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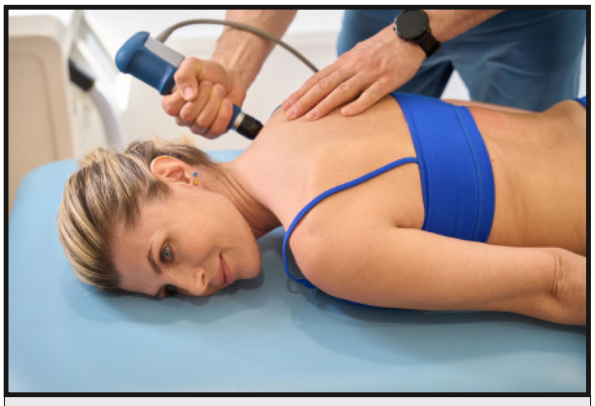
# Trigger point treatment: deactivation or elimination

Those experienced with courses of trigger point therapy such as dry needling, manual therapies and laser will understand that any relief is usually just temporary.



*Clinical trials only show that treatments give temporary symptom relief. Trigger points remail and the pain returns*

From an evidence perspective the problem is that while there are a large number of clinical trials supporting the use of various therapies, those trials almost universally only measure symptomatic effects, often just immediately post treatment or with a minimum follow up. The few trials that checked for the presence of trigger points post treatment all showed that most were still there, where of course they are able to continue to develop and likely be re-aggravated.

**In this guide we will show you**:

1. Why clinical trail results are misleading
2. Strategies to effectively eliminate trigger points rather than just give temporary relief.

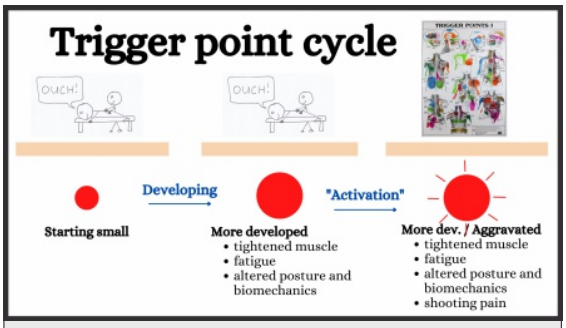
# Why clinical trial results are misleading

To understand why clinical results are misleading it is necessary to look at the typical trigger point development cycle, then what the clinical trials actually demonstrate.

## The trigger point development cycle

As shown in this diagram trigger points start small and gradually develop. For a long period of time they cause muscle tightness and impaired function, but are otherwise asymptomatic. When further developed though aggravation can cause them to start shooting pain. This is called “activation”.

For more info: Your Complete Guide To (Myofascial) Trigger Points




*Trigger points develop over time, then can eventually be "activated" to cause pain*

## What most clinical trials actually demonstrate

The goal of most clinical trails is to deactivate the trigger points (1–5). Deactivate simply means to revert the trigger point to how it was before it was activated, ie. to stop it shooting pain. Because of this researchers choose to only measure symptomatic and temporary factors such as:

- pain (eg using a visual analogue scale or a questionnaire)
- tenderness (eg. the amount of pressure needed to produce pain)
- Range of motion

## Typically only temporary improvements are measured

These measurements are often made shortly after treatment, with occasional follow ups of a week or rarely a month.

## Proof that these courses of treatment do not eliminate trigger points

We were able to find four trials that checked for the presence of trigger points post treatment (6–9). These conclusively show that even after courses of 12 extensive therapy sessions the majority of trigger points are still there, where of course they continue to develop and are eventually re-activated.

## Example one:

This data is taken from one trial where 12 weeks of extensive therapy with multiple therapies was given by world class trigger point researchers (7). Note that this is way more than a typical patient would receive when consulting a professional. While patients received a lot of relief approximately 2/3 of the trigger points remained.

**Data from a trial of 12 weekly 45 minute sessions of trigger point therapy**

Bron et al. BMC Medicine 2011, 9:8
http://www.biomedcentral.com/1741-7015/9/8

BMC Medicine

RESEARCH ARTICLE Open Access

Treatment of myofascial trigger points in patients with chronic shoulder pain: a randomized, controlled trial

Carel Bron[1,2*], Arthur de Gast[3], Jan Dommerholt[4], Roudewijn Stegenga[5], Michel Wensing[2], Rob AB Oostendorp[1]

| | |
|---|---|
| Number of muscles with active trigger points, mean (SD) | |
| Baseline | 7.4 (3.7) |
| After 6 wk | 6.2 (3.5) |
| After 12 wk | 4.8 (3.0) |
| Number of muscles with latent trigger points, mean (SD) | |
| Baseline | 4.2 (2.7) |
| After 6 wk | 3.8 (2.1) |
| After 12 wk | 4.7 (2.3) |

## Example two:

This table of data is from a trial where patients received 12 sessions of treatment including deep tissue massage, TENS and heat packs (9). Again the patients felt better, but the data clearly shows that most of the trigger points remained.

