vibration improves angiogenesis and wound healing in diabetic mice. PLoS One. 2014;9(3):3–10.*
12. *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.*
13. *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;*

Dr Graeme's comments

The scientificly proven benefits of having a regular massage include improved sleep, reduced anxiety and reduced blood pressure. All your patients or clients need is some advice from you and a massager plugged in next to their favourite lounge chair

An easy safe way to improve sleep quality while reducing anxiety, heart rate and blood pressure

Summary

A recent study published in the journal *Asian Pacific Journal of Cancer Prevention* showed that a simple 15 minute back massage each day for a week reduced anxiety, lowered heart rates and blood pressure, and improved sleep quality. This is non-pharmaceutical, extremely safe and practically side effect free. The only thing stopping most people from enjoying these benefits is that having a professional massage each day would be prohibitively time consuming and expensive. Patients and clients can now do this by using our DrGraeme serious massagers for home use.

The study overview

The authors of the study were seeking a way to benefit those who care for cancer patients, a task that can be very demanding and stressful. They chose as research subjects 44 carers aged 18 years and older with no significant medical or musculoskeletal problems. 22 received the massages while 22 were used as controls (to compare). Those massaged were given a fairly standard 15 minute manual back massage each day for a week. For scientific purposes the researchers needed to make sure any improvements were due to the massage alone. To do this physiological effects were minimised by having the therapists keep communications to a minimum, and non-aromatic baby oil was used to eliminate any aroma therapy effects. So they knew that any improvements were not due to the rest and relaxation while being massaged comparison group rested quietly in a silence room, and were not allowed anything that might affect the outcome such as music, television or exercising. The researchers used scientific questionnaires and measurements to measure anxiety levels, heart rate, blood pressure and sleep quality

The study results

Anxiety state

Anxiety levels were measured by two methods. The first was by using a scientific questionnaire where scores range from 0 to 80. Over the week the massage group improved from 49.68 to 45.68 while the control group actually worsened.

The second measurement was the level of a chemical called cortisol in the blood. This is significantly increased by psychological stressors, especially chronic stressful events. The authors noted that six previous reviews of the effect of massage on cortisol levels showed either small or non-significant improvements. However, this study achieved a very significant reduction. The researchers attributed this to providing multiple applications of therapy.

To quote the authors:

> *In this study, a decrease in cortisol levels after massage was not surprising because massage was applied in multiple doses as 15 minutes a day for one week, thus sustaining the effect of massage might be effective.*

Blood pressure and heart rate

To quote the authors:

> *Our findings showed that both BP and HR, which are psychological indicators, significantly decrease by massage.*

Sleep Quality

As measured by a questionnaire called the "Pittsburgh Sleep Quality Index" 77.3% of the subjects initially suffered from poor quality sleep. After the week this had reduced to only 63.6%, with average index scores also significantly reduced. Interestingly, as occurred with the anxiety state measurement the control group worsened. Maybe being involved in the trial created extra stress?

Conclusion

This simple intervention repeated over time was shown to produce excellent and worthwhile results. There were no pharmaceuticals involved, and no side effects. The trial only went for one week, so it can be speculated that continuing the intervention may have produced further improvements. Anxiety, high blood pressure and poor sleep can be a complex problem so it should be assessed professionally so a safe, comprehensive management plan can be determined. Regular massages may help. Such regular massages if done professionally would be prohibitively expensive, but practically unlimited quality massages can be received at home using our DrGraeme massagers with professional advice. Massages can usually be combined with other forms of therapy such as exercise, relaxation and psychological counselling.

Reference

Pinar R1, Afsar F. Back Massage to Decrease State Anxiety, Cortisol Level, Blood Prsessure, Heart Rate and Increase Sleep Quality in Family Caregivers of Patients with Cancer: A Randomised Controlled Trial. Asian Pac J Cancer Prev. 2015;16(18):8127-33

Further related studies

Study one (Katz 1999)

Staff at a large teaching hospital were given eight 15 minute sessions of Swedish massage. Compared with the controls the experimental group showed significant reductions in pain and tension, and an improved mood.

Study two (Narazi 2015)

Intensive care nurses were given a 25 minute session of Swedish massage twice a week for 4 weeks. Compared with the controls the experimental group showed a significant reduction in stress levels. This was still apparent two weeks after the intervention ceased.

Study three (Engen 2012)

Nurses were given a 15 minute chair massage each week for 10 weeks. Their stress related symptoms reduced significantly, and interestingly 60% were willing to pay $10-25 for a 15 minute massage at work if available.

Study four (Bost 2006)

Nurses received a 15 minute Swedish back massage once a week for 5 weeks. Anxiety levels were significantly reduced as compared to controls.

Study five (Shulman 1996)

Employees of a large company experiencing downsizing were given a 15 minute chair massage each week for six weeks. A significant reduction in anxiety was achieved.

References

Šiško, P.K., Videmšek, M. and Karpljuk, D., 2011. The effect of a corporate chair massage program on musculoskeletal discomfort and joint range of motion in office workers. The Journal of Alternative and Complementary Medicine, 17(7), pp.617-622.

Katz, J., Wowk, A., Culp, D. and Wakeling, H., 1999. A Randomized Controlled Study of the Pain-and Tension-Reducing Effects of 15 Min Workplace Massage Treatments Versus Seated Rest for Nurses in a Large Teaching Hospital. Pain Research and Management, 4(2), pp.81-88.

Nazari, F., Mirzamohamadi, M. and Yousefi, H., 2015. The effect of massage therapy on occupational stress of Intensive Care Unit nurses. Iranian journal of nursing and midwifery research, 20(4), p.508.

Engen, D.J., Wahner-Roedler, D.L., Vincent, A., Chon, T.Y., Cha, S.S., Luedtke, C.A., Loehrer, L.L., Dion, L.J., Rodgers, N.J. and Bauer, B.A., 2012. Feasibility and effect of chair massage offered to nurses during work hours on stress-related symptoms: a pilot study. Complementary Therapies in Clinical Practice, 18(4), pp.212-215.

Bost, N. and Wallis, M., 2006. The effectiveness of a 15 minute weekly massage in reducing physical and psychological stress in nurses. Australian Journal of Advanced Nursing, The, 23(4), p.28.

Shulman, K.R. and Jones, G.E., 1996. The effectiveness of massage therapy intervention on reducing anxiety in the workplace. The Journal of Applied Behavioral Science, 32(2), pp.160-173

Dr Graeme's comments

This important piece of research shows that trigger points are the major cause of shoulder pain but even after 12 very thorough treatment sessions where symptoms had gone most of the trigger points were still there. Despite being a major cause of of shoulder pain medical journals barely mention trigger points.

The presence and treatment of myofascial trigger points in chronic shoulder pain

Summary

Trigger points are the major cause of shoulder pain

The authors of two pieces of research state that although myofascial trigger points (MTPs) are well accepted as a source of pain they are barely considered when diagnosing or treating shoulder pain. To investigate their involvement the researchers first examined the shoulder muscles of 72 subjects with chronic non-specific shoulder pain and found a high prevalence of MTPs. They then conducted a randomised control trial where the treatment group received 12 weekly sessions, each consisting of multiple forms of trigger point therapy. After the 12 weeks the number of trigger points had reduced, and there was a corresponding decrease in the pain and disability scores. From this we can conclude that MTPs are heavily involved in non-specific shoulder pain, and their treatment is a must.

Pain went, but the trigger points were still there

However, after the 12 extended weekly therapy some pain and disability was still present. More importantly, examination showed that about 2/3 of the trigger points remained, although many had reverted to their latent (pain free) form. Simply, only about one third of trigger points had actually been eliminated. Further, the authors state that due to microscopic damage an the presence of causative and aggravating factors the trigger points may redevelop. The complete elimination of trigger points therefore would take a much larger number of applications of therapy, plus some sort of ongoing maintenance. This would be economically prohibitive if relying on professional therapy alone.

Challenging the conventional diagnosis of shoulder pain

Contradicting the conventional diagnosis

The authors state that according to medical literature the most common cause of shoulder pain is subacromial impingement, which causes inflammation and degeneration of the subacromial bursae and tendons. They point out that the following facts contradict this.

- Calcifications, acromion spurs, subacromial fluid and signs of tendon degeneration are equally prevalent in healthy subjects as in patients with shoulder pain.
- Scientific evidence from randomised controlled trials (RCTs) and systemic reviews of the effectiveness of multimodal rehabilitation, injection therapy, physical therapy, or the application of other therapies in patients with shoulder pain are either conflicting or lacking.

Evidence suggestion trigger points

On the other hand the authors state that the involvement of MTPs in musculoskeletal pain is becoming increasingly accepted. They are said to contribute to shoulder pain the following ways.

- The referral of pain by active MTPs is well understood.
- Although latent (pain free) trigger points are not an immediate source of pain they may elicit pain when stimulated, such as with sustained or repeated contractions.
- Latent MTRs may disturb normal motor recruitment patterns and movement efficiency resulting in joint dysfunction, which places abnormal stress on the joint tissues and increases the risk of injury.

Despite this evidence the authors state that the treatment of MTPs is rarely included in systematic reviews of the effectiveness of conservative interventions in patients with shoulder pain.

The trials

Subjects

For the investigation of the prevalence of MTPs, 72 subjects were chosen from patients with non-specific shoulder pain aged between 18 and 65 referred to a primary care practice that specialises in neck and shoulder pain.

Trial one: prevalence

For each subject, all 17 muscles known to produce shoulder pain or shoulder dysfunction were examined for MTPs. Muscles containing active MTRs were found in all 72 subjects, while muscles containing latent MTPs were found in 67 subjects. The median number of active MTPs per subject was 6. The most common muscles where active trigger points were found were infraspinatus (56 subjects) and upper trapezius (42 subjects).

Trial two: treatment

In the investigation of treatment of MTPs the same 72 subjects were randomly divided into control and treatment groups. The treatment group had their MTPs treated by a therapist. The outcome was measured by counting the number of MTPs remaining, and by the use of a detailed questionnaire that focused on physical function, pain and other symptoms (DASH).

Treatment

patients were treated on a weekly basis for 12 weeks. Each treatment included:

- multiple applications of ischaemic compression for each trigger point
- massage
- cryotherapy
- specialised stretching, plus hold and relax techniques.

Results

At the end of the trial those in the treatment group had significantly less MTPs and showed significant reduction in pain and disability as measured by the DASH questionnaire. Moreover, the number of trigger points and the DASH questionnaire were correlated: ie, as the trigger points disappeared the pain and disability reduced. A summary of the results follows.

- Average MTPs at start: 7.4 active and 4.2 latent
- Average MTPs after 12 weeks: 4.8 active and 4.7 latent
- There was no measure of the residual effects after treatment was discontinued. We do not know whether the MTPs and symptoms gradually returned

Clinical implications

Correct diagnosis and treatment of shoulder pain

The results of these trials contradict the common diagnosis and treatment of shoulder pain. Instead, it strongly implicates MTPs a major cause, and points to their treatment as a major priority.

