# Naprapathic Manual Intervention for Neck and Back Pain

Alexjandro Daviano, DrPH, $DO_{(EU)}$, MSDS, MPH, NRP, LP

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# Abstract

Neck and back pain are among the more common chronic and costly conditions treated in primary care today. Individuals with back pain have, on average, a 60% higher expenditure on healthcare costs. At the same time, the prevalence of neck pain, on an annual basis, has ranged between 30% and 50%, based on evidence in the 2000–2010-decade reports. There are many causes of back and neck pain. More commonly known reasons are aging, habits, trauma, strains, injuries such as broken bones, structural problems, genetic or congenital conditions, and systemic problems. Naprapaths have a wide range of techniques that can be used alone or together with traditional medicine and care. Naprapaths will use movements that involve torque, traction, jamming, shaking, oscillation, compression, certain side bending, shearing, or some combination of the techniques. These techniques will allow naprapaths to work with the tissues, ligaments, and tendons and help gently approach the restoration of range of motion, circulation to the joint, and function. Some existing evidence states that naprapathy is safe, effective, and beneficial to non-cancerous and non-specific neck and back patients, translating to improvements in pain, function, and quality of life.[35] To date, the studies and research that have been conducted with naprapathic medicine and NMT have been reassuring and optimistic, but further research may be needed to strengthen the positioning of NMT and other naprapathic techniques and treatments in the future.

# Introduction

Neck and back pain are among the more common chronic and costly conditions treated in primary care today.[1] Individuals with back pain have, on average, a 60% higher expenditure on healthcare costs.[2] At the same time, the prevalence of neck pain, on an annual basis, has ranged between 30% and 50%, based on evidence in the 2000–2010-decade reports.[3] Both are major chronic and acute pain burdens worldwide and cause large amounts of disability, loss or work, loss of productivity, and consumption of medical services globally.[4-6] With literature on naprapathic manual treatments being sparse, and some literature even stating that there does not appear to be a difference in the available treatments today; further exploration of naprapathic manual treatment could gain insight into therapy that could be highly effective in decreasing neck and back pain cases worldwide.[7]

Moreover, it is shown that manual therapies and exercises have been proven to be valuable in the recovery and treatment of neck and back pain.[8] Specifically, naprapathic treatment was found to benefit individuals who have non-specific neck and back pain in the short and long term.[9] With the increase I the search for alternative medicines and modalities to care for chronic pain and ailments in todays society, naprapathic treatment for chronic pain such as neck and back pain may be viable alternatives for some patients.[8] Combining naprapathic treatments with exercises and even conventional medicine may also provide relief for some patients given the current prevalence of the conditions.[3-10]

# The Prevalence of Back and Neck Pain

The prevalence of back and neck pain, as stated above, has been growing over the past 20 years. Back and neck pain are some of the leading causes of disability and inactivity as well as other health issues related to physical inactivity.[2, 11] Back pain tends to be one of the most common reasons for missed work with over 264 million lost workdays per year and 577 million cases per year worldwide.[12-14] Back pain was found to be prevalent in 3.9% to 20.3% of adults over 18 years of age, and it is seen that back pain is the third most common reason for primary care visits.[15-16]

There may be variation in the definitions of neck pain with a lack of homogeneity in studies, making it hard to gather definitive numbers.[17-18] However, there is a higher prevalence generally found in women, in higher-income countries, with a peak around 45 years of age.[17, 19-20] Neck pain was more prevalent globally with a point prevalence at 4.9%, an annual prevalence ranging from 30% to 50%, and a lifetime prevalence between 22% to 70%.[18, 21-22] It was further suggested that 30% of individuals with neck pain would develop chronic symptoms, with over 37% possibly showing persistent symptoms beyond one year.[22]

# The Etiology and Diagnosis of Back and Neck Pain

As stated above, there is hardly a consensus on what is considered back or neck pain, especially depending on the area of the body the pain is located.[17-18] There are many causes of back and neck pain. More commonly known reasons are aging, habits, trauma, strains, injuries such as broken bones, structural problems, genetic or congenital conditions, and systemic problems.[23-24] Investigators have found that individuals may be at higher risk to develop neck pain if they tend to be overweight, smoke, are female, have osteoporosis, and get too much or not enough exercise.[23] Further, neck pain is most commonly caused by the wearing out of the neck muscles, joints, and nerves through overuse, bad posture, injury, disease, and compression.[25] Stenosis is also one of the many conditions that can cause different problems with neck pain. With the increasing usage of technology and advancements that require less effort to perform, we find ourselves in compromising positions such as hunching over workbenches or computers for long extended periods.[25] This tends to strain muscles in the neck with worsening effects over time.

