

## Understanding Back Pain and Healing

### Part I

Neck pain and Low Back Pain (LBP) affects at least 80% of us some time in our lives, perhaps 20-30% of us at any given time. It is usually recurrent, and subsequent episodes tend to increase in severity. It is common in individuals who lead sedentary lives and in those who engage in manual labor. It can occur at any age but is most prevalent during the third to sixth decades of life.

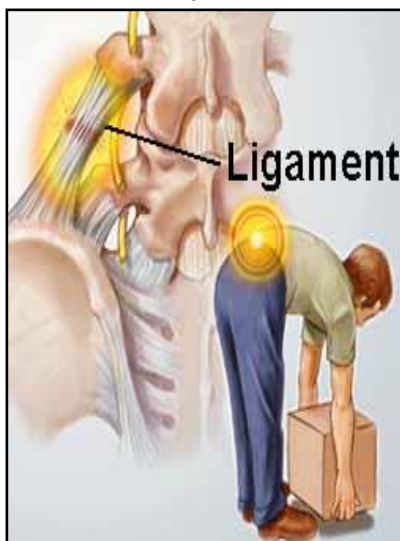
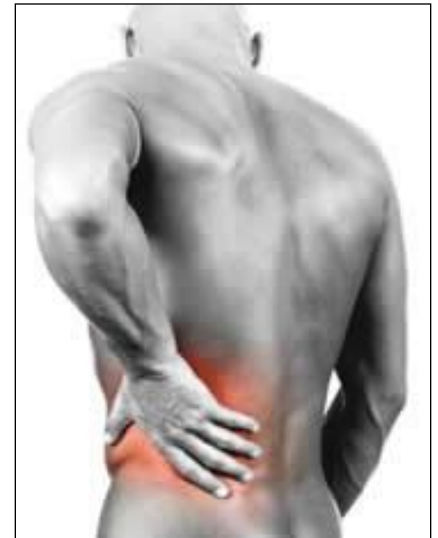
**Costs:** Duke University Medical Center researchers has found that patients suffering from back pain consume more than \$90 billion annually in health-care expenses, with approximately \$26 billion of that amount directly attributable to treating the back pain. Tremendous costs are associated with LBP, including lost productivity and income from work, the expense of medical, rehabilitation, and surgical interventions, and the costs of disabling pain and limited daily function. Back pain is second only to upper respiratory conditions as the stated cause of work loss. The costs for treatment and compensation for LBP in industry may be greater than the total amount spent on all other industrial injuries combined.

However, most of the costs, perhaps 80%, are incurred by about 20% of the LBP patients who then become disabled.

**Common Misconception:** A common misconception often cited is that 90% of back pain will go away on its own without treatment. However, a recent review published in the European Spine Journal in 2003, showed that the reported proportion of patients who still experienced pain after 12 months was 62% (range, 42-75%), dispelling the popular notion that up to 90% of low back pain episodes resolve spontaneously within 1 month.

There is also a large number of Americans who, after trying many standard medical treatments, are still left suffering with serious back pain. If you, or your friends have been told you have to learn to live with the pain, or if you have tried exercises, prescription medications, and/or epidural injections, and you are still suffering, and are now being told you need surgery, then the therapies describe in this report may be just what you are looking for.

**Basic Cause of Back Pain:** Age and gravity are working against us 24 hours a day. Basically, back pain begins when soft tissues (muscles, tendons, ligaments) are overstretched or move excessively. This then results in the spinal vertebra either moving out of proper position, becoming misaligned or mal-positioned, or they become locked or jammed in position. This misaligned vertebra is called a vertebral subluxation. Subluxations occur with normal daily movements, repetitive motions, stress, and physical injuries. This subluxation then causes a protective muscle contraction or muscle spasm which then leads to increased stress on the spinal discs and ligaments and then irritates the nerve fibers in those tissues.



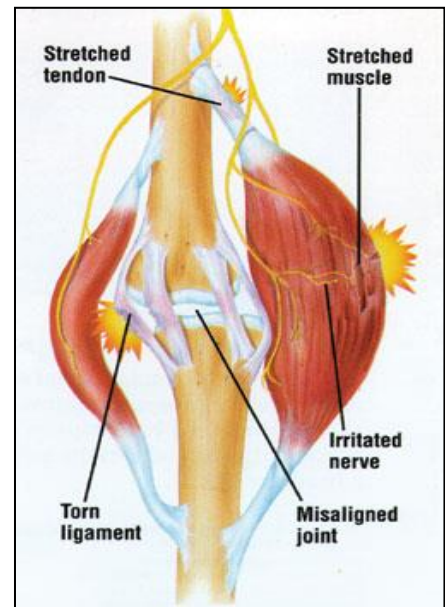
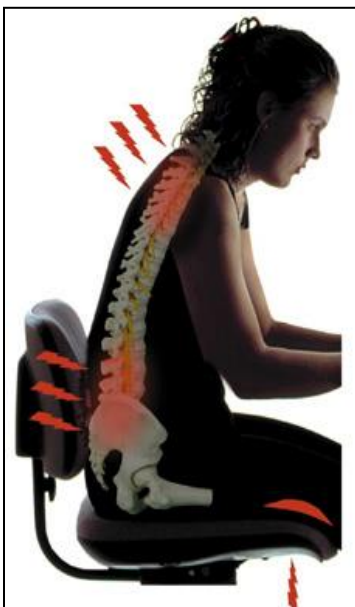
Nerve fibers sensitive to pain penetrate the muscles, tendons and ligaments, and the outer portion the discs. Many times, pain does not appear initially, or it is mild, ignored, or treated with over the counter pain or prescription medications. Pain medications can be very helpful initially, but they only treat the symptoms rather than correcting the underlying cause of the pain. If the joint subluxation is not corrected, the problem will return in time and cause more long-term damage.