The requirements of care

There is a discussion of the treatment of MTPs elsewhere in this guide. However, 12 extensive sessions of therapy over 12 weeks produced results that of might well be described as “half fixed”, and the authors suggest that factors may cause it to continually redevelop. Taking this to it’s logical conclusion it would take considerably more than the 12 visits then further ongoing care to “fix” the problem. If done by professionals alone this would be prohibitively expensive for most people. A solution would be supplementary home massage using a DrGraeme massager under professional advice. We happily supply sample massagers to degree qualified practitioners who deal with musculoskeletal complaints, on a one per clinic basis. Please email us directly on graeme@drgraeme.com for samples or practitioner/wholesale supply.

References

Bron et. al High prevalence of shoulder girdle muscles with myofascial trigger points in patients with shoulder pain BMC Musculoskeletal Disorders 201112:139

Bron et. al. Treatment of myofascial trigger points in patients with chronic shoulder pain: a randomized, controlled trial BMC Medicine 2011, 9:8https://bmcmedicine.biomedcentral.com/articles/10.1186/1741-7015-9-8

Dr Graeme's comments

The research clearly shows that if your patient or clients use a vibration massager before or after (or both) exercise they will get far less sore and recover faster. It is easy, convnient, with practically no ongoing cost. They should all be doing it.

Summary of research on the effect of vibration massage on post exercise muscle soreness and recovery

In this article we will briefly review some research findings in relation to the affects of vibration massage on Delayed Onset Muscle Soreness (DOMS), residual Lactic Acid, and the recovery of muscles post exercise.

The research

In each of these trials participants underwent strenuous exercise to induce post exercise soreness and fatigue. Some subjects received vibration massage while others received either no treatment or a different treatment (controls). The recovery and levels of post exercise soreness was compared.

First trial (1)

In this trial one third of participants had no treatment, one third were given conventional massage, while the third group had their muscle massaged before exercise using a vibrating massager set at 50Hz (cycles per second). The results showed that both conventional massage and the vibration massage resulted in significantly lower DOMS, with the vibration group recovering faster than the conventional massage group. They also showed that the group receiving the vibration massage had significantly less residual Lactic Acid.

Second trial (2)

In this trial the one group received a vibration massage of 50Hz to the centre of the muscle while the control group received no treatment. There was a significant decrease in the soreness of the vibration massage group compared with the control. Both groups showed a decrease in maximum contraction strength post exercise, but this decrease was less in the vibration massage group.

Third trial (3)

In this trial the treatment group received a vibration massage of 30-50Hz, with the vibration massage group showing a significantly lower level of pain.

Fourth trial (4)

This trial used the combined intervention of having the exercise performed on a vibrating platform, and applying vibration massage to the muscles. They found significantly reduced pain 24-120 hours after exercise for the treatment group.

Fifth trial (5)

This trial used a vibration pad giving 30-65Hz, with 30 minute massages being given 30 minutes post exercise plus on days 1,2 3 and 4. Compared with the control, from days 2-5 soreness was 18-30% less, with soreness disappearing altogether earlier.

Literature review articles

Review One (6)

"Vibration is an effective modality in the field of rehabilitation. Vibration therapy improves muscular strength, power development and kinesthetic awareness [27], increased flexibility, motor unit synchronisation. Various researches which shows effectiveness of vibration therapy in management of DOMS"

Review Two (7)

"Vibration therapy before eccentric exercise may prevent and control DOMS"

Discussion

Vibration massage has been clearly shown to reduce post exercise pain and speed recovery. When using our DrGraeme General Purpose Massager under proper advice it is also relatively inexpensive and easy to apply. The frequencies used in the trials ranged from 35-50 Hz, which equates to using our massager between 60-90% of full speed. Applications are direct to the muscle, and are affective when used both before exercise and during recovery. The use of a vibration massage in moderation on normal muscles (no injury or pain syndromes) is relatively safe. One should consider recommending most sports people and exercise participants to take advantage of this therapy.

References

(1) Imtiyaz S1, Veqar Z2, Shareef MY3 To Compare the Effect of Vibration Therapy and Massage in Prevention of Delayed Onset Muscle Soreness (DOMS). J Clin Diagn Res. 2014 Jan;8(1):133-6

(2) Bakhtiary AH, Safavi Farokhi Z, Aminian Far A. Influence of vibration on delayed onset of muscle soreness following eccentric exercise. British Journal of Sports Medicine. 2007;41(3):145-148.

.(3) Kamandani et.al. The Effect of Acute Vibration Training on Delayed Onset Muscle Soreness in Young Non-Athlete Women Health Scope. 2013 November; 2(3): 119-24

(4) Broadbent, S., Rousseau, J.J., Thorp, R.M., Choate, S.L., Jackson, F.S. and Rowlands, D.S. (2010) Vibration therapy reduces plasma IL6 and muscle soreness after downhill running. British Journal of Sports Medicine 44(Pt 12), 888-894

(5) Lau, W.Y. and Nosaka, K. (2011) Effect of vibration treatment on symptoms associated with eccentric exercise-induced muscle damage. American Journal of Physiology Medicine & Rehabilitation 90(Pt 8), 648-657

(6) Zubia Veqar, Shagufta Imtiyaz Vibration Therapy in Management of Delayed Onset Muscle Soreness (DOMS). J Clin Diagn Res 2014 Jun 20;8(6)

(7) Sethi V. Literature review of Management of Delayed onset muscle soreness (DOMS) Int J Biol Med Res. 2012; 3(1): 1469-1475

Dr Graeme's comments

This article has some huge clinical insights on restoring normal spinal function

Summary of research on the effect of vibration massage on muscle length and joint range of motion, with practical applications

Introduction

In this article we will briefly review some research findings in relation to the affects of vibration massage on allowing muscles to relax and lengthen, thus allowing joint range of motion (ROM) to increase. Following that we will discuss how we make a practical use of this. It is provided as general information only. While we hope you put it to great use, such use should be consistent with your training and your patient's needs. Any feedback will be most appreciated.

Research on the effect of vibration massage on joint range of motion (ROM)

In all the trials below vibration massage was applied to muscles. Joint ranges of motion were measured, with increase being due to a lengthening of muscles allowing the joint to move further.

Trial One (1)

Knee extension was measured with the hip flexed to 90 degrees. Multiple applications of 50 Hz (cycles per second) massage were applied to the hamstring muscles over a eight week period. Compared with the control group the massage group had an average increase of 13-14 degrees.

Trial Two (2)

Hip flexion was measured by attempting to touch ones toes. For the massage group a 44 Hz massage was applied each day to the hamstrings for three days. A stretching group used conventional stretches each day, while a third group acted as a control. Both the stretching and massage groups showed a similar significant improvement in hip joint ROM

Trial Three (3)

This trial used the toe touching measurement and hamstring massage. Vibration massage was used with unspecified protocol on the hamstrings and erector spinae muscles. The massage group showed a 5cm improvement as compared to the controls.

Trial Four (4)

In this trial a straight leg raise (SLR) was measured. A proprietary device called "Deep Oscillation" was used. This is a device that has a pad that is applied to the skin. The makers claim that it's therapeutic affect is from mechanical vibrations that penetrate. From what is understood the pad creates an electrostatic attraction to the skin that switches on and off. It works like having a vacuum cleaner on your skin switching on and off very fast creating a vibration. In other words, it's an impressive looking, patentable and very expensive way to create a simple mechanical vibration. Anyway, the Deep Oscillation group had an increase in SLR over the controls.

Practical use of this information

Like stretching exercises, localised vibration massage has been shown to be an effective method of producing lengthening of muscles, and therefore increasing joint ROM. In some situations stretching exercises would be the best choice, while in others the use of vibration massage would be the best. This section will cover two situations where the use of vibration massage is by far the best choice, if not the only choice.

1. Situations involving damage or injury
2. Where it is difficult or impossible to isolate a stretch to a specific muscle or joint.

Additional benefits

As discussed elsewhere in our practitioner manual the use of vibration massage will have other beneficial affects. For example, if used as "stretching" during a warm up it will increase localised blood flow, help reduce post exercise blood flow and speed recovery. If used post exercise it will decrease soreness and speed recovery. As discussed in our section on assisting healing, if used as part of rehabilitation it will speed healing by increasing blood flow plus possibly a host of other affects.

Situations involving damage or injury

Injured ankle example

The first situation where vibration massage by far the best choice is where stretching can cause damage to an injury. Let us use an ankle sprain as an example. The typical treatment is to first immobilise the joint while the damage to the ligaments and other localised structures heal. While the joint is immobilised the calf muscles will shorten, but stretching at this stage would involve ankle joint movement which would damage the healing ligaments. On the other hand, as long as there were no contraindications localised vibration massage could be used on the calf muscles while the ligaments were healing. Once the ligaments heal far less rehabilitation would be needed.

Other examples

There are many other examples of where this principle could apply. It is very common for a person with an injured lower back to have muscles deep in around their pelvis and hips that are shortened and need stretching. However, stretches for these muscles also tend to put stress through the lower back, causing the risk of further injury. Vibration massage could be used on these muscles with the person lying in a neutral position. This should not place stress on the injured lower back.

Difficult or impossible to isolate a specific muscle or joint

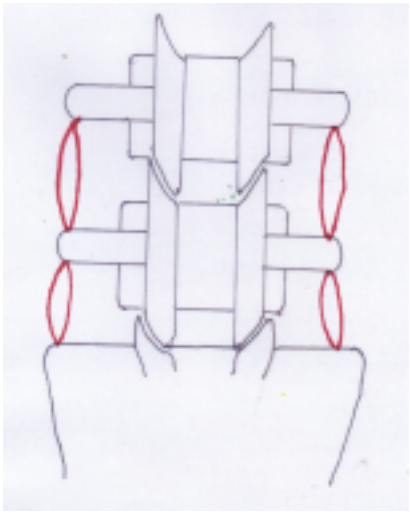
Spine example

The second situation where the use of vibration massage is an excellent choice are functional problems where it is difficult or impossible to isolate a specific joint or muscle. Lets use the spine as an example. In your spine you have many joints, each doing basically the same thing. This spreads the work so each individual joint does not have to work to much. When a spine bends each joint should move a little bit, adding up to a complete movement. The issue here is that it is impossible to isolate movement or a stretch to one specific joint. It is a common situation for one joint to be injured then subsequently stiffen while healing. As this happens the adjacent joints often become hypermobile to compensate. In this situation how does one isolate movement to the stiffened joint in order to stretch that joint's intrinsic muscles? A spinal stretch will only isolate movement to a region of the spine, not to an individual joint. Within that region most movement would occur in the hypermobile joints. On the other hand vibration massage can be applied directly to the intrinsic muscles of the stiffened spinal joint.

An illustration of changes due to spinal injury

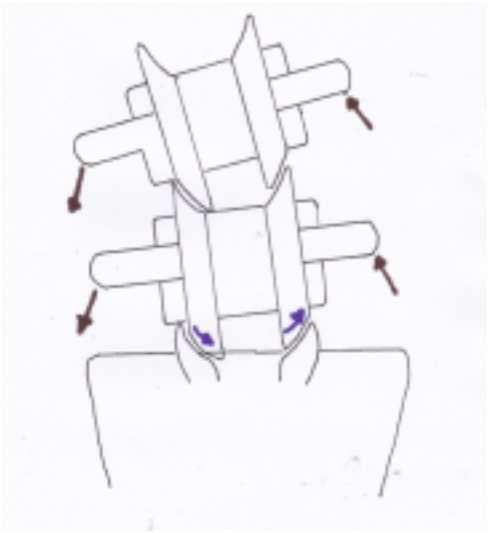
The following diagrams how spinal function can change over time due to injury. These situations require very specific elongation "stretching" of muscles and mobilisation of joints. Specific elongation can be achieved by a direct application of vibration massage. The specific mobilisation of the joints requires a specific adjustment/mobilisation. This is something that requires a high degree of specialised training.