Back pain also takes different forms, with each area of the back vulnerable to varying types of pain. As one of the leading causes of doctor visits, disability, and missed work, back pain is common among people worldwide.[26] There is mid and upper back pain, lower back pain, and sacroiliac and coccyx pain, all of which can be, and are, described as back pain among patients seeking treatment.[23] One must narrow down which pain is present first, and only then can the causes and sources of the pain be explored. However, one of the main problems of treating back pain is that often, back pain can develop idiopathically or without a cause that your doctor can discern with imaging or tests.[26] This may lead to the more obvious and commonly linked reasons

such as conditions like muscle or ligament strain, ruptured or bulging discs, arthritis, and osteoporosis being investigated first.[26]

However, there are many ways that back pain can develop, and other treatment methods may be better suited to help patients with them. Everything from bad habits to genetic and congenital conditions possibly being the culprits finding the cause may be a lengthy process for individuals experiencing back pain. The length of the investigation is because there is a long list of causes to back pain when considering multiple types of back pain, including comorbid conditions such as obesity and fibromyalgia.[27] Overall, back pain can be elusive to providers, which is why there may need to be more evaluations done by alternative sources in conjunction with just going to a general practitioner for back pain. Nonetheless, with the different intricacies and nuances of identifying back and neck pain, diagnosing either of them can be difficult.

Currently, there are many methods used to diagnose different forms of back and neck pain. Therefore, the diagnosis then depends on the presentation of the pain to the patient. The different techniques used are similar for both conditions but slightly different. While both visits to your healthcare provider may start the same, such as taking a medical history and doing physical exams, some things will differ.[28] During a physical exam for neck pain, your healthcare provider will check for signs of numbness, tenderness, muscle weakness, and your backward and side-to-side range of motion.[28] To be thorough with the physical examination, your provider may also complete palpation of the site(s), muscle power tests, observations, check reflexes, and assess sensations.[29] However, as stated above, if nothing stands out to the provider during the physical examination that may fall into a more common diagnosis category for neck pain, your history, and recent activity could play a significant role with the physical examination for the diagnosis or treatment you go on to receive.[29]

While providers can check for neck pain with range of motion and other indicators, back pain can be a bit more challenging due to possible engagement with multiple areas of the back, and different ligaments, muscles, and tendons that can be involved around the body. The check would occur after a complete history and understanding of recent activities has been taken and included in pointing the direction of the included examinations. The physical exam for the back may differ from the neck a bit because your provider may look for multiple ranges of motion and sensations in different areas of your body. There are many causes of back and neck pain. More

commonly known reasons are aging, habits, trauma, strains, injuries such as broken bones, structural problems, genetic or congenital conditions, and systemic problems.[30-31]

While the physical examinations and the questions asked for neck and back pain may slightly differ, they may entail some labs, tests, and imaging to further determine the more specific cause. Neck pain diagnosis tends to share the same imaging and labs with back pain. The imaging may progress between X-rays, CT scans, and MRI scans.[28-29] Blood tests and electrodiagnostic tests may also be an option for the healthcare provider. Tests such as electromyograms (EMG) help test electrical activity in the muscles and, in some cases, nerve conduction studies (NCS) exams due to the possible need to check the activity of nerves in the arms and legs and proximal areas of the pain.[28-31] In some instances, there may also be the need for diagnostic injections to see if the injections may stop the pain, and a more precise cause/location can be found. [29, 31-32] It is also said that healthcare providers may have to conduct a bone scan to search for tumors, growths, and compression fractures from osteoporosis, in rare cases.[32] In other rare cases, lumbar puncture (spinal taps) and a urinalysis may need to be completed to check for infections that could be the cause of particular pain as well.[28, 32]

# The Symptoms of Back and Neck Pain

Given that there are many different causes and diagnoses for neck and back pain, there will be many different symptoms associated with the other conditions, infections, or just habits causing the pain. Further, there are many different reasons the symptom could appear to the healthcare provider, which is why it is crucial to ensure there is a thorough exam and tests completed to get as close as possible to the cause. However, in some cases, differentiation can prove difficult because some of the same symptoms could be caused by entirely different reasons. One should know the different signs and symptoms accompanied by both types of pain.

