



DOSSIER · THERAPY

Neural Therapy

The database comprises works on neural therapy, of which in humans. The controlled study situation is still under development, but focuses on the musculoskeletal system. The most interesting finding: The majority of highly cited studies do not compare neural therapy with placebo, but different injection techniques or local anaesthetics.

322

STUDIES IN
TOTAL

136

IN HUMANS

42

OF WHICH
CONTROLLED

2

IN ANIMALS

4

IN THE LAB

Figures from the IHR study database · Last updated 2026-09-25

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

Neural Therapy at a Glance

ORIGIN:

Neural therapy is an invasive procedure of regulatory medicine developed in the 1920s by the brothers Ferdinand and Walter Huneke. It is based on the injection of local anaesthetics such as procaine or lidocaine into defined body regions to influence the autonomic nervous system and interrupt so-called interference fields (chronically inflamed or scarred tissue areas). Application forms include segmental therapy, interference field therapy and ganglion therapy, usually in series of several sessions with thin needles and small volumes.

EVIDENCE BASE:

204 evaluated papers · 20 controlled human studies · 42 observational studies · 2 review articles · 1 animal study · 1 cell culture study

STRONGEST EVIDENCE:

- **Musculoskeletal system:** Controlled studies show consistent short-term efficacy in myofascial pain syndromes, particularly with ultrasound-guided trigger-point injection. Significant improvements in pain intensity (VAS) and functional parameters (NDI, SPADI) were observed, although without long-term data or comparisons with established procedures such as physiotherapy.
- **Inflammatory conditions** Pilot studies provide indications of efficacy in local inflammatory pain syndromes such as stenosing tenosynovitis de Quervain or rotator-cuff disorders. Significant pain reduction (VAS) and functional improvements (Duruöz Hand Index) were seen, yet without placebo control or inflammation-specific biomarkers.
- **Safety and tolerability:** Observational studies and small controlled trials show a consistent safety profile without serious adverse effects. The data, however, derive predominantly from heterogeneous studies with short follow-up periods and lack of standardisation of injection techniques.
- **Acute pain syndromes** A randomised study in renal colic showed that lidocaine injections into trigger points produced immediate pain freedom in 50 % of patients, with significantly faster pain reduction than the comparator therapy (butylscopolamine/sulpyrin). The study is limited by the absence of placebo control.
- **Cognition and psyche** Studies in myofascial pain syndromes with comorbid depressive symptoms show significant improvements in psychometric scales (Beck Depression Inventory), yet without differences between neural therapy, dry needling or local anaesthetics. The effects may be mediated indirectly by pain relief.

LIMITATIONS:

- **Interference-field therapy**, a central concept of neural therapy, is investigated less frequently in controlled studies than trigger-point injections. The available observational studies relate predominantly to trigger-point injections, whose results are not directly transferable to interference-field therapy.
- **Double-blind, placebo-controlled studies** with adequate sample size and long-term data are lacking. Many studies compare only active interventions (e.g. different injection techniques) without a true control group.
- **Application areas** such as oncology, immune system or cognition are represented by only single, methodologically weak studies. Systematic investigations of specific mechanisms or biomarkers are still outstanding.

CLASSIFICATION:

Neural therapy is an invasive procedure of regulatory medicine with demonstrated short-term efficacy in myofascial pain syndromes, although its postulated mechanisms such as interference-field interruption or immunomodulatory effects require further systematic research.

1. What Neural Therapy Is

Neural therapy is an invasive procedure of regulatory medicine based on the injection of local anaesthetics – usually procaine or lidocaine – into defined body regions. Developed in the 1920s by the brothers Ferdinand and Walter Huneke, it aims to influence the autonomic nervous system and interrupt interference fields. These interference fields are understood as chronically inflamed or scarred tissue areas that are thought to exert distant effects on other body regions via neural or reflex pathways. The method comprises three main forms of application: segmental therapy (injection into skin, muscle or joints of the affected segment), interference-field therapy (injection into suspected interference fields such as scars or teeth) and ganglion therapy (injection at autonomic ganglia). Administration is typically performed with thin needles and small volumes of the anaesthetic, often in series of several sessions.

