

Understanding Back and Neck Pain

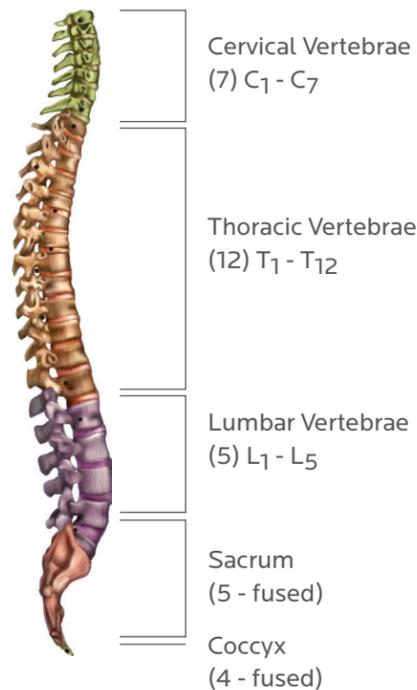


Understanding Back and Neck Pain

Back or neck pain is one of the most common complaints for which people seek treatment with a healthcare provider. In a 2013 report published by Centers for Disease control, 6% of all visits to emergency departments were for back or neck pain. It is a major cause for visiting your primary healthcare provider and a main reason for disability and lost wages. Back and neck pain is not only an inconvenience; it is a public health problem.

What Causes It?

There are many causes for back or neck pain. A basic understanding of anatomy may help you to better understand your condition. Not all back or neck conditions have the same cause. Treatment can be as varied as the structure or structures involved.



Spinal Anatomy

Bones

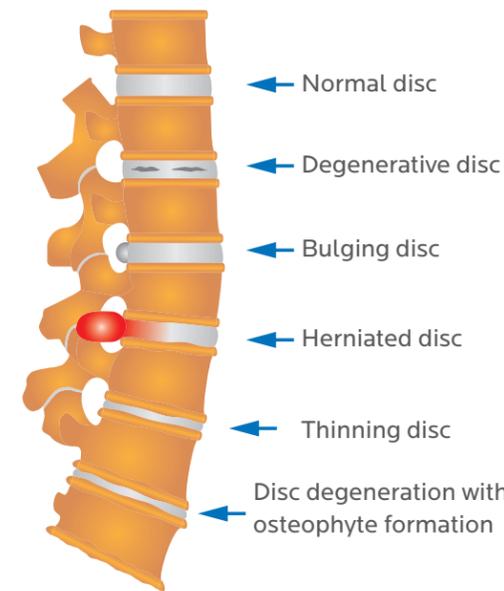
The spine is a vertical “stack” of bones, beginning at the base of the skull and ending with the tailbone. This stack is divided into different sections: Cervical, Thoracic, Lumbar, and Sacral.

Each bone is numbered to help identify them. For example, C6 is the sixth bone in the cervical section, and L5 is the fifth bone in the lumbar section. These bones form much of the horizontal structure of the skeleton and connect to other structures such as the pelvis, the ribs, and the skull.

As with other bones, these bones can fracture in the setting of injury. Fractures can also occur if the bone is fragile or soft, such as is found in osteoporosis. Maintaining bone health is important!

Discs

Between many of the bones of the spine are a “shock absorber” called a disc. These discs are somewhat spongy in nature and filled with a gelatinous substance. These discs can “bulge”, “rupture”, “herniate” or “degenerate”.



A disc bulge can actually represent a normal finding. With the advent of improved imaging such as CT scan or MRI, we can see variances that may or may not be significant. Determining the significance requires correlating the findings with your symptoms and physical exam.

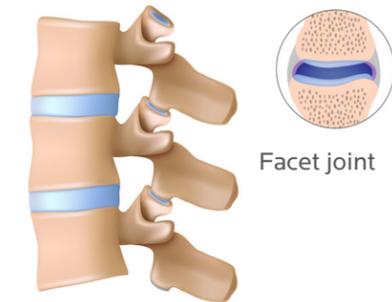
A ruptured disc means that the wall (annulus) of the disc has burst. Just as in the wall of a tire, this can be minor or major. The significance of the rupture is also determined by a combination of physical exam and review of your symptoms.

A herniated disc means that either a piece of the disc, or the gelatinous substance within the wall of the disc, has moved to a place where it is putting pressure on another structure, usually the nerve root. A disc extrusion is often an interchangeable term, or can mean that the piece has actually broken off from the main disc body and is causing problems elsewhere.

