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# The Essential Role of Physical Therapy in Managing Neck and Back Pain Related to Occupational Problems

**Maheshkumar Baladaniya[1]* and Shraddha Baldania[2]**

[1]Physical Therapist Neighborhood Physical therapy PC, Brooklyn, NY, USA

[2]Exercise Physiologist Enjoy Rehab PT, PC. Woodbury, NY, USA

**ABSTRACT**

Neck and back pain are common occupational prob- lems, significantly impacting individuals' health and productivity. This abstract explores the vital role of physical therapy in managing these conditions. Based primarily on evidence-based guidelines and systematic reviews, this paper gives an overview of best practices for the role of physiotherapy in the management of back and neck pain. A structured approach is recommended, with the physiotherapist first taking a history and performing a physical examination to rule out any potentially serious pathology and identify any specific functional limitations. Physical therapy plays a crucial role in managing neck and back pain related to occupational problems. By addressing the underlying causes and providing targeted interventions, physical therapists can help individuals reduce pain, improve function, and remain productive in their work environment.

***Corresponding author**

Maheshkumar Baladaniya, Physical Therapist Neighborhood Physical therapy PC, Brooklyn, NY, USA.

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## Introduction

In the dynamic landscape of occupational health, the per- vasive challenge of neck and back pain emerges as a complex interplay of biomechanics, ergonomic factors, and individual health. This research paper, a synthesis of comprehensive insights drawn from three distinct sections, transcends dis- ciplinary boundaries to offer a holistic understanding of the multifaceted nature of occupational-related neck and back pain. As we delve into the intricate tapestry of prevention, intervention, and long-term well-being, the amalgamation of evidence-based practices and expert perspectives seeks to chart a course toward effective management strategies and improved quality of life for the workforce.

Occupational-related neck and back pain not only pose a considerable burden on individual well-being but also impact workplace productivity and economic stability. The initial segment of this paper lays the foundation by emphasizing the pivotal role of physical therapy in navigating the landscape of neck and back pain. Through a rigorous exploration of ergonomic interventions, posture education, and the synergistic effects of exercise regimens, this research unveils the potential for mitigating strain, enhancing biomechanical efficiency, and fostering long-term occupational health.

Moving beyond mere symptom alleviation, the subsequent section examines the intricacies of muscular imbalances and the importance of strengthening exercises in tandem with ergonomic interventions. Recognizing the interconnectedness of physical therapy and workplace ergonomics, this research underscores the critical role of physical therapists as health professionals capable of addressing musculoskeletal conditions related to occupational settings. By delving into the impact of muscle balance on posture, stability, and overall function, this section advocates for a proactive approach that extends beyond symptom management to prevent and address the root causes of neck and back pain.

The narrative culminates in an exploration of flexibility enhancement, range of motion exercises, and functional activities as integral components of physical therapy interventions. Acknowledging the interconnectedness of neck pain with reduced range of motion and muscular imbalances, this research elucidates the role of targeted exercises and stretches in promoting flexibility and preventing long-term discom- fort. By weaving together the threads of pain management, ergonomic education, and functional rehabilitation, physical therapy emerges not merely as a reactive measure but as a proactive approach to foster a pain-free, healthy working life. In conclusion, this research paper amalgamates diverse per- spectives, evidence, and strategies to present a comprehensive guide for healthcare professionals, policymakers, and individ- uals navigating the complex terrain of occupational-related neck and back pain. By emphasizing the symbiotic relationship between physical therapy, ergonomic interventions, and long- term well-being, this research aims to propel the discourse forward and inspire actionable steps towards a healthier, more resilient workforce.

