Salient Visionary Publications

# Neural Therapy as a Key Modulator in Non-Specific Low Back Pain

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## ABSTRACT

**Background:** Non-specific low back pain (NSLBP) is a widespread musculoskeletal disorder with multifactorial origins, including postural dysfunctions, myofascial imbalances, autonomic dysregulation, and psychosocial influences. Differentiating between functional and degenerative causes is crucial for treatment planning. Conventional therapies often fall short, particularly in chronic cases. This study evaluate the efficacy of neural therapy as a regulatory, minimally invasive treatment option for NSLBP.

**Methods:** This retrospective analysis includes 1,242 patients treated at the Natural Health Clinic between 2017 and 2024. Patients underwent neural therapy targeting modulation of the autonomic nervous system (ANS), resolving interference fields, and treating myofascial trigger points. Treatment duration, symptom severity (VAS, ODI), and functional improvement were assessed, with stratification by age and chronicity.

**Results:** Neural therapy led to complete symptom resolution in 29% of cases and marked improvement in 35%, with only 2% reporting worsening symptoms. Most patients required between 2 and 4 sessions; fewer than 10% needed over 12 sessions. Age and symptom duration correlated with treatment intensity—older and long-term chronic patients often needed more sessions. Combined with manual medicine, neural therapy enhanced outcomes by addressing vegetative dysfunctions, neurogenic inflammation, and segmental restrictions.

**Conclusion:** Neural therapy offers a compelling integrative approach for both functional and degenerative NSLBP. Its ability to regulate autonomic dysfunctions, reduce chronic inflammation, and address underlying interference fields positions it as a practical component of multimodal pain management. The retrospective data from over 1,200 patients underscores its clinical relevance, especially for middle-aged and older adults with chronic symptoms.

**Keywords:** Neural therapy; Non-specific low back pain; Autonomic dysregulation; Interference fields; Chronic pain treatment

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# INTRODUCTION

## Non-Specific Low Back Pain: Prevalence, Economic Impact, and Therapeutic Approaches:

Non-specific low back pain (NSLBP) is one of the most common musculoskeletal complaints worldwide, affecting a significant portion of the population. Beyond being a personal health concern, it substantially burdens healthcare systems and economies. Unlike specific low back pain, attributed to identifiable structural causes such as disc herniations or fractures, NSLBP lacks detectable anatomical abnormalities. This article explores the prevalence of NSLBP, its economic consequences, and the potential role of neural therapy as a treatment option.[1,2,3,6,7,8,9]

**Prevalence and Economic Burden:** Epidemiological studies indicate that up to 80% of individuals experience NSLBP at least once in their lifetime. In many countries, NSLBP is the leading cause of work-related disability, contributing to substantial direct and indirect costs. Direct costs encompass diagnostic procedures, therapeutic interventions, and pharmaceutical treatments, whereas indirect costs arise from productivity losses, work absenteeism, and premature retirement.[1,9,10]

In Germany alone, lower back pain generates annual costs of billions of euros. Despite the availability of various conventional treatments, the long-term effectiveness of many therapeutic approaches remains limited, particularly in chronic cases. This highlights the need to evaluate alternative and integrative treatment modalities that provide more sustainable pain relief and functional improvement.[1,3,10,11]

## Neural Therapy as a Potential Treatment Approach

Neural therapy presents a promising therapeutic option, as it can modulate pain conditions through targeted interventions in the autonomic nervous system (ANS). By injecting local anesthetics into segmental interference fields or trigger points, acute and chronic low back pain can be effectively managed. Emerging studies suggest early, individualized neural therapy interventions to reduce pain and enhance functional mobility.[4,5,12,13]

Given the high prevalence and significant economic burden of NSLBP, exploring innovative and effective treatment approaches is paramount. Neural therapy has the potential to complement existing treatment strategies. It may serve as a viable alternative, particularly for chronic pain conditions, by providing long-term symptom relief and functional recovery.[5,14,15]

## Possible Causes of Non-Specific Low Back Pain

The etiology of non-specific low back pain (NSLBP) is multifactorial, with several contributing factors, including:

- Muscle imbalances and myofascial trigger points
- Postural misalignments and movement restrictions
- Dysfunctional movement patterns
- Psychosocial factors such as stress, anxiety, and depression

Chronic inflammation and dysregulation of the autonomic nervous system (ANS).[6,7,8,9,10,11]

These factors may lead to central sensitization, in which the nervous system amplifies the perception and processing of pain signals.

## Neural Therapy: Origins, Mechanism of Action, and Its Role in Non-Specific Low Back Pain

Neural therapy is a treatment modality grounded in conventional medical principles that utilize local anesthetics to diagnose and treat interference fields. Developed by Ferdinand and Walter Huneke, neural therapy has proven particularly effective in managing chronic pain conditions. Over the past few decades, scientific research has provided further insights into the mechanisms of action of procaine and lidocaine, particularly regarding their interaction with the autonomic nervous system (ANS) and the pharmacological effects of these agents.[4,5,12,13]

One of neural therapy's primary applications is treating chronic, functional, and degenerative low back pain, focusing on non-specific low back pain (NSLBP).[4,5]

## The Significance of Neural Therapy in Non-Specific Low Back Pain

As a regulatory therapy, neural therapy utilizes targeted injections of local anesthetics such as procaine or lidocaine to identify and treat interference fields. It exerts its effects on multiple levels and can offer the following benefits in the management of non-specific low back pain (NSLBP):[12,13,14,15,16]

- Relief of myofascial pain through targeted injections into trigger points, reducing muscle tension.
- Modulation of the autonomic nervous system to regulate chronic pain hypersensitivity and restore the functional balance between the sympathetic and parasympathetic systems.

- Elimination of segmental or systemic interference fields (e.g., scars, dental-jaw areas) that may perpetuate chronic pain processes through reflexive mechanisms.
- Promoting tissue regeneration and improved circulation via neurovegetative reactivation, optimizing oxygen and nutrient supply to the affected region.

Neural therapy, therefore, represents an effective and low-risk treatment approach for non-specific low back pain. It may be particularly beneficial for patients with chronic pain who have not responded adequately to conventional therapies, offering a valuable addition to multimodal treatment strategies.[13]

## Chronic Low Back Pain and Its Challenges

Chronic low back pain is a widespread health concern and poses a significant socioeconomic burden. Most cases are categorized as "non-specific," as no clear structural cause can be identified. Functional imbalances, muscular dysfunctions, myofascial trigger points, and autonomic dysregulation play key roles in the pathophysiology of this condition.[2,9,10]

While conventional pain management often relies on pharmacological and physical therapy interventions, holistic approaches such as neural therapy offer promising alternatives. Based on the targeted application of local anesthetics, Neural therapy is a regulatory medicine approach capable of eliciting systemic effects via the autonomic nervous system. This article explores the neural therapeutic approach in chronic pain management, its mechanisms of action, and its clinical relevance.

## Epidemiology of Low Back Pain

Musculoskeletal disorders represent the most prevalent disease group among individuals under 65, with 51.7% affecting the axial skeleton, including the spine and associated structures. Low back pain is the leading cause of medical consultations.[6,9]

Epidemiological studies indicate that 70–85% of the population experiences low back pain at least once in their lifetime, while 14–50% report experiencing it at least once per year. Although approximately 90% of cases resolve within 4–6 weeks, 70–80% of affected individuals suffer from recurrent episodes over extended periods. In 10% of cases, symptoms become chronic.[3,10]

Low back pain typically begins young and peaks in middle adulthood. After the age of 60, women are more frequently affected.[2,7,8,9,11]

Low back pain is among the costliest health conditions in industrialized societies. In many countries, it is the second leading cause of work absenteeism. Among workers under 45, it is the most common cause of disability. Furthermore, low back pain ranks fifth among conditions requiring hospitalization and third among diseases necessitating surgical intervention.[2,3,10]

## Etiological Causes of Low Back Pain

Low back pain has a wide range of potential causes, as outlined in Table 1. The majority of cases stem from functional disorders, which represent one of the most prevalent disease groups in regulatory medicine. These disorders are often associated with muscular dysfunctions and functional hypomobility. However, another significant functional issue is hypermobility, which can lead to instability and pain.[2,8,9,10]

### Table 1: Causes of Low Back Pain

| Functional Disorders | Degenerative Diseases | Other Causes |
|---|---|---|
| Muscle imbalance | Spondylosis | Congenital or developmental causes |
| Functional hypomobility | Spondylolysis/Spondylolisthesis | Traumatic |
| Hypermobility | Facet joint degeneration | Rheumatic |
| | Degenerative disc disease | Infectious |
| | Degenerative scoliosis | Neoplastic |
| | Spinal canal stenosis | Metabolic |
| | | Visceral (Gastrointestinal system, Urogenital system) |
| | | Postoperative |
| | | Psychogenic |

***Table 1:*** *Classification of Low Back Pain Etiologies: Functional, Degenerative, and Other Causes.*

### Degenerative Pathologies and Back Pain: Classification and Multidisciplinary Considerations

Degenerative pathologies are particularly prevalent in older individuals. These conditions indicate chronic stress on the autonomic nervous system (ANS) and connective tissue.[2,3,4,5]

Moreover, back pain can have various causes, including traumatic, rheumatic, inflammatory, neoplastic, metabolic, psychogenic, and visceral origins (i.e., pain originating from internal organs). Therefore, a thorough examination is essential for identifying the underlying causes of back pain.[2,4,5,6,9]

