



DOSSIER · THERAPY

Trigger Point Therapy

Trigger point therapy encompasses a wide range of interventions: manual techniques, massage, stretching, injections and dry needling. The most cited work in the field does not address treatment but rather central nervous system sensitisation. Controlled studies focus almost exclusively on the musculoskeletal system.

908

STUDIES IN
TOTAL

623

IN HUMANS

200

OF WHICH
CONTROLLED

30

IN ANIMALS

0

IN THE LAB

Figures from the IHR study database · Last updated 2026-10-04

How to Read This Dossier

ESTABLISHED

measured in humans, with a comparison group

PLAUSIBLE

supported by mechanism, animal studies or observation

HYPOTHESIS

a likely connection that still needs to be tested

Trigger Point Therapy at a Glance

ORIGIN:

Trigger point therapy comprises interventions targeting palpable, pressure-painful points in the skeletal musculature: manual techniques, massage, stretching protocols, injections and dry needling, in which a fine needle is inserted without any active substance. The oldest recorded works date from the mid-1950s; since then a broad field of its own needling, manual and injection techniques has developed. Common to all is the palpation- and pressure-determined starting point.

EVIDENCE BASE:

908 evaluated works · 200 controlled human studies · 423 observational studies · 40 review articles · 30 animal experiments · 0 cell culture studies

STRONGEST EVIDENCE:

- **Proven:** Meta-analyses of randomised studies exist for dry needling, including for myofascial pain of the upper body region (musculoskeletal system).
- **Proven:** A review article with 884 participants examines local anaesthetic injections in myofascial pain syndrome of the head and neck (musculoskeletal system).
- **Proven:** A review article with 734 participants examines exercise therapy as an adjunct to clinical treatment of myofascial trigger points (musculoskeletal system).
- **Proven:** A review article with 586 participants classifies nerve blocks in occipital headaches (headache).
- **Proven:** A qualitative review article classifies the literature on botulinum toxin A injection into trigger points, without pooling the heterogeneous studies (musculoskeletal system).

LIMITATIONS:

- The limitations lie less in the number of works than in their comparability: differing needling techniques, control groups ranging from sham needling to medication, short follow-up.
- No statement about an individual component can be derived from combination and mixed studies; whether the needle, the triggered reaction or the accompanying stretch is effective remains open.
- The trigger point is a palpation diagnosis; whether two examiners independently arrive at the same finding is an open question for which sonography has been trialled, though a standard is still outstanding.

CLASSIFICATION:

Trigger point therapy is a palpation-diagnostically defined procedural field; its controlled studies concern the musculoskeletal system, while the diagnostics themselves are the subject of research.

1. What Trigger Point Therapy Is

Trigger point therapy refers to interventions targeting palpable, pressure-painful points in the skeletal musculature. The spectrum ranges from manual therapy and massage through stretching protocols to procedures that penetrate the skin: injection of substances into the point and dry needling, in which a fine needle is inserted without any active substance. Common to the procedures is the starting point: a point determined by palpation and pressure, not by an imaging or laboratory-chemical criterion. Differing are needle gauge, dwell time, number of sessions and the question whether a local twitch response should be elicited.

Decisive for the evaluation of all studies is that the treated subject itself is the subject of research. How reliably two examiners find the same point in the same muscle was investigated specifically, as was the clinical precision of point localisation in the trapezius; sonography was used to visualise trigger points and surrounding soft tissue. The frequency of myofascial pain in general internal medicine practice is also the subject of a dedicated work. Added to this is the heterogeneity of the interventions: needling, injections with different substances, manual techniques and stretching share a keyword, not a measure. Anyone summarising results must therefore first clarify whether the same treatment, the same control group and the same endpoint definition are present.

2. How Reliable the Research Is

The research is distributed unevenly. The largest block consists of observational human studies, followed by basic-research-oriented works. Controlled human studies are markedly rarer and focus with a large margin on the musculoskeletal system; safety questions form the second-largest area. Thereafter follow small groups on cognition, inflammation, skin, bone, fatigue, oncology and cardiovascular system. Animal and agricultural works are marginal phenomena. Review and mechanism works exist in notable numbers; they address the history of the concept, the mechanisms of myofascial pain, the treatment of myofascial pain syndrome and the question whether the local twitch response is necessary for treatment success.