## The Prevalence of Occupational Related Neck and Back Pain

Low back pain (LBP) and neck discomfort are major health issues in the working population, with serious ramifications for employees, companies, and society. According to national statistics, there was a rise in occupational incapacity due to back pain in the 1970s and 1980s [1,2]. However, it appears that the rise in occupational disability incidence peaked at the end of

the 1980s. Murphy et al analyzed numerous databases in the United States to find time trends in disability as a result of back pain and discovered that low back pain claim rates declined by 34% between 1987 and 1995 [3]. The increasing prevalence of occupational impairment in the 1970s and 1980s is attributed, among other things, to the expansion of the sickness concept. More subjectively described symptoms and mental disorders were also considered as a sufficient cause of impairment leading to access to occupational disability compensation from that point forward [4]. After back pain, depression, and other musculoskeletal disorders, neck pain ranks as the fourth most common cause of disability in the US, according to the Global Burden of Disease 2010 study.

Prevention of these symptoms is critical and can be divided into three categories: primary, secondary, and tertiary prevention. Primary prevention aims to avoid the emergence of symptoms in a healthy working population, whereas secondary prevention aims to aid in the recovery from early symptoms and lower the chance of symptom recurrence. The absence of defined clinical criteria and radiological definitions has made it difficult to conduct well-executed epidemiological research. When LBP is characterized simply by the severity of symptoms rather than impairment, there appears to be significant variation in the underlying etiology [5]. Work- ers in different occupational situations, such as health care, driving, manufacturing, general labor, maintenance, repair, and cleaning, are more likely to experience back discomfort [6]. Occupational-related back pain has increased in under- developed nations, where there is a lack of understanding of ergonomic difficulties, inadequate training, and problems are underreported [7]. Strengthening exercise, according to Hayden et al, is useful in lowering pain and increasing back function. Jensen discovered that strengthening and fitness programs reduced the occurrence of neck and back discomfort. Only 20% of working-age people with LBP seek medical attention, while only 20% report illness absence and 10% file a workers' compensation claim [8]. LBP is one of the most recently recognized reasons for work loss in the 45- 65 age range [9]. Because attention to return to work (RTW) is more significant than just treating injury or pain, clinicians must better grasp the work setting in connection to the patient's capacity and beliefs. In systematic reviews, factors such as strong physical demands, ability to adapt to work, social support, short employment tenure, job satisfaction, and worries of re-injury are predictors and drivers of impairment following LBP at work [10-13].

**The Expertise of Physical Therapists**

Exercises to actively perform specific motions are an important aspect of physical therapy. These workouts increase mobility, coordination, and muscle strength. Physical therapy involves several techniques to reduce musculoskeletal pain and stiffness and to assist you in regaining normal or near-normal physical function and mobility. It aids in your recovery after a traumatic accident or sports injury to your musculoskeletal system [11].

Physical therapy is one of the most popular treatments for ongoing neck pain. Most neck pain physical therapy programs entail using treatments to lessen pain and/or stiffness enough to begin an exercise program of neck strengthening and stretching. Physical therapy methods and exercises, as well as the duration of the treatment plan, can differ from person to person [10].

The following are typical goals of physical therapy for neck pain [10].

- Reduce pain and stiffness.
- Increase range of motion in the head and neck.
- Develop strength in the neck and support dynamic mus- cles.
- Implement techniques to prevent the recurrence of pain.

Even if discomfort cannot be eradicated, physical therapy can help improve neck posture and function for daily activities. Before referring a patient to a physiotherapist, a physician, usually a general practitioner (GP), would traditionally do a diagnostic triage. Thus, the doctor would have excluded potentially dangerous pathology (red flags). Physiotherapists, however, are now more frequently expected to be the first point of contact. Therefore, the physiotherapist must understand the warning signs. If any are discovered, they must be quickly re- ferred to a professional for more research. The physiotherapist and doctor or surgeon must have a tight working connection. Certain physiotherapists have the authority to send patients for MRIs and standard X-rays. In the orthopedic context, there is some evidence to support the use of MRIs, which marginally improves treatment outcomes [14]. The physical examination is done after the physiotherapist completes a subjective as- sessment (history). Effective diagnosis and treatment depend on actively listening to the patient's concerns about their pain, including its location and its effects as well as how it is managed. describing the illness to the patient [15]. Following the completion of the physical examination and the taking of the patient's history, the physiotherapist must carefully explain to the patient that no major illness or injury has been discovered. This could be the most crucial and difficult aspect of the therapy. Physiotherapists should refrain from feeding their patients' anxieties about potentially dangerous processes occurring in their spines. These worries or anxieties must be appropriately handled because they may operate as a roadblock to healing [16]. All patients with back and neck pain must receive active self-management training from their physiotherapist as part of their treatment regimen. The main objective is to assist patients in returning as soon as possible to their regular activities. A straightforward educational booklet based on evidence should be provided to support this advice [17,18].