For understanding the evidence base it is crucial that neural therapy is rarely investigated as an isolated procedure. Most controlled human studies examine trigger-point injections, which are technically similar but rest on a different pathophysiological model: the myofascial trigger-point theory. Here the injection is placed specifically into hardened muscle areas to interrupt local pain and tension patterns. The distinction between neural therapy and trigger-point injections is fluid in practice, yet relevant in research because the underlying mechanisms – interference field versus myofascial trigger point – entail different explanatory models and target parameters. In addition, the local anaesthetics used, their concentrations and the injection techniques (e.g. with or without ultrasound guidance) vary considerably, which complicates comparability of the studies.

2. What the Studies Show in Detail

The key human studies and the most important reviews — by application area, with population, duration, preparation, outcome measure and result as reported in the original papers. Numbers appear only where the work states them.

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

APPLICATION AREA	CONTROLLED STUDIES
Musculoskeletal system	12

APPLICATION AREA	CONTROLLED STUDIES
Safety and tolerability	7
Inflammatory conditions	3
Cognition and psyche	2
Oncology	1
Immune system	1
Fatigue and stress	1

Immune System

All participants began an eight-week course of physiotherapy four weeks after the injection. The primary endpoint was the change in palpatory pain intensity after two weeks. The onabotulinumtoxin-A group showed a significant reduction in pain scores compared with placebo (exact effect-size figures are missing from the abstract). The results provide an indication of possible pain modulation, although the short follow-up period of twelve weeks and the lack of differentiation between muscular and neural effects of the injection must be taken into account ¹.

A randomised study (2002) in 60 patients with renal colic compared the effect of neural therapy (local injection of 20 mg/ml lidocaine into trigger points, n=30) with intravenous butylscopolamine and sulpyrin (n=30). In 15 of 30 patients in the lidocaine group pain disappeared completely immediately after the injection; the mean time to 50 % pain reduction was nine minutes. Only one patient required additional analgesics after 60 minutes, and no further pain occurred within 24 hours. The results showed faster pain reduction than in the comparator group, with no observed adverse effects. The study is limited by the absence of placebo control and the short follow-up period ².

A pilot study (1999) followed by a double-blind, placebo-controlled study in 61 patients with multiple sclerosis (EDSS 1–7) examined the effect of neural therapy (injection of small amounts of local anaesthetic without adrenaline into trigger points at the ankles and around the skull). In the pilot study (n=40) 65 % of patients benefited; in the controlled study (n=21) 76 %, measured by improvements on the Kurtzke scales. Over a follow-up period of 2.0 to 3.5 years more than 50 % of patients showed sustained improvements. The study provides an indication of possible effects, yet is limited by the small sample and the lack of a standardised control intervention.

HYPOTHESIS Individual controlled studies suggest that **Neural Therapy** may influence immunomodulatory or neurogenic mechanisms beyond local analgesic effects, particularly in chronic-inflammatory or neuropathic pain syndromes. However, the existing controlled human studies are heterogeneous and limited by small sample sizes and short follow-up periods. Systematic investigations into long-term effects and specific immune parameters are still pending.

Cognition and Psyche

A systematic review with meta-analysis (2022) compared various procedures for neck pain due to myofascial trigger points, including **Neural Therapy** (trigger point injections with local anaesthetics, “wet needling”), dry needling and other methods. The analysis of 6 randomised studies on trigger point injections showed that these reduced pain intensity significantly more than dry needling (mean difference (MD) -2.13, 95% CI -3.22 to -1.03; standardised mean difference (SMD) -1.46, 95% CI -2.27 to -0.65). No differences were found in pain-related disability (MD 0.9, 95% CI -3.09 to 4.89), pressure pain thresholds (MD 25.78 kPa, 95% CI -6.43 to 57.99 kPa), cervical mobility or depressive symptoms. The results were limited by heterogeneity and imprecision ³.

A randomised, double-blind study (2026) in 75 patients with myofascial pain of the masticatory muscles and associated temporomandibular disorders compared dry needling with **Neural Therapy** in the form of injections with lidocaine (20 mg/ml) or mepivacaine (30 mg/ml). All interventions were performed weekly over three sessions. Depressive symptoms (Beck Depression Inventory) and TMD symptoms (Fonseca Anamnestic Index) improved significantly in all groups (p<0.001), with no differences between the groups. The study provides an indication of possible effects but is limited by the short follow-up period of one week ¹².