Normal spine



Balanced (Left)

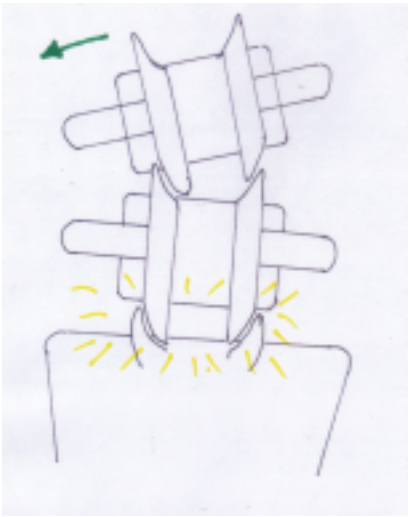
This shows a normal spine in a balanced neutral position. There are joints between the vertebrae. The muscles (red) balance and move the spine.



Normal bending (right)

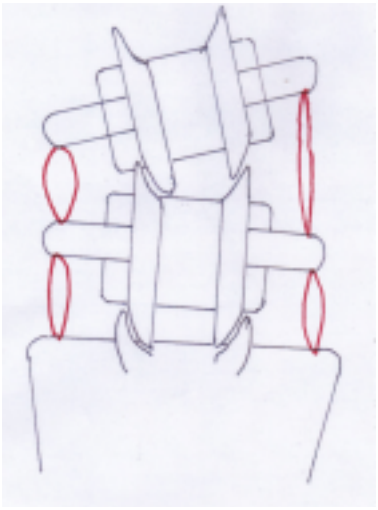
To bend normally the muscles on one side pull tight while the muscles on the other side relax to allow movement. Each vertebrae moves about the same amount

An injured spine



Initial injury (right)

This diagram shows an injury to the lower joint. While this is healing the body tends to splint or restrict movement at the injured joint while, letting the adjoining joints move extra to compensate. This diagram shows the spine bending to the left. The injured lower joint has not moved while the joint above is moving extra.



Long term functional change (right)

If healing takes a considerable time, or where there is repeated injury (eg. an occupational task) the injured joint may stiffen while the compensating joint may start moving too much. In this case the muscles associated with the stiff joint will shorten while the ones associated with the joint moving too much will lengthen. This is a very common issue with serious long term consequences including increased wear and potential injury for the compensating joint, and of course pain

References

(1) Bakhtiary AH1, 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;57(3):165-71

(2) J. Atha and D. W. Wheatley Joint mobility changes due to low frequency vibration and stretching exercise Br J Sports Med. 1976 Mar; 10(1): 26–34.*

(3) Beirman W. INfluence of Cycloid Vibration Massage on Trunk Flexion American Journal of Physical Medicine: December 1960 - Volume 39 - Issue 6 - ppg 219-224

(4) Hinman, M. R., Lundy, R., Perry, E., Robbins, K., & Viertel, L. (2013). Comparative effect of ultrasound and deep oscillation on the extensibility of hamstring muscles. Journal of Athletic Medicine, 1(1), 45-55.

Dr Graeme's comments

We really like what people are trying to achieve with foam rollers. However, the results of clinical trials of their use are not remarkable, and their unsupervised usage does carry some risks. We believe patients or clients would be safer and get more reliable benefits by using one of our vibration massagers with appropriate professional advice.

The use of foam rollers for self massage in sports

Introduction

Professional massage therapy is used extensively by professional sports clubs and athletes. Seeing these benefits but not able to afford these professional services, others playing sports or exercising attempted to emulate this therapy by the use of foam rollers. This is done by using one's body weight to press on the roller, emulating the pressure of a professional masseur. It's proponents claim that it is not as effective as massage therapy performed by a professional, but has the advantage of being inexpensive and practically unlimited.

Do they work?

The use of foam rollers tries to emulate a highly valuable professional therapy. How does the use of foam rollers compare?

Clinical trials

One would imagine that the results obtained in clinical trials would be as good as it gets. Subjects would be professionally examined to determine suitability, given appropriate instructions, then well supervised. The results in those clinical trials we found were a mixed bag. They are summarised in the appendix to this article.

Real world usage

In real world usage users would not be appropriately selected, instructed or supervised. Lets look at what is likely to happen.

Use on inappropriate conditions

In the trials subjects would be excluded where usage was inappropriate, such as usage on damaged tissue. In the real world users may apply heavy pressure to things like torn muscles and haematomas.

Appropriate pressure and efflurage

Professional masseurs are able to examine tissues then determine the appropriate pressure. Home users may not have this judgement.

"Good pain" vs "Bad pain"

The use of foam rollers is trying to emulate ischaemic compression (trigger point therapy) and some other forms of massage. These forms of massage are often painful. Masseurs often describe this as "good pain". Properly qualified masseurs are trained to understand the difference between "good pain" and pain produced by pressing on structures such as injured tissue or neurovascular bundles. On the other hand members of the general public usually are not. The dangers of having untrained people applying heavy pressure to these structures thinking they are producing "good pain" are obvious.

Conclusion

As professional sports find, there are huge benefits to be had from the plentiful availability of massage and soft tissue therapy. The idea behind foam rollers being able to provide inexpensive practically unlimited such therapy is an excellent one. However, the optimum usage in clinical trials only produces moderate and inconsistent results, and there are real issues with real world usage. The following is what we suggest is a better solution.

Professional advice

To be safe and get the best possible results professional advice is needed. Routine usage should be discussed with a profession, then further advice should be sought where conditions change, such as a new injury.

Use a vibration massager

We believe that the use of a vibration massage would give safer and more consistent results. They are easy to use with proven benefits. More importantly:

- They are far less reliant on the need for the correct skills and pressure. All one does set the machine at the desired speed, then place the head over the appropriate area for the recommended time. Because of this they should give far more consistent results.
- There is no issue apply pressure or cause pain. This removes any danger of applying too much pressure and mistaking "bad pain" for "good pain".

Appendix One: The research on the use of foam rollers

Trial 1

The treatment group performed self massages using a foam roller over an eight week period. The length of the hamstrings was measures by measuring knee extension with the hip at 90 degrees flexion. Compared with the control group no significant difference was found.

Trial 2

The effect of using foam roller on various aspects of athletics performance were measured. No improvement was found.

Trial 3

Hip extension was measured using a lunge. After one week there was some improvement. The use of five sessions a week produced no further improvement. However, participants felt satisfied with their intervention and were happy with the feeling of self control.

Trial 4

Both hip extension and knee extension were measured. There was a small increase in hip extension, but none for knee flexion.

Trial 5

Hamstring length was assess using hip flexion with the knee extended. The use of foam rollers caused an increase in length.

Trial 6

Hamstring flexibility was assessed using a sit and reach test. The use of foam rollers was shown to increase hamstring flexibility.

Trial 7

A four week trial measured hamstring length using a reach test. Both PNF stretching and the use of foam rollers were assessed. Both showed a similar increase in length.

Trial 8

Hamstring length was assessed by measuring knee extension with the hip at 90 degrees. Foam rollers produced no improvement.

References

(1) Miller, Rockey Foam Rollers Show No Increase in the Flexibility of the Hamstring UW-L Journal of Undergraduate Research IX (2006)

(2) Healey KC1, Hatfield DL, Blanpied P, Dorfman LR, Riebe D. The effects of myofascial release with foam rolling on performance. J Strength Cond Res. 2014 Jan;28(1):61-8

(3) Bushell JE1, Dawson SM, Webster MM. Clinical Relevance of Foam Rolling on Hip Extension Angle in a Functional Lunge Position. J Strength Cond Res. 2015 Sep;29(9):2397-403.

(4) Vigotsky AD1, Lehman GJ2, Contreras B3, Beardsley C4, Chung B5, Feser EH1. . Acute effects of anterior thigh foam rolling on hip angle, knee angle, and rectus femoris length in the modified Thomas test. PeerJ. 2015 Sep 24;3:e1281

(5) Mohr AR1, Long BC, Goad CL Effect of foam rolling and static stretching on passive hip-flexion range of motion. J Sport Rehabil. 2014 Nov;23(4):296-9

(6) Sullivan KM1, Silvey DB, Button DC, Behm DG. Roller-massager application to the hamstrings increases sit-and-reach range of motion within five to ten seconds without performance impairments.) Int J Sports Phys Ther. 2013 Jun;8(3):228-36.

(7) Junker DH1, Stöggl TL The Foam Roll as a Tool to Improve Hamstring Flexibility. J Strength Cond Res. 2015 Dec;29(12):3480-5

(8) Grace Couture, Dustin Karlik, Stephen C Glass, and Brian M Hatzel The Effect of Foam Rolling Duration on Hamstring Range of Motion Open Orthop J. 2015; 9: 450–455.*

Dr Graeme's comments

Latent (pain free) trigger points may be the most common cause of fatigue. They are easy for any qualified professional who deals with musculoskelatal conditions to find, yet remain undiagnosed because they don't show up in medical tests or scanned, and are barely mentioned in medical journals.

Latent (pain free) trigger points shown to cause rapid fatigue

Summary

A trial published in the journal *Pain Medicine* (1) found that muscles containing latent (pain free) trigger points fatigued quickly and became painful. Given the high prevalence of trigger points this may be a very common and overlooked of fatigue (2–8).

Why latent (pain free) trigger points cause fatigue

A trigger point is part of a muscle constantly in a hyper-contracted state, already suffering from local hypoxia and a build up of metabolites (9,10). In that state the hyper-contracted part of the muscle will already be fatigued, while other parts of the muscle will be affected but hypoxia and a build up of waste products.

Consequences

Lack of diagnosis

Despite their high prevalence trigger points barely rate a mention in medical journals as a cause of pain, let alone as a cause of fatigue. A patient could easily undergo a prolonged battery of medical consultations and tests, with the cause still remaining not found.

Issues caused by trigger points

Pain

The obvious consequence of latent trigger points is that they worsen or become aggravated, becoming actively pain producing. Active trigger points are a huge source of musculoskeletal and related pain syndromes. For example:

- Pelvis and urological conditions (11)
- Fibromyalgia (10,12–15)
- Head/neck/headaches & migraines (16–25)
- Heel and foot (26,27)
- Elbow (28)
- Shoulder (29,30)

Other issues

Alternatively, even when latent (pain free) trigger points still cause huge issues. This is discussed elsewhere in our article *Trigger point therapy: deactivate or eliminate*. In summary though, along with the fatigue and characteristic tightness of muscles, latent trigger points can have a far-reaching role in postural changes and biomechanical dysfunction, which in turn can underlie a lot of pain syndromes, injuries and joint degeneration.

Clinical advice

Latent (pain free) trigger points are highly prevalent, and can lead to the problems discussed. It is well worth the time to examine for them. When planning treatment please read our article *Trigger point therapy: deactivate or eliminate* .