**Pain Management and Symptom Relief**

Pain in the lumbosacral region, typically between the in- ferior gluteal folds and the lower edge of the 12th ribs, is referred to as lower back pain (LBP) and may or may not cause discomfort in the lower limb(s) [19]. Pain in the neck's anatomical posterior region, which extends from the superior nuchal line to the first thoracic spinous process, is commonly referred to as neck pain. It may or may not radiate to the upper limb(s) [20]. Improving patient function and assisting the patient in returning to their normal level of daily activity are the main objectives of treatment for neck pain and lower back pain. While several treatment techniques are employed, a biopsychosocial approach is advised by many practice guidelines, emphasizing self-management and psychological and physical interventions more than drug use and surgical intervention [21,22]. To facilitate a return to normal function and activity, nonpharmacological treatment strategies for acute musculoskeletal injuries should ideally promote muscle heal- ing in addition to reducing pain and any associated edema. In this context, the use of heat or cold therapy modalities is common. There is often misunderstanding regarding which modality (heat vs. cold), when and for how long to use it, and how each modality functions. It may also be unclear which medium is best for a given modality (dry heat vs. moist heat, for example). This practitioners with information on nonpharmacological treatment modalities, proper application of heat and cold therapies, and the postulated mechanisms through which Improvement transpires, and the

evidence that is currently available shows backs these strategies [23,24].

**Modalities for pain relief**

Heat: Heat can ease pain, induce relaxation, reduce spasms in the muscles, and increase the flexibility of periarticular structures and muscles. Both radiation (light) and conduction (hot pack, paraffin, water) can be used to provide superficial heat. Deep heat can be produced by ultrasound and diathermy. Heat is typically used in conjunction with other interventions, most frequently exercise, in physical therapy programs.

**Cold:** Cooling reduces inflammatory reactions and muscle spasms in addition to having a local analgesic effect. Changes in blood flow to muscles and nerves, decreased muscle spasms, altered neural transmission, or increased endorphin production can all contribute to the analgesic effect. Applying cold can be done with vapocoolant sprays, cold packs, ice massages, or immersion. Nothing suggests that a specific kind of cold application always yields better outcomes.

**Transcutaneous Electrical Nerve Stim-Ulation:** For both acute and chronic pain, transcutaneous electrical nerve stimulation, or TENS, is widely acknowledged as an efficacious pain management technique. The primary biophysical impact involves activating afferent nerve fibres, which either relay or impede harmful stimuli from the spinal cord to the brain. The gate control theory of pain provided the original justification for the use of TENS.

**Topical Applications:** A common self-management technique is applying ointments to tender muscles and joints. The anti-inflammatory effect of the traditional preparations, the therapeutic benefits of massage, or the potency of placebos could all be responsible for pain relief. Topical applications with active ingredients aimed at achieving neuromodulation effects are also attracting attention these days.