### Prevalence and Classification of Back Pain

Only 15% of back pain cases can be attributed to a specific medical condition.[2,9] Approximately 30% are associated with degenerative pathologies, while 55% are classified as non-specific back pain.[2,9,10] Various biopsychosocial factors have been described as contributing to non-specific back pain.[2,7,8,9,10]

Among the primary causes of functional back pain are:

- Muscular dysfunctions of the lumbar region
- Dysfunction of the thoracolumbar fascia
- Segmental intervertebral blockages

### Psychological Stress as a Contributing Factor in Back Pain

Back pain is not solely a result of structural or physiological issues. Psychological stress can also manifest as back pain. Personal, social, and occupational challenges and unresolved inner conflicts may exacerbate or even trigger back pain.[2,9]

As outlined in Table 2, back pain is rarely attributable to a single cause; instead, it often results from the interplay of multiple factors. Consequently, the effective treatment of back pain necessitates an integrative and multidisciplinary approach that considers not only structural aspects but also functional, autonomic, and psychological components.[1,2,3,6,9]

**Table 2: Classification of Back Pain**

| Category | Subcategory | Details |
|---|---|---|
| A. Specific Back Pain (45%) | 1. Specific Diseases (15%) | • Spondylitis<br>• Infections of the spine<br>• Rheumatic diseases of the spine<br>• Osteoporosis<br>• Tumors, metastases<br>• Spondylolisthesis<br>• Spinal canal stenosis<br>• Disc herniation<br>• Other nerve compressions |
| | 2. Specific Lumbago (30%) | • Osteoarthritic changes in the lumbar spine<br>• Other degenerative changes in the lumbar spine (bones or muscles) |
| B. Non-Specific Back Pain (55%) | 1. Back pain with biologically complex causes | Functional problems of the lumbar spine:<br>• Dysfunction of the sacroiliac joints<br>• Lumbosacral transition<br>• Lumbosacral dorsal fascia<br>• Segmental intervention<br>• Dysfunctions (blockages, DIMD)<br>• Somatic comorbidities (organic diseases, brain nerves, jaw joints) |
| | 2. Back pain with psychological causes | • High-stress levels<br>• Depression, emotional disorders<br>• Anxious, depressive, closed, or withdrawn personality<br>• Psychosomatic complaints |
| | 3. Back pain with social causes | • Lack of social support<br>• Dissatisfaction with the work environment<br>• Insufficient financial means for treatment of injuries or skeletal diseases |

***Table 2:** Categories and Subcategories of Back Pain: Differentiation Between Specific and Non-Specific Causes.*

### Clinical Presentation and Diagnosis

1. Pseudoradicular Syndrome – 60%
2. Localized Pain Syndrome – 38%
3. Radicular Syndrome – 2%

Studies indicate that approximately 60% of back pain cases are of pseudo-radicular origin. Around 38% are localized pain syndromes, whereas only 2% are attributable to actual nerve root compression.[2,9]

### Radicular Pain

As illustrated in Table 3, radicular pain results from nerve root compression. This condition may arise due to acute disc herniation or degenerative disc damage.[2,8,9,11,12,16]

**Table 3: Characteristic Features of Radicular Pain**

| Feature | Description |
|---|---|
| Pain Character | Sharp, knife-like pain along the lower extremity, usually radiating distally in a narrow band (<5 cm). |
| Pain Aggravation | Pain increases with rotation or flexion on the affected side. |
| Pressure Dependence | Pain intensifies with increased intra-abdominal pressure (e.g., coughing, sneezing, straining). |
| Sensory Disturbances | Segmental sensory disturbances, paresthesia, and coldness in the legs. |
| Movement Dependence | Pain intensity often increases with movement. |
| Neurological Deficits | Reflex weakening, sensory loss, or muscle weakness may occur but are not always present. |

***Table 3:** Key Clinical Characteristics and Aggravating Factors of Radicular Pain.*

### Pseudo Radicular Pain

Pseudo-radicular pain originates from structures within the spinal segment other than the nerve roots. Common causes include degenerative processes such as facet joint osteoarthritis, intervertebral disc degeneration, or muscular imbalances. Functional disorders, such as sacroiliac joint dysfunction or myofascial trigger points, can also mimic radicular pain.[2,9,10]

A key distinguishing feature is that pseudo-radicular pain is often more diffuse and cannot be attributed to a specific dermatome. It typically spreads over a larger area and presents as a dull pain.

### Key Differential Diagnoses

- Sciatica-like pain due to hip or vascular diseases can imitate radicular symptoms.
- Vascular causes, such as arterial circulation disorders, should be further evaluated using Doppler ultrasound or angiography.

### Red Flags (Waddell Signs) – Indicators of Serious Medical Conditions

A thorough examination should be performed on every patient with low back pain to rule out severe underlying medical conditions, as summarized in Table 4. The presence of "red flags" suggests that back pain is not primarily of musculoskeletal origin and requires further diagnostic evaluation.[1,2,3,8,9]

**Table 4: Potential Indicators of Serious Medical Pathologies**

| Indicator | Description |
|---|---|
| Age at Pain Onset | <20 or >55 years |
| Severe Trauma | E.g., a fall from a great height, a car accident |
| Severe, Progressive Pain | Independence of movement or position |
| Pre-existing Conditions | Previous cancer, long-term steroid therapy, or immunosuppression |
| Infectious Factors | HIV infection |
| General Health Deterioration | Unexplained weight loss, general weakness |
| Signs of Infection | Fever, night sweats |
| Movement Restrictions | Severe movement limitations of the lumbar spine |
| Neurological Symptoms | Extensive neurological deficits (numbness, muscle weakness, caudaequina Syndrome) |
| Structural Changes | Spinal deformities |

***Table 4:** Key Clinical Indicators for Identifying Serious Underlying Medical Conditions in Back Pain*

A positive screening for one or more warning signs necessitates further diagnostic evaluation using imaging techniques and laboratory tests.

## Causes, Diagnostics, and Anatomy of Back Pain

Back pain can have many causes, requiring an accurate diagnosis and targeted therapy. To achieve this, it is essential for physicians to:[2,3,10]

- Possess inlumbar anatomy and clinical examination techniques, ensuring accurateinterpretation of findings.
- Identify serious pathologies (e.g., malignancies, infections) at an early stage.
- Collaborate with other medical specialties through interdisciplinary consultations when necessary.

Due to the diagnostic and therapeutic challenges associated with back pain and its increasing prevalence, it remains a highly relevant topic in scientific and epidemiological research. In developed countries, the management of back pain imposes a significant economic burden due to healthcare costs, work absenteeism, disability pensions, and rehabilitation expenses.

At the same time, advances in surgical techniques and improved instrumentation have increased surgical interventions, further escalating treatment costs.

## Three Key Questions in Modern Back Pain Therapy

Given the increasing chronicity of back pain and its associated social and economic consequences, the following critical questions must be addressed:[2,3,9,10]

1. Why does a simple episode of back pain progress to chronic pain or disability in some patients?
2. What deficiencies exist in the prevention of chronic back pain?
3. What errors or inadequacies are present in diagnosing and treating back pain?

The anatomical structures of the axial organs must be considered to answer these questions and establish the appropriate diagnostic and therapeutic connections from the perspectives of neural therapy and regulation medicine.

## Anatomical Structures of the Lumbar Spine

### Neural Structures

The spinal nerves divide into two main branches:

- Ramus ventralis
- Ramus dorsalis

The multifidus muscle functions monosegmentally and is innervated by the ramus dorsalis. Additionally, the following structures receive innervation from the ramus dorsalis:[2,9]

- Ligamentum flavum
- Periosteum
- Ligamentum interspinal

Within the intervertebral foramen, the mixed spinal nerve branches out and, together with sympathetic fibers from the ramus communicans, forms the sinuvertebral nerve (also known as the meningeal or recurrent nerve).

This nerve provides innervation to the following structures:[2,3,9]

- Posterior longitudinal ligament
- Posterior and posterolateral fibers of the annulus fibrosus
- Anterior meninges
- Internal venous spinal plexus
- Nerve roots

A portion of the sympathetic fibers from the spinal cord enters the sympathetic ganglion, where it connects with the spinal nerves. Another portion bypasses synapsing and contributes to the formation of autonomic plexuses.

### Lumber Plexus

The lumbar plexus is a network of nerves formed by the ventral rami of the L1–L4 spinal nerves, with occasional contribution from T12, and is located within the psoas major muscle. It provides motor and sensory innervation to the lower abdomen, pelvis, and lower limb, controlling movement in the anterior and medial thigh (e.g., quadriceps and adductors) and supplying sensation to the lower abdomen, groin, and thigh. The major nerves of the lumbar plexus include the Iliohypogastric, Ilioinguinal, Genitofemoral, Lateral femoral cutaneous, Obturator, Femoral nerves (Table 5). It plays important role in autonomic functions of the lower body and assessment of NSLBP.