References

1. Ge HY, Arendt-Nielsen L, Madeleine P. Accelerated muscle fatigability of latent myofascial trigger points in humans. Pain Med (United States). 2012;13(7):957–64.
2. Chiarotto A, Clijsen R, Fernandez-de-las-Penas C, Barbero M. The prevalence of myofascial trigger points in spinal disorders: a systematic review and meta-analysis. Physiotherapy. 2015;
3. Castaldo M, Ge HY, Chiarotto A, Villafane JH, Arendt-Nielsen L. Myofascial trigger points in patients with whiplash-associated disorders and mechanical neck pain. Pain Med (United States). 2014;15(5):842–9.
4. Roach S, Sorenson E, Headley B, Juan JGS. Prevalence of Myofascial Trigger Points in the Hip in Patellofemoral Pain. Arch Phys Med Rehabil [Internet]. 2013;94(3):522–6. Available from: http://dx.doi.org/10.1016/j.apmr.2012.10.022
5. Fuentes-Márquez P, Carmen Valenza M, Cabrera-Martos I, Ríos-Sanchez A, Ocon-Hernández O. Trigger points, pressure pain hyperalgesia, and mechanosensitivity of neural tissue in women with chronic pelvic pain. Pain Med (United States). 2019;20(1):5–13.
6. Celik D, Mutlu EK. Clinical implication of latent myofascial trigger point topical collection on myofascial pain. Curr Pain Headache Rep. 2013;17(8).
7. Zuil-Escobar JC, Martínez-Cepa CB, Martín-Urrialde JA, Gómez-Conesa A. The Prevalence of Latent Trigger Points in Lower Limb Muscles in Asymptomatic Subjects. PM R. 2016;8(11):1055–64.
8. Kaya Mutlu E, Birinci T, Dizdar G, Ozdincler AR. Latent Trigger Points: What Are the Underlying Predictors? Arch Phys Med Rehabil. 2016;
9. Jafri MS. Mechanisms of Myofascial Pain. Int Sch Res Not. 2014;2014:1–16.
10. Shah J et al. Myofascial Trigger Points Then and Now: A Historical and Scientific Perspective. HHS Public Access. 2015;7(7):746–61.
11. Anderson RU, Wise D, Sawyer T, Chan C. Integration of myofascial trigger point release and paradoxical relaxation training treatment of chronic pelvic pain in men. J Urol. 2005;
12. Fernández-De-Las-Peñas C, Dommerholt J. Myofascial trigger points: Peripheral or central phenomenon? Curr Rheumatol Rep. 2014;16(1).
13. Bennett RM, Goldenberg DL. Fibromyalgia, myofascial pain, tender points and trigger points: Splitting or lumping? Arthritis Res Ther. 2011;13(3):3–5.
14. Giamberardino MA, Affaitati G, Fabrizio A, Costantini R. Effects of treatment of myofascial trigger points on the pain of fibromyalgia. Curr Pain Headache Rep. 2011;15(5):393–9.
15. Staud R. Evidence of involvement of central neural mechanisms in generating fibromyalgia pain. Curr Rheumatol Rep. 2002;4(4):299–305.
16. Fernández-de-las-Peñas C, Ge HY, Arendt-Nielsen L, Cuadrado ML, Pareja JA. Referred pain from trapezius muscle trigger points shares similar characteristics with chronic tension type headache. Eur J Pain. 2007;11(4):475–82.
17. Amin A, Maqsood U, Niaz Awan F, Arshad HS, Arshad AH. Chronic tension-type headache as a risk factor of myofascial trigger points in upper trapezius muscle fibers in neck pain patients. Pakistan J Neurol Sci. 2017;12(3):21–5.
18. Doraisamy K&, Gnanamuthu. Chronic Tension Type Headache and the Impact of Myofascial Trigger Point Release in the Short Term Relief of Headache. Glob J Health Sci. 2010;2(2):238–44.
19. Giamberardino MA, Tafuri E, Savini A, Fabrizio A, Affaitati G, Lerza R, et al. Contribution of

Myofascial Trigger Points to Migraine Symptoms. J Pain. 2007;8(11):869–78.
20. Maistrello LF, Geri T, Gianola S, Zaninetti M, Testa M. Effectiveness of trigger point manual treatment on the frequency, intensity, and duration of attacks in primary headaches: A systematic review and meta-analysis of randomized controlled trials. Front Neurol. 2018;9(APR).
21. Chatchawan U, Thongbuang S, Yamauchi J. Characteristics and distributions of myofascial trigger points in individuals with chronic tension-type headaches. 2019;306–9.
22. von Stülpnagel C, Reilich P, Straube A, Schäfer J, Blaschek A, Lee SH, et al. Myofascial trigger points in children with tension-type headache: A new diagnostic and therapeutic option. J Child Neurol. 2009;24(4):406–9.
23. Wang K, Castaldo M. Trigger points are associated with widespread pressure pain sensitivity in people with tension-type headache. 2018;38(2):237–45.
24. Do TP, Heldarskard GF, Kolding LT, Hvedstrup J, Schytz HW. Myofascial trigger points in migraine and tension-type headache. J Headache Pain. 2018;19(1):84.
25. Fernández-De-Las-Peñas C, Alonso-Blanco C, Cuadrado ML, Gerwin RD, Pareja JA. Trigger points in the suboccipital muscles and forward head posture in tension-type headache. Headache. 2006;46(3):454–60.
26. Renan-Ordine R, Alburquerque-SendÍn F, Rodrigues De Souza DP, Cleland JA, Fernández-de-las-PeÑas C. Effectiveness of Myofascial Trigger Point Manual Therapy Combined With a Self-Stretching Protocol for the Management of Plantar Heel Pain: A Randomized Controlled Trial. J Orthop Sport Phys Ther. 2011;41(2):43–50.
27. Salom-Moreno J, Ayuso-Casado B, Tamaral-Costa B, Sánchez-Milá Z, Fernández-de-las-Peñas C, Alburquerque-Sendín F. Trigger Point Dry Needling and Proprioceptive Exercises for the Management of Chronic Ankle Instability: A Randomized Clinical Trial. Evidence-Based Complement Altern Med. 2015;2015:1–9.
28. Fernández-Carnero J, Fernández-De-Las-Peñas C, De La Llave-Rincón AI, Ge HY, Arendt-Nielsen L. Prevalence of and referred pain from myofascial trigger points in the forearm muscles in patients with lateral epicondylalgia. Vol. 23, Clinical Journal of Pain. 2007. p. 353–60.
29. Hidalgo-Lozano A, Fernández-De-Las-Peñas C, Alonso-Blanco C, Ge HY, Arendt-Nielsen L, Arroyo-Morales M. Muscle trigger points and pressure pain hyperalgesia in the shoulder muscles in patients with unilateral shoulder impingement: A blinded, controlled study. Exp Brain Res. 2010;
30. Bron C, Wensing M, Franssen JLM, Oostendorp RAB. Treatment of myofascial trigger points in common shoulder disorders by physical therapy: A randomized controlled trial [ISRCTN75722066]. BMC Musculoskelet Disord. 2007;8:1–8.

Dr Graeme's comments

A while ago we had a call from a very grateful colleague. Her brother suffered from depression. She gave him this article. He had his trigger points addressed and is now much happier. I'm not an expert on depression, but then again the experts on depression are usually not experts on trigger points. This research does not show which is the chicken and which is the egg. It's just to make clinicians aware that where you get one you usually get the other. This is especially important as trigger points do not show up in medical testing and barely rate a mention in medical journals.

The relationship between latent trigger points and depression

Summary

A study published in the journal *Clinical Rheumatology* investigated the the prevalence of latent (pain free) myofascial trigger points (MTPs) in the scapular muscles of apparently healthy pain free adults, and whether they were associated with depression. The trigger point examination found that 60% of the apparently normal people had one or more trigger points in these muscles. When assessing for symptoms of depression they found that in general the more latent trigger points the more depression symptoms. Those with no latent trigger points showed very few symptoms of depression, while those with five or more latent trigger points questionnaire results placed them well within the clinical depression range.

Trial details

Subjects

The subjects were 76 students and health care workers who had no neck, shoulder or thoracic pain, had no surgery or physical therapy in that region, and were not undergoing psychiatric treatment.

Muscles examined

The muscles assessed were the upper and middle trapezius, serratus anterior, and rhomboideus major and minor.

Measurement of depression

The level of depression symptoms was assessed using a questionnaire called the Beck Depression Inventory. When assessing the general population a score of 21 or over represents depression.

Results

Prevalence of trigger points

60% of subjects had one or more latent MTPs in the muscles examined.

Relationship with depression

Based on the number of latent MTPs found each subject was allocated into one of three groups:

Group one

- (30 subjects) having no latent MTPs
- Average depression score= 8

Group two

- (28 subjects) having 1-5 latent MTPs
- Average depression score= 10.3

Group three

- (18 subjects) having more than 5 MTPs
- Average depression score 28.5 (clinical depression is 21 and above)

It is very clear that in these pain free subjects those having a large number of trigger points also had very high depression scores.

Clinical implications

The association with depression

The research showed that in the asymptomatic people tested the higher the number of trigger points the higher the depression score tests, and visa versa. This indicates that they go together, but not causes which. The authors confirm this unknown by stating that the relationship between latent trigger points, anxiety, stress and depression is not fully understood. The authors speculated that depression may be a cause of latent trigger points, and hence stress and depression management may be considered as a treatment for latent trigger points. This may be correct. However, there are two other possibilities to consider.

- Firstly, latent trigger points may somehow cause depression. If that was the case trigger point therapy should be considered as a treatment for depression rather than visa versa.

- The second possibility is that there could be another issue that is a common cause of both trigger points and depression. A hypothetical example may be that a boring job that involves repeated mundane tasks with poor ergonomics. This could cause both trigger points and depression.

Facts we can use

The only thing that we can be certain of from this research is that latent trigger points are relatively prevalent in asymptomatic people, and that trigger points and depression tend to go together. The practical implications from this are as follows.

- When someone has depression (or depression symptoms) screening for trigger points should be considered.
- If someone has a high number of trigger points an assessment for depression should be considered.
- Regular screenings for trigger points seems wise due to their high prevalence, the possibility of them causing depression, and their proven potential to cause dysfunction and chronic pain syndromes.

Reference

Çelik, D., & Mutlu, E. K. (2012). The relationship between latent trigger points and depression levels in healthy subjects. Clinical Rheumatology, 31(6), 907–911. https://doi.org/10.1007/S10067-012-1950-3

Dr Graeme's comments

The take home message from this research is you need to normalise articular function as part of any musculoskeletal correction program. Articular dysfuction causes abnormal stress upon joints and other tissues, and will not allow normal function.

Adding manual therapies directed at improving function produces far superior results

Summary

A trial published in the *Journal of Orthopaedic & Sports Physical Therapy* compared the results of the treatment of shoulder impingement syndrome with exercises alone, versus treatment with exercises plus the addition of joint manipulation and other manual therapies. They found that when these were added the results were far superior.