**Posture and Ergonomics Education**

Ergonomic workstation configuration reduces strain, enhances biomechanical efficiency, and increases productivity. Workflow refers to the procedures, techniques, and motions needed to carry out job duties. Workflow modifications can lower the risk of injury by avoiding tiresome, repetitive, and repetitive tasks. While ergonomic interventions and education seem to be beneficial in the prevention and management of WMSDs, their effects seem to be amplified when coupled with strengthening and stretching exercises. Stretching exercises should focus on muscles that are prone to shortening and hypertonicity, such as the upper trapezius, rectus femoris, pectoralis major, lower erector spinae, and iliopsoas [25,26]. Office workers are more likely than workers in any other occupation to experience neck pain; the annual prevalence ranges from 42 to 63neck pain on the employee's performance, health, productivity, medical expenses, and com- pensation claims affects not only the employer but also the socioeconomic burden [27]. To ensure that an individual's physique remains stable and in proper alignment, workstation design is essential [28].

- Feet required to be supported.
- 90-degree bent knees and parallel thighs to the floor.
- To preserve the spine's natural curvature, lumbar support must be given.
- The desk or armrests should be used to support the elbows.
- The monitor must be placed at eye level or slightly below, and a distance of about an arm's length.
- The person shouldn't have to turn their body to get to the desk or computer.
- Enough room for the legs is also essential.

Physical therapists are health professionals who can help pa- tients with various musculoskeletal conditions, including those related to workplace ergonomics. The science of creating and organizing the work environment and tasks to accommodate an employee's physical capabilities and limitations to prevent or lower the risk of illnesses and injuries is known as workplace ergonomics [28]. Physical therapists educated patients on proper workplace ergonomics by [29,30].

- Completing a comprehensive evaluation of the patient's functional abilities, work demands, medical history, physical examination, and ergonomic risk factors.
- Offering specific advice and solutions to help the patient with their posture, body mechanics, movement patterns, and work habits.
- Addressing the patient's pain, inflammation, muscle weakness, joint stiffness, and nerve compression by prescribing therapeutic exercises, manual therapy, modali- ties, and assistive devices.

**Strengthening and Muscular Imbalances**

Physical therapy is a form of health care that aims to improve the function and quality of life of people with various conditions, injuries, or disabilities. One of the goals of physical therapy is to identify and address muscular imbalances, which are situations where some muscles are weaker, tighter, or less coordinated than others. Muscular imbalances can cause pain, stiffness, poor posture, reduced range of motion, and increased risk of injury. The most prevalent musculoskeletal ailment, low back pain accounts for approximately 65 million years of disability annually worldwide [31]. Although there are many different causes of low back pain, physical therapy combined with exercises for strengthening the lumbar, abdominal, and lower extremities are common treatments for the condition. The hip joint serves as the structural connector between the axial skeleton and the lower extremities as part of the multiplane movement of the pelvic girdle. Depending on the movement, the joint itself can disperse forces that range from to 5.0 times body weight. [32]. The core and supporting muscle groups are important for maintaining good posture, balance, stability, and movement. Strengthening these muscles can help prevent injuries, improve performance, and enhance well-being. Some exercises and techniques can help strengthen the core and support muscle groups, depending on your fitness level, goals, and preferences. With these high energy levels, changes in stance or gait can undoubtedly result in pain and overuse injuries. The kinetic chain theory, which explains how injuries move from distal to proximal structures, has been the focus of several studies. For example, Nader et al. have multiple supporting articles that describe the development of low back pain, particularly in female athletes, about unilateral hip extensor weakness and hip flexor imbalance [33]. Sim- ilarly, patients with chronic low back pain have frequently been found to have weakening and tenderness in the gluteus medius, which was also associated with a higher prevalence of a positive Trendelenburg sign [34]. Muscle balance is the state of equilibrium between opposing muscle groups that allows for normal movement and function. Muscle imbalance, on the other hand, is the condition where one or more muscles are weaker, stronger, looser, or tighter than normal, resulting in limited mobility, pain, unbalanced appearance, and increased risk of injury [35]. Restoring muscle balance is important for pain reduction because it can help correct the underlying cause of the pain and improve joint alignment and stability. Some of the ways

to restore muscle balance are [36,37].

