**MUSCULOSKELETAL INJURIES CHART**

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| **Injury/Disorder** | **Signs & Symptoms** | **Typical Causes with Examples** |
| **Degenerative Disc Disease**Degenerative disc disease is not really a disease but a term used to describe the normal changes in your spinal discs as you age. Spinal discs are soft, compressible discs (80% water) that separate the interlocking bones (vertebrae) that make up the spine. As people age, the nucleus pulposus begins to dehydrate, which limits its ability to transfer and distribute loads between the vertebrae.The vertebral disc’s primary purpose is to act as a shock absorber between adjacent vertebrae. Spinal discs also act as ligaments that hold the vertebrae of the spine together and as cartilaginous joints that allow for slight mobility in the spine.As people age, the nucleus pulposus begins to dehydrate, which limits its ability to transfer and distribute loads between the vertebrae.Degenerative disc disease can take place throughout the spine, but it most often occurs in the discs in the lower back (lumbar region) and the neck (cervical region). | * The amount of chronic pain—referred to as the patient's baseline level of pain—is quite variable between individuals and can range from almost no pain/just a nagging level of irritation, to severe and disabling pain
* Severe episodes of back or neck pain that will generally last from a few days to a few months before returning to the individual's baseline level of chronic pain
* Activities that involve bending, lifting, and twisting will usually make symptoms worse
* Certain positions will usually make the pain worse. For example, for lumbar degenerative disc pain, the pain is generally made worse with sitting, since in the seated position the lumbosacral discs are loaded three times more than standing
* Walking, and even running, may actually feel better than prolonged sitting or standing, patients will generally feel better if they can change positions frequently
* Patients with lumbar DDD will generally feel better lying in a reclining position (such as with legs propped up in a recliner), or lying down with a pillow under the knees, since these positions relieve stress on the lumbar disc space
 | The low back pain associated with lumbar degenerative disc disease is usually generated from one or both of two sources:1. Inflammation, as the proteins in the disc space irritate the surrounding nerves - both the small nerve within the disc space and potentially the larger nerves that go to the legs
2. Abnormal micro-motion instability, when the outer rings of the disc, called the annulus fibrosis, are worn down and cannot absorb stress on the spine effectively, resulting in movement along the vertebral segment.

Excessive micro-motion, combined with the inflammatory proteins, can produce ongoing low back pain.Although degenerative disc disease is not caused by work, work or work-related injuries can aggravate or accelerate the condition. |
| **Back Strains and Sprains**A strain is an injury of a muscle and/or tendon. Tendons are fibrous cords of tissue that attach muscles to bone. A sprain is caused by direct or indirect trauma (a fall, a blow to the body, etc.) that knocks a joint out of position, and overstretches, and, in severe cases, ruptures the supporting ligaments. | * The pain is usually localized in the lower back, meaning that it doesn’t radiate into the leg (as in sciatica)
* The lower back may be sore upon touch
* Pain usually comes on suddenly
* The patient usually feels better when resting, and may find standing or walking difficult.
 | * Manual lifting and handling, e.g., a health care worker transferring a patient
* Awkward back posture, e.g., retrieving parts from a bin
* Prolonged static back postures, e.g., a computer operator sitting for extended periods of time
* Whole body vibration, e.g., a mobile equipment operator sitting in a vibrating vehicle
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| **Bursitis**Bursitis is a painful condition that affects the small, fluid-filled sacs, called bursae that cushion the bones, tendons and muscles near your joints. Bursitis occurs when bursae become inflamed.The most common locations for bursitis are in the shoulder, elbow and hip. But you can also have bursitis by your knee, heel and the base of your big toe. Bursitis often occurs near joints that perform frequent repetitive motion. | * The most common symptom of bursitis is pain.
* The pain may build up gradually or be sudden and severe, especially if calcium deposits are present.
* Severe loss of motion in the shoulder (called "adhesive capsulitis" or frozen shoulder) can also result from the immobility and pain associated with shoulder bursitis.
 | * Bursitis is most often caused by repetitive, minor impact on the area, or from a sudden, more serious injury.