What joint manipulation and manual therapies add

The basic principle of joint manipulation is to help restore normal articular function. This is a complex issue. However, for simplification normal joint function needs the articular surfaces to be able to slide or spin freely upon one another through their normal ranges of movement. When this sliding and spinning is restricted joint movement becomes restricted or abnormal. The analysis of this function requires specialised training and an excellent knowledge of biomechanics. Correction is often achieved using specialised correctional techniques that help normalise restricted sliding or spinning. An excellent summary was found at https://www.physio-pedia.com/images/c/c0/Principles_of_Joint_Mobilization.pdf However, it is something that should definitely be left to those with the appropriate qualifications and training. In addition to joint manipulation soft tissue therapies were used. These would have the affect of relaxing hypertonic muscles and enabling them to function more optimally.

The trial

Subjects

33 men and 22 women diagnosed with shoulder impingement syndrome were chosen.

Interventions

Subjects were randomly assigned either exercise alone or exercise and manual therapy. Each group received six sessions over three weeks.

Exercises

Exercises were conducted under the supervision of a physical therapist and were described as a standardised strength and flexibility program. There were two passive stretches, plus six strengthening exercises described in the literature as being essential "core exercises" for shoulders.

Manual therapy

In trial of medication and simple therapies the intervention is easy to describe and quantify. However, for this trial experienced physiotherapists were basically told to assess the articular function and associated soft tissue issues of not only the glenohumeral joint but other related joints such as those of the cervical

and thoracic spine. They were instructed to use their skills in manipulation and soft tissue therapies to correct what they found. This approach is not easy to quantify, but exactly what would happen if one consulted a quality clinician.

What was measured

Levels of pain were measured using visual analogue scales. Functional assessment was done using questionnaires covering a variety of general and specific activities.

The results

The results as measured by pain and function were clearly much superior for the group that received the manual therapy in addition to the exercises. It is best described by the following conclusion given by the authors.

> *Manual therapy combined with supervised shoulder exercise is superior to supervised shoulder exercise alone for enhancing strength and function and reducing pain in patients with shoulder impingement syndrome. Our study also provides evidence that effective outcomes are obtainable after a relatively few physical therapy visits. It is important to recognise the functional interdependence of joints and soft tissues in the upper quarter when treating dysfunction of the shoulder.*

Clinical comments

As discussed in our articles on trigger points, pain syndromes such as impingement syndromes usually occur as a result of abnormal function (dysfunction). Normal function maintains the optimal relationship between joint surfaces and minimises the stress on tissues. However, when part of the system such as a muscle containing a trigger point or a joint not being able to move freely is not able to function normally the central nervous system is forced to make adjustements to compensate. The result is extra stress being placed on tissues and the contact between joint surfaces no longer being optimal. It is important to note that this happens subconsiously and cannot consciously controlled. Also, as shown by research summarised elsewhere in this guide it cannot be corrected by exercises.

Given these facts the results of the trial can be clearly explained and the implications become obvious. Those suffering from shoulder impingement syndrome will usually have dysfunctional neuromuscular control and biomechanics creating extra stress on tissues and joints. Exercises alone were performed using the same dysfunctional biomechanics. When joint manipulation and soft tissue therapies were added this removed the impediment, allowing the central nervous system to perform the exercises with more normal movement.

If one googles “exercises for (any musculoskeletal pain syndrome)” one will find a huge number of listings of professionals, clinics and even professional bodies advising generic exercises alone. Clearly this approach is flawed. The correction of trigger points, articular dysfunction and any other sorces of dysfunction needs to be done first.

Reference

Bang M Deyle G Comparison of supervised exercise with and without manual physical therapy for patients with shoulder impingement syndrome J Orthop Sports Phys Ther. 2000 Mar;30(3):126-37.

Dr Graeme's comments

As discussed in our section on functional correction, when a functional element has an abnormality, such as articular dysfunction, or a trigger point impeding the function of a muscle, the Central Nervous System (CNS) will make adaptations in compensation. Well meaning professionals note abnormal function then try and correct it with so called corrective exercises. This cannot work!! The CNS is going to control the function as is sees fit. As long as the abnormal functioning element remain function will be abnormal. With this abnormal function corrective exercises will continue to cause extra stress on joints and tissues.

Exercises shown to not correct abnormal muscle activation patterns

Summary

Most movements require the co-ordinated contraction and relaxation of numerous muscles. The neurological control of this is known as a muscular activation pattern (MAP). Research summarised elsewhere in this guide describes how highly prevalent latent (pain free) myofascial trigger points (MTPs) alter MAPs producing dysfunctional movement and joint control. This increases stress on tissues, increasing wear and increasing the risk of injury and impingement syndromes. Treatment of MTPs was shown to normalise the MAPs.

Research published in the Journal *Manual Therapy* describes an abnormal MAP found in patients with neck pain. The authors believe that this would cause dysfunction which may increase adverse loading on sensitive cervical structures. Subjects with this abnormal pattern were each given one of two different six-week supervised exercise programs. Both exercise programs produced a reduction in pain, but neither changed or corrected the abnormal MAP.

The trial

Subjects

The subjects were 58 females with moderate neck pain of greater than 3 months duration. Exclusions were those with previous neck surgery or participation in a neck exercise program in the previous 12 months.

The exercise programs

Exercise programs were conducted over a six-week period. Participants received weekly supervision and instructions from an experienced physiotherapist. One regime was described as "endurance-strength training" while the other was described as "low load training of the cranio-cervical muscles". Exercises were performed so as not to provoke neck pain.

What was measured

According to the authors, previous work had identified that patients with neck pain demonstrated a bilateral increase of sternocleidomastoid (SCM) muscle electromyography (EMG) amplitude, and a decreased ability to relax their neck muscles after the completion of a task. EMG readings were taken of the SCM muscles bilaterally. Pain and disability were also determined using a tool called the Neck Disability Index.

The results

- Both regimes resulted in a reduction of pain.
- Neither changed or normalised the abnormal SCM activation.

The pain hypothesis

It was suspected that the abnormal SCM activity was due to pain. The results showed a reduction of pain but the abnormal activity remained, negating that theory.

Did the exercises actually cause more problems?

The need for exercises as part of rehabilitation is well understood. However, let's look at what actually happened in this trial.

The initial situation

The subjects had chronic neck pain. The researchers identified abnormal neurological control of neck muscles which they suggested placed abnormal loads on sensitive cervical structures.

What they did

They had the subjects perform exercises for six weeks then found that the abnormal neurological control which placed abnormal loads on sensitive nerve structured remained. The exercises that were supposed to correct the problem did not do so. Further, the exercises were performed using the same abnormal function that causes abnormal loading on sensitive cervical structures. The exercises did not fix anything, and would have caused further damage.

A sensible approach

It needs to be recognised that most neurological control of these functions happens at a subconscious level, and that abnormal patterns are usually a result of something not working normally. In this practitioner guide we present two important such causes: trigger points and articular issues. It was shown that the treatment of trigger points actually corrected abnormal neurological control, while the combining articular manipulations aimed at correcting articular function greatly improved the results obtained by exercise. The clear message here is that one needs to address causes of dysfunction prior to implementing rehabilitation exercises.

Reference

Falla, D., Jull, G. and Hodges, P. (2008) Training the cervical muscles with prescribed motor tasks does not change muscle activation during a functional activity. Manual Therapy, 13 6: 507-512.

Dr Graeme's comments

This is one of many clinical trials that show trigger points as a main cause of headaches

Relief From Chronic Tension Type Headaches

Summary

The most common headache is said to be the chronic tension type. In a study of this type of headache 31 subjects were examined for myofascial trigger points (MTPs) in their cervical, upper trapezius, temporalis and frontalis muscles. The MTPs were then treated using ischaemic compression and stretching. This provided complete relief for 52% of subjects.

Trial overview

According to the background research presented by this study Chronic Tension Type Headaches (CTTHs) are the most common headaches, and scientific studies strongly implicate MTPs as a cause. To test this the researchers used 31 subjects. All had experienced at least three days with headaches per week for the past four weeks. They were treated using ischaemic compression and stretching as a trigger point therapy.

The results

Short term following treatment the average intensity of headaches improved from 7.28 to 1.65 as measured on a visual analogue scale. 52% obtained complete (short term) relief.

Clinical comments

Inappropriate medications

Following treatment for trigger points the reduction in average headache intensity was dramatic, with 52% gaining complete relief. This is strong evidence that trigger points are a major cause of these headaches. However, every subject the researchers could find had been prescribed and were still taking anti-depressant medication. This is seriously wrong.

Other causes

Half of the subjects gained complete relief. What other causative factors are there for the other half? The author suggested without giving a reason that the major other cause may be psychological. This is very strange considering they were all on anti-depressant drugs and were still suffering headaches. Most chiropractors would include examine for cervical joint dysfunction as well and the presence of MTPs in their examinations. However, this can be the subject of another research summary.

The treatment of trigger points

The relief of the headaches was measured shortly after the application of therapy. The treatment of trigger points is covered in more detail elsewhere in this guide. However, they have been shown to require a great many applications of therapy over time, then probably require on-going maintenance. The tremendous time and cost involved by having this done exclusively by therapists makes this impractical for most patients. The DrGraeme serious hand held massagers for home use are able to be used by patients under professional advice to provide practically unlimited quality massage, making the treatment of MTPs more practical.

References

Anand Doraisamy, Magesh & prem kumar & Anshul, Charles & Chandran, Gnanamuthu. (2010). Chronic Tension Type Headache and the Impact of Myofascial Trigger Point Release in the Short Term Relief of Headache. Global Journal of Health Science. 2. . 10.5539/gjhs.v2n2p238.

Dr Graeme's comments

This study illustrates the very important concept that lower back pain sufferers have poor sensorimotor control because the Central Nervous System is receiving inaccurate feedback from joints an muscles. We have previously discussed how such inaccurate feedback causes poorly coordinated movement that creates abnormal stress to joints and other tissues. The authors worked out that they could temporarily block this inaccurate feedback using vibration and made the stupid suggestion that this could be used for rehabilitation. The correct way to address this inaccurate feedback is to address the cause, such as articular, muscular and connective tissue issues.

Lower back pain suffers found to have poor sensorimotor control, remedied by local muscle vibration

Summary

Studies have shown that those suffering lower back pain have have inhibited sensory feedback and control. This lack of control is thought to be a contributing factor to the back pain. The premise is that this inhibits coordination, creating abnormal stress upon the joints and other tissues. A recent study investigated one aspect of this sensorimotor control, the ability to accurately judge force applied by muscles. It was shown to be much poorer in those with lower back pain, and to beome more normal following the application of localised vibration. The authors recommended that this could be incorporated as part of rehabilitation. As a provider of vibration massage devices this would normally be very exciting. It does give us some guidance, but there are serious issues with what the authors suggest.

The research

Outline

To coordinate the muscle activity required for both dynamic and static spinal stability the central nervous system requires accurate feedback from the sensors that provide information on things such as joint position, the tension on connective tissues and the force applied by muscles. It has been speculated that inaccurate such information affects the central nervous system's ability to coordinate this stability and is a causative and perpetuating factor in many pain syndromes. This study investigated one such parameter- the ability to accurately judge and control muscular force. They compared those with lower back pain to normal controls, plus investigated the effect of fatigue and the application of localised vibration to the muscles.

The testing

Subjects were tested using a high tech exercise machine designed to exercise the lumbar extensor muscles. The subjects were able to practice developing a force equal to 60% of maximum while monitoring their effort on the gauge. Once this was done subjects were asked to reproduce this force using their judgement alone, with several tests done to assess variation. This was repeated again testing the effects of fatigue and of the application of vibration to the lumbar erector spinae muscles.