- Performing core stabilization exercises that target the deep muscles of the trunk and pelvis, such as the transver- sus abdominis and the multifidus. These exercises can improve proprioception, balance, and muscle thickness, and reduce functional disability and fear of movement in patients with subacute nonspecific low back pain.
- Performing strengthening exercises that target the weak or underdeveloped muscles, such as the rotator cuff muscles in the shoulder or the gluteus medius in the hip. These exercises can increase muscle mass and force production, and prevent muscle atrophy and joint degeneration.
- Performing stretching exercises that target the tight or overdeveloped muscles, such as the pectoralis major in the chest or the iliopsoas in the hip. These exercises can increase muscle length and flexibility, and prevent muscle spasms and joint stiffness.

By restoring muscle balance, you can improve your posture, movement, and function, and reduce your pain and discomfort. You can also prevent further muscle imbalances and injuries, and enhance your overall health and well-being.

**Flexibility and Range of Motion Enhancement**

Neck pain reduces the range of motion (ROM), which may be related to mechanical constriction between two or more vertebrae, according to Hanten et al. and Lee et al. Barnsley states that discomfort, muscular spasm, bone ankylosis, or fiber contracture can all result in this kind of limitation. Because of the shortening and greater activity of the suboccipital, sternocleidomastoid, upper trapezius, pectoralis, and rotator cuff muscles, a patient with neck pain may also exhibit an imbalance in their posture. Low back pain can have a variety of causes. However, the development of low back discomfort is mostly caused by soft tissue injury and a decrease in the trunk's muscular strength. Com- pared to normal people, patients with low back pain may produce aberrant coupling motions and vertebral movement imbalance in trunk flexion or extension. Most patients with functional failure of the vertebral joints have found relief from discomfort and an increase in spinal range of motion after spine manipulation therapy. Here are some neck flexibility exercises that can help you relieve tension, improve posture, and prevent neck pain [38-45].

**Neck Circles:** This dynamic exercise helps to loosen up the muscles that support your head's erect posture throughout the day. Here's how to circle your neck safely (Figure 1): For this stretch, you can begin sitting or standing. Regardless of the posture you select, keep your spine neutral and tense your core (no hunching or arching). Position your chin forward and chest high. Limit your descent to the point where you experience a profound elongation rather than discomfort. Tip your head forward slowly to start drawing a circle. Pause for a moment when your chin reaches the center. Bring your right ear to your right shoulder to complete the circle. Now, you should feel the stretch on the left side of your neck. Continue the circle by tipping your head backward, pausing again when your chin reaches the center and points up to the sky. Once you've completed the circle, look back at the beginning position. Make eight or ten circles. If you find it uncomfortable to tilt your neck backward—a unpleasant experience for some people—stick to half circles and move your left to right.

Shoulder Rolls: Those who spend their days hunched over a computer screen will find relief from their aches and pains with this stretch. Here's how to do shoulder rolls (Figure 2): You can begin seated or standing for this stretch. Either way, straighten your back and bring your shoulder blades down to project a tall, proud stance. As high as you can without stooping, shrug your shoulders in the direction of your ears. Pull your shoulders down and back when you've reached the end of your range of motion. Tighten your back muscles and then push your shoulders back up and forward. Perform ten to fifteen shoulder rolls, taking a 30-second break before beginning another set.