**Table 5: Lumbar Plexus**

| Nerve | T12 | L1 | L2 | L3 | L4 | Motor | Sensory |
|---|---|---|---|---|---|---|---|
| Iliohypogastric | ✓ | ✓ | | | | Abdominal musculature | Lateral gluteal region and hypogastrium |
| Ilioinguinal | | ✓ | | | | Abdominal musculature | Skin of the labia majora/scrotum and nearby areas |
| Genitofemoral | | ✓ | ✓ | | | Cremaster muscle | Skin of the labia majora/scrotum and the femoral triangle area |
| Lateral femoral cutaneous | | | ✓ | | | | Skin of the lateral thigh region |
| Obturator | | | ✓ | ✓ | ✓ | Adductor group: pectineus, gracilis, adductor longus, adductor brevis, adductor minimus, and adductor magnus muscles | Skin of the distal medial half of the thigh and the knee joint |
| Femoral | | ✓ | ✓ | ✓ | | Sartorius, iliacus, quadriceps, pectineus muscles, and the knee joint | Anterior thigh region, via the saphenous nerve: skin of the medial leg region down to the foot |

***Table 5:** Overview of the lumbar plexus: spinal nerve roots, motor innervation, and sensory distribution of each nerve*

### Pain-Sensitive Structures of the Lumbar Region

Many tissues in this region contain free nociceptive nerve endings, making them potential sources of pain. The pain-sensitive structures include:[2,3]

- Posterior annulus fibrosus of the intervertebral disc
- Ligaments of the lumbar spine:
  - o PLL (posterior longitudinal ligament)
  - o SSL (supraspinous ligament)
  - o LF (ligamentumflavum)
  - o ISL (interspinous ligament)
  - o ITL (intertransverse ligament)

- Lumbosacral ligaments:
    - Iliolumbar ligament
    - Sacroiliac ligament
    - Sacro tuberous ligament
    - Sacrospinous ligament
- Dura mater
- Nerve roots within the spinal canal
- Dorsal root ganglion
- Neural structures within the intervertebral foramen
- Facet joints (whose capsules are considered a primary source of pain)
- Periosteum of the vertebral bodies
- Vessels within the spinal canal
- Muscles and fascia

### Significance of Lumbar Ligaments

The ligaments of the spine play a crucial role in maintaining spinal stability and withstanding mechanical stress. These structures are richly innervated by the autonomic nervous system (ANS).[2,13,14,16]

Changes in these ligaments, such as shortening, thickening, or overstretching, can lead to segmental dysfunctions, sacroiliac joint blockages, and functional back pain.[3,16]

### Facet Joints as a Source of Pain

Facet joints determine the direction of movement within individual spinal segments. Surrounded by a synovial capsule, they play a significant role in both static and dynamic spinal stability.[2,17,18,19,20]

Their role in proprioception—the body's ability to perceive its position in space—is critical. The medial branch of the ramus dorsalis innervates these joints.[2]

Blockages or degenerative changes in the facet joints can lead to pseudo-radicular pain, which may resemble nerve irritation in its presentation.[2,9,17,18]

### Musculature of the Lumbar Region

The musculature of the lower back plays a central role in dynamic spinal stability and movement control.[2,9,18]

A significant proportion of functional back pain originates from muscular dysfunction. The multifidus muscle is the most affected muscle group innervated monosegmentally by the ramus dorsalis.[9]

Important note: Increased muscle tension in this region often indicates segmental dysfunction.[2,9]

### Why is Anatomy Crucial for Back Pain Therapy?

Back pain is rarely monocausal; it typically results from multiple contributing factors. Therefore, a holistic approach that integrates biomechanical, autonomic, and psychosocial factors is essential.[1,2,9,16]

A thorough understanding of the lumbar spine anatomy enables more precise diagnostics and targeted therapies. This is the only way to develop specific treatment strategies that address structural and functional dysfunctions.[2,9,16,21]

An integrative approach combining regulation medicine, neural therapy, manual medicine, and targeted training is crucial for effectively managing back pain and preventing its progression to chronicity.[2,20]

### Fascial Chains

The human body is enveloped by a continuous fascial system that extends from head to toe. These fasciae are closely interconnected with the skin and reach into the deepest structures of the body. They are integrated with all bodily systems and play a crucial role in the functional coordination of movement and perception. The superficial layers contain a high density of sensory receptors, approximately two-thirds of which are sympathetic nerve fibers.[2,21,22]

Due to their limited vascular supply, fascination has a poor regenerative capacity following injury. Nevertheless, their continuous structure makes them an essential component of neuromuscular communication, functioning as an integrated signaling system in coordination with the nervous system. Given their rich innervation, fascination primarily transmits sensory information from muscles to distant regions and higher neural centers. Fascial pain is often polysegmental, affecting multiple spinal segments.[2,3,21,22,23]

### Thoracolumbar Fascia

Among the various fascial structures in the lumbar region, the thoracolumbar fascia (Fascia thoracolumbalis) is the most significant contributor to functional back pain.[2]

This fascia encloses all autochthonous back muscles.

Its superficial layer connects to the deep layer of the nuchal fascia in the cervical spine and forms the aponeurotic insertion of the latissimusdorsi muscle.[2,21]

The latissimusdorsi muscle is functionally linked to all lumbar vertebrae and the sacrum via the thoracolumbar fascia. This connection explains the functional relationship between the lumbar region and the shoulder—dysfunctions in the lumbar fascia can affect the shoulder girdle and vice versa.

Additionally, the thoracolumbar fascia serves as the origin for the internal oblique (M. obliquusinternusabdominis) and the transversusabdominis muscle (M. transversusabdominis).[2,3,22]

Anteriorly, it is connected to the fasciae of the abdominal and pelvic organs (e.g., renal fascia, abdominal fascia, transversal fascia). At the same time, inferiorly, it forms a direct connection with the fasciae of the hip and lower extremities.[2,3,21,22,24]

### Fascial Networking and Functional Implications

Due to its interwoven structure, performing a wholly isolated movement is nearly impossible. Given the neural connections and fascial-muscle chains, dysfunctions in the cervical or cranial region can impact the entire spine and even affect the upper and lower extremities.[2,21,25,26]

A spinal segment's static and dynamic structures—including vertebral bodies, intervertebral discs, joints, capsules, ligaments, fasciae, muscles, vessels, and nerves—are generally integrated as a system.[2,3,12,13,16]

Moreover, segmental neurophysiological connections and myofascial chains can cause local irritation in one region, triggering a chain reaction in distant areas of the body.[2,3,9,10,21,27,28,29]

Segmental dysfunction can be both a cause and a consequence of other functional disturbances. A comprehensive evaluation of all anatomical structures, particularly those innervated by the ramus dorsalis, is required to assess the extent of segmental dysfunction. It is also crucial to understand its relationship to the autonomic nervous system (ANS), particularly the sympathetic division of the ANS.

Table 6 summarizes and systematically presents the neurophysiological foundations of functional dysfunctions and degenerative processes in this context.[31,32]

**Table 6: Neurophysiological Foundations of Functional Dysfunctions and Degenerative Processes**

| Aspect | Description |
|---|---|
| Affected Structures | Spine, extremities, skin, organs, muscles, tendons, nerves, psychological stress |
| Information Transmission | All structures within a segment send signals to WDR (Wide Dynamic Range neurons) |
| Signal Processing | Signals are either processed locally or transmitted to higher neuronal centers. |
| Regulation Mechanism | Regulation occurs segmentally if the stimulus intensity remains within a tolerance threshold. |
| Transmission to the CNS | Only when the stimulus exceeds the threshold is the signal transmitted to the central nervous system (CNS) |

### Segmental Dysfunctions and Their Effects

A spinal segment's static and dynamic structures—including vertebrae, intervertebral discs, joints, capsules, muscles, vessels, and nerves—are generally affected together.[9,32,41]

Due to the segmental neurophysiological connections between muscles and fasciae, local irritation can trigger a chain reaction in other body regions.[2,3,21]

Segmental dysfunction can be both a cause and a consequence of other disturbances. To determine its severity, a comprehensive analysis of all anatomical structures, particularly those innervated by the ramus dorsalis, is essential.[2,3,20,32,41]

### Functional Dysfunctions and Autonomic Reactions

Blockages can have various causes:[20,31,32]

- Traumatic (e.g., accidents, falls)
- Spondylalgia (e.g., degenerative processes)

- Myogenic (e.g., muscle tension)
- Viscerogenic (e.g., reflex irritations due to organ diseases)
- Psychogenic (e.g., emotional stress)

The motor anterior horn cells transmit signals to muscles and higher centers and, through axonal collaterals, send impulses to the autonomic nervous system (ANS), as illustrated in Table 7.

**Table 7 (1 and 2): Effects of Muscle Stimulation and Central Neural Processing.**

**Table 7.1: Effects of Muscle Stimulation on the Autonomic Nervous System**

| Consequence of Sympathetic Activation | Description |
|---|---|
| Impairment of Organs and Glands | Sympathetic overactivation can disrupt the function of internal organs and hormonal glands. |
| Changes in Blood and Lymph Circulation | Vasoconstriction or altered vascular responses can affect blood and lymphatic flow. |
| Microcirculation Disorders | The affected region may experience impaired oxygen and nutrient supply, delaying healing. |
| Polysegmental Dysfunction | Pain signals can be transmitted across multiple segments, leading to the spread of functional impairments. |

***Table 7.1:** Consequences of Sympathetic Activation – Effects on Organs, Circulation, and Segmental Regulation*

**Table 7.2 Neuronal processing and central reactions**

| Central Reaction | Function |
|---|---|
| Autonomic Reaction (Brainstem) | Regulates autonomic processes such as heart rate, blood pressure, and respiration. |
| Endocrine/Hormonal Reaction (Pituitary Gland) | Controls hormonal responses, e.g., the release of stress hormones. |
| Topical Pain Perception (Thalamus) | Processes and localizes pain in the brain. |
| Affective Pain Processing (Limbic System) | Emotional processing of pain, influence on anxiety and stress. |
| Cognitive Processing (Cortex) | Storage of pain memories, evaluation, and interpretation of pain. |

***Table 7.2:** Central Nervous System Responses to Pain – Functional Roles from Brainstem to Cortex*

## Inhibitory Protective Mechanisms of the Body

To counteract excessive WDR neuron activity, the body has several protective mechanisms in place:[2,3,9,12,16]

1. GABAergic Inhibition – Peripherally mediated inhibitory mechanisms through afferent A-beta fibers (proprioception).
2. Opioidergic Inhibition – Endogenous opioids released from the limbic system reduce pain perception.
3. Serotonergic Inhibition – Inhibitory serotonergic pathways from the limbic system modulate pain processing.