The results

Those with no back pain were able to reproduce this force quite accurately, with minimal variation between measurements. On the other hand, those with lower back pain were far less accurate and had greater variation between attempts. When vibration was applied to those with back pain they became far more accurate and less varied. Fatigue was shown to reduce accuracy in both controls and those with low back pain. As occurred with non-fatigue testing, vibration was show to improve accuracy.

Implications

The study shows that those with pain syndromes have abnormal sensory feedback impairing the ability of the central nervous system to provide the accurate control of muscles needed for the coordination of movement and stability. This is likely an important cause and perpetuating factor in pain syndromes. This is a serious consideration with regard to the prescription of rehabilitation exercises. Do we really want clients/patients performing rehabilitation exercises with the same abnormal coordination that causes problems in the first place??? However, there are serious issues with the solution suggested by the author.

Short term only

The post vibration testing was done immediately after the application of 30 seconds of vibration. Indeed, when further testing was done after 30 seconds of no vibration the results were back to where they were previously. If the vibration protocol used was implemented as suggested by the authors it would mean those undergoing rehabilitation would need to have the vibration applied immediately before each set of exercises, which is highly impractical.

It was only a "neurological trick"

In a previous study the authors tested the same vibration protocol on normal subjects. Rather than help them it made their sensory motor function less accurate. Why would such vibration make those with inaccurate control more normal, while making those who are normal become less accurate? This is what this author believes happened. The vibration frequency used was 80hz. 100 Hz is used by TENS machines and mechanical vibration to interfere with nerve transmission to create a pain block.

- In those with lower back pain feedback from sensors proving inaccurate information was interfered with. With innacurate information removed control improved.
- When accurate information from the sensors in normal subjects was interfered with control worsened.

Some clinical guidance

There is no real clinical benefit from playing a neurological trick that lasts for 30 seconds. However, the trial results did confirm the reduction in sensorimotor control in those suffering lower back pain, implicating abnormal sensory information. To restore sensorimotor control we really need to look at correcting whatever is causing this sensory information to be abnormal. As discussed elsewhere in this manual two likely issues would be:

- trigger points
- articular dysfunction correctable by adjustments/manipulation

Reference

Boucher J-A, Abboud J, Nougarou F, Normand MC, Descarreaux M (2015) The Effects of Vibration and Muscle Fatigue on Trunk Sensorimotor Control in Low Back Pain Patients. PLoS ONE 10(8):

Dr Graeme's comments

This is a simple test and procedure that will really help identify the cause of tennis elbow and successfully treat it. The same basic principles can easily be used on musculoskeletal conditions throughout the body.

A practical approach to help demonstrate the cause and manage "tennis elbow" and similar conditions

Summary

In this research summary we will be sharing a simple practical test that helps show the cause, or at least a major contributing factor, for lateral epicondylitis (tennis elbow). We also share a simple procedure that can be a huge help to resolve these problems. The basic principles of this test and treatment can be used for many other similar syndromes.

Background

This was written in response to reading a sports practitioners forum. For tennis elbow one practitioner used dry needling and various therapies while another stated that these would just make the inflamed epicondyle angry. A third recommended a journal article (see below) that contained further contradictory advice. Too often we see this in the treatment of musculoskeletal conditions, illustrating two major issues.

1 The treatment/management of such conditions fails when basic principles are ignored.
2 Management too often focuses on symptoms and effects rather than underlying causes.

In this article we attempt to give a rationale that is consistent with basic principles, and focuses on causes rather than symptoms. Comments are most welcome.

Epicondylitis in a nut shell

What is tennis elbow

One of the basic principles of exercise is that repeated or over usage causes microscopic damage to muscles and connective tissues. Body builders use this principle by exercising to deliberately cause this damage, then follow this by recovery where the body is stimulated to repair and rebuild stronger. In the case of tennis elbow this injury occurs at the area of high stress at the lateral epicondyle of the elbow where most of the forearm extensor muscles attach. However, unlike what occurs with body builders it is repeated without allowing recovery. The body's ability to repair is overwhelmed. Over time this continual injury and attempted repair causes the pathophysiology known as epicondylitis.

The condition becomes chronic

As with most musculoskeletal conditions, if allowed to continue it becomes chronic and more complex. For example, the condition of the tissues at the epicondyle will deteriorate. The continual bombardment of the central nervous system by pain impulses can cause sensitization similar to that which occurs in fibromyalgia. Furthermore, the continuous pain, disability, and possibly failed attempts at therapy can cause psycho-social problems.

The involvement of muscular issues

In addition to the affect at the epicondyle, repeated/over usage usage of muscles usually causes the development of myofascial trigger points. (trigger points.) As discussed elsewhere these are focal sections of muscle that chronically spasm causing the whole muscle to become constantly tightened. In the case of the forearm extensor muscles a tightening puts a constant stress on the attachment at the condyle. This tension will serve to exacerbate the injury and prevent healing. Because if this the management of tennis elbow should always consider the elimination of these trigger points to remove the abnormal tension on the epicondyle. A further consideration is that trigger points cause referred pain which may add to the symptom pattern.

The simple test that helps make tennis elbow easy

The following simple test will demonstrate this principle, showing the patient you have identified the cause of his or her problem and providing a clear rationale and direction for treatment.

1 Deeply palpate the epicondyle, noting it's tenderness. It is usually worth having the patient do this his or herself to help understand the problem first hand without any thought of the practitioner using differing pressure in subsequent tests.

2 Palpate the extensor muscles for trigger points.

3 Thoroughly treat all the trigger points in the forearm extensors, allowing these muscles to relax to normal tension. This author does this by demonstrating to the patient how to apply the DrGraeme massager for approximately 30 seconds to each trigger point, then observing while they complete the treatment themselves. A post check is needed to ensure all have been treated. It must be stressed that they are not to put the massager on the condyle (sore spot), just the trigger points in the muscles.

4 After the trigger points are treated re-palpate (and have the patient re-palpate) the condyle. All things going well the condyle will be far less tender to palpate, demonstrating that the tension in the muscles was aggravating the condition.

Explanation to the patients

Tennis elbow is caused by repeated or over usage straining where the muscles attach. The trigger points cause the muscles to become tight, putting strain on the attachment., and not allowing it to heal. Treatment of the trigger points allowed the muscle to relax, taking the tension off. That is why the attachment became less tender. The management strategy is to remove the continuing stress and allow the injury to heal. Consistent with this as a goal, management could also include

- modification or restriction of aggravating activities
- stretching of the forearm muscles
- the possible temporary use of some sort of brace.

As the forum respondent said, if one pokes, prods or stick needles into the injured part it will just make it angry, so we leave the body to heal it.

Chronicity issues

Trigger points

As discussed in another research summary, a trial of 12 weekly extensive treatment sessions on shoulder trigger points produced considerable symptomatic relief, but examination showed that over half the trigger points still remained. From this it can be concluded that the complete elimination of the forearm trigger

points may require well in excess of 12 applications of therapy, plus probably ongoing “maintenance”. The cost and time taken to have this done by a professional alone would likely be prohibitive. This is why we recommend supplementary home massage, and is why we have the patient apply the initial treatment themselves with a DrGraeme massager.

Tissue changes, sensitisation of the nervous system and psycho-social aspects

If the condition has not progressed to far the body should be perfectly capable of recovering. However, when any of these are present some assistance may be needed. Many of the possibilities discussed in the forum and journal article may need to be considered.

Concluding remarks

- These basic principles can applied to evaluating and treating many other musculoskeletal pain syndromes.

- Myofascial trigger points have been at least a complicating factor in every case of tennis elbow seen by this author in over 25 years of practice. In spite of this the journal article does not even mention them as a cause, aggravating factor or as a differential diagnosis.

Reference

Coombes, Brooke K., Leanne Bisset, and Bill Vicenzino. "Management of lateral elbow tendinopathy: one size does not fit all." journal of orthopaedic & sports physical therapy 45.11 (2015): 938-949.

Dr Graeme's comments

Elsewhere in this guide we've discussed how issues with muscles and joints can alter Central Nervous System control, creating potential pain and injury through poorly coordinated movement and abnormal stress on tissues. These researchers found that the presence of trigger points in muscles actually slightly slows down their response. For a sports person swinging a bat or a racquet this means it getting to it's target a split second late. Out of form sports people sometimes say that their timing is out. Maybe it is.

Why a sports person's timing may be "out", or be out of form

Summary

Most sports rely on some sort of muscular coordination and timing. Typically the brain receives some sort of stimulus or information. This is interpretted and processed, then signals are sent to the muscles causing them to take some action. What would happen if the brain sent out signals but the muscles were slow to react? Researchers found that this is exactly what happens when muscles contain myofascial trigger points (trigger points).

The trail

What the researchers did

The researcher chose 15 healthy women with a trigger point in their upper trapezius muscle, and matched them 15 similar women without such trigger points. These women were asked to stand upright with their arm slightly forward (shoulder flexed) holding a cable attached to a weight. The women were instructed that when they heard the audio stimulus (a sound) they were to lift their arm holding the weight to shoulder height as fast as possible. The researchers were able to measure the timing of the nervous response using surface electromyography (EMG) and the response of the muscles using force pads. Details follow.

Muscles monitored

The lifting of the weight from a standing position requires the coordinated effort of many muscles. Because of this the researchers used surface electromyography (EMG) to detect signals to the following muscles:

- anterior deltoid
- upper trapezeus
- gastrocnemius
- lumbar paraspinal
- cervical paraspinal
- sternocleidomastoid

The action of the muscles

In order to detect the action of muscles various sensors were used such as one attached to the cable, force pads in the platform subjects stood on, and others monitoring muscle action in the body.

What they found

The reaction time of muscles is made up of two parts. The first part is the time taken to when the muscle receives it's nerve impulse. The second is the time from when the nerve impulse is received to when the force is generated. The researchers found that the presence of trigger points the time taken for the nerve impulse to arrive was unchange, but the time taken for the generation of force was increased. In other words, the muscles received their instructions normally, but were slower to react.

Discussion of the results

In other research summarised in this guide we have seen how as a result of trigger points:

- muscles will be tight and fatigue easily,
- other muscles will be recruited in compensation, and
- the coordination of muscles can be completely changed.

This research shows us that they will also be slow to react to. The coordination involved to play any sport is highly complex, but looking it simply it means that trigger points will slow reaction times and timing. For example, in tennis it would result in the racquet arriving late, miss-hitting the ball or missing it all together.

Screening and treating trigger points

Thoughout this guide we have detailed several adverse affects of trigger points for those who play sport and exercise. The slowing of reaction times with the resultant affects on timing and coordination are yet another. Earlier in this guide we discussed how the use of vibration massage can help treat trigger points. We recommend the best way to get these benefits and keep trigger points at bay is for those playing spots and exercising to be examined and advised by a professional who deals with musculoskeletal conditions then implement regular self/home use. This is analogous combining regular dental checkups with daily brushing and flossing.

Reference

Yassin, M., et.al. Arm Flexion Influence on Muscle Reaction Time in Females with Active Myofascial Trigger Point. British Journal of Applied Science and Technology, 2015 11(1): 1-9

Dr Graeme's comments

I love this research. It shows that a simple home massage produces way better results than the standard medical drugs that get handed around almost like lollies and kill hundreds of thousands of people.