Table 2. Baseline, after treatment and score changes for the VAS, Trigger point ar

| | | | Control ($n=40$) | | DTM ($n=40$) | |
|---|---|---|---|---|---|---|
| | | | Mean | SD | Mean | SD |
| VAS | Rest | Baseline | 7.6 | 1.9 | 7.6 | 1.4 |
| | | After treatment | 4.2 | 2.5 | 1 | 0.9 |
| | Activity | Baseline | 8.1 | 1.7 | 8.5 | 1.1 |
| | | After treatment | 4.7 | 2.1 | 1.5 | 1.2 |
| TRIGGER POINT | Right Trapezius | Baseline | 1.7 | 0.6 | 1.5 | 0.9 |
| | | After treatment | 1.1 | 0.5 | 0.6 | 0.8 |
| | Left Trapezius | Baseline | 1 | 0.6 | 1.3 | 1 |
| | | After treatment | 0.6 | 0.5 | 0.7 | 0.8 |
| | Right Levator Scapula | Baseline | 0.9 | 0.6 | 1.1 | 0.7 |
| | | After treatment | 0.8 | 0.6 | 0.8 | 0.7 |
| | Left Levator Scapula | Baseline | 0.8 | 0.5 | 1.1 | 0.9 |
| | | After treatment | 0.6 | 0.6 | 1.1 | 0.9 |
| Neck Pain Disability | | Baseline | 71.3 | 13.5 | 69.2 | 12.5 |
| | | After treatment | 66.3 | 12.2 | 56.9 | 9.1 |

## The researchers understand this deception

**The overwhelming majority of clinical trials of trigger point therapy do the equivalent of an electrician resetting a circuit breaker and telling you they have fixed the fault**. Researchers understand this.

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

Prior to conducting a clinical trial every researcher does an extensive literature search to find out what has already been done and what is already known. They would all have read the studies that show that their course of treatment will not eliminate the trigger points, so they deliberately choose to not check for the presence of trigger points after or measure long term effects. They then use terms such as those following to help give the appearance that their treatments are more beneficial than they actually are.

### "*de-activate*"

This term gives the impression that the treatment somehow makes the trigger points safe or harmless, like deactivating a bomb, whereas the reality it is just like resetting a circuit breaker.

### "*acute effects*"

Researchers use the term 'acute effects" rather than than simply saying "for a short time only".

### "*is effective*"

In their conclusion researchers will say that the treatment they were testing "is effective", but this is only in relation to the typical short term symptomatic things they measure. This is a lot different to what a clinician or patient would expect from an "effective" treatment.

## Strategies to effectively eliminate trigger points rather than just give temporary relief

Unfortunately those conducting trials on trigger point therapies have spent a massive amount of time and effort producing studies on short term symptomatic relief rather than long term elimination of the problem. To work out an effective long term strategy we need to piece together information from these and other studies relating to trigger points. Let us look at these.

## The relative effectiveness of treatments

While the clinical trials give no evidence about the ability to the various therapies to eliminate trigger points they do give clues about their relative effectiveness (1-4,8,15–42). As a general observation:

- there is little difference between the effectiveness of the commonly tested therapies that directly target the trigger points (eg. laser, dry needling and the various massage and pressure techniques)
- the techniques that are claimed to use specialised neurological principles are less effective.

## Trigger points can be eliminated

While the four trials that checked for the presence of trigger points after treatment found that most were still there a percentage were eliminated and the others had diminished. This indicates that further treatment will likely continue to diminish and eliminate trigger points.

### An estimation of what is needed

Of the four trials that did check whether trigger points were still present after treatment the trial in example one above gives the best data (7). To summarise this patients received 12 weekly sessions. At each session multiple therapies were used under the supervision of world class trigger point researchers. Approximately 1/3 of the trigger points were eliminated.