* Age also plays somewhat of a role. As tendons age they are able to tolerate stress less, are less elastic, and are easier to tear. Therefore even minor overexertion activities can cause bursitis.
* Overuse or injury to the joint can increase a person's risk of bursitis. Examples of high-risk activities include gardening, raking, carpentry, shoveling, painting, scrubbing, etc. Incorrect posture at work can also lead to bursitis.
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| **Carpal Tunnel Syndrome**Carpal Tunnel Syndrome is a condition affecting the hand and wrist. The carpal tunnel is a space in the wrist surrounded by wrist bones and by a rigid ligament (transverse ligament) that links the bones together.Through this small tunnel pass the flexing tendons of the fingers and thumb as well as the median nerve. These tendons attach muscles to bones in the hand and transfer the movement of the fingers from muscles to bones. The median nerve carries signals from the brain to control the actions of the fingers and hand.The thumb, index, middle and ring fingers are under the control of the median nerve.When the ligament becomes inflamed or swollen, the median nerve is compressed causing symptoms. | * Numbness or “pins and needles” feeling in the fingers
* Pain and/or numbness that is worse at night or interrupts sleep
* Burning or tingling in your thumb, index, and middle fingers, or pain that moves up your arm to your elbow
* Hand weakness
* Difficulty gripping objects with the hands or dropping objects
* Difficulty manipulating small objects
* Difficulty making a fist
* Swollen feeling in the fingers
 | Carpal tunnel syndrome is associated with certain tasks including:* Repetitive hand motions.
* Awkward hand positions.
* Strong gripping.
* Mechanical stress on the palm.
* Vibration.

Cashiers, hairdressers, or knitters or sewers are examples of people whose work-related tasks involve awkward and repetitive wrist movements associated with carpal tunnel syndrome. Bakers who flex or extend the wrist while kneading dough, and people who flex the fingers and wrist in tasks such as milking cows, using a spray paint gun, and hand-weeding are other examples. Excessive use of vibrating hand tools may also be related to carpal tunnel syndrome. |
| **DeQuervain’s Disease**Is a painful disorder affecting the tendons at the base of the thumb. This is one of the most common kinds of tendon lining inflammatory diseases or tenosynovitis. These tendons are encased in sheaths, or sleeves, through which the tendons slide. The inner wall of the sheaths contains cells that produce a slippery fluid to lubricate the tendons.  | * The patient experiences pain when moving the thumb away from the hand and has difficulties with activities requiring a firm grip and twisting of the hand.
* The pain occurs at the base of the thumb and the radial side (same side as the thumb) of the forearm.
 | * With repetitive or excessive movements such as hand twisting and forceful gripping, the lubrication system may malfunction.
* Failure of the lubricating system allows friction to develop between the tendons of the thumb and their common sheath.
* The repetitive friction accounts for the abnormal thickening and the constriction of the sheath which interferes with the smooth gliding motion of the tendons.
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| **Epicondylitis**A painful inflammation of tendons surrounding an epicondyle. Epicondyle (epi meaning "upon"; condyle meaning "knuckle" or "rounded articular area") may refer to either the medial or lateral epicondyle of the femur. | Epicondylitis may cause the most pain when you:* Lift something.
* Make a fist or grip an object, such as a hammer.
* Open a door or shake hands.
* Raise your hand or straighten your wrist.
 | Epicondylitis is considered to be overload tendon injuries, which occur after minor and often unrecognized trauma to the proximal insertion of the extensor (tennis elbow) or flexor (golfer's elbow) muscles of the forearm:* Tennis elbow: reactive tendon pathology of extensor forearm muscle origins, causing lateral elbow and upper forearm pain and tenderness. Caused by repetitive stress at the muscle-tendon junction and its origin at the lateral epicondyle.
* Golfer's elbow: reactive tendon pathology of flexor forearm muscles, causing medial elbow pain. Caused by repetitive stress at the muscle-tendon junction and its origin at the medial epicondyle.