Under normal conditions, a well-functioning autonomic nervous system (ANS) contributes to:[2,3,4,5,13,14]

- Improved microcirculation
- Detoxification through the lymphatic system
- Regeneration and resolution of segmental blockages

## Modern Challenges for the Autonomic Nervous System

Today, the autonomic nervous system (ANS) is subjected to numerous external stressors, including:[2,4,31,32]

- Mechanical, thermal, and chemical influences
- Chronic stress
- Toxins, heavy metals, electromagnetic pollution
- Dietary errors and metabolic imbalances

These factors lead to increased autonomic stress. In particular, the rising toxic burden and the resulting latent acidosis impair the body's regulatory capacity.[32,33,34,35]

Due to these chronic stressors, the inhibitory protective systems may no longer function adequately, allowing pathological stimuli to persist unchecked.[34,35]

Consequences of Chronic Pathological Stimulation of WDR Neurons

When pathological stimuli persistently activate WDR neurons, sustained sympathetic activation can occur, leading to:[3,36,37,38,39]

- Persistent vasoconstriction
- Prolonged inflammatory response
- Hypoxia and tissue acidosis

This pathological state can promote the development of degenerative processes in joints, intervertebral discs, and ligaments. The degeneration of facet joints and intervertebral discs occurs in three phases, which are summarized in Table 8.[2]

**Table 8: The Three Phases of Facet Joint and Intervertebral Disc Degeneration**

**Why is a Regulatory Approach Necessary?**

| Phase | Characteristics |
|---|---|
| Phase 1 – Dysfunctional Phase | • Restricted mobility<br>• Local inflammation<br>• Initial wear and tear processes |
| Phase 2 – Hypermobility Phase / Instability Phase | • Increased mobility due to ligament weakness<br>• Reduced stability of the movement segment<br>• Pain and muscle tension as a compensatory reaction |
| Phase 3 – Stabilization Phase | • Adaptation of the body<br>• Reduction of mobility due to osteophyte formation and sclerosis<br>• The final stage of degeneration |

***Table 8:** Phases of Functional and Structural Changes in Degenerative Processes.*

Since mechanical-structural factors do not solely cause back pain but also have neurophysiological and autonomic origins, purely symptomatic therapy is often insufficient.[2,3,9,39]

An integrative therapeutic approach that combines regulation medicine, neural therapy, manual medicine, and metabolic optimization can:[2,3,9,39]

- Regulate neurovegetative imbalances
- Activate the body's self-healing mechanisms
- Interrupt chronic pain processes
- Slow down or prevent degenerative developments

Important note: Long-term therapeutic success can only be achieved through a holistic understanding of segmental dysfunctions.[21,32,33]

## Therapeutic Approach to Back Pain

Once the biopsychosocial causes of back pain are accurately diagnosed, physicians should thoroughly assess the patient's problems and develop a tailored therapy protocol accordingly.[2,3,12,16]

Treatment should never be one-dimensional or nanotherapeutic. Especially for chronic and non-specific back pain, a multidisciplinary therapeutic approach is the most effective. The following methods should be integrated into treatment:[2,3,16,26,27,29,30]

## Neural Therapy and its Mechanism of Action

Neural therapy is based on the premise that nociceptive and neurovegetative imbalances can perpetuate chronic pain. As outlined in Table 9, local anesthetics, particularly procaine, can be injected to improve the autonomic regulation of the nervous system and modulate pain perception.

Empirical studies and clinical experience suggest that this method significantly alleviates chronic back pain in many patients.[2,5,13,14,39]

### Table 9: Mechanism of Action of Neural Therapy in Back Pain

| Mechanism | Description |
|---|---|
| 1. Interruption of Pain Memory | • Chronic pain is often associated with neuronal sensitization.<br>• Targeted injections can reduce this sensitization and modulate pain processing in the central nervous system |
| 2. Regulation of the Autonomic Nervous System | • Dysfunction in the autonomic nervous system contributes to the chronicity of pain.<br>• Neural therapy can restore the balance between the sympathetic and parasympathetic nervous systems and regulate autonomic dysfunctions |
| 3. Resolution of Myofascial Dysfunctions | • Muscle tension and myofascial trigger points are common causes of chronic back pain.<br>• Neural therapy can provide targeted pain relief through direct injections into trigger points and interference fields |
| 4. Improvement of Local Blood Circulation | • By interrupting vasomotor dysregulation, blood circulation is improved, leading to a better oxygen and nutrient supply to tissues, thereby supporting the healing process |

***Table 9:** Key Mechanisms in Pain Modulation and Neural Therapy Effects.*

### Therapeutic Approach from the Perspective of Neural Therapy

In cases of chronic back pain, the primary objective of neural therapy is to restore the body's impaired regulatory capacity. This can be achieved through local, segmental, ganglionic, and interference field therapy.[3,5,13,14,21,22]

### The injection of local anesthetics can:

- Interrupt chronic neuronal overexcitation within the affected segment
- Disrupt the neuronal pain loop
- Regulate circulatory and microcirculatory disturbances
- Facilitate the removal of toxins and inflammatory byproducts
- Eliminate existing interference fields

### Table 10: The Therapy Protocol Can Be Summarized as Follows

| Therapy Level | Techniques |
|---|---|
| 1. Local and Segmental Therapy | • Segmental wheels<br>• Injections into the ventral region (gynecological "W")<br>• Trigger point injections<br>• Injections into dorsal and ventral muscles<br>• Injections into painful spinous processes (Proc. spinosus)<br>• Injections into pain-sensitive periosteal structures<br>• Injections into ligaments (Ligamenta)<br>• Sacroiliac epidural - Injections (SIE injections)<br>• Injections into facet joints and spinal nerves |
| 2. Advanced Segmental Therapy | • Injections into the sympathetic chain at the L2 level<br>• Injections into the sacral canal<br>• Celiac ganglion injections (for visceral pain and dysfunctions)<br>• Injections into the femoral artery (to improve microcirculation) |
| 3. Interference Field (Neuromodulation Trigger) Therapy | • Treatment of scars<br>• Injections into the small pelvis (pelvic organs)<br>• Treatment of interference fields in the dental<br>• Jaw area (teeth, sinuses, temporomandibular joint, tonsils, thyroid gland) |

***Table 10:** Therapeutic Levels and Techniques in Neural Therapy Applications.*

This multidimensional approach in neural therapy can restore the body's regulatory capacity, leading to sustained relief of chronic back pain and the resolution of functional blockages.[2,3,5,14]

## Clinical Evidence and Research Overview

Numerous case studies and clinical reports suggest that neural therapy may be an effective treatment option for patients with non-specific back pain. Its efficacy is enhanced when combined with manual medicine and other regulative therapies. However, large-scale, randomized controlled trials are still needed to elucidate neural therapy's precise mechanisms and long-term effects fully.

A study conducted by Nazlikul et al. (2017) investigated the effects of neural therapy on patients with chronic back pain related to piriformis syndrome. The findings demonstrated that, compared to the control group, neural therapy significantly improved pain levels (VAS) and functional limitations (ODI). Neural therapy disrupts the vicious cycle of chronic pain by stabilizing disrupted membrane potentials and inhibiting sympathetically mediated neurogenic inflammation. This process helps modulate pain transmission and enhance blood circulation. Given its neuromodulatory, anti-inflammatory, and analgesic effects, neural therapy represents a promising, safe, and cost-effective treatment for patients with therapy-resistant musculoskeletal pain.[40]

"Neural therapy is the most commonly used complementary medicine procedure in general medical practices in Germany. However, data regarding its efficacy and side effect profile remain scarce."[18]

Fischer and Pfister (2006) evaluated the effectiveness of neural therapy in patients with therapy-resistant chronic pain. Their findings indicated that many patients experienced long-term benefits from the treatment. Neural therapy exerts its effects through targeted neurophysiological stimulation and inhibition mechanisms, which help regulate dysregulated pain processes. The study revealed a marked improvement after an average of 3.7 sessions, and nearly 60% of patients experienced reduced analgesic consumption.[5]

The present study examines the significance of neural therapy in chronic back and lower back pain associated with lumbar spine syndrome. It provides a detailed analysis of how neural therapy, as a regulative treatment, plays a central role in addressing both functional and structural disorders. Particular emphasis is placed on the effects of neural therapeutic injections on autonomic regulatory mechanisms, which help alleviate pain and support functional recovery.