Disc degeneration describes a condition where these discs become less spongy, and therefore less able to absorb the shock of gravity and movement of the spinal column. This can occur at one or multiple levels. It can be a result of the normal aging process.

Cartilage

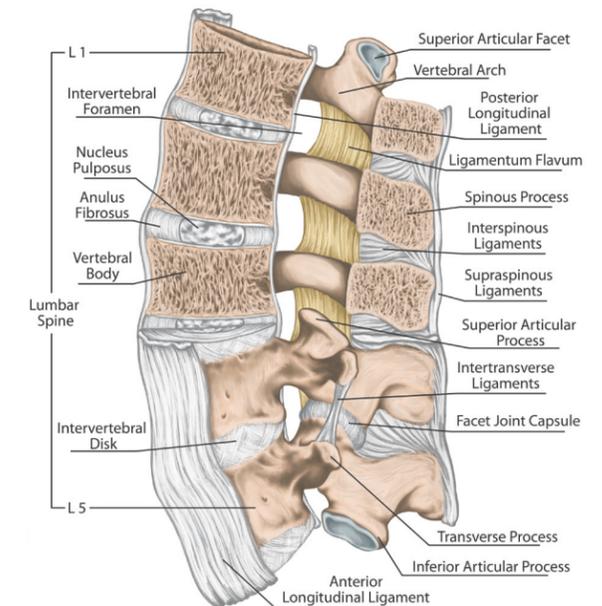
In some parts of the skeleton, cartilage serves as a protective mechanism where two bones meet. Similar to a “torn meniscus” or “torn cartilage” in the knee or shoulder joint, this cartilage can become worn, frayed or torn as a result of aging, injury or abnormal wear. The “facet” joints, and their cartilage pads, are much smaller and difficult to see on imaging studies.



Ligaments and tendons

Ligaments attach bone to bone; tendons originate from each muscle and attach that muscle to bone. They are quite elastic in nature, which allow for movement and flexibility.

Either structure can be injured (sprained) or the tension can become imbalanced (lengthened or shortened) in response to other what is happening with the other structures of the spine.



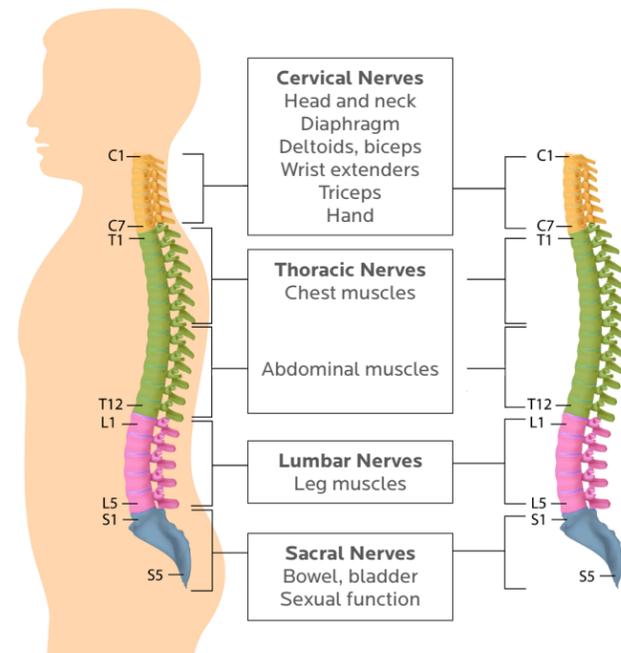
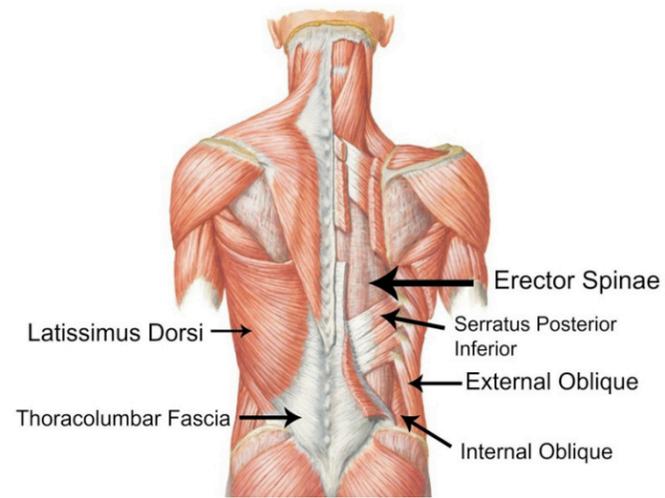
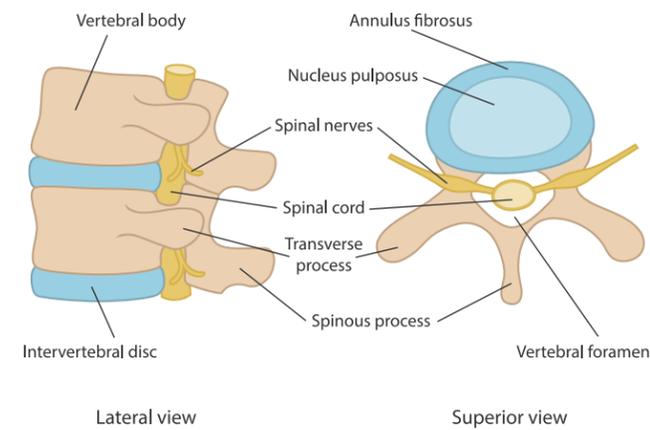
Muscles