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| **Tendonitis**Tendons are bundles or bands of strong fibres that attach muscles to bones. Tendons transfer force from the muscle to the bone to produce the movement of joints. Tendon disorders are medical conditions that result in the tendons not functioning normally. Tendinitis is a disorder (inflammation) of tendons without sheaths and tenosynovitis is a disorder of tendons with sheaths. | * The clinical presentation of tendon disorders is characterized by the presence of pain on the site of injury.
* Specific physical findings on examination include tenderness when the area over the affected tendon is touched and may be associated with swelling, redness, and restriction of movement.
* Over time, inflamed tendons become thickened, bumpy, and irregular.
* Without rest and time for the tissue to heal, tendons can become permanently weakened.
 | * With repetitive or prolonged activities, forceful exertion, awkward and static postures, vibration, and localized mechanical stress, the tendons fibers can tear apart in much the same way a rope becomes frayed.
* These tendon changes trigger an inflammatory response. Inflammation is a localized response of tissue to injury.
* Tendon disorders have been associated with repetitive or prolonged activities, forceful exertion, awkward and static posture, vibration, and localized mechanical stress.
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| **Trigger Finger**Is caused by local swelling from inflammation or scarring of the tendon sheath around the flexor tendons. Trigger finger is medically termed stenosing tenosynovitis. These are tendons that normally pull the affected digit inward toward the palm (flexion). | * Snapping or popping sensation when moving the finger(s)
* Soreness at the base of the finger
* Pain and stiffness when bending the finger(s)
* Swelling or tender lump in the palm of the hand
 | * These are tendons that normally pull the affected digit inward toward the palm (flexion). Usually, trigger finger occurs as an isolated condition because of repetitive trauma.
* High use of scissors (seamstress) or trigger-operated tools (auto mechanic) are known occupational risk factors.
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| **Hand Arm Vibration Syndrome (HAVS)**Vibration induced health conditions progress slowly. In the beginning it starts as a pain. As the vibration exposure continues, the pain may develop into an injury or disease. Pain is the first health condition that is noticed and should be addressed in order to stop the injury.Vibration-induced white finger (VWF) is the most common condition among the operators of hand-held vibrating tools. Vibration can cause changes in tendons, muscles, bones and joints, and can affect the nervous system. Collectively, these effects are known as Hand-Arm Vibration Syndrome (HAVS).  | Workers affected by HAVS commonly report:* attacks of whitening (blanching) of one or more fingers when exposed to cold
* tingling and loss of sensation in the fingers
* loss of light touch
* pain and cold sensations between periodic white finger attacks
* loss of grip strength
* bone cysts in fingers and wrists

The development of HAVS is gradual and increases in severity over time. It may take a few months to several years for the symptoms of HAVS to become clinically noticeable.The symptoms of VWF are aggravated when the hands are exposed to cold. | Whole-body vibration can cause fatigue, insomnia, stomach problems, headache and "shakiness" shortly after or during exposure. The symptoms are similar to those that many people experience after a long car or boat trip. After daily exposure over a number of years, whole-body vibration can affect the entire body and result in a number of health disorders. Studies of bus and truck drivers found that occupational exposure to whole-body vibration could have contributed to a number of circulatory, bowel, respiratory, muscular and back disorders. The combined effects of body posture, postural fatigue, dietary habits and whole-body vibration are the possible causes for these disorders. |
| **Ganglion Cysts**A ganglion cyst is a bump or mass that forms under the skin. Most commonly, ganglions are seen on the wrist (usually the back side) and fingers, but they can also develop around joints on the shoulder, elbow, knee, hip, ankle and foot.  | * Ganglion cysts form when tissues surrounding certain joints become inflamed and swell up with lubricating fluid.
* Ganglions can be painless; however, they often are associated with tenderness and pain, which may restrict the range of movements.
 | * The cause of ganglions is not always clear.
* Occupational factors can play an important role in the development of ganglions.
* Those occupations that require workers to excessively overuse certain joints or repeated movements such as the wrist and fingers pose a risk for ganglion cysts.
* Some cysts form after an injury.
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