Some symptoms can be shared by neck and back pain, and some can be specific to the region itself. Some of the commonly shared symptoms of neck and back pain are muscle aches, muscle spasms, shooting pains, pain radiating down from the tender area, pin and needle sensations, numbness, dysfunction (when one can’t stand straight or twist the neck), worsening pain with

activity, pain that gets better when lying down, and stiffness.[23] These are all symptoms that individuals with either pain can present with and have. However, some things are more centered around the different conditions.

Neck pain has some symptoms that are more specific to its etiologies. Certain traumas like whiplash are also more common to pains felt in the neck. Distinct postural and mechanical bases are often seen in neck pain and cervical spondylosis, a more non-specific pain in the neck.[33] Also, radicular pain, cervical radiculopathy, trouble gripping or lifting objects, and sharp pains may be present in those experiencing nerve pain. In some instances, these pains tend to radiate and tingle in and around the neck and specific areas such as the arms.[29] Further, headaches have been shared among patients with neck pain. They can have slow or fast onset with different types such as tension, occipital, and cervicogenic that all can lead to the debilitation of the patient.[29]

Neck pain can also present in different forms and have a slow, immediate, delayed, or sudden onset.[29] These onsets may also influence when the pain resolves as well as how. Some pain may resolve within minutes, and others may not go away for days or become intermittent.[29] Moreover, the pain may be exacerbated by different occurrences such as sneezing, activity or movements, and even coughing.[29] Some neck pain may even be caused by rare or more severe conditions and present with signs and symptoms such as myopathic pain that radiates to the arms and legs, numbness, tingling, and weakness (in the arms or legs specifically), coordination, and balance problems, unintended weight loss, loss of bowel or bladder control, fever or chills, and severe headaches that may classify as migraine-like with a stiff neck.[29] For these and other reasons, neck pain should be taken seriously and checked by a healthcare professional if it persists or is causing debilitation.

Back pain may also have specific pains that will differentiate it from neck pain as well. In general, back pain that persists for weeks, prevents rest, spreads down the legs, causes weakness, numbness, or tingling in the legs, or is accompanied by weight loss should always be examined further for a severe condition.[26] These are signs of a possible deeper cause and a more severe root to the pain. For the sake of this investigation, we will look at lower back pain from this point on to provide a more specific set of symptoms for the most common type of back pain.[34] Common lower back pain symptoms tend to be dull aches in the low back region, pain that travels between the buttocks, legs, and feet, pain that gets worse with prolonged sitting, pain that

feels better when one changes position, pain that is worse after waking up and subsides after moving around a while.[31]

Back pain can also have different times to onset and duration. Pain can be slow, intermittent, sudden, or delayed and can range from areas like L3-L4, L4-L5, and L5-S1.[31] All of the specific areas that the pain is located can tell us a bit about the symptoms from that region. It has been found that pain at L3-L4 is usually shooting pain and can cause neuropathy and nerve root ends.[31] Pain at L4-L5 may typically manifest as sciatic pain and radiate as far as the calves.[31] and pain at L5-S1 is usually caused by joint problems in the sacroiliac region.[31] More severe pain that more rare and extreme conditions can cause can show symptoms such as loss of bladder and bowel control, weight loss not due to lifestyle changes (diet or exercise, etc.), fever or chills, or severe unrelenting pain that may radiate to the abdomen.[31] Overall, back and neck pain can be very challenging to spot, but the above symptoms may help narrow down causes and etiology for many.