There are multiple muscles that attach to the spinal column. They provide support and balance. Using the analogy of a building, the bones are like the frame and the muscles are like the drywall, insulation, and other support structures. They can function in isolation or in synchrony with other muscles. Muscles on each side of the spinal column are mirror images of each other. If a muscle is tense on one side, it changes the forces on the spinal column and it feels imbalanced. The muscle may become strained or spasm, causing further tension on the spine and the other surrounding structures.

Nerves

The spinal column houses the spinal cord, the main message pathway from the body to the brain. Just like a tree, spinal nerve “roots” branch out from the spinal cord and then to smaller nerves, creating an intricate pathway out to the smallest skin cell or vessel and then back to the brain.

There are both sensory and motor functions in this nerve pathway. Each nerve sends messages to specific parts of the body. Damage, irritation, or compression of these nerve structures, especially the larger nerve roots at the level of the spine, can cause changes in sensation or in function. Relieving this nerve compression is at the center of many procedural options for the spine.



Acute Pain vs. Chronic Pain

Acute Pain

Acute pain is defined as “a type of pain that typically lasts less than 3 to 6 months, or pain that is directly related to soft tissue damage such as a sprained ankle or a paper cut. Acute pain is of short duration, but it gradually resolves as the injured tissues heal” (Spine-health.com).

Chronic Pain

Chronic pain is defined as “any pain that lasts for more than three months. The pain can become progressively worse and reoccur intermittently, outlasting the usual healing process. After injured tissue heals, pain is expected to stop once the underlying cause is treated, according to conventional ideas of pain. However, chronic pain can persist after injuries heal for no apparent biological cause. The most common sources of chronic pain include low back pain, headache and arthritic pain. Chronic pain can cause significant psychological and emotional trauma and often limits an individual's ability to fully function” (Spine-health.com)

In many ways, pain is pain. But treatment and management of acute pain vs. chronic pain can be very different. Multiple disciplines and modalities can be used for either form of pain, but often chronic pain involves a component of emotional and/or behavioral support to help individuals thrive and function despite ongoing pain. The specialties of physiatry (physical medicine/rehabilitation), pain management and behavioral therapy, along with general wellness education, are especially geared toward management of this long term condition.

How is my condition diagnosed?

Just as there are many potential causes for back pain, there are many tools to help diagnose the source of the problem. Different tests may be recommended based on your symptoms. Your healthcare provider is best equipped to make those decisions based on the medical history and the physical examination that they complete.

Medical History

Your medical history is an important foundation for diagnosis. For example, if you have a known diagnosis of an inflammatory disease, this may pre-dispose you to problems with the structures in your back. Abdominal problems (endometriosis, bowel disease, kidney disease, etc.) can also present as back pain in some cases. Share these important details with your care provider, even if they seem unrelated.

Detailed information about what makes your pain better, what makes it worse, and any patterns that you notice can also provide important clues. For example pain with arching your back may signal a different problem than pain with extended sitting or walking. Muscle tightness may respond differently to certain treatments than nerve-mediated pain. Be as specific as you can about your symptoms.