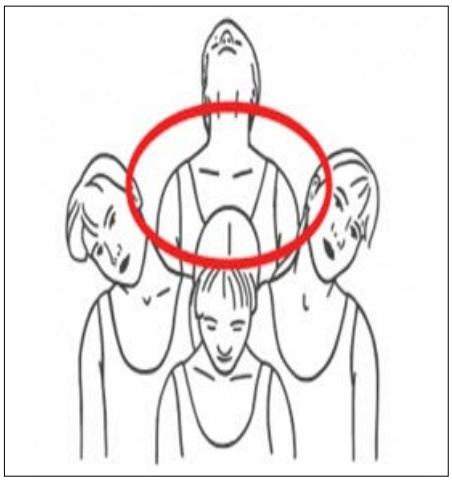

**Figure 1:** Neck Circles

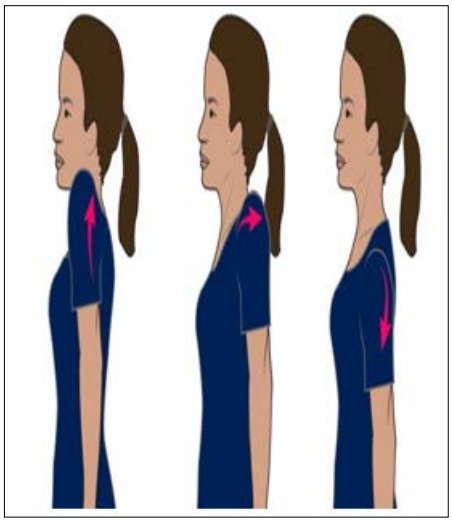

**Figure 2:** Shoulder Rolls

to project a tall, proud stance. As high as you can without stooping, shrug your shoulders in the direction of your ears. Pull your shoulders down and back when you've reached the end of your range of motion. Tighten your back muscles and then push your shoulders back up and forward. Perform ten to fifteen shoulder rolls, taking a 30-second break before beginning another set.

**Thread the Needle:** This stretch targets the upper back and neck muscles. Here's how to do it (Figure 3): Begin on your hands and knees in a tabletop position. Reach your right arm underneath your left arm, threading it through the space between your left arm and left leg. Bring your right ear and shoulder down to the floor. After 30 seconds of holding, switch to the other side.

**Cat-Cow Pose:** This yoga pose stretches the neck, back, and chest muscles. Here's how to do it (figure 4):

**Figure 3:** Thread the Needle

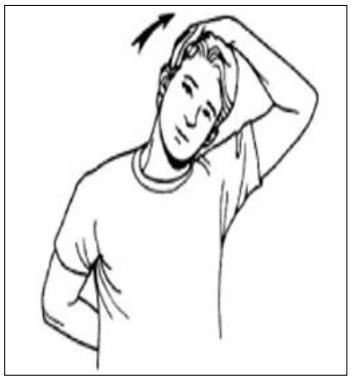

**Figure 4:** Cat-Cow Pose

Begin on your hands and knees in a tabletop position. Taking a deep breath, raise your head and tailbone toward the ceiling while arching your back. Pull your tailbone in the direction of your knees, bury your chin into your chest, and release the breath. Repeat for 10 to 15 breaths.

**Upper Trapezius Stretch:** The huge, dense muscle that starts in your neck, runs the length of your shoulders, and passes through your mid-back along both sides of your spine is the goal of this stretch: the trapezius. This is how you do it (Figure 5): Taking a chair, sit up straight, with your shoulders relaxed and your head facing front. Place your left arm behind your back. Tilt your head toward your right shoulder as far as is comfortable, feeling the stretch on the left side of your neck. Increase the duration of the hold from five to fifteen to thirty seconds. Turn your head toward your left shoulder and repeat on the other side, gripping the chair with your right hand. Repeat each side of the stretch two to four times. As you bend your head, don't forget to keep your shoulders down. Gently pull your neck toward your shoulder with your hand if you'd want an additional stretch. You can reach across your chest with the other hand to hold that shoulder down if you'd rather than grasp the chair. Here are some back flexibility exercises for back pain [46].

**Figure 5:** Upper Trapezius Stretch

**Knees-to-chest backstretch:** This dynamic exercise helps to loosen up the muscles that support your head and maintain it erect throughout the day (Figure 6). Lay on your back with your knees bent and your feet flat on the floor to complete this stretch. Pull your legs toward your chest by placing your hands on the backs of your thighs or beneath your knees. Pull until a light strain is experienced. For fifteen seconds, hold.