An observational study (1996) in 18 patients with myofascial pain syndrome (MPS) compared the effect of **Neural Therapy** (trigger point injection with 0.5% xylocaine) in patients with and without comorbid fibromyalgia (FMS). In patients without FMS, pain intensity, pain threshold and mobility improved significantly immediately after the injection (p<0.05), whereas in patients with FMS only mobility increased. After two weeks both groups showed significant improvements in all parameters, but the immediate effect was smaller in FMS patients.

HYPOTHESIS The data suggest that **Neural Therapy** may positively influence psychological concomitant symptoms such as depressive mood or pain-related disability experience beyond local pain relief. Whether these effects are attributable to direct neurophysiological mechanisms or indirect factors (e.g. improved mobility) remains unclear. Studies with longer follow-up periods and specific psychometric endpoints are still pending.

Musculoskeletal System

A randomised controlled study (2019) in 41 patients with myofascial pain syndrome (MPS) of the trapezius compared **Neural Therapy** by means of ultrasound-guided trigger point injection (n=21) with a blindly performed injection (n=20). Both groups were evaluated before and four weeks after the intervention using VAS, Shoulder Pain and Disability Index (SPADI) and Neck Disability Index (NDI). The ultrasound-guided group showed significantly greater improvements in VAS (p=0.003), NDI (p=0.012) and SPADI (p=0.018). The study is limited by the lack of blinding of the therapists and the short follow-up period.

A double-blind, randomised study (2021) in 80 patients with MPS of the upper trapezius compared **Neural Therapy** with interfascial injection of physiological saline solution (n=40) versus trigger point injection with lidocaine (n=40). No differences were found in cervical mobility.

A randomised study (2023) in 104 patients with acute MPS of the cervical spine compared **Neural Therapy** (lidocaine 0.5%, n=34) with trigger point injection (lidocaine 0.5%, n=35) and kinesio-taping (n=35). All groups showed significant improvements in pain (VAS) and disability (Neck Pain Disability Scale) after 3 and 7 days ($p<0.001$), with no differences between the groups. The pressure pain threshold (PPT) improved significantly only in the injection groups.

A randomised study (2024) in 50 patients with non-cardiac chest pain and myofascial trigger points in the pectoral muscles compared **Neural Therapy** (trigger point injection + stretching exercises, n=25) with stretching exercises alone (n=25). The injection group showed significantly greater and sustained pain reduction after one and three months ($p<0.001$). No differences were found in the Nottingham Health Profile. The study is limited by the lack of blinding and the small sample size ⁶.

HYPOTHESIS The existing controlled studies suggest that **Neural Therapy** can produce short-term improvements in pain and function in acute and chronic myofascial pain syndromes of the musculoskeletal system. However, the effects are comparable to other local injection techniques. Long-term studies and comparisons with established procedures such as physiotherapy or manual therapy are still pending.

Inflammatory Processes

A randomised pilot study (2014) in 21 patients with rotator cuff disease and suspected myofascial pain syndrome of the brachialis muscle compared **Neural Therapy** (ultrasound-guided trigger point injection, n=11) with oral NSAID administration (n=10). After two weeks the injection group showed significantly greater pain reduction (Δ VAS -2.8 vs. -1.5, $p<0.05$). The study is limited by the small sample size and the absence of a placebo control ⁴.

A prospective, randomised study (2021) in 36 patients with stenosing tenosynovitis de Quervain compared **Neural Therapy** (local anaesthetic injections, n=18) with immobilisation and splinting alone (n=18). Both groups showed significant improvements in pain (VAS) and hand function (Duruöz Hand Index, DHI) after 1 and 12 months. The Neural Therapy group had significantly lower VAS and DHI values after 1 month.

HYPOTHESIS The data suggest that **Neural Therapy** may be effective in local inflammatory pain syndromes such as tenosynovitis or myofascial pain in the context of rotator cuff disease. Whether the effects are due to direct anti-inflammatory action or interruption of nociceptive afferents remains unclear. Studies with inflammation-specific biomarkers and longer follow-up periods are lacking.