Physical Exam

A physical exam is essential to diagnosis. Identifying the nature and intensity of your symptoms, and where it hurts can help to narrow the focus. Your health care provider will evaluate muscle strength and tightness, reflexes, sensation, and signs of tension on the nerves. Assessing spinal alignment is another important part of the physical exam, looking for structural imbalance caused by muscle spasm or other structural problems.



Radiology Studies

X-ray

X-ray can be used to identify conditions of the bones or skeletal structure such as arthritic changes, fractures, osteoporosis or scoliosis and is often used as a first step in imaging. It does not provide good soft tissue detail. Your provider will determine the need for X-ray, based on your history and physical exam.

Magnetic Resonance Imaging (MRI)

MRI is used when more specific soft tissue detail is desired to assist with a diagnosis. This test is not uncommon when evaluating the spine, but is not always indicated. Many insurance companies require pre-authorization and/or co-pays for this test. Your provider will help to determine if this is indicated based on your medical history and physical exam. It is rarely ordered at the first sign of back pain, unless there is strong evidence to do so.

Computed Tomography (CT) scan

CT scan can provide better soft tissue detail than X-ray, but less specificity than MRI for small structures such as nerve roots. It is ideal for cross-sectional views if another structure within the abdominal cavity is considered a potential source for back pain. Again, many insurance companies require pre-authorization and/or co-pays for this test. Your provider will address the “medical necessity” question for them, based on their evaluation of your condition.

Myelogram

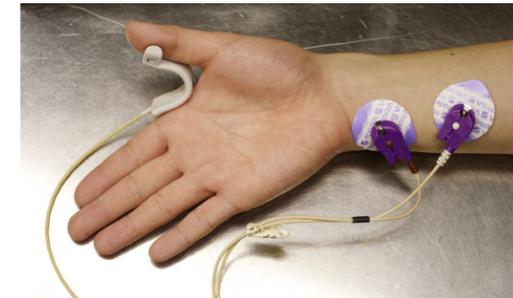
A myelogram is a specialized technique which uses dye injected into the fluid-filled sac around the spinal cord. It can be used in conjunction with x-ray, CT scan, or MRI to enhance the images and identify spinal cord involvement in your condition.

Bone Density Studies (DXA scan)

A DXA scan is a specialized study used to evaluate the quality of the bone. The spine, especially in post-menopausal woman, is often subject to the effects of osteopenia or osteoporosis. If deficits are noted, treatment can be very effective for restoring bone quality and/or preventing vertebral fractures, both of which can lead to structural problems with the spine.

Electromyography (EMG)/Nerve Conduction Velocity (NCV)

EMG and/or NCV are tests used to determine how well your muscles and/or nerves are functioning in your extremities. Because nerve messages travel from the brain to the spinal cord, through the nerve roots that branch off the spinal cord, and then out to smaller nerves to muscles and skin, any problem at the spine level can impact how the message travels outward. These tests can help detect subtle impairments such as changes in muscle strength or sensation, further defining the source of the problem. These tests are performed by specialist physicians such as physiatrists or neurologists.