The study highlights that a comprehensive approach—considering interference fields, fasciae, muscle tension, and reflex chains—is crucial for a successful treatment outcome. This work provides valuable insights into interdisciplinary pain therapy and highlights the importance of integrating neural therapy as a core component in multimodal treatment approaches.[41]

### Effectiveness of Neural Therapy in Chronic Back Pain

This study investigates the efficacy of neural therapy in chronic back pain and emphasizes its role as a minimally invasive, regulative treatment method. The findings indicate that an average of eight neural therapy sessionssignificantly reduced pain, as measured by the Visual Analogue Scale (VAS) and the Oswestry Disability Index (ODI).

A particularly notable aspect of this approach is its holistic nature, which targets local pain points and addresses interference fields such as post-surgical scars and functional disorders. This study reinforces the importance of neural therapy as an interdisciplinary method with significant applications in pain management and functional medicine. The findings suggest that neural therapy should be firmly integrated into the treatment strategies for chronic back pain.[42]

## Comparative Studies on Neural Therapy and Its Clinical Outcomes

The study by Atalay et al. (2013) compared the effectiveness of neural therapy and physiotherapy in patients with chronic back pain. The results demonstrated that both treatment modalities led to significant improvements in pain, function, quality of life, anxiety, and depression. Neural therapy, administered via targeted lidocaine injections, was shown to regulate disrupted neurophysiological mechanisms, thereby reducing both pain and functional impairments.

In parameters such as energy levels, sleep quality, emotional well-being, and social isolation, neural therapy demonstrated more significant improvements than physiotherapy, suggesting its holistic impact on overall well-being.[12]

Egli et al. (2015) assessed the long-term effects of neural therapy in 280 patients with therapy-resistant chronic pain. After one year, 126 patients reported significant pain relief, while 41 patients became utterly pain-free. The therapeutic effect of neural therapy is attributed to its ability to interrupt the pain cycle within reflex arcs through the targeted application of local anesthetics, resulting in sustained pain reduction.

Due to its low side effect profile, reduction in analgesic consumption, and cost-effectiveness, neural therapy represents a promising, practical, and economically viable treatment option for patients suffering from chronic pain.[13]

The present study analyzes the comorbid conditions associated with non-specific chronic lower back pain (LBP) and emphasizes the importance of a holistic diagnostic and therapeutic approach. The findings indicate that gastrointestinal dysfunctions (60%), anxiety disorders (40%), and interference fields (36%) are common coexisting conditions that can exacerbate pain symptoms. The study highlights that successful treatment should target the source of pain and address accompanying functional disorders and interference fields.

In this context, neural therapy has demonstrated promising results and may play a key role in integrative pain management. These findings suggest that combining neural therapy, interference field treatment, and functional regulation could effectively manage chronic back pain.[30]

### Clinical Studies on Neural Therapy for Chronic Back Pain

The study by Yılmaz (2021) investigated the effectiveness of neural therapy in patients with chronic lower back pain (LBP) who had not responded to conventional medical or physical therapy treatments. The results showed that patients receiving neural therapy experienced significant long-term pain relief and functional improvement, as reflected by reduced Visual Analog Scale (VAS) and Roland Morris Disability Questionnaire (RMDQ) scores after 3 and 6 months. These findings suggest that neural therapy, through targeted injections addressing local and interference field-related pain sources, may serve as an effective alternative therapy for chronic LBP patients, particularly when standard treatments prove ineffective.[16]

A separate study demonstrated that neural therapy using 1% procaine injectionssignificantly improved shoulder mobility while reducing pain and functional limitations in patients with supraspinatus tendinopathy. Following treatment, an average pain reduction of 73.6% on the VAS scale and a 59.95% improvement in functional limitations on the QuickDASH scale were observed.[43]

Another study found that patients with chronic back pain who received neural therapy reported significantly higher satisfaction and pain reduction compared to those receiving pharmacological treatment. The willingness to undergo the therapy again was considerably higher in the neural therapy group compared to the physiotherapy group ($p<0.001$).[19]

Additionally, a study concluded that patients receiving neural therapy reported greater satisfaction with their treatment and care than those undergoing conventional medical treatment. Neural therapy patients experienced better fulfillment of treatment expectations, fewer adverse side effects, and higher quality doctor-patient interactions. These findings suggest that neural therapy represents an effective alternative to conventional treatments for musculoskeletal disorders.[23]

The case series demonstrates that neural therapy with 0.5% procaine injections may be an effective treatment option for localized vulvar pain, as two patients achieved complete pain relief, while three experienced significant improvement. The pain reduction was long-lasting, and all patients were able to resume sexual intercourse or use tampons after treatment.[24]

A systematic review suggests that applying low-dose local anesthetics in neural therapy is an effective pain management strategy, particularly for chronic pain conditions (72.86%) and acute pain states (13.17%). Additionally, positive effects on anxiety and depression symptoms were observed, suggesting an overall improvement in patients' quality of life.[21]

Another study found that neural therapy resulted in significant pain reduction, with the average VAS score decreasing from 7.94 before treatment to 3.48 after six months ($p<0.001$). Furthermore, 80% of patients reduced their analgesic consumption within six months, highlighting the sustained efficacy of neural therapy.[37]

Chronic activation of the sympathetic nervous system due to thoracic blockages leads to sustained muscular hypertonia, impaired microcirculation, and increased pain sensitivity. Sympathetically mediated vasoconstriction reduces local oxygen supply, causing tissue hypoxia and contributing to the formation of myofascial trigger points. These, in turn, exacerbate pain chronification and may radiate to lumbar regions—representing a central mechanism in therapy-resistant chronic low back pain.[20,32,41]

The interaction between autonomic dysregulation and muscular dysfunction creates a vicious cycle in which increased muscle tone, circulatory disturbances, and pain reinforce one another. Effective treatment, therefore, requires targeted regulation of the autonomic nervous system—such as through neural therapy—as well as manual medicine interventions to resolve segmental dysfunctions.[41,48]

### Integrative Approaches in Chronic Pain Management

The present study examines the effectiveness of chiropractic manual therapy combined with isometric exercises in patients with chronic back pain. The findings indicate that patients who received chiropractic therapy and exercises experienced more significant pain reduction (VAS) and improved functionality (Oswestry Disability Index) than those who only performed exercises. Notably, this study systematically demonstrates, for the first time, the positive impact of chiropractic treatment on lumbar spine mobility. The study underscores the importance of a multimodal therapeutic approach and provides valuable insights for integrative pain management in chronic back pain.[44]

The current study explores the combination of neural and manual therapy in treating sacroiliac dysfunction (SID) and emphasizes its role in functional recovery. The authors highlight that sacroiliac joint blockages cause localized pain and affect the autonomic nervous system through reflex mechanisms. The combination of neural and manual therapy led to significant improvements in mobility and pain relief among patients.

Particular emphasis is placed on segmental and myofascial trigger point therapy, which contributes to normalizing biomechanical processes. This study offers valuable insights into interdisciplinary pain therapy and highlights the need for a holistic treatment approach to regulating the musculoskeletal system.[45,46,47]

### Neural Therapy as a Regulative Treatment Approach

Neural therapy is a well-established method in regulation medicine, particularly effective in managing chronic pain and functional disorders. Targeting interference fields or the autonomic nervous system (ANS) with local anesthetics such as procaine can achieve sustainable pain relief and physiological regulation. Clinical studies and case reports have significantly improved chronic pain syndromes and autonomic dysfunctions.[3, 13, 22, 36, 41, 48]

One of the key mechanisms of neural therapy is its ability to modulate neurovegetative reflexes, resulting in local and systemic effects. This makes it a compelling alternative or complementary treatment for therapy-resistant conditions, offering advantages over conventional approaches.[41]

Additionally, this study highlights the interdisciplinary applicability of neural therapy, demonstrating that it can provide both rapid and long-lasting results. Its effectiveness and potential for long-term regulation make it a valuable tool in modern medicine. However, further controlled studies are required to strengthen its scientific recognition.[54]

### Versatility and Clinical Application of Neural Therapy

A key advantage of neural therapy is its broad range of applications. In addition to localized injections at pain points or interference fields, it facilitates the systemic regulation of the autonomic nervous system, making it a valuable adjunct or alternative to conventional pain management strategies.[41]

Neural therapy can be used as a monotherapy or adjunct to other treatments, enhancing the outcomes of these methods by restoring impaired regulatory circuits.[41] However, additional clinical studies are necessary further to strengthen the scientific evidence base.[55]

## RESULTS OF NEURAL THERAPY IN PATIENTS WITH CHRONIC BACK PAIN: A RETROSPECTIVE ANALYSIS FROM THE NATURAL HEALTH CLINIC (2017–2024)

(Physicians involved in this study: H. Nazlikul, F.G. Ural Nazlikul, N. Özkan, M.A. Elmacıoğlu and T. Acarkan)

This study analyses the data of 1,242 patients who underwent neural therapy for chronic back pain at the Nazlikul Clinic between 2017 and 2024. The results are shown in Figures 1-7. The age distribution shows that the majority of patients treated belong to the 50-year-old age group (23%), followed by those in the 40-year-old age group (20%) and the 60-year-old age group (17%). This indicates that neural therapy is particularly relevant as a therapeutic option for middle-aged and older patients.