PROVEN Meta-analyses of randomised studies exist for dry needling, including for myofascial pain of the upper body region; a review article classifies the literature for clinical guidelines. For injection therapy a qualitative review article exists on botulinum toxin A injection. The limitations lie less in the number of works than in their comparability: differing needling techniques, control groups ranging from sham needling to medication, short follow-up, heterogeneous endpoints. A controlled study in healthy volunteers measured cardiac autonomic tone after trigger point massage — a physiological marker, not a disease course. What must be clarified next is named by the field itself: whether the local twitch response supports success.

Distribution of **controlled human studies** by application area — the numbers are not additive, as one work may be assigned to several areas:

APPLICATION AREA	CONTROLLED STUDIES
Musculoskeletal system	129
Safety and tolerability	39
Cognition and psyche	13
Inflammatory processes	8
Skin	5
Bone and joints	5
Fatigue and stress	5
Oncology	3

The Trigger Point Is a Palpation Diagnosis

The entire treatment chain begins with an examination that depends on the hand and pressure. Precisely this examination is itself questioned in the literature: works on inter-examiner agreement in trigger point examination and on the clinical precision of localisation in the trapezius belong to the most-cited studies in the field. This is no side aspect.

PLAUSIBLE:

If the point to be treated cannot be determined independently of the examiner, it is difficult in controlled studies to separate what stems from the measure and what from expectation and the examiner's hand. Sonography was introduced as an attempt to make the point visible; whether it replaces the palpation examination in studies remains open.

The second difficulty is the comparison group. Dry needling is tested against sham needling, against other needle positions or against no treatment; injection against saline solution, local anaesthetics or botulinum toxin. A review on botulinum toxin A injection classifies this literature qualitatively, without pooling the heterogeneous studies into a single number. From such mixtures, no statement can be derived about an individual component. It also remains open whether the needle itself, the triggered reaction or the accompanying stretching and advice makes the difference. The next test would have to define the comparison group and endpoints in advance and establish the diagnosis in a blinded manner.

3. What Is Frequently Claimed — and What the Data Provide

STATEMENT	STUDY SITUATION
Trigger points as a cause of headache	Studies on myofascial trigger points in migraine and tension-type headache describe their occurrence. Trigger point inactivation was tested against pharmacology.
Dry needling for shoulder pain	Meta-analyses of randomised studies are available for myofascial pain in the upper body region. They bundle different needling techniques; the statement applies.
Manual therapy and stretching	Randomised studies examine manual trigger point therapy with a stretching protocol in heel pain and in chronic shoulder pain. The follow-up period is short; they
Injections with botulinum toxin A	A qualitative review article exists on this that organises the studies rather than pooling them. It can show which questions were investigated, not provide a comm

4. The Most Robust Studies

Ordered by strength of evidence, not by familiarity: reviews and studies with many participants first. The complete evaluation includes significantly more studies; here are the most robust ones.