Diagnostic and/or Therapeutic Spinal Injections

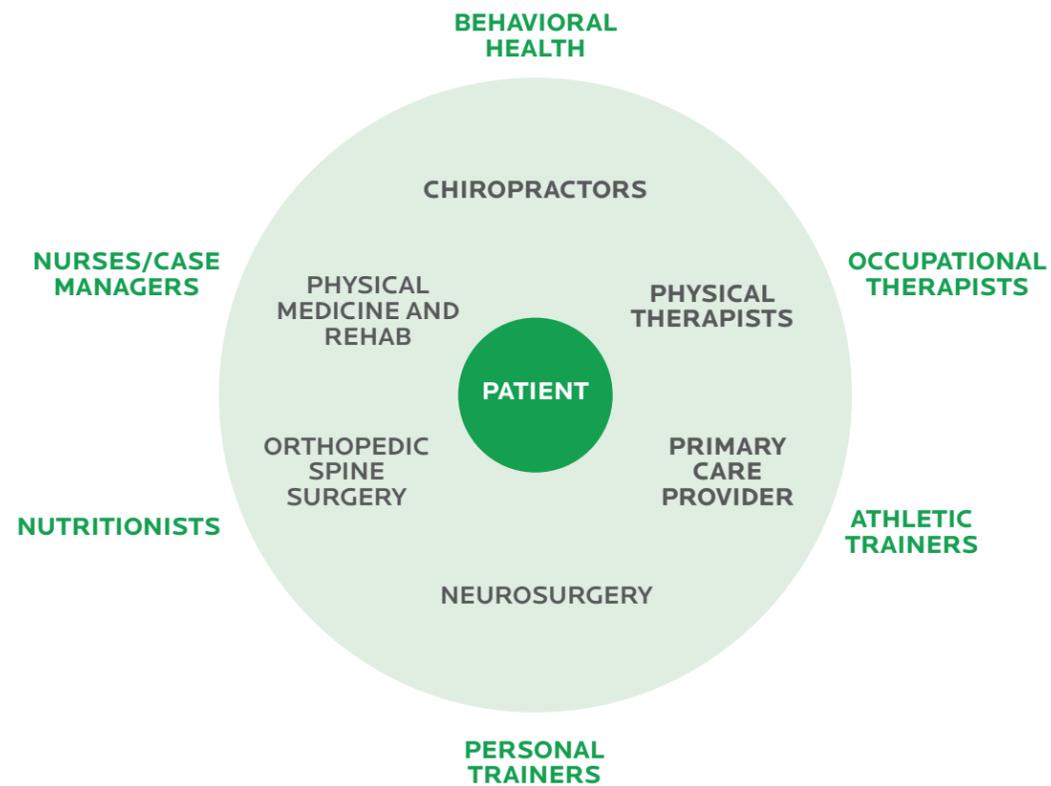
Injections of local anesthetics and/or steroids can be used to further pinpoint the diagnosis. The local anesthetic can temporarily “numb” specific areas. If pain resolves while numb, it further defines the pain source. The effect is intentionally temporary, but can be diagnostic.

Adding a steroid, a potent anti-inflammatory medication, to the injection can also help to treat the inflamed area. When injected into the epidural space, the nerve root sheath, or specific joint spaces, it can start working to reduce local inflammation at the source of the pain. Although it may not cure conditions such as arthritis, it can certainly decrease the symptoms that it causes at the source. The effect takes 24-72 hours to take hold and may continue to improve over the next 5-7 days. These injections can give temporary, short term relief or significantly longer relief lasting weeks or months. Spine injections are sometimes administered as a series of 2 or 3 injections, or into separate small joints to help define the pain source. When used in larger joints such as a hip or shoulder joint, they may be limited to 3-4 doses/year because of the potential for more systemic effects in higher doses.

What specialists may be involved in my care?

As evidenced by this diagram, back pain can be a complex, multi-faceted problem. Similarly, a multi-disciplinary approach to diagnosing and managing your unique problem is often required. Though care can sometimes feel fragmented, each care provider has the same goal in mind.

The Holland Hospital system has each of these specialties available. When treatment remains within this system, it streamlines management through the use of evidence-based treatment guidelines and clear, regular channels for communication across these multiple disciplines.



What are my treatment options?

Just as there are various tools to accurately diagnose the source of your condition, there are various ways to treat it. Managing pain, and preventing recurrence are common goals for treatments. Some are protective in nature as your body heals, and some are restorative to prepare you to return to more normal activities and routines over time. Not every treatment works for every situation, nor will the timeline be the same, but your care team will likely employ multiple options to address your unique problem.

Pain Management

Hot Packs/Cold Packs

Heat or cold can be very effective in the management of back pain. As a general rule, heat is more effective for muscle ache or spasm, where cold is more effective for inflammation. Neither is harmful, so trying both or even alternating treatments can be effective.

Protecting the skin is important when using these modalities to prevent frostbite or burns.

Physical Therapy and Rehab Services

Traction/myofascial release/massage/muscle energy techniques are options are focused primarily on releasing muscle tension or spasm which are common in back and neck pain. A physical therapist is well-trained in musculoskeletal structure and how each muscle group works together. They can recommend various stretches to do on your own or with the help of a partner or massage therapist. A “hands- on” approach for more specific muscle release is best performed under direction of a physical therapist trained in manual therapy techniques.



Chiropractic Manipulation

Chiropractic manipulation is defined as “a procedure in which trained specialists (chiropractors) use their hands or a small instrument to apply a controlled, sudden force to a spinal joint. The goal of chiropractic adjustment, also known as spinal manipulation, is to correct structural alignment and improve your body’s physical function” (Mayo Clinic, 2018).

Acupuncture

This ancient practice has been proven somewhat effective for chronic pain management caused by many conditions, although it is often poorly understood by modern medicine. One review found it to be less effective for acute pain than chronic low back pain, and has limited benefit for improving function (Liu, Skinner, McDonough, Mabire, & Baxter, 2015). Nevertheless, it is one more modality that has been used with some success.