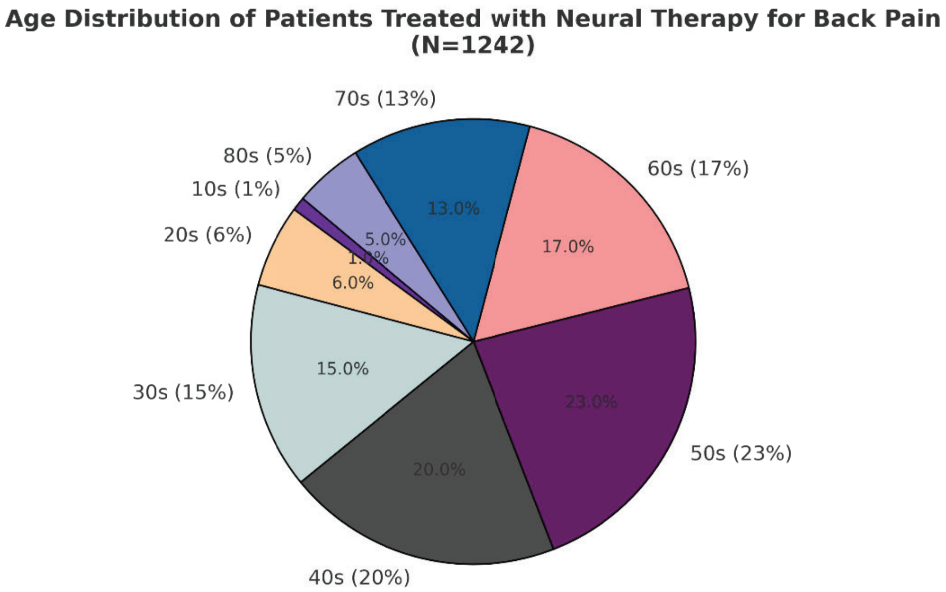


***Figure 1:*** *Age distribution of 1,242 patients treated with neural therapy for back pain. The highest percentage of patients falls within the 50s age group (23%), followed by those in their 40s (20%) and 60s (17%).*

The evaluation of treatment outcomes reveals that 35% of patients experienced a significant improvement in symptoms, while 29% became omtom Free following therapy. Additionally, 11% reported a slight improvement, while 23% showed no change. Only 2% of patients reported increased pain, and no cases of significant worsening were documented. These findings highlight the clinical efficacy of neural therapy, particularly in managing chronic pain syndromes.

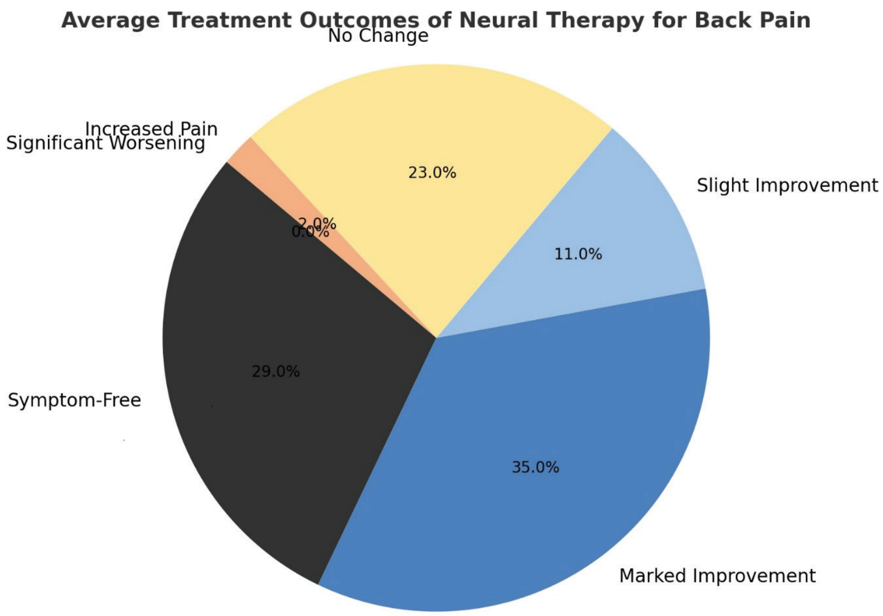


***Figure 2:*** *Average treatment outcomes of neural therapy for back pain. Most patients experienced a marked improvement (35%) or became symptom-free (29%), while 23% reported no change, 11% showed slight improvement, and only 2% experienced increased pain. No cases of significant worsening were observed.*

The average number of neural therapy sessions varied among patient groups. The most common treatment frequencies were two sessions (20%), three sessions (17%), and four sessions (13%). A smaller proportion of patients required more than 12 sessions (7%), while 9% underwent only one session. This suggests that treatment duration is highly individualized and depends on the severity and chronicity of symptoms.

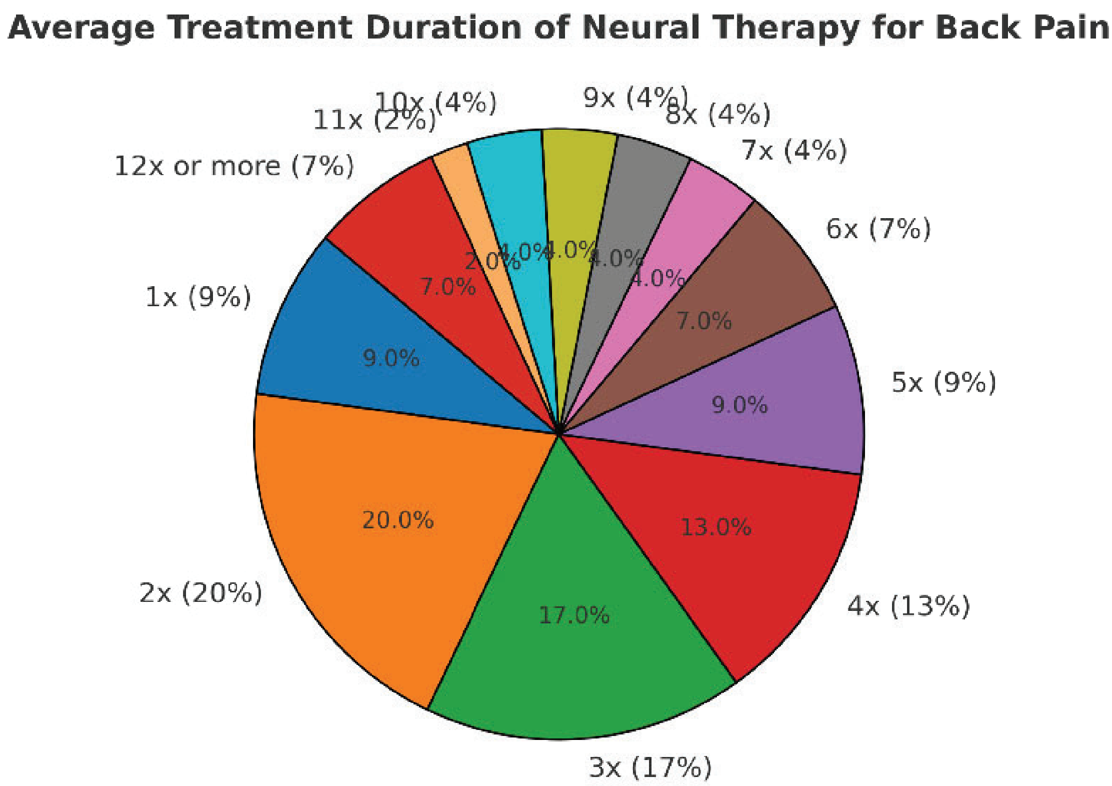


***Figure 3:*** *Average treatment duration of neural therapy for back pain. The chart represents the distribution of the number of neural therapy sessions patients receive. The most common treatment frequencies were two sessions (20%), three sessions (17%), and four sessions (13%). A smaller percentage of patients received more than 12 sessions (7%) or fewer than two sessions (9%).*

The distribution of neural therapy sessions across different age groups indicates that younger patients require fewer sessions, whereas older patients often undergo more extended treatment regimens. This may be attributed to the increasing complexity of musculoskeletal complaints and degenerative changes with age.

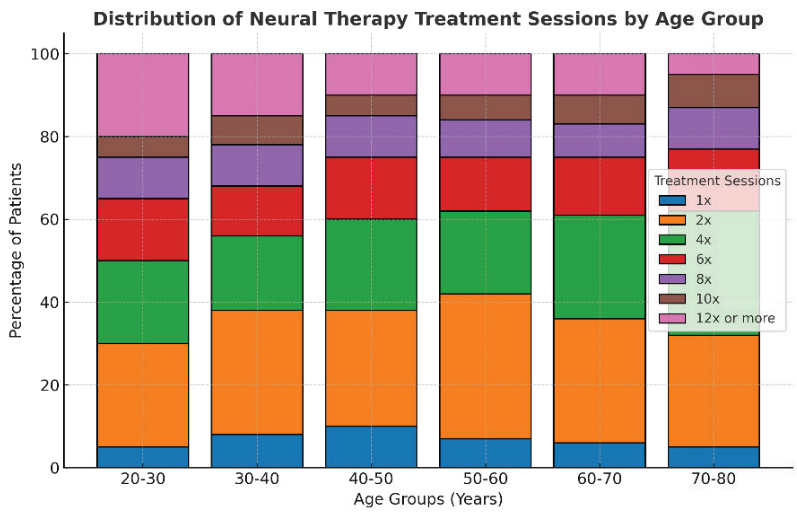


***Figure 4:*** *Distribution of neural therapy treatment sessions by age group. The chart illustrates the percentage of patients in different age groups who received varying neural therapy sessions. The most common treatment frequencies vary across age groups, with some groups receiving more sessions more frequently than others.*

Among patients with persistent symptoms lasting 20 to 60 weeks (N=371), the most common treatment frequencies were 2 and 4 sessions, with a smaller proportion requiring more than 12 sessions. In patients with longer-lasting symptoms (30-100 weeks, N=434), the most frequent number of sessions was 4, followed by 6 and 2 sessions. In the group with treatment durations exceeding 100 weeks (N=395), most patients received 2 to 4 sessions, with some requiring more than 12 treatments (Figure 5-7).