Controlled Studies in Humans

- ¹ Local Anesthetic Injections for the Short-Term Treatment of Head and Neck Myofascial Pain Syndrome: A Systematic Review with Meta-Analysis (2019) — Systematic review, 884 participants
- Nerve blocks for occipital headaches: A systematic review and meta-analysis (2023) — Systematic review, 586 participants
- ² Is Exercise Rehabilitation an Effective Adjuvant to Clinical Treatment for Myofascial Trigger Points? A Systematic Review and Meta-Analysis (2023) — Systematic review, 734 participants
- ³ Comparison of dry needling and trigger point manual therapy in patients with neck and upper back myofascial pain syndrome: a systematic review and ... (2021) — Systematic review, 241 participants
- ⁴ Effects of dry needling trigger point therapy in the shoulder region on patients with upper extremity pain and dysfunction: a systematic review with ... (2018) — Systematic review, 496 participants
- ⁵ Effects of trigger point dry needling on lateral epicondylalgia of musculoskeletal origin: a systematic review and meta-analysis (2020) — Systematic review, 320 participants
- ⁶ Efficacy of trigger point dry needling on pain and function of the hip joint: a systematic review of randomized clinical trials (2024) — Systematic review, 273 participants
- ⁷ Trigger Point Therapy Techniques as an Effective Unconventional Method of Treating Tension Headaches: A Systematic Review (2024) — Systematic review, 370 participants
- ⁸ Needling therapies in the management of myofascial trigger point pain: a systematic review (2001) — Systematic review
- ⁹ Effectiveness of dry needling for upper-quarter myofascial pain: a systematic review and meta-analysis (2013) — Systematic review
- ¹⁰ Dry needling in the management of myofascial trigger points: A systematic review of randomized controlled trials (2017) — Systematic review
- Chronic mechanical neck pain in adults treated by manual therapy: a systematic review of change scores in randomized clinical trials (2007) — Systematic review
- ¹¹ Botulinum toxin A for myofascial trigger point injection: a qualitative systematic review (2007) — Systematic review
- ¹² Effectiveness of dry needling and injections of myofascial trigger points associated with plantar heel pain: a systematic review (2010) — Systematic review
- Physiotherapy management of patients with chronic pelvic pain (CPP): A systematic review (2019) — Systematic review
- The efficacy of muscle energy techniques in symptomatic and asymptomatic subjects: a systematic review (2019) — Systematic review
- ¹³ Effects of Trigger Point Dry Needling for Nontraumatic Shoulder Pain of Musculoskeletal Origin: A Systematic Review and Meta-Analysis (2021) — Systematic review
- ¹⁴ The importance of the local twitch response during needling interventions in spinal pain associated with myofascial trigger points: a systematic ... (2022) — Systematic review
- ¹⁵ Effectiveness of dry needling on the local pressure pain threshold in patients with masticatory myofascial pain. Systematic review and preliminary ... (2021) — Systematic review
- ¹⁶ The effect of therapeutic physical modalities on pain, function, and quality of life in patients with myofascial pain syndrome: a systematic review (2023) — Systematic review
- ¹⁷ Effectiveness of Manual Trigger Point Therapy in Patients with Myofascial Trigger Points in the Orofacial Region-A Systematic Review (2023) — Systematic review
- ¹⁸ Intramuscular Electrical Stimulation to Trigger Points: Insights into Mechanisms and Clinical Applications-A Scoping Review (2022) — Systematic review
- ¹⁹ Deep Versus Superficial Dry Needling for Neck Pain: A Systematic Review of Randomised Clinical Trials (2025) — Systematic review
- ²⁰ Comparison of dry needling with physical modalities for myofascial trigger point of patients with neck pain: A systematic review and meta-analysis (2025) — Systematic review

5. Summary

For injection therapy there exists a qualitative review article on botulinum toxin A injection that orders the studies instead of pooling them. The controlled human studies focus overwhelmingly on the musculoskeletal system (129 studies, not additive), safety questions form the second largest area (39).

HYPOTHESIS A pre-defined, blinded diagnosis could reduce the variation between practitioners and make pooled results more interpretable.

What needs to be clarified next is named by the field itself: whether the local twitch response carries the treatment success or is an accompanying phenomenon. A 2022 review article explicitly addresses this question. The next examination would have to define the comparison group and endpoints in advance and establish the diagnosis in a blinded manner; for dry needling it is tested against sham needling, other needle positions or no treatment, for injection against saline solution, local anaesthetics or botulinum toxin. Without a defined control, pooled results remain difficult to interpret.

6. What Remains Open

- **Diagnostics:** Can the trigger point be determined in such a way that two examiners independently arrive at the same finding? Sonography has been tested for this, a standard is lacking.

- **Twitch response:** Does the local twitch response contribute to the outcome in dry needling, or is it an accompanying phenomenon? This question is explicitly posed in the literature.
- **Comparison group:** Which control is the right one — sham needling, other needle position, waiting time or a medication? Without a defined control, pooled results remain difficult to interpret.

Frequently Asked Questions

How is a trigger point defined in studies?

Most often via manual examination: palpable hardening, pressure pain, referred pain on pressure. Inter-rater agreement and the clinical precision of localisation are themselves subjects of research. Ultrasound has been used to visualise trigger points and surrounding soft tissue. No uniform, device-supported criterion has emerged from this.

Is dry needling the same as acupuncture?

No. Both use fine needles, but target points and rationale differ. In the literature they are tracked separately; one review examines acupuncture and dry needling together for myofascial trigger point pain and compares randomised studies. For evaluation, the decisive factor is which point was chosen according to which criterion.

What do the reviews say about efficacy?

There are meta-analyses of randomised studies, including on dry needling for myofascial pain in the upper body, and reviews that classify the literature for guidelines. They pool different techniques and comparator groups. The pooled results apply to the combined approach; they cannot be transferred to every individual needling technique.

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International Health Research

Research, put in context. Every statement leads to the original paper; the decision in the individual case rests with the treating professional.
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