Oncology

A study protocol (2024) describes a planned randomised, double-blind, placebo-controlled study on the effect of **Neural Therapy** (trigger point injections with 1% lidocaine, weekly over three weeks) in post-mastectomy pain syndrome (PMPS). The active group (n=not yet recruited) receives injections into identified trigger points, the control group subcutaneous saline infiltrations. Primary endpoints are pain (VAS), central sensitisation and quality of life after one and three months. The study is intended to evaluate the efficacy of **Neural Therapy** as an adjunct to interdisciplinary rehabilitation and pharmacotherapy. Results are still pending ¹³.

HYPOTHESIS Should **Neural Therapy** prove effective in the planned study, it could represent a promising adjunct to multimodal pain therapy in oncological patients. However, robust data on efficacy and safety in this population are currently lacking.

Bones and Joints

An observational study (2012) in 25 patients on the waiting list for knee total endoprosthesis (TEP) investigated the effect of **Neural Therapy** (trigger point injections with bupivacaine) in myofascial pain. All patients had trigger points in the muscles surrounding the knee, most frequently in the medial head of the gastrocnemius. After injections at five time points (week 0, 1, 2, 4, 8) significant improvements were seen in pain intensity, pain-related impairment and mobility (Timed Up and Go Test). The study is limited by the absence of a control group and the small sample size.

HYPOTHESIS The results suggest that **Neural Therapy** could be a useful adjunct to preoperative pain therapy in patients with gonarthrosis and myofascial pain. However, randomised controlled studies with longer follow-up periods are lacking.

Skin

A retrospective observational study (2017) investigated **Neural Therapy** (trigger point injections with a mixture of 2% lidocaine and 0.25% bupivacaine) as an adjunct to physiotherapy in 21 men with chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) and therapy-refractory pelvic floor spasm. The injections were performed transrectally or perineally into identified trigger points. Symptoms (NIH-CPSI) improved significantly (from 20.2 to 12.5, $p<0.05$), as did pain intensity (VAS from 6.3 to 2.9, $p<0.05$). The study is limited by the retrospective design and the absence of a control group ¹⁸.

HYPOTHESIS The data suggest that **Neural Therapy** as an adjunct to physiotherapy may be effective in chronic urogenital pain syndromes with a myofascial component. However, prospective, controlled studies with standardised injection protocols are lacking.

Safety and Tolerability

A systematic review with meta-analysis (2023) compared trigger point injections (including with local anaesthetics, among them also protocols that resemble **Neural Therapy**) with drug therapy in acute myofascial pain. Four randomised controlled trials were included. The analysis showed a significant superiority of trigger point injections in pain reduction (standardised mean difference (SMD) -2.09, 95% CI -3.34 to -0.85, $p=0.001$). The included studies reported no serious adverse effects, however local reactions such as post-interventional pain or haematomas were possible. The evidence quality was limited by heterogeneity of the studies and missing long-term data ²⁰.

HYPOTHESIS The available controlled and observational studies suggest that **Neural Therapy** in the investigated applications is a safe procedure with low risk of serious adverse effects. Systematic surveys on long-term tolerability and rare complications are still pending.

Overall Picture

The studies *show* significant improvements in pain, mobility and pain-related disability with trigger point injections in the context of **Neuraltherapie**, particularly in myofascial pain syndromes of the musculoskeletal system. In inflammatory pain conditions (e.g. tendovaginitis) and neuropathic pain (e.g. post-mastectomy pain syndrome) the results *provide* promising indications. The analgesic effects often occur immediately and last for weeks, with ultrasound-guided injections *appearing* to be more effective than blind injections.

However, the study situation is limited in several areas: systematic investigations into long-term effects (beyond 3 months), standardised comparisons with established therapeutic procedures (e.g. physiotherapy, manual therapy) and studies with specific biomarkers (e.g. inflammatory parameters, neurophysiological measurements) are still pending. In addition, many studies are limited by small sample sizes, lack of blinding or short follow-up periods. The transferability of the results to non-pain-associated indications (e.g. immunological or mental disorders) has not been sufficiently investigated to date.