Traditional home massage found to be far superior to anti-inflammatory drugs for chronic upper back pain

Summary

Although anti-inflammatory drugs are heavily advertised and routinely prescribed for pain syndromes a recent clinical trial found them to be far less effective than simple home massage for the relief of upper back pain. It not only produced a far superior at reduction in pain, it also produced significant improvements in ranges of motion and a reduction in muscular tightness and tenderness.

The pain reduction and functional improvements gained from the self massage indicate that myofascial issues are a significant part of such syndromes, and shows that self massage at home can be a useful part of their management. Musculoskeletal pain syndromes can be quite complex issues though, so we see the best use of self massage not as a substitute for popping a pill, but as part of a professional management that properly takes care of the underlying causes of pain syndromes and reduced function.

The trial details

Subjects

The 60 subjects (two groups of 30) were aged from 18-60 and had suffered from upper back pain for at least 12 weeks. The only other significant inclusion criteria was the presence of at least one myofascial trigger point. Studies have shown an extremely high prevalence of trigger points in such pain syndromes. One study even found trigger points in the shoulder muscles nearly 90% of asymptomatic people. Simply, practically all chronic upper back pain sufferers would have trigger points so it is reasonable to say that the groups were fairly representative of all upper back pain sufferers.

The treatments

The self massage

The subjects used a hooked cane called a Wilai stick to apply massage along the paraspinal muscles of the upper thoracic area. Using the stick, pressure was applied until mild pain was experienced, then released after five seconds. This was repeated five times for each point. The self massage was followed by a two minute stretching routine. The treatment was repeated each day for 5 days.

The anti-inflammatory drugs

Subjects took 400mg of ibuprofen three times daily for five days

The measurements

The following measurements were used

- the level of pain using a visual analogue scale
- the amount of pressure on muscles needed to elicit tenderness
- cervical ranges of motion

The results

Over the five days the self massage group experienced a reduction in pain from 5.4 to 0.08 on the 1-10 scale, plus excellent clinical improvements in tissue hardness/tenderness and cervical ranges of motion. In contrast, the ibuprofen group experienced a smaller reduction in pain, and no improvement in any other aspects.

Clinical discussion

Apart from showing that pharmaceutical companies and the medical industry are making massive fortunes pushing drugs that kill people while safer, less expensive and more effective solutions are available, the trial results help guide us in what is needed to successfully treat these pain syndromes.

The involvement of myofascial issues

The self massage used emulates the professional massage technique ischemic compression or “pressure point therapy”. This targets myofascial issues, especially trigger points. The excellent results show that myofascial issues are a major cause of upper back/cervical pain and dysfunction.

The usefulness of self/home massage

The positive results support the use of home massage. However, as with home massage using our DrGraeme massagers we are not suggesting that it should be seen as an alternative to “popping pills”. Musculoskeletal pain and dysfunction can be a complex clinical entity, and should be addressed by a proper program determined by a professional after appropriate examination. Trigger points and other chronic myofascial issues can require extensive therapy repeated over a long period of time, so home massage is a very useful tool. However, a professional management plan may also include aspects such as joint function, the need for ergonomic and manual handling advice, the need for rehabilitation exercises, more complex myofascial issues that require professional intervention, and possibly many other aspects.

Reference

Wamontree, Phanida. et.al. THE EFFECTS OF TRADITIONAL THAL SELF-MASSAGE USING WILAI MASSAGE STICKTM IN PATIENTS ON UPPER TRAPEZIUS WITH MYOFASCIAL TRIGGER POINTS: A RANDOMIZED CONTROL TRIAL. J. Phys. Ther. Sci. 27: 3493-3497, 2015

Dr Graeme's comments

We've covered the issue of altered neurological control in the section on functional rehabilitation, plus several of the research summaries. These researchers found that altered muscle timing was placing a high load on hamstring muscles causing their injury.

Altered muscle activation patterns shown to cause hamstring injuries- a guide to correction

The Study

A study of sports people used surface electromyography (EMG) to compare the neurological control of those who had suffered hamstring injuries with normal controls. They found that those injured had abnormal sensorimotor neurological control of their muscles, specifically the activation timing of their muscles was altered. The authors speculate that this places a higher cumulative load on the hamstrings, noting that previous research has shown such abnormal sensorimotor control has been shown to increase the risk of hamstring injuries, and has also been associated with lower back pain, sacroiliac injuries and knee injuries.

The implications

The study idententified a genuine problem. An abnormal muscle activation pattern, such as was discussed in our section on functional rehabilitation, was found to cause the hamstrings to be overloaded, predisposing them to injury. The author states that this abnormality could be screened for as a preventative measure, and should be addressed as part of rehabilitation. This raises two serious issues.

How can this screening be done practically?

The researchers found the anomoly by analysing the the results of surface EMG. This is an excellent research tool, but would it be practical in all but professional sporting clubs?

Once the issue has been found how can it be fixed?

Without providing any supporting evidence, the authors suggest that such sensorimotor abnormalities be remedied by focusing on controlled movement with exercises. However, as discussed elsewhere in this guide the timing of muscle activation is under the control of the Central Nervous System (CNS). Some issue will be causing the CNS to alter that timing, and corrective exercises will not change it.

A sensible solution

This study highlights a problem that needs to be addressed, but suggests a way to screen for this issue that is impractical and a method of correction that will not work. Lets look at a practical solution. We know that the CNS makes these compensations as a result of issues such as articular dysfunction and myofascial trigger points. These can be screened for and dealt with by any appropriately qualified professional who deals with musculoskeletal issues, using his or her normal clinical resources. Simply, find and eliminate causes of abnormal timing.

References

Sole, G., Milosavljevic, S., Nicholson, H., & Sullivan, S. J. (2012). Altered muscle activation following hamstring injuries. Br J Sports Med, 46(2), 118-123.

Dr Graeme's comments

This is key research that shows that trigger points will cause the Central Nervous System (CNS) to alter the timing and firing order of muscles controlling movement, AND that by eliminating their effect the CNS will re-adjust back to normal.

Latent (Pain Free) Trigger Points Alter Neurological Control of Shoulder Movement Causing Damage, Impingement and Injury

Introduction

This article summarises the very important clinical implications of the research done by Dr Karen Lucas in Melbourne for her PhD Thesis. She investigated the prevalence of latent (pain free) myofascial trigger points (MTPs) in the shoulder muscles of asymptomatic adults, and their affect on the control of muscles. She found that nearly 90% of the asymptomatic adults tested had at least one, and often many latent MTPs in these muscles. When investigating their affect on the neurological control of muscles, it was found that they alter the timing and activation of muscles producing dysfunctional movement. This creates abnormal stress on the joints and tissues, increases degeneration, and increases and the risk of injury and impingement syndromes. It was further found that the treatment of latent MTPs normalises the neurological control. This has profound implications.

What is a muscle activation pattern (MAP)

Abduction of one's shoulder through a full range of movement requires an incredible coordinated effort from a large number of muscles. There are the prime movers, the stabilisers, and the rotator cuff muscles whose job it is to maintain the smooth even contact of the glenohumeral joint surfaces. During the approximately 180 degrees of abduction each of these muscles must contract and relax at the appropriate time. This timing and activation is known as a muscular activation pattern (MAP)

What was done

Subjects

137 adult subjects were used for the trial. All had been pain free the previous week, had full shoulder movement and no obvious shoulder dysfunction or pathology. The subjects were examined for trigger points in seven of the muscles of their shoulder girdle.

MTP examination

14 were found to have no latent MTPs, while 123 (about 90%) had one or more. Nearly 80% of subjects had latent MTPs in their upper trapezius. Five out of the six remaining muscles scored at least 60% in the same respect.

The effect on MAPs

The subjects had the activity of the seven muscles measured by surface EMG during abduction. The latent MTP free subjects were used as a control. These controls all showed a consistent similar MAP for the seven muscles. On the other hand the MAP for those with latent MTPs showed differing orders and timing of activations.

The consequences

In the background research presented in this thesis it was discussed that this alteration of the MAP produces dysfunctional movement, therefore the joint loses it's smooth movement placing extra stress on the joint and surrounding tissues, and creates the potential for impingement. This predisposes and leads to a host of conditions such as impingement syndromes, rotator cuff syndromes, joint degeneration, bursitis and tendinopathies.

The effect of treatment of MTPs

For the next part of the trial those with latent MTPs were divided randomly into treatment and sham treatment groups. The sham treatment group received "ultrasound" with a non-functional machine. The treatment group had their trigger points treated using dry needling and stretching. Immediately following stretching subjects were re-tested using the surface EMG. In summary, the MAPs for the treatment group became normal while those for the sham treatment group remained abnormal. Dr Lucas did stress though that the effect was only measured short term, and that the long term effects were uncertain.

Clinical implications

Some of the many clinical implications are discussed briefly below. Each will be dealt with more completely in future research summaries.

Trigger point assessment and treatment should be considered for shoulder pain

It has been shown the latent trigger points can cause shoulder pain directly by becoming active, or indirectly by changing the shoulder function resulting in impingements, uneven joint pressure and so forth. They should be considered in cases of shoulder pain.

The prescription of exercises alone to correct pain syndromes should be seriously re-considered

Patients are often given exercises alone to remedy shoulder and other pain syndromes. Research has shown that MTPs are highly likely to be involved. This study showed they caused the nervous system to produce movements that were abnormal and detrimental. The MAPs are not under conscious control so patients cannot be instructed to perform exercises correctly. During exercise movements will likely continue to be abnormal and detrimental. This research indicates that trigger point therapy should be done concurrently to normalise neurological control.

Regular screening and treatment of trigger points Trigger point therapy should be considered.

Regular soft tissue therapy or a regular massage would arguably find and deminish latent trigger points, thus preventing them from becoming active (painful) and causing abnormal function.

Everone using a gym or exercising should be regularly screened for trigger points

Joint pains, injuries and impingement syndromes are too common among those who use a gym or exercise. This research suggests that latent MTPs causing abnormal joint function would make joints and tissues far more vulnerable to these. The risks would be magnified by the increased loads placed on these joints. As shown in the research the treatment of trigger points normalises muscular control.

Implications for sports performance

Whether one swings a golf club, a tennis racquet, or shoot basketballs you want the coordination of your muscles to be normal to produce the best results.

Keeping it practical

As shown in our previous research summary the treatment of trigger points can sometimes deactivate active MTPs making them pain free (latent). However, complete removal requires a course of therapy over a considerable length of time. The care these clinical implications suggest would involve a course of care to remove trigger points then regular maintenance screenings. If done by therapists alone this would be very expensive and time consuming, therefore be something only available to people such as elite sports persons. This is the reason the DrGraeme serious hand held massagers able to be used at home were developed. Under the guidance of a professional supplementary massage can be done at home, making this type of care affordable and practical.

Reference

THE EFFECTS OF LATENT MYOFASCIAL TRIGGER POINTS ON MUSCLE ACTIVATION PATTERNS DURING SCAPULAR PLANE ELEVATION, by K.R. Lucas PhD.
https://researchbank.rmit.edu.au/eserv/rmit:6364/Lucus.pdf

Dr Graeme's comments

As we all know, manual therapy can be physically demanding, often requiring repetitive movements, awkward postures and the application of force. Unfortunately these can take a toll on a practitioner's body leading to injury or even being forced to leave his or her profession. In this summary we show the seriousness of the problem and how the use of a DrGraeme massager can help prevent these issues.