It is only an indication, but at that rate 36 sessions would have been needed to eliminate all the trigger points. When considering that the sessions used in the trials were very extensive involving multiple therapies (more extensive than a typical professional visit) it likely that more than 36 typical professional visits would be needed. This would require the patient to attend a very expensive course of treatments that would extend way beyond when they felt better: something that very few would actually do. Therefore, to eliminate trigger points patients need to have a safe, easy to do effective self trigger point therapy so they can do at least some of the therapy themselves.

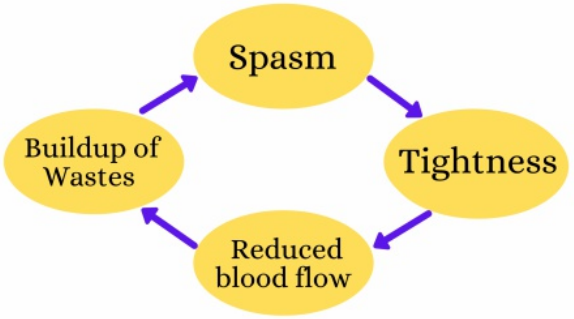
## Effective trigger point treatments

When assessing what is needed to effectively treat trigger points the clinical trials are not much help. They test a variety of treatments, each being roughly equal in relation to the temporary symptomatic measures tested. To work out the best treatment we need to look at the structure, pathology, physiology and neurology of trigger points to get an idea of how treatments may be effective, then chose an appropriate remedy.

### The structure, pathology, physiology and neurology of trigger points

There are a large number of studies investigating the structure, pathology, physiology and neurology of trigger points. Many are extremely complex, however these can be condensed into the following summary. Trigger points are a combination of the following, forming a positive feedback loop as shown in this diagram.

1. muscle spasm
2. muscle tightness
3. restricted blood flow
4. a buildup of waste products




*The trigger point positive feedback cycle*

## Why trigger points continue to develop

The nature of positive feedback loops is the while elements remain they will continue to develop and continue to grow. The only way to eliminate trigger points completely is to completely eliminate the trigger points and address any issues that may be causing them to develop.

Why there are so many therapies
This model explains why there are so many different therapies shown to help. Any therapy will help if it reduces any part of the positive feedback loop. For example massage helps relax muscles, increase circulation and mechanically pump out waste products.

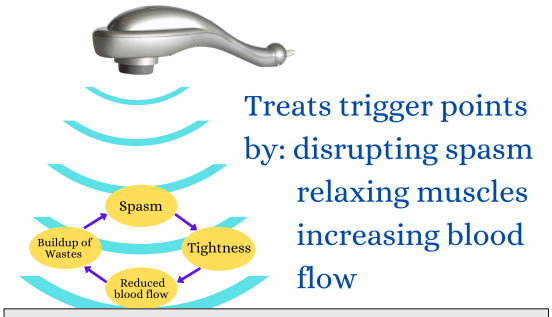
## What causes trigger points in the first place

There are a host of potential causes and contributing factors for trigger points. We will cover these below, however the two main issues are overuse/repetitive injuries and muscle tightness. Muscle tightness may have a host of courses ranging from postural issues (eg sitting at a desk) and occupational issues (eg overuse) through to emotional stress.

## Our recommended treatment

The trigger point therapy we recommend is the use of therapeutic vibration massage. We have used this extensively in clinic giving great results.

From the scientific perspective, as discussed in our guide The scientifically proven effects of vibration massage- with clinical applications therapeutic vibrations penetrate deeply and have been shown to be very effective at reducing each of the four elements of the positive feedback loop. Further, the use of vibration massage has the following advantages




*Vibration addresses all the key elements of a trigger point*

## Penetrates deeply

Like ultrasound (vibrations at a different frequency) therapeutic vibrations can easily penetrate deeply to the hard to get at spots where a lot of trigger points are situated.

## Very safe

Genuine vibration massagers have a head or pad that sits on the surface and sends in vibrations, so there is little physical penetration. Therefore vibration massage is extremely safe and comfortable.

## Very easy for self usage

While our Vibration massage usage guide gives several precautions and ways to increase effectiveness the fundamentals are very simple. One only needs to place the head/pad of a vibration massager over the trigger point and allow the therapeutic vibrations to penetrate.