Methodology of the Study Situation

The controlled studies on

NEURALTHERAPIE

are randomised controlled trials (RCTs) or prospective observational studies with small to medium sample sizes (n=20–100). Typical comparison groups are placebo injections (saline solution), other local injection techniques (e.g. dry needling) or drug therapies (NSAIDs, botulinum toxin). The follow-up period is usually between 4 and 12 weeks, rarely longer. Primary endpoints are almost always pain-related parameters (VAS, NRS), followed by functional scores (e.g. Neck Disability Index, Shoulder Pain and Disability Index) and psychometric instruments (e.g. Beck Depression Inventory). Secondary endpoints include pressure pain thresholds, mobility (ROM) and quality of life (e.g. SF-36). Systematically missing are: (1) long-term studies with follow-up periods of ≥12 months, (2) studies with objective biomarkers (e.g. inflammatory mediators, neurophysiological measurements), (3) direct comparisons with non-invasive therapeutic procedures (e.g. physiotherapy, acupuncture), (4) standardised injection protocols (e.g. dosage, injection sites, frequency) and (5) studies on non-pain-associated indications (e.g. immunological or mental disorders). In addition, many studies are limited in their validity by lack of blinding or small sample sizes.

Neuraltherapie: Interference Field Concept Without Controlled Evidence

The

INTERFERENCE FIELD CONCEPT

is a central element of Neuraltherapie, yet there are **no controlled studies** that demonstrate its efficacy or its influence on remote effects. The few existing works are **observational** or **retrospective** and predominantly examine **scar injections** in non-specific pain syndromes. The results are distorted by **selection effects** and **placebo responses**. Even in the most frequently cited works on Neuraltherapie – for example on **multiple sclerosis** (1999) – **placebo groups** or **blinding** are missing, so that no causal conclusions are possible. Basic research does provide indications of possible **neural reflex arcs** or **inflammation-modulating effects** of local anaesthetics, but these mechanisms are **not specific to interference fields** and have not been validated in clinical studies.

A further problem is the

MIXING OF NEURALTHERAPIE AND TRIGGER POINT INJECTIONS

in the literature. Many controlled studies referenced as “Neuraltherapie” actually investigate **trigger point injections with local anaesthetics** – a procedure that is technically similar but based on a **completely different pathophysiological model**. The **myofascial trigger point theory** is empirically better supported than the interference field concept, yet its results cannot be transferred to Neuraltherapie. In addition, **standardisations** in implementation are lacking: the choice of local anaesthetic, injection depth, frequency of applications and target structures vary greatly. This leads to **high heterogeneity** of the studies, which makes a **meta-analysis** or **systematic evaluation** nearly impossible.

3. How Reliable the Research Is

Of the evaluated works, one animal experiment and one cell culture study fall under **basic research**, further ones under **observational studies in humans** and only a small part under **controlled studies in humans**. The controlled studies comprise many means and focus almost exclusively on the **musculoskeletal system**, followed by investigations into **safety** and **inflammatory processes**. Further areas of application such as **cognition**, **oncology**, **immune system** and **fatigue** are each represented by only a single controlled study. The most frequently cited controlled studies predominantly compare **different injection techniques** (e.g. dry needling vs. local anaesthetics) or **local anaesthetics with each other** – not specifically Neuraltherapie versus placebo. The highest citation rate is held by a study on **trigger point injections in myofascial pelvic pain**, which however uses **onabotulinumtoxin A**.

The **methodological reliability** of the study situation is limited. Only a small part of the controlled studies is **double-blind** and **placebo-controlled**; most compare **active interventions** with each other. **Interference field therapy**, a central concept of Neuraltherapie, is scarcely investigated in controlled studies. Most works on the musculoskeletal system refer to **trigger point injections**, whose results cannot readily be transferred to Neuraltherapie. In addition, **long-term data** and **replication studies** with larger case numbers are still pending. The **safety data** are consistent, yet originate predominantly from observational studies or the existing controlled studies. The **review articles** are rare and methodologically heterogeneous, which complicates a systematic evaluation. Basic research provides preclinical indications of possible mechanisms of action (e.g. anti-inflammatory effects of local anaesthetics), yet these are not specific to Neuraltherapie and were predominantly obtained in **animal models** or **cell cultures**.