Braces

Back or neck braces may be used for external support while your own internal structural supports (muscles, ligaments and tendons) are being treated or developed through exercise or therapy. They have been used for temporary pain management, but are rarely a long term solution for back or neck pain.

Medications

- **NSAIDs** have both analgesic (pain relief) and anti-inflammatory functions which can be very effective. They are available in over-the-counter forms (ibuprofen [Advil®, Motrin®], naproxen [Aleve®], aspirin) and in prescription forms (meloxicam [Mobic®], celecoxib [Celebrex®], ibuprofen [Motrin®], indomethacin [Indocin®], to name just a few. These drugs are often a valuable first-line approach.
- **Steroids** [prednisone, Medrol dose-pack®] are a potent anti-inflammatory drug that can be administered in tablet or injectable forms. Though they can be very effective, their use is often limited because of the risk of systemic effects on adrenal gland functions or blood sugar.
- **Acetaminophen** [Tylenol®] has analgesic effect, but no anti-inflammatory effect, so its use is often limited to those who cannot safely take NSAIDs or steroids.
- **Opioids** such as morphine [MS Contin®], oxycodone [Percocet®, Oxy-IR®, Oxy-SR®], hydrocodone [Vicodin®, Norco®] are stronger analgesics, sometimes combined with acetaminophen, used for pain relief. There is certainly a place for their use in pain management, but potential for over-sedation, abuse, and addiction is high. Their use is carefully controlled and use should be limited to pain not effectively managed by less risky drugs.

- **Muscle relaxants** such as tinzadine [Zanaflex®], methocarbamol [Robaxin®], Cyclobenzaprine [Flexeril®], or metaxalone [Skelaxin®] are often prescribed to help relax tight muscle fibers. They can be very effective, but also have sedating or addictive potential and should be used with caution.
- **Other medications** may be recommended to treat pain that is more chronic or global in nature. For example, certain medications such as gabapentin [Neurontin] or lamotrigine [Lamictal], developed for seizures, have proven effective for chronic pain. Some medications developed for mood disorders such as amitriptyline [Elavil®] or trazadone, can be very effective for chronic pain or sleep disorders. Duloxetine [Cymbalta®], a medication commonly used for anxiety or depression, also has FDA approval for treatment of chronic pain. Your health care provider may recommend similar medications, based on your unique symptoms, to help manage back or neck pain.



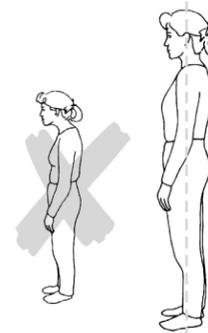
Protective Activities

- Stretching and stabilization exercises
- Postural education
- Instruction in good body mechanics
- Walking program

Physical therapists are experts in understanding the multiple structures of the spine and how they work together. Acute back or neck pain often point to underlying muscle imbalances, spasm, or other problems that contribute to the current condition. They can provide instruction and treatments to stabilize the spine, and tips to prevent further injury while you begin the process of healing.

Posture – Standing

Good posture is important. Avoid slouching and forward head thrust. Maintain curve in low back and align ears over shoulders, hips over ankles. Alternate tasks and change positions frequently to reduce fatigue and muscle tension. Take rest breaks.



Posture – Sitting

Sit upright, head facing forward. Try using a roll to support lower back. Keep shoulders relaxed, and avoid rounded back. Keep hips level with knees. Avoid crossing legs for long periods.



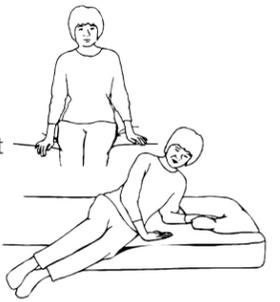
Brushing Teeth

Place one foot on ledge and one hand on counter. Bend other knee slightly to keep back straight.



Getting Into/Out of Bed

Lower self to lie down on one side by raising legs and lowering head at the same time. Use arms to assist moving without twisting. Bend both knees to roll onto back if desired. To sit up, start from lying on side, and use same movements in reverse. Keep trunk aligned with legs.



Dressing

Lie on back to pull socks or slacks over feet, or sit and bend leg while keeping back straight.



Refrigerator

Squat with knees apart to reach lower shelves and drawers.



Laundry Basket

Squat down and hold basket close to stand. Use leg muscles to do the work.