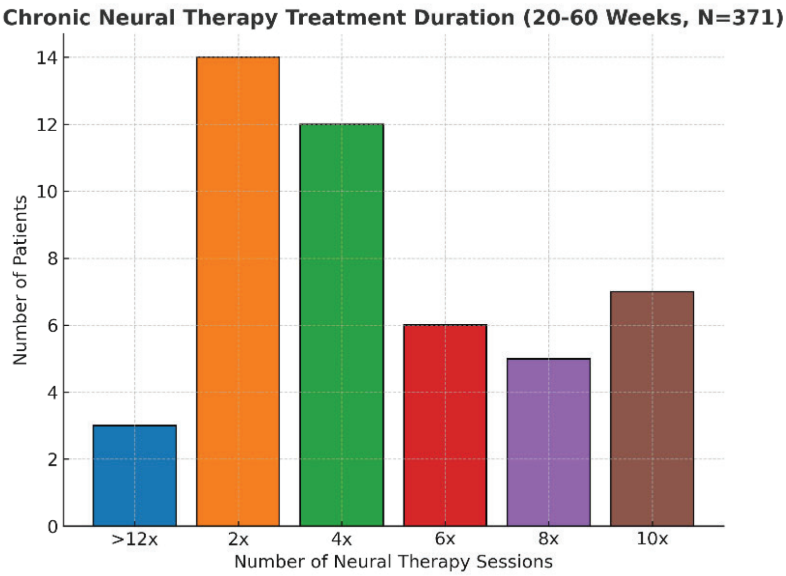


***Figure 5:*** *Chronic neural therapy treatment duration for patients over 20-60 weeks (N=371). The chart illustrates the distribution of patients according to the number of neural therapy sessions received. The most common treatment frequency was two sessions, followed by four sessions. A smaller proportion of patients underwent more than 12 sessions. The total number of patients across all categories sums up to 371.*

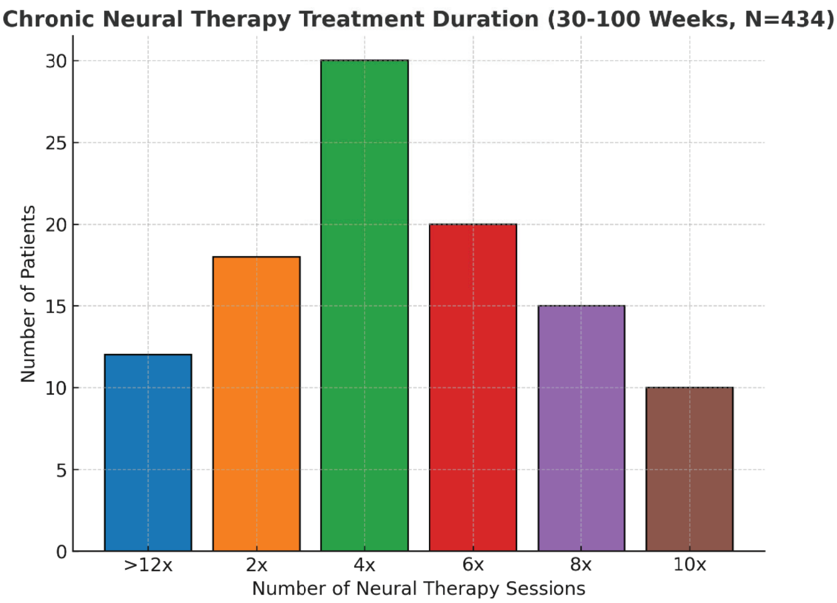


***Figure 6:*** *Chronic neural therapy treatment duration for patients treated over 30-100 weeks (N=434). The bar chart represents the number of patients receiving different numbers of neural therapy sessions. The most frequent treatment duration was four sessions, accepted by approximately 30% of patients, followed by six sessions (20%) and two sessions (18%). A smaller proportion of patients underwent more than 12 sessions or other treatment frequencies.*

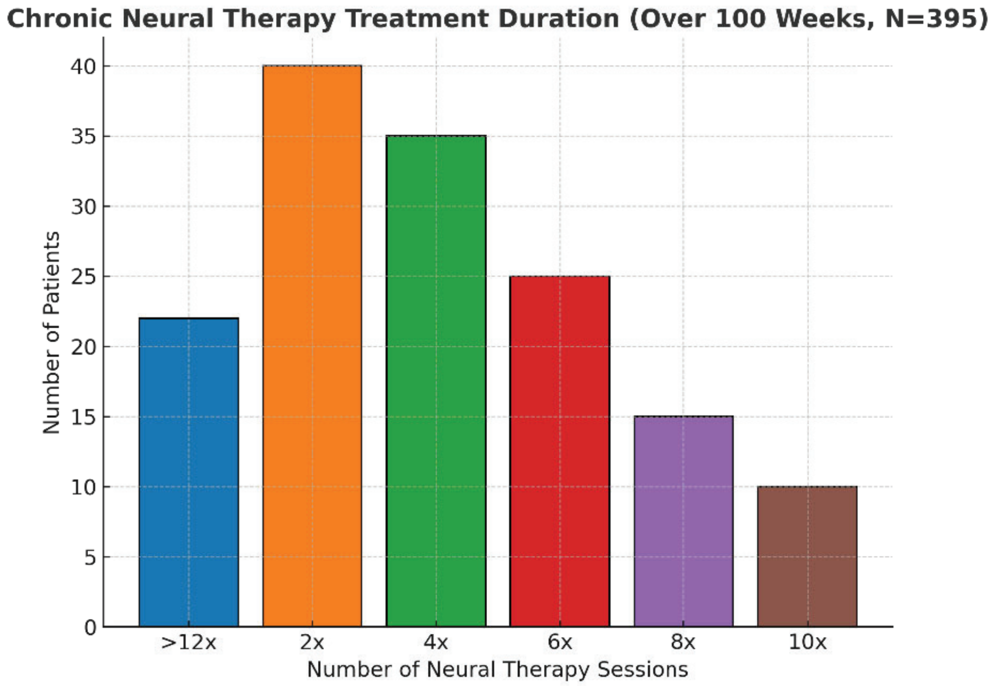


***Figure 7:****Chronic neural therapy treatment duration for patients treated for over 100 weeks (N=395). The bar chart represents the distribution of patients based on the number of neural therapy sessions received. The highest proportion of patients received two sessions, followed by 4 and 6 sessions. A smaller proportion of patients underwent more than 12 sessions, while others received varying numbers of treatments. The total number of patients across all categories sums up to 395.*

This retrospective analysis suggests that neural therapy can be a valuable treatment option for chronic back pain. The findings emphasize the necessity of individualized therapy to achieve optimal treatment outcomes, considering the duration of symptoms and the patient's age**.**

## CONCLUSION

Neural therapy represents a promising approach for treating functional and degenerative back pain. It offers a compelling alternative or complementary option to conventional therapies, particularly in non-specific chronic conditions. By modulating the autonomic nervous system, eliminating interference fields, and enhancing local tissue regeneration, neural therapy can achieve sustainable pain relief[3,4,46,47,48,49,40,41,51,52,53]

**Complex Case Report:** Multimodal Treatment of Chronic Lumbar Pain with Concurrent Coxarthrosis

Chronic lumbar pain is a multifactorial syndrome involving structural, functional, and neurovegetative components. The correlation between radiological findings and clinical symptoms is often low, necessitating an expanded diagnostic and therapeutic approach. This case report presents a 62-year-old female patient with therapy-resistant lumbar pain who only experienced significant improvement following a neural therapy-based treatment approach.

### Case Description

The patient presented with progressive lumbar pain over 14 months, which radiated bilaterally to the hips, anterolateral thighs, and proximal lower extremities. No traumatic cause could be identified. Despite undergoing various conventional medical treatments, no sustained improvement was achieved.

### Relevant Medical History:

- Arterial hypertension for 5 years
- Non-insulin-dependent diabetes mellitus for 8 months

### Clinical and Radiological Findings:

- No significant postural abnormalities, finger-to-floor distance: 20 cm
- Lasègue test negative bilaterally, pseudo-Lasègue optimistic at 60°
- Patellar tendon reflex brisk bilaterally,

Achilles tendon reflex absent on the left

- MRI Findings:
  - o L4/5: Left paramedian sequestrated disc herniation, intervertebral osteoarthritis
  - o L5/S1: Intervertebral osteoarthritis
  - o L3/4: Concentric mild disc protrusion with normal neuroforaminal width
- Pelvic X-ray:Moderate coxarthrosis, more pronounced on the left than on the right

### Previous Treatments

The patient had already undergone numerous conventional medical therapies, including:

- Nonsteroidal anti-inflammatory drugs (NSAIDs)
- Exercise therapy (back school program)
- Massages
- Pain management interventions, including transforaminal epidural infiltration at L4/5 (left side)
- Consultations with orthopedic specialists, rehabilitation physicians, neurosurgeons, and acupuncture therapists

Despite these interventions, the patient's pain symptoms persisted. Additional conventional treatments, such as physical therapy (ultrasound, TENS, magnetic field therapy), acupuncture, and manual medicine, failed to provide lasting relief.