4. What Is Frequently Claimed — and What the Data Support

STATEMENT	STUDY SITUATION
Neuraltherapie acts via the autonomic nervous system	The state of the studies provides no controlled evidence for a specific effect on the autonomic nervous system. Die meisten Arbeiten untersuchen lokale Effekte
Interference fields such as scars or teeth are responsible for chronic pain	There are no controlled studies that demonstrate a causal connection between interference fields and remote effects. Beobachtungsstudien sind durch Selektionsbias
Neuraltherapie is an effective pain therapy	The controlled studies predominantly show comparisons between active interventions (e.g. various local anaesthetics). Placebo-controlled studies on efficacy are lacking
Neuraltherapie is safe	Safety data derive predominantly from observational studies or small controlled trials. Systematic assessments of adverse effects are lacking.

5. The Most Reliable Works

Ordered by strength of evidence, not by familiarity. The complete evaluation comprises significantly more works; the most robust ones are listed here.

Controlled Studies in Humans

- 1 A randomized, double-blind, placebo-controlled trial of onabotulinumtoxin A trigger point injections for myofascial pelvic pain (2019)
- 2 Randomized trial of trigger point injection for renal colic (2002)
- 3 Dry Needling Versus Trigger Point Injection for Neck Pain Symptoms Associated with Myofascial Trigger Points: A Systematic Review and Meta-Analysis (2022)
- Feasibility of Ultrasound-Guided Trigger Point Injection in Patients with Myofascial Pain Syndrome (2019)
- 4 Ultrasound-guided myofascial trigger point injection into brachialis muscle for rotator cuff disease patients with upper arm pain: a pilot study (2014)
- 5 Comparison of the Effects of Physiologic Saline Interfascial and Lidocaine Trigger Point Injections in Treatment of Myofascial Pain Syndrome: A Double-Blind Randomized Controlled Trial (2021)
- Neural therapy in the treatment of multiple sclerosis (1999)
- 6 Efficacy of trigger point injection therapy in noncardiac chest pain: A randomized controlled trial (2024)
- Anti-nociceptive effects of elcatonin injection for postmenopausal women with back pain: a randomized controlled trial (2010)
- 7 Comparison of kinesio taping, trigger point injection, and neural therapy in the treatment of acute myofascial pain syndrome: A randomized controlled trial (2023)
- 8 Effects of local anaesthetics (neural therapy) on pain and hand functions in patients with De Quervain tenosynovitis: A prospective randomised control trial (2021)
- 9 Efficacy of ultrasound-guided myofascial hydrodissection technique in myofascial pain syndrome of upper trapezius: a randomized controlled trial (2025)
- 10 Efficacy of Dry Needling Versus Transcutaneous Electrical Nerve Stimulation in Patients With Neck Pain Due to Myofascial Trigger Points: A Randomized Controlled Trial (2023)
- 11 Effects of local anesthetics (neural therapy) on pain and hand functions in patients with De Quervain tenosynovitis: A prospective randomized controlled trial (2021)
- [The effect of palliative neural therapy on the improvement of chronic pain] (2019)
- 12 Dry needling, lidocaine, and mepivacaine for myofascial pain and associated temporomandibular disorder and depressive symptoms: a randomized controlled trial (2026)
- 13 Trigger Point Injections for Post-Mastectomy Pain Syndrome: A Protocol for a Randomized Double-Blind Clinical Trial (NCT04267315) (2024)

Observational Studies in Humans

- 14 Difference in pain relief after trigger point injections in myofascial pain patients with and without fibromyalgia (1996)
- Myofascial pain in patients waitlisted for total knee arthroplasty (2012)
- 15 Intramuscular and nerve root stimulation vs lidocaine injection to trigger points in myofascial pain syndrome (2007)
- 16 Application of ultrasound-guided trigger point injection for myofascial trigger points in the subscapularis and pectoralis muscles to post-mastectomy patients (2014)

- ¹⁷ Usefulness of a myofascial trigger point injection for groin pain in patients with chronic prostatitis/chronic pelvic pain syndrome: a pilot study (2013)
- ¹⁸ Utility of trigger point injection as an adjunct to physical therapy in men with chronic prostatitis/chronic pelvic pain syndrome (2017)
- ¹⁹ Ischemic compression after trigger point injection affect the treatment of myofascial trigger points (2013)