**Supine twist back stretch:** This stretch targets the upper back and neck muscles (Figure 7). Laying on your back with your knees bent and your feet flat on the floor is how you perform this stretch. Rotate your hips to the left while maintaining a flat back. Lower your legs to the floor until you feel a light stretch. For fifteen seconds, hold. Go back to where you were before. Then, when you bring your legs to the floor, swivel your hips to the right until you feel a slight stretch. Return to the starting position.

**Supine abdominal draw-in back stretch:** This stretch activates the deep core muscles that support the spine (Figure 8). Laying on your back with your knees bent and your feet flat on the floor is how you perform this stretch. Draw your belly button in toward your spine, flattening your lower back against the floor. Hold for 5 seconds.

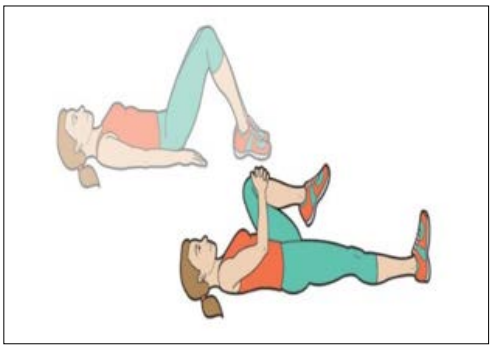

**Figure 6:** Knees-To-Chest Backstretch

**Figure 7:** Supine Twist Back Stretch

**Functional Activities and Pain-Free Work**

Physical therapy is a form of treatment that aims to relieve pain, restore function, and prevent recurrence or exacerbation of neck and back pain. It can use various interventions, such as manual therapy, exercise, education, counseling, elec- trotherapy, traction, and ergonomics, to address the physical, psychological, and environmental aspects of neck and back pain [47]. Physical therapy can help individuals regain their ability to perform work duties without discomfort by im- proving the range of motion, muscle strength, coordination, and stability of the spine, as well as reducing the stiffness, tension, and inflammation of the neck and back muscles. It can also help individuals transition to functional activities and work-related tasks that are relevant and meaningful to them, such as lifting, carrying, bending, reaching, sitting, standing, or walking, and gradually increase the intensity, duration, and frequency of these activities. Physical therapy helps individuals regain their ability to perform work duties without discomfort by addressing the causes and consequences of neck and back pain. Some of the ways that physical therapy can help are [47-49]. For the purpose of treating neck discomfort, physical therapy may employ manual therapy methods such dry needling, myofascial release, trigger point therapy, and cervical spine mobilizations and manipulations. It has also been demonstrated that electrotherapy modalities like TENS, laser, and infrared therapy can successfully lessen neck discomfort. Physical therapy can encourage the patient to maintain a healthy lifestyle, such as regular physical activity, a balanced diet, adequate sleep, and stress management, to prevent the recurrence or exacerbation of the pain. Neck and back pain are common musculoskeletal conditions that can affect the quality of life, work performance, and mental health of individuals. They can be caused by various factors, such as injury, posture, stress, aging, or disease. They can also lead to chronic pain, disability, and reduced function. Physical therapy is a form of treatment that aims to relieve pain, restore function, and prevent recurrence or exacerbation of neck and back pain. Physical therapy can use various interventions, such as manual therapy, exercise, education, counseling, elec- trotherapy, traction, and ergonomics, to address the physical, psychological, and environmental aspects of neck and back pain. Flexibility exercises are an important component of physical therapy, as they can improve the range of motion, muscle strength, coordination, and stability of the spine.