# Why Naprapathic Manual Therapy (NMT)?

When neck or back pain is diagnosed or suspected in a patient, different things may help alleviate pain for the patient and possibly stop the progression or exacerbation. However, the conditions may become chronic or not resolve on their own, but these conditions can be found early if recognized.[35] In cases where either condition implores a patient to seek help for their pain, many healthcare providers will recommend similar treatment options based on what they find.[35] Many providers find themselves deploying their knowledge of everything from pharmacological to non-pharmacological interventions. However, despite many options to treat neck and back pain, the long-term effectiveness and safety of many interventions available have yet to be well-established.[35] Though there still needs to be more studies conducted, some existing evidence does state that using NMT has shown some improvement of pain, functional status, and health-related quality of life for chronic and non-cancer back and neck pain patients.[35]

Manual therapy is an effective treatment when performed by skilled care providers such as naprapaths, physiotherapists, osteopaths, and chiropractors.[9] Spinal manipulation and forms of

massage therapy have all been stated to be a treatment option as effective as standard treatments based on systematic reviews and meta-analyses and even part of the national guidelines for treating back pain in most countries.[36-39] However, a minority of the evidence-based guidelines for the use of SMT for neck pain do not recommend it; and the use of massage, while being effective for back pain, at this time its use for neck pain remains inconclusive.[38, 40-41] Nevertheless, naprapathic therapy can be described as manual techniques that combine massage, muscle stretching, spinal manipulation, and spinal mobilization.[9] With that in mind, naprapathy (in the above mention combination of therapies) is effective for non-specific back and neck pain in both acute (12 weeks and below) as well as chronic (52 weeks) patients.[9-10]

When a provider is trying to mitigate a patient's pain, regardless of it being chronic or acute, the different modalities and treatments that will be best suited for them based on their presentation and symptoms should be considered. Naprapathic therapy should be regarded as an effective, safe, and valid option where it is available for non-specific neck and back pain. Naprapathic therapy was shown to greatly improve over non-specific back and neck pain in both the acute and long-term periods.[9] Given the number of cases worldwide of non-specific neck and back pain and it being as effective as other primary care options, NMT should be increasingly utilized to address this increasing issue among patients.[26]

# Treatment with Naprapathic Manual Therapy

Naprapathic techniques were adapted from osteopathic techniques, created by Dr. Andrew Taylor Stil in the 1800s, and chiropractic techniques, developed by Daniel David Palmer in the late 1800s, by Dr. Oakley Smith in the early 1900's who studied under both.[42] With naprapathy, there was a desire to focus on myofascial and connective tissue injuries and dysfunction.[42] Naprapaths have a wide range of techniques that can be used alone or together with traditional medicine and care. Naprapaths will use movements involving torque, traction, jamming, shaking, oscillation, compression, certain side bending, shearing, or some combination of the techniques. These techniques and methods will allow naprapaths to work with the tissues, ligaments, and tendons and help gently approach the restoration of range of motion, circulation to the joint, and function. Eventually, the joints begin to loosen and go back to the positioning that allows them to

be comfortable enough to extend and flex as they did naturally. If this sounds familiar, this is very similar to osteopathic techniques from which they were developed.

However, a naprapathic clinician can provide many different treatments that will specifically target joint and connective tissue pain, manage the chronicity of the pain, and ultimately help maintain or improve the range of motion for a patient. For back and neck pain, a naprapathic practitioner could use a combination of non-invasive techniques, as mentioned, to help improve function. Naprapaths also use trigger point releases, dietary help, and exercise techniques in conjunction with the above methods to help restore, increase, or maintain the health and natural size and flexibility of joints, connective tissues, tendons, ligaments, and even help with cartilage articulation. Moreover, with the gentle and targeted focus of naprapathic manual techniques, naprapaths manage dysfunction, decrease musculoskeletal pain, rehabilitate chronic pain, and improve the body's overall function over time.[43]

Once a workup and history are taken from the patient, just as an osteopath or chiropractor would, the patient is placed in a position that will best stretch the muscles without further injury and help approach, and eventually pass, the dysfunctional barrier.[44] Further, the connective tissues and ligaments are found and loosened for gentle articulation and oscillation to help mold them back toward where they naturally function. To help with the treatment of the neck while the patient is sitting up, we would palpate and motion-palpate for restrictions in range of motion, misalignments, and tenderness. The assessment would help to understand what techniques or treatments may be needed to help the patient. If treatments are necessary for the patient, one will oscillate the area in a floating position to help gently move the vertebrae. This movement will help the patients' ligaments start to loosen and work back toward the natural function and start the path to reducing pain. Also, be careful with those who may have vertigo due to possibly getting dizzy, so be careful and make sure the patient is supported.