### Neural Therapy Approach

The patient ultimately sought neural therapy, as all previous treatment approaches had failed to achieve the desired outcome. After five neural therapy sessions, the patient experienced significant improvement, which remained consistent over a three-year follow-up period, with sessions spaced six months apart.

### Neural Therapy Infiltrations Performed:

- L2 sympathetic ganglion infiltration – to regulate the autonomic nervous system
- Femoral artery infiltration – to improve circulation and reduce pain
- Sacroiliac joint infiltration – to treat pelvic functional dysfunction
- Facet joint infiltration (T11, T12, L1) – for targeted pain management in the thoracolumbar transition region
- Interference field treatment in the dental region – to eliminate autonomic disturbances

### Therapeutic Outcome

After the first neural therapy session, the patient reported a noticeable reduction in pain, with VAS scores improving from 9 to 6. After two months, the sciatica-like symptoms, groin pain, and anterolateral pain had entirely resolved. The patient was able to resume daily activities with minimal or

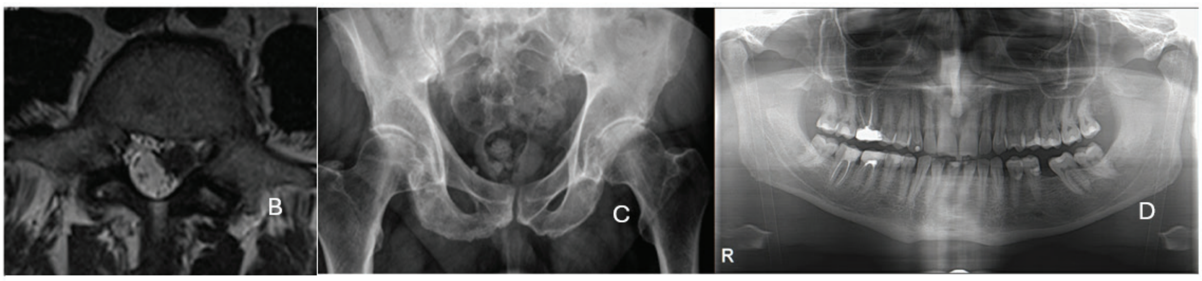


***Figure 7: A & B:*** *The MRI images provided by the patient reveal a left paramedian sequestrated disc herniation at the L4/5 level, accompanied by intervertebral joint osteoarthritis at the same level, as well as intervertebral osteoarthritis at the L5/S1 level. At the L3/4 segment, a concentric, shallow disc protrusion is observed with regular neuroforaminal width. C: The pelvic overview X-ray indicates signs of moderate coxarthrosis, more pronounced on the left side than on the right. D: The Adler-Langer pressure points are notably painful at C2 and C3 on the right side.*

## DISCUSSION

Neural therapy has emerged as a promising approach to managing non-specific low back pain (NSLBP) by addressing both functional and degenerative components of the condition. This study's findings underscore the importance of targeting autonomic dysregulation, myofascial dysfunctions, and interference fields, which are often overlooked in conventional treatment paradigms.

One of the key aspects of neural therapy is its ability to modulate the autonomic nervous system (ANS). This system plays a central role in the development of chronic pain. Dysregulation of the ANS has been implicated in maintaining pain hypersensitivity and perpetuating dysfunctional pain-processing pathways. Neural therapy interventions, mainly through targeted injections of local anesthetics such as procaine, have been shown to restore the balance between sympathetic and parasympathetic nervous system activity. This modulation leads to a reduction in neurogenic inflammation and an improvement in tissue perfusion, thereby enhancing the body's natural healing mechanisms.

Furthermore, neural therapy effectively interrupts pain memory at the neuronal level. Chronic pain syndromes often involve maladaptive central sensitization, where pain perception is amplified due to repeated nociceptive input. By disrupting this cycle through segmental and interference field injections, neural therapy can provide long-term relief even when conventional treatments fail.

Another significant finding from this study is the role of neural therapy in addressing myofascial dysfunctions. Many patients with NSLBP present with myofascial trigger points, which contribute to pain and mobility restrictions. Neural therapy injections directly into these trigger points have been observed to reduce muscle tension and restore functional movement. This effect is further enhanced when combined with manual medicine techniques, demonstrating the value of an integrative approach in pain management.

Another distinguishing feature of neural therapy is the inclusion of interference field treatment. Scars, dental-jaw dysfunctions, and other remote disturbances can act as chronic pain generators by continuously stimulating the nervous system. Neural therapy's interference field injections have been reported to eliminate these disruptions, leading to a resolution of symptoms in patients who had previously experienced persistent pain despite standard interventions.

The results of this study align with previous research, demonstrating that neural therapy significantly reduces pain intensity (as measured by VAS and ODI) and improves functional capacity. Additionally, its non-invasive nature and cost-effectiveness make it a viable alternative or complementary treatment for patients suffering from chronic NSLBP.

Despite these promising outcomes, there remain gaps in understanding the long-term effects of neural therapy. Larger-scale, randomized controlled trials are necessary to validate these findings and further elucidate the precise mechanisms underlying their efficacy. Future studies should also explore patient selection criteria to optimize treatment success and identify those who may benefit the most from neural therapy interventions.

This case highlights the necessity of a multimodal approach, particularly incorporating neural therapy, for the treatment of chronic lumbar pain. While imaging studies revealed structural changes, their correlation with the patient's pain symptoms was minimal. Sustainable improvement was only achieved through targeted autonomic regulation via neural therapy.

Previous conventional medical treatments, including NSAIDs, exercise therapy, acupuncture, and manual medicine, failed to provide sufficient symptom relief, as they primarily focused on structural aspects of the condition. Only after integrating autonomic regulation through neural therapy did the patient experience a significant reduction in pain symptoms.

## CONCLUSION

Neural therapy presents a valuable and innovative treatment approach for non-specific low back pain by targeting both functional and degenerative pain mechanisms. This study demonstrates its effectiveness in modulating the autonomic nervous system, alleviating myofascial dysfunctions, and addressing interference fields. By integrating neural therapy into a multimodal treatment strategy alongside manual medicine and conventional pain management approaches, clinicians can achieve superior therapeutic outcomes for patients with chronic NSLBP.

The case study included in this research further highlights the necessity of an interdisciplinary approach. Structural abnormalities detected via imaging do not always correlate with clinical symptoms, reinforcing the importance of functional and regulatory considerations in pain management. The successful resolution of pain in a patient with long-standing NSLBP following neural therapy interventions emphasizes its role as a critical component of modern pain therapy.

In Turkey, as in Germany, low back pain is associated with high costs and the long-term effectiveness of conventional treatment modalities in chronic cases remains limited. This situation calls for the evaluation of regulatory medicine treatment approaches that can provide more sustainable pain management and functional improvement.

In conclusion, neural therapy holds great promise for managing NSLBP and should be considered a first-line or adjunctive treatment for chronic pain patients. However, further clinical trials and mechanistic studies are essential to solidify its role in contemporary medicine and refine treatment protocols for maximum patient benefit.

- Chronic lumbar pain requires an interdisciplinary diagnostic and therapeutic approach.
- Structural findings in imaging do not always correlate with pain intensity.
- Diagnostic test infiltrations are valuable for assessing the functional interconnections of the lumbar-pelvic-hip region.

This case demonstrates that the most prominent pathology in imaging is not always the primary cause of pain. Addressing autonomic and functional factors, mainly through neural therapy, is a crucial component in the management of complex conditions and should be considered an integral part of multimodal pain therapy.

Neural therapy has shown potential in several studies for treating various pain syndromes. However, the current level of evidence remains insufficient to issue a general recommendation for its widespread application. Further large-scale, methodologically robust studies are needed to clearly define the efficacy and safety of neural therapy.

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## DECLARATION OF CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest related to this publication and no competing interests to disclose.

The authors confirm that no competing financial interests are associated with this work.

No human or animal studies were conducted by the authors for this contribution. The studies mentioned in this publication adhere to the ethical guidelines specified in their respective sources.

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### Authors' Contributions

The contributions by **H. Nazlikul** and **F.G. Ural Nazlikul** are equally important throughout the article and are decisive for organizing the content.

N. Özkan and Tijen Acarkan contributed significantly to the case series by retrospectively analyzing patient data on neural therapy for chronic back pain (2019–2024) from the Natural Nazlikul Clinic.

M.A. Elmacioglu devoted himself to the comprehensive analysis of relevant literature with a special focus on the mechanisms of action of the local anesthetics lidocaine and procaine with pain and inflammation.

Y. Tamam supported the work with a detailed literature review on non-specific back pain, mainly focusing on the roles of muscles, ligaments, and fascial structures.

M.D. Bilgin contributed his expertise in lumbar biophysics, segmental supply, and the autonomic nervous system (ANS) and assisted in the drafting and revision of the article.

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The authors declare no conflicts of interest related to this publication.

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### Ethical Approval

Not applicable.

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Not applicable.

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