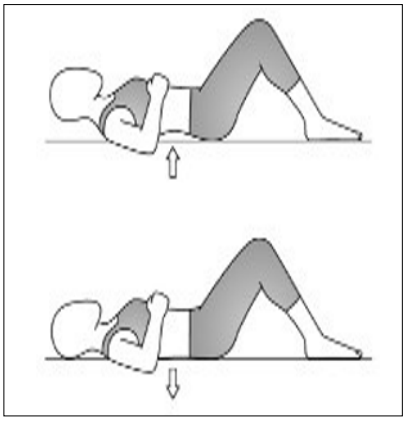

**Figure 8:** Supine Abdominal Draw-In Back Stretch

**Preventing Recurrence and Long-Term Well-Being**

Physical therapy is a form of treatment that aims to relieve pain, restore function, and prevent recurrence or exacerbation of neck and back pain. Physical therapy can help individuals who suffer from occupational-related neck and back pain by addressing the physical, psychological, and environmental factors that contribute to their condition. Physical therapy can provide education and counselling to the patient about the nature and causes of the pain, the benefits and risks of different treatments, the importance of self-management and active participation, and the realistic expectations and goals of the rehabilitation process. Physical therapy can provide ergonomic advice and modifications to the patient's work environment, such as adjusting the height and position of the chair, desk, keyboard, mouse, and monitor, to reduce the strain and stress on the neck and back [50]. Physical therapists promote long-term well-being through patient education and self-management strategies by helping patients understand the nature and causes of their pain, the benefits and risks of different treatments, the importance of self-management and active participation, and the realistic expectations and goals of the rehabilitation process [51]. Physical therapists can also encourage patients to maintain a healthy lifestyle, such as regular physical activity, a balanced diet, adequate sleep, and stress management, to prevent the recurrence or exacerbation of the pain. Physical therapists can also provide ergonomic advice and modifications to the patient's work environment, such as adjusting the height and position of the chair, desk, keyboard, mouse, and monitor, to reduce the strain and stress on the neck and back [51,52]. Ongoing support and guidance for maintaining a pain-free and healthy working life for neck and back pain patients is very important for both employees and employers. Some of the benefits of workplace wellness programs for neck and back pain patients are: Physical thera- pists can help to prevent or reduce the severity of work-related musculoskeletal disorders (MSDs), which are among the most common causes of lost or restricted work time2. MSDs can affect the muscles, tendons, ligaments, nerves, and joints of the neck and back, causing pain, stiffness, inflammation, and reduced mobility [53]. They can also help promote physical activity, which is essential for maintaining a healthy spine. Physical activity can strengthen the muscles that support the spine, improve blood circulation, and enhance flexibility and range of motion5. Regular exercise can also help prevent or manage chronic conditions that can affect the spine, such as obesity, diabetes, and osteoporosis5. Some examples of physical activities that can benefit neck and back pain patients are walking, swimming, cycling, yoga, and stretching [54]. Physical therapy helps to provide education and awareness on how to prevent and manage neck and back pain. Education and awareness can empower employees to take charge

of their health and well-being and to seek appropriate help when needed. For example, learning about the causes, symptoms, and treatments of neck and back pain, as well as the risk factors and prevention strategies, can help employees make informed decisions and adopt healthy behaviors. Additionally, learning about the benefits of stress management, relaxation techniques, and proper sleep hygiene can help employees cope with the psychological and emotional aspects of neck and back pain [55].

**Conclusion**

Physical therapy is a vital part of the solution for occupational-related neck and back pain. It helps people over- come their pain and restore their function at work. Physical therapists use various strategies to achieve this goal, such as:

- **Pain management:** They use techniques like massage, heat, cold, electrical stimulation, and ultrasound to reduce pain and inflammation.
- **Ergonomic education:** They teach people how to adjust their work environment and posture to prevent or mini- mize strain on the neck and back.
- **Muscle balance:** They design exercises to strengthen the weak muscles and stretch the tight muscles that affect the spine alignment and stability.
- **Flexibility:** They improve the range of motion of the joints and soft tissues of the neck and back to allow for more freedom of movement.
- **Functional activities:** They train people to perform their work tasks safely and efficiently, using proper body mechanics and equipment.

Physical therapy not only helps people recover from their current problems but also prevents future ones. It educates people on how to maintain their health and well-being in the long run. Physical therapy is an essential part of the holistic approach to managing occupational related neck and back pain, and it can enhance the quality of life for those who suffer from these conditions.

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