The biggest benefit: saving your body

The seriousness of the problem

As an example, a study of New York chiropractors (Homack 2016) found pain or injury rates of 21.7% for the neck, 30.4% for the upper or middle back, 44% for the lower back, and 58% for the upper extremities. A survey of Physical Therapists found an incidence of 32% work related musculoskeletal injury, and a survey of 601 massage therapists and body workers found 77% had some sort of musculoskeletal symptoms, with thumbs (30%), wrists (27%) and shoulders (26%) being the most common. 43% had been forced to make changes to their practice and 23% were considering leaving their profession as a result (Green 2006).

Addressing this issue

Not surprisingly the major causes of these injuries appears to be applying pressure and the maintenance of awkward postures. Suggestions to minimise these include reducing your exposure to risk as much as possible and developing good body mechanics and work postures. As described below, the use of our massagers should help. The more tasks that are done this way rather than manually the greater the benefit.

Applying pressure

The incidence of thumb, wrist and shoulder injuries is very high, with the application of pressure being given as a major cause. Vibration massagers use vibration to penetrate rather than pressure, and often the weight of the machine is sufficient to make proper contact. Using these there is practically no pressure through a practitioner's wrists, hands and shoulders.

Awkward postures

A practitioner's body needs to be positioned suitably in order to apply manual pressure. Such positions often require awkward postures. On the other hand without needing to apply pressure, and being able to reach using the use the handle of the massager rather than positioning one's body, one can avoid most awkward postures.

Having the patient do the work

Stress on practitioner's bodies is completely removed by the use of supplementary home massage where a patient uses our massagers at home under professional advice

References

Homack D and Hedge A Survey of Occupational Injuries to Practising Chiropractors Austin J Musculoskelet Disord. 201; 3(2): 2016

Greene, L. and Goggins, R.W., 2006. Musculoskeletal symptoms and injuries among experienced massage and bodywork professionals. Massage & Bodywork, pp.48-58.

Dr Graeme's comments

Most of this should be basic knowledge for any qualified professional who deals with manual therapies, though one needs to anticipate what a home user might do. In the usage guides that come with our massagers we say that usage such as when pregnant or with a pacemaker needs to be discussed. For situations such as these to our knowledge there is no research to say whether it's safe or not. Our advice is that people with pacemakers can have heart attacks and pregnancy can have issues totally coincidentally. We don't want to get the blame because a massager was used the day before. In these cases please err heavily on the side of caution.

Massager safety

Overview

According to the scientific literature the incidence of adverse reactions to any type of massage is extremely rare. However, there are probably a lot more unreported incidents that cause temporary pain or discomfort without any long term effects. Most of these would be avoided by a trained professional simply by using his or her common sense.

A literature review of adverse reactions

Ernst (2003) did a world wide literature search and found relatively few reported cases of adverse reactions to any type of massage, whether performed by a professional or other. Some were due to the dislodgement of a deep vein thrombosis in the calf. One would expect all professionals dealing with manual therapies to be aware of that risk and take appropriate precautions. A couple were as a result of nerve damage caused by deep pressure. That would have been extremely painful. One was pressure at the elbow, while the other was in the proximal hand. Apart from that the reports were things I could never imagine a professional doing. For example, in one case a wife walking on her husband's back damaged his kidney. Believe it or not, in another incident a lady put a massager with a rolling action under her neck when she went to sleep. The sheets got caught up in the mechanism and strangled her.

Unreported reactions

This author is personally aware of many cases where massage has caused pain or aggravated tissue damage in an injury. However, the results are temporary with minimal or no lasting effects, so would not warrant reporting. Such an example would be a sports trainer massaging a corked thigh, or self performed ischaemic compression where a person thinks tissue damage is "good pain".

Coincidental occurrences

Our vibration massager may or may not have an effect on things such as pacemakers and pregnancy.. However, people with pacemakers can have heart attacks and pregnant women can have problems. We don't want someone with co-incidentally having a something go wrong after being massaged and having the massager being blamed. Any time there was a potential for such a co-incidental occurence our recommendation is to err heavily on the side of caution.

Conclusion

In summary, the possibility of dislodging a deep vein thrombosis is something all those involved with massage should be aware of. There are masseurs who equate the causation of pain with doing good, however a professional should be aware that this is not damaging nerves or injuring other tissues. Apart from that, even with untrained people performing massage the incidence of serious consequences is extremely rare. Common sense for a trained professional should suffice for most situations.

Reference

E. Ernst; The safety of massage therapy. Rheumatology 2003; 42 (9): 1101-1106

Extra reading

A comprehensive guide to cautions and contraindications of massage
http://www.gcmt.org.uk/documents/Massage-Therapies-MT1-Cautions-and-ContraIndications.pdf

Information provided by the Australian government on Deep Vein Thrombosis
https://www.healthdirect.gov.au/deep-vein-thrombosis

Dr Graeme's comments

Before we started building our massagers the massagers we found for home use were practically useless. No-one we knew prescribed home use of a massager, and there was no research on it. However, we did manage to find research on the self/home use of other forms of massage. These were all quite positive.

Research and professional acceptance of home massage

Historical perspective

When we started building massagers to our knowledge such home usage of massage was not widely prescribed. Some of the reasons are summed up in a UK study (McDonagh 2005). They found that practitioners did not support the usage of home massage for the following reasons.

- The manufacturers of massagers for consumer use were more focused on looks than function
- The instructions provided with such machines were poor, and
- Practitioners preferred to do it themselves

Sports usage

On the other hand, as discussed elsewhere in this manual the sports and athletics community value massage, and the use of foam rollers to perform home massage has become wide spread.

Research acceptance

We could only find a small number of trials were home massage has been addressed, but they have all been positive.

Trial One (Field 2003)

A daily regime of home massage reduced pain and increased grip strength in carpal tunnel pain syndrome sufferers.

Trial two (Hanten 2000)

A home program of stretching and self performed ischaemic pressure (Trigger Point Therapy) reduced the sensitivity of trigger points.

Trial three (Atkins 2009)

Self massage to the quadriceps was found to improve pain and function in those with Osteoarthritic knees

Trial four (Field 2007)

Self massager was shown to increase grip strength and reduce pain in those with osteoarthritis on the hands

Trial five (Chan 2015)

Found that self massage combined with physical modalities was more effective than modalities alone for myofascial pain dysfunction syndrome

Trial six (Wamontree)

Self massage provided better results than taking isobrufen for patients with upper back pain and associated trigger points.

References

McDonagh, D., Wilson, L., Haslam, C. and Weightman, D., 2005. Good vibrations: Do electrical therapeutic massagers work?. Ergonomics, 48(6), pp.680-691.

Field, T., Diego, M., Cullen, C., Hartshorn, K., Gruskin, A., Hernandez-Reif, M. and Sunshine, W., 2004. Carpal tunnel syndrome symptoms are lessened following massage therapy. Journal of Bodywork and Movement therapies, 8(1), pp.9-14.

Hanten, W.P., Olson, S.L., Butts, N.L. and Nowicki, A.L., 2000. Effectiveness of a home program of ischemic pressure followed by sustained stretch for treatment of myofascial trigger points. Physical therapy, 80(10), p.997.

Atkins, D.V., ThD, R.N. and Eichler, D.A., 2012. The effects of self-massage on osteoarthritis of the knee: a randomized, controlled trial. International Journal of Therapeutic Massage & Bodywork: Research, Education, & Practice, 6(1), pp.4-14.

Field, T., Diego, M., Hernandez-Reif, M. and Shea, J., 2007. Hand arthritis pain is reduced by massage therapy. Journal of Bodywork and Movement Therapies, 11(1), pp.21-24.

Chan, Y.C., Wang, T.J., Chang, C.C., Chen, L.C., Chu, H.Y., Lin, S.P. and Chang, S.T., 2015. Short-term effects of self-massage combined with home exercise on pain, daily activity, and autonomic function in patients with myofascial pain dysfunction syndrome. Journal of physical therapy science, 27(1), pp.217-221.

Wamontree, P., Kanchanakhan, N., Eungpinichpong, W., Htun, M.L., Ard-am, O., Bhuket, P.R.N., Teerawonganan, P., Yoosakul, E., Supasena, W., Watananikorn, C. and Chuasuwan, B., 2015. Effects of traditional Thai self-massage using a massage stick versus Ibuprofen on upper back pain associated with myofascial trigger points: a pilot study. J Health Res, 29(6), pp.403-8.

How to implement home massage

We recommend that you familiarise yourself with the usage of our massagers and our research information articles so you have a good scientific footing. As long as one follows a few simple precautions it should be incredibly safe, so simple clinical trials may be used. This can be a simple as performing an examination, using the massager, then re-examining. For trailing home use many practitioners first practice on themselves, then let family and friends use our machines.

Introducing to patients

The best way to start with home use is to have some patients perform some basic soft tissue therapy on themselves, with you supervising. This takes minimal extra time, as you would be holding the massager yourself anyway. You may even be able to do something else such as doing some notes while intermittently observing.

Demonstrate

To help the patient understand the benefits is often worthwhile perform an examination before and after being massaged. This can be as simple as palpating before and after, noticing any change in tenderness through to any other test clinical judgement dictates. Once you have demonstrated this you may recommend the patient get his or her own massager. Stress that it is supplementary to your care, just like exercises or other home advice. It just allows them to help with part of their problem.

Practical steps to help

Systematise

It is good to have a system in place to help make sure your recommendations are implemented. For example, once a once a massager is recommended there is a system in place to get that message to the front desk so they can organize the patient to get one.

Usage guides and research articles

Our Usage Guide explains the explain the rationale and benefits of home massage. If you need extra we'be got plenty. Just ask. We also now have plenty of research summaries and other articles available on our website. Feel free to use this for patient education purposes.

A massager in reception

This is a must. Have a massager plugged in next to a seat so patients can try one. They almost sell themselves, especially if the reception staff are enthusiastic about them, which leads to the last point. Make sure your reception staff have their own massager or at least access to one.

People seeking massagers

When people show our massagers to friends and relatives they often wish to purchase their own. If they live locally they will probably source one from the same clinic. Alternatively, our website gets a large amount of traffic from people looking for clinics to purchase our massagers from. If someone comes into your clinic looking for a massager that can be a real bonus. Our attitude is that he or she probably has a problem that we can help them with. At the minimum you can profit from the sale of the machine, and they are now familiar with the clinic. I recommend you have staff trained to be very helpful, maybe asking what they will be using it on and recommending a consultation.

Christmas and other gifts

Mothers day and fathers day are always good, but Christmas time can be a unique experience. The massagers make great Christmas presents for hard to buy for people. If people know you have the massagers available that is when you can get people walking in and buying an arm full.

DrGraeme Massagers
331 Main St Bairnsdale (P.O. Box 914)
Bairnsdale Victoria 3875
AUSTRALIA

Phone: (Australia) (03) 51161298
Phone: (Overseas) +61351161298
Email: graeme@drgraeme.com
Website: www.drgraeme.com