Laundry - Unloading Wash

To unload small items at bottom of washer, lift leg opposite to arm being used to reach.



Restorative Activities

- Aquatic therapy
- Resistance/strength training
- Workplace evaluation/work conditioning activities
- Return to sport programming

Again, your physical therapy team can be your partners in recovery from the incident that has triggered your pain and disability. This frequently involves a period of treatment, but also instruction in a home exercise program geared toward stabilizing and strengthening the structures of the spine. Once the acute phase is diminished, they can also guide the process of returning to sport or work activities, and providing maintenance plan to help prevent future incidents. The rest is up to you!! Though it is often difficult, maintaining the gains are important to your future wellness.

Emotional/Behavioral Support

- Psychology/psychiatry
- Case management/social work

Chronic pain can place significant strain not only on your physical health, but also your emotional health. Functional difficulty and pain places limits on everyday life, whether it is household activity, work responsibilities, leisure and relationships. Don't hesitate to speak with your primary care provider about this aspect of your health as well. It is often under-reported or minimized, but can have profound and lasting impact on your health.

There is help in learning how to cope more effectively with pain and disability. Working with a behavioral health specialist can help to sort this out, and a social worker or case manager can provide support in navigating the impact this condition has on everyday life, whether it is connecting to community resources or navigating the disability process.

Holland Hospital's Behavioral Health Department offers walk-in screenings, treatment of anxiety and depression, substance abuse and addiction management, relationship issues, and treatments to help develop coping skills to help you live your best life. Contact them at (616) 355-3926, or visit hollandhospital.org/bhs for more information and resources.

General Health and Well-Being

- Nutrition/weight management
- Active lifestyle
- Smoking cessation

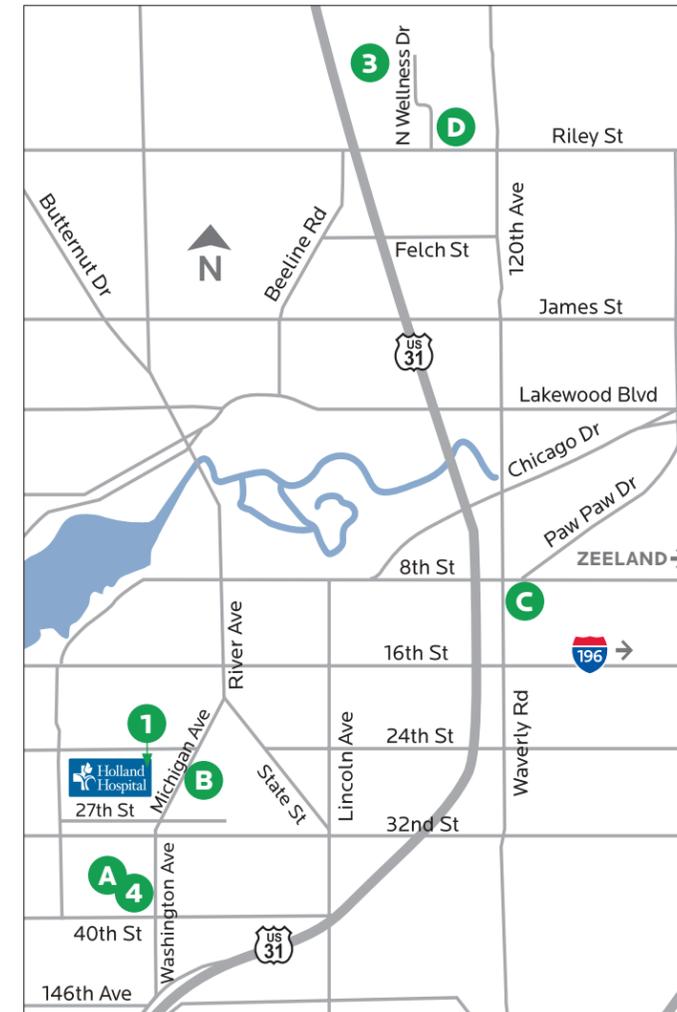
Numerous studies address the impact of your overall health on the treatment of back and neck pain. Holland Hospital's Healthy Life Programs offers nutrition coaching, diabetes education, diabetes prevention programming, exercise classes and equipment, personal training, and smoking cessation programs. Call (616) 392-5141, or visit www.hollandhospital.org/healthylifeprogams for more information.