6. Summary

Neural therapy demonstrated short-term efficacy in controlled human studies for myofascial pain syndromes of the musculoskeletal system, particularly with ultrasound-guided trigger point injection. Improvements in pain intensity (VAS) and pressure pain thresholds were observed, as well as indications for functional parameters (NDI, SPADI). In acute pain syndromes such as renal colic or non-cardiac chest pain, the injection of local anaesthetics leads to rapid pain reduction. The safety of the procedure is consistently documented in observational studies and small controlled studies, without serious adverse effects. However, most data originate from heterogeneous studies with short follow-up periods and a lack of standardisation of injection techniques or local anaesthetics used. The distinction from trigger point injections is fluid in practice, but relevant in research, as different pathophysiological models underlie it.

HYPOTHESIS Neural therapy could influence immunomodulatory or neurogenic mechanisms beyond local analgesic effects, particularly in chronic-inflammatory or neuropathic pain syndromes. Studies in multiple sclerosis or myofascial pain syndromes with comorbid fibromyalgia suggest possible effects beyond pain relief, for example on depressive symptoms or mobility. Whether these effects are due to direct neurophysiological mechanisms (e.g. interruption of nociceptive afferents) or indirect factors has been investigated preclinically, but transferability to humans remains to be established. **Hypothesis:** In local inflammatory processes such as tendovaginitis or rotator cuff diseases, neural therapy could act through anti-inflammatory effects of local anaesthetics, however studies with inflammation-specific biomarkers in humans are lacking. **Hypothesis:** Should the planned study on post-mastectomy pain syndrome prove positive, neural therapy could represent a promising addition to multimodal pain therapy in oncology.

Future studies should focus on methodological improvement of the evidence base, particularly through double-blind, placebo-controlled designs with sufficient sample size and standardised injection techniques. The interference field therapy as a central concept of neural therapy requires systematic investigations to verify its postulated remote effects on other body regions. Long-term studies with follow-up periods of at least 12 months are necessary to evaluate the durability of the effects and possible late sequelae. Comparative studies with established procedures such as physiotherapy, manual therapy or pharmacotherapy could better classify the relative efficacy of neural therapy. Specific areas of application such as oncology, immune system or cognition require targeted studies with relevant endpoints (e.g. immune parameters, psychometric scales) and biomarkers to decipher the underlying mechanisms. In addition, future work should more clearly differentiate between neural therapy and trigger point injections to improve the transferability of the results.

7. What Remains Open

- **Interference field therapy:** Are there controlled studies that demonstrate remote effects of interference fields?
- **Long-term effects:** How do repeated neural therapy applications affect tissue and nerves?
- **Mechanisms:** Can the postulated effects on the autonomic nervous system be validated in clinical studies?

Frequently Asked Questions

Can neural therapy be used for chronic pain?

The controlled study situation on neural therapy for chronic pain is **still under development and methodologically heterogeneous**. Most works examine **trigger point injections** in **myofascial pain syndromes**, but not classical neural therapy with interference field treatment. The results of these studies show **no superiority** over other injection techniques or local anaesthetics. For other chronic pain conditions (e.g. neuropathic pain) there are **no controlled studies**. The available data do not allow any statement on the efficacy of neural therapy in chronic pain.

How does neural therapy differ from trigger point injections?

Neural therapy and trigger point injections use similar techniques (injection of local anaesthetics), but are based on **different pathophysiological models**. Neural therapy aims at **influencing the autonomic nervous system** and **interrupting interference fields**, while trigger point injections focus on **deactivating myofascial trigger points**. In practice the boundaries are fluid, yet in research both procedures are often considered separately. Most controlled studies examine **trigger point injections**, not classical neural therapy.

Are there risks or side effects of neural therapy?

The **safety data** on neural therapy come predominantly from **observational studies** or small controlled studies. Local reactions such as **pain**, **haematomas** or **infections** at the injection site are possible. Systemic reactions to local anaesthetics (e.g. **allergic reactions** or **toxic effects**) are rare, but cannot be ruled out. **Interference field therapy** carries additional risks, for example with injections into **scar tissue** or **dental regions**. Controlled studies on safety are **rare and methodologically limited**, so a final assessment is not possible.

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