### *Note: this is not percussion massage (massage guns)*

*As shown in the diagrams below percussion massagers are designed to give physical penetration rather than send in vibrations. While they do give some vibrations those are a lot less than a genuine vibration massager and not at the optimum therapeutic frequencies. They give much reduced amounts of therapeutic vibrations while increasing the risk of physical injury or damage. In summary they are a marketing gimmick that is far less effective and less safe than a genuine vibration massager. For more info please see: Massage guns explained.*

Vibration massagers are like the yellow machine, designed to send therapeutic vibrations deep into your muscles without harming the surface

Massage guns are like jackhammers, designed to smash the surface rather than send in vibrations

## Summary of trigger point elimination strategy

**The simple strategy to eliminate trigger points is to**:

- use an effective therapy for long enough to eliminate the trigger points,
- take steps to reduce or eliminate the things that cause trigger points, while doing things that help improve muscular health.

### Effective long term therapy

Regular therapy needs to be applied for long after the symptoms subside, and until examination shows that the trigger points have been eliminated. Following that, regular (but less frequent) therapy needs to be applied to prevent further trigger points from developing.

The only practical way for most people to have this is by using at least some self therapy. The only such therapy that is safe, easy to do and highly effective is using vibration massage. All a person needs to do is sit the head/pad of a vibration massager over the trigger points and allow the vibrations to penetrate and have their therapeutic effects. For details please see our Trigger point therapy guide.

As mentioned above massage guns are designed to drive their heads in like jackhammer rather than send in vibrations so they are not suitable. The other commonly prescribed self therapy is pressure using balls or rollers. This is painful, hard to do, and confirmed by clinical trial results not very effective. For more information please see our guide Do foam rollers work. Further, because they are painful and hard to so patients are unlikely to continue with these long term if asymptomatic.

## How to prevent trigger points

There are a number of things that to help prevent trigger points. Most involve minimising or eliminating the two main underlying causes: overuse and tightened muscles. Let's look at some examples.

### Treat existing trigger points

As we have seen existing trigger points cause muscles to tighten and restrict blood flow. Because of the positive feedback this cause more trigger points to develop and the existing ones to worsen. Therefore, effectively treating trigger points helps prevent further development.

### Sitting at a computer

1. Set up your work station to minimise postural and other stresses. An excellent resource that shows you how to do this is our Victorian Government Worksafe guidelines
2. Take regular exercise breaks to help reduce muscle tightening and help get blood pumping though your muscles.

### Other jobs and activities

1. Minimise repetitive stresses and prolonged tightening of your muscles. our Victorian Government Worksafe guidelines give specific advice for a large range of jobs and activities.
2. Take regular exercise breaks to help reduce muscle tightening and help get blood pumping though your muscles.

### Emotional tension and stress

Emotional tension and stress and be a significant cause of muscle knots, especially in the head and neck muscles. As an example, during the exam period in Chiropractic College fellow students sought regular treatments. This is not our area of expertise, so if this is a concern we advise that you seek appropriate advice.

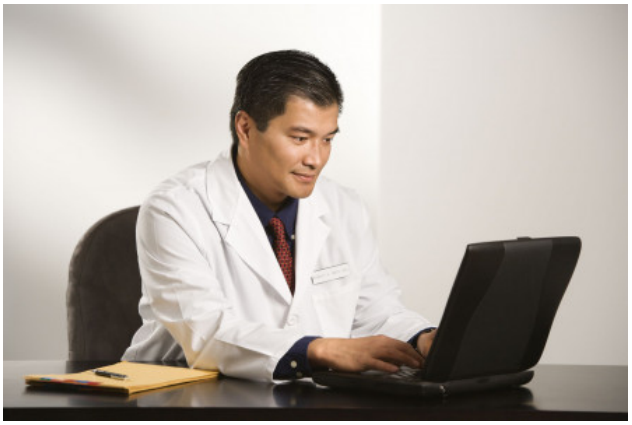
### Spinal and postural abnormalities

Issues with your spine and posture are a very common cause of muscles to be abnormally tight. For more information about this and what to do please see this article

### Regular muscle care

Causes of muscle knots can easily be minimised, but it is practically impossible top eliminate them altogether. Therefore it is great to do some ongoing muscle care to keep them from tightening and to keep an excellent blood flow. To do this we recommend:

1. regular exercise and stretching
2. regular massages (Later in this article we will show you the best do self massage so you can do this without the expense and inconvenience)



## Try this therapy with a sample massager (professionals only)

Most of our massager sell through colleagues using our machines and recommending the therapy to patients/clients, so we are very happy to send appropriately qualified professionals a complimentary sample machines to trial. For more info please see our Professional sample page.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