If we wanted to treat the patient's neck while in a prone position, we would start at the occiput to palpate down the neck's vertebrae to help find the problem area that may be causing tenderness, misalignment, or pain. Once we find the problem area, we would then use our thumb to contact the lamina grooves between the transverse process and the spinous process, rotate (slightly bending the patient's neck), and gently oscillate the patient's neck. This treatment should not cause any further pain to the patient. The naprapath is looking to loosen the tightened ligaments

and tighten the loose ligaments to help stimulate them and help with the soreness and pain. This pain could be due to any type of hyperextension, traumas, or sudden jerks that could cause any misalignments. This technique helps naprapaths treat the lower cervical and upper thoracic vertebrae and relieve pain.

A very effective technique for the back would be one where the patient is still prone to help us focus on the thoracic spinal area of the back. This technique can be beneficial for both the thoracic spine as well as the ribs. The treatment would be looking to unwind or unbuckle the ligaments in the area to help release the fixation of the joints and treat and restore range of motion. There are approximately 27 ligaments in each vertebral segment that would attach the segments to structures above and below. These connections make for many areas in the back that could cause misalignment and pain to the patient. To treat the spine and rib cage, one uses the thumbs and palpates and contacts the first rib, then rotates the neck left and rotates the head right slightly. This position will help oscillate the first rib when it is possibly tightly stuck to the second or has a low range of motion. The oscillation can be medial-lateral, ventral-dorsal, as well as caudal-cephalic. These movements will help loosen the ligaments that attach around the trapezoid and the first rib to help release T-1 and the first rib.

Then to ensure T-1 was released, one will contact T-1's lamina groove between the spinous process and the transverse process with the thumb gently and then rotate the neck left and rotate the head right slightly. One then gently uses the head to help oscillate the tight and fixating ligaments of T-1 to loosen and force the joint to reassess. This technique may need to be done for at least five to seven seconds to help us ensure the release of the 27 ligaments and connectors to ensure the movement and free-range of the joint in question. This technique would help address upper back pain and stiff/tightness where there is a lack of range of motion. One would then move down the spine to assess the rest and use the pad of the hand to oscillate the remaining top three vertebrae.

Further, one would use their hands to use traction and pull from side to side on the lamina grooves and spinal process to help us oscillate the lower thoracic vertebrae. This movement will help to loosen and release the more inferior ligaments surrounded by more tissue. The posterior to anterior, medial-lateral, and ventral-dorsal motions will benefit most in the lower back area to help with the ligaments in question. The mentioned techniques are just some of the methods that

could help with neck or upper and lower back pain. One should always be mindful of the amount of pressure used to help circulation and pain in the areas being treated so further pain is not caused. Finally, all should consider NSAIDs and other exercises and stretches with these treatments due to some possibly leaving the patient feeling sore. Over time, treatment will improve the range of motion, circulation, and articulation of the neck and back and perhaps help a patient not need further invasive interventions such as surgery, like other mentioned osteopathic and chiropractic areas.[44]

# Conclusions

There are many reasons that patients may develop neck and back pain. As stated above, both are major chronic and acute pain burdens worldwide and cause large amounts of disability, loss or work, loss of productivity, and consumption of medical services globally.[4-6] Making sure to not only distinguish between severe incidents that may need drugs or even invasive surgery but the chronic and more insidious versions of this condition are found and treated is essential. When the chronic and persistent pains and aches of ligaments, joints, and tissues with further articulation, movement, and functionality problems are present, naprapaths are best positioned to treat patients that meet these descriptions effectively. Especially in the cases of neck and back pain, many naprapathic manual techniques and methods could and should be leveraged to treat these patients successfully.

However, any refractory symptomology and treatment pain may identify a deeper problem and should always be referred for further imaging and surgical intervention. It has been shown in the studies above that there is some existing evidence stating that using NMT is safe, effective, and beneficial to non-cancerous neck and back patients, translating to some improvements in pain, function, and quality of life.[35] To date, the studies and research that have been conducted with naprapathic medicine and NMT have been reassuring and optimistic, but further research may be needed to strengthen the positioning of NMT and other naprapathic techniques and treatments in the future.

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