Holland Hospital Lifestyle Medicine program also supports general health and well-being. This philosophy focuses on wellness and a healthy lifestyle to combat disease and manage overall health. Contact (616) 494-8387, or visit hollandhospital.org/lifestylemedicine to learn more.

Bone Health

Compression fractures of the spine or a hip fracture are, unfortunately, one of the first indicators that someone has significant osteoporosis if they have not been screened for it before. Holland Hospital Bone Health provides specialized diagnostic and treatment services for osteopenia and osteoporosis, and advice for fracture prevention for those at higher risk. Contact them at (616) 393-5336 or hollandhospital.org/bonehealth.

Locations



Behavioral Health Services

- A** 854 Washington Ave., Suite 330
Holland, MI 49423
(616) 355-3926

Bone Health and Rheumatology

- B** 577 Michigan Ave., Suite 104
Holland, MI 49423
(616) 393-5336

Healthy Life Programs

- C** 175 S. Waverly Rd., Suite A
Holland, MI 49423
(616) 394-3344

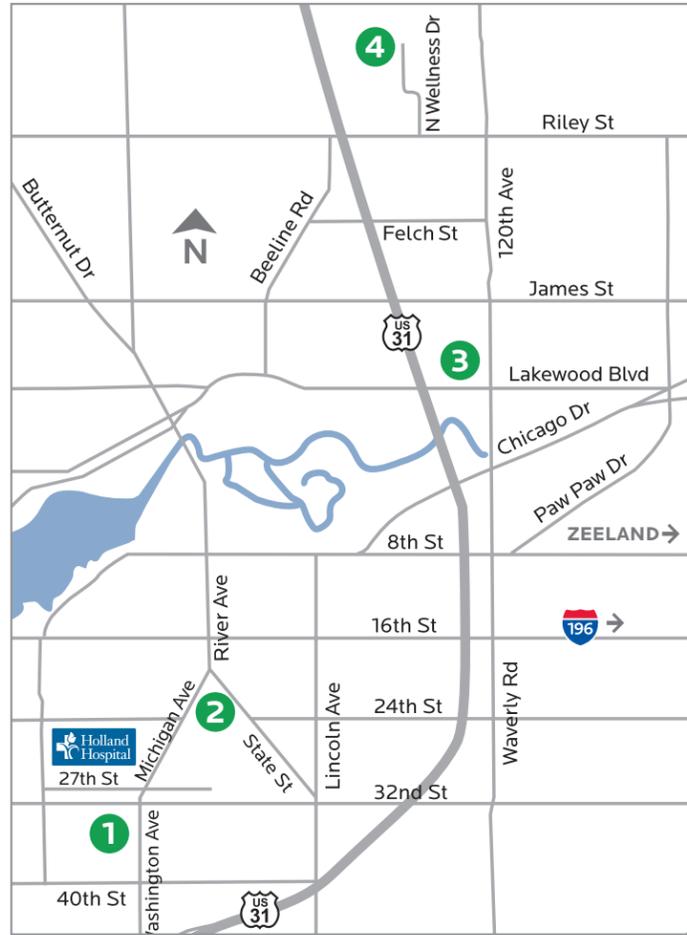
Radiology Services

- 1** 602 Michigan Ave
Holland, MI 49423
(616) 392-5141
Services provided: CT, Echo, MRI, Nuc Med, Ultrasound, X-ray
- 2** 8300 Westpark Way
Zeeland, MI 49464
(616) 394-3191
Services provided: CT, Dexa, Mammography, MRI, PET, X-ray
- 3** 3299 N Wellness Dr
Building C, South Entrance, Suite 120
Holland, MI 49424
(616) 394-3367
Services provided: CT, Echo, Mammography, Ultrasound, X-ray
- 4** 844 Washington Ave
Door 4, Suite 2100
Holland, MI 49423
(616) 355-3865
Services provided: Dexa, L-dex, Mammography

Urgent Care

- D** 3232 N. Wellness Dr. Bldg. B
Holland, MI 49424
(616) 494-4250

Locations



Physical Therapy & Rehab Services

- 1 844 S Washington Ave
Entrance B, Suite 1600
Holland MI 49423
- 2 480 State Street
Holland MI 49423
- 3 370 N 120th Ave
Holland MI 49464
- 4 3299 N Wellness Drive
Building C, Suite 220
Holland MI 49424
- 5 415 Wiley Rd, Suite 102
Douglas MI 49464
(616) 355-3930
hollandhospital.org



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