Over time, this cycle of vertebral subluxation, muscle contraction or spasm and ligament strain leads to microscopic changes in the spinal tissues which may become permanent and progressively deteriorate into severe, chronic spinal disorders. This then causes increased downward pressure on the intervertebral disc. This cycle can be prevented with regular chiropractic treatments. Just a regular dental cleaning can help to prevent tooth decay, chiropractic can help to prevent spinal decay.

An important thing to understand is that in the majority of back pain cases the spinal discs are to blame. Research shows that the disc is the most common cause of back pain followed by the facet joints and the SI joint. Many people who experience low back pain can't recall what they did to hurt themselves. This is because the disc is only pain sensitive in the outer 1/3. So as the inner portion of the disc migrates outwards no pain is felt, until the outer pain sensitive zone is contacted. Then pain can come on very quickly and seemingly without cause. The disc begins a degenerative process after micro trauma has weakened the outer fibers. This occurs primarily because of the lack of a direct blood supply to the disc. The disc relies on a fluid exchange that occurs with motion from the blood supply in the bones above and below the disc. Once damage has occurred however, the disc begins to weaken as it dries out and becomes more brittle. Recent research also show that once a disc becomes degenerative, it's lack of hydration actually allows an infiltration of pain sensitive nerves. So once the disc is painful, the entire disc becomes pain sensitive. The most common treatments for low back pain don't address this issue. Only one actually increases the amount of hydration into the disc and that is spinal decompression. This treatment accelerates the amount of hydration that goes into the disc so that the disc can regenerate.

**Understanding Injuries:** There are three primary ways in which injuries of the soft tissues in the body can arise:

1. Acute Trauma Conditions: pulls, tears, crush injuries ( macro-trauma).
2. Repetitive Stress: accumulations of small tears over time (micro-trauma).
3. Posture: Your body's response to gravity, chronic bad posture and stresses that occur over time directly related to the way one holds their body, and the body's response to gravity.



Each of these can cause the body to produce scar tissue. Scar tissue is a tough, dense network of collagen fibers that develops to repair/protect the area that has been injured. Excess scar tissue can prevent the muscles and other structures from working properly, which can lead to changes in normal movement, muscle shortening and weakness, misalignment of bones, and even disruption of the movement/structures in the surrounding areas. A compromised muscle, or muscles, not only places more tension on the tendons that attach muscle to bone, which can cause tendonitis/tendonosis, but can irritate nerves that pass through or supply the muscle. This injury process can cause the following symptoms:

- Loss of range of motion of the joint & muscle**
- Loss of strength**
- Aching, pain, tingling, numbness**
- Tissue swelling**
- Spreading of symptoms to surrounding tissues if untreated**
- Further injury and degenerative changes over time (arthritis)**

**Micro-Trauma:** Back pain can develop gradually as a result of micro trauma brought about by repetitive activity over time. Because of the slow and progressive onset of this internal microscopic injury, the condition is often ignored until the symptoms become intense, often resulting in disabling injury. Micro trauma can include the micro tearing of muscle fibers, the sheath around the muscle and the connective tissue. It can also include stress to the tendons, ligaments, spinal discs and to the bones. This microscopic damage can occur either singly or in combination and tissues may be "micro-torn" during micro trauma or physical stress. Most micro trauma causes a low level of inflammation that cannot be seen or felt. The repetitive micro trauma injuries which are not allowed time to heal can result in the development of scarring and weakening of tissues and lead to micro-tears in the soft tissues, which can become swollen and painful. Swelling, in turn, can lead to pressure on the nerves leading to more serious conditions. The best example of a micro-trauma is working in a posture that stresses, progressively weakens, and subtly damages our tissues without an obvious injurious event that one can remember. Inflammation and pain appear to develop slowly on a microscopic level, as there is no significant injurious event like a car accident. Before we know it, we have a chronic, achy type of pain with muscle stiffness that always seems to be around. We often mistakenly shrug these aches and pains off as "aging;" which is only partly true. Research now tells us that aging is driven by joint wear and tear and chronic inflammation.

Acute back injuries can arise from acute blunt trauma, from stressful lifting techniques done without adequate recovery, or work where the extensor spinal muscles are stressed during spinal flexion when much of the load is commonly taken up by the slower to heal ligaments which may not adapt progressively to that stress. While the acute injury may seem to be caused by a single well-defined incident, it is typically due to months or years of poor joint and muscle mechanics resulting in the repetitive micro trauma which finally gives way to acute pain. These types of injuries can be prevented or lessened with the proper muscle training and correction of the joint faulty joint mechanics. Similar to brushing your teeth is an effort to prevent tooth decay, regular muscle training and joint mobilization can prevent musculoskeletal injury and arthritic changes.

Normally, muscles contract and release, however, with excessive stress, the muscle contraction is a generated process, release is not. When muscles tighten and cannot achieve full release, they remain tense and shortened, or contracted. Tight muscles lead to spasm, which lead to tears in muscle fibers. This puts additional strain on the surrounding areas causing increased muscle contraction, tissue irritation and inflammation.

Most often, one pain killer or another is prescribed to alleviate pain. But this just addresses the symptom of pain, not the real issue (muscle fiber adherence that results in spasm), not to mention the inevitable side effects and loss of efficacy over time due to tolerance build-up. If the underlying issue (the muscle spasm and joint dysfunction) is not treated and eliminated, the body will compensate by passing the problem to other muscles and muscle groups (*Law of Recruitment*). By covering up minor problems, we end up creating major ones. It's only a matter of time before you're headed for a more severe or permanent problem!

Breaks and rest allow the body to repair itself; continued work perpetuates the damage. The longer the activity continues, the longer the recovery period is required and the greater the risk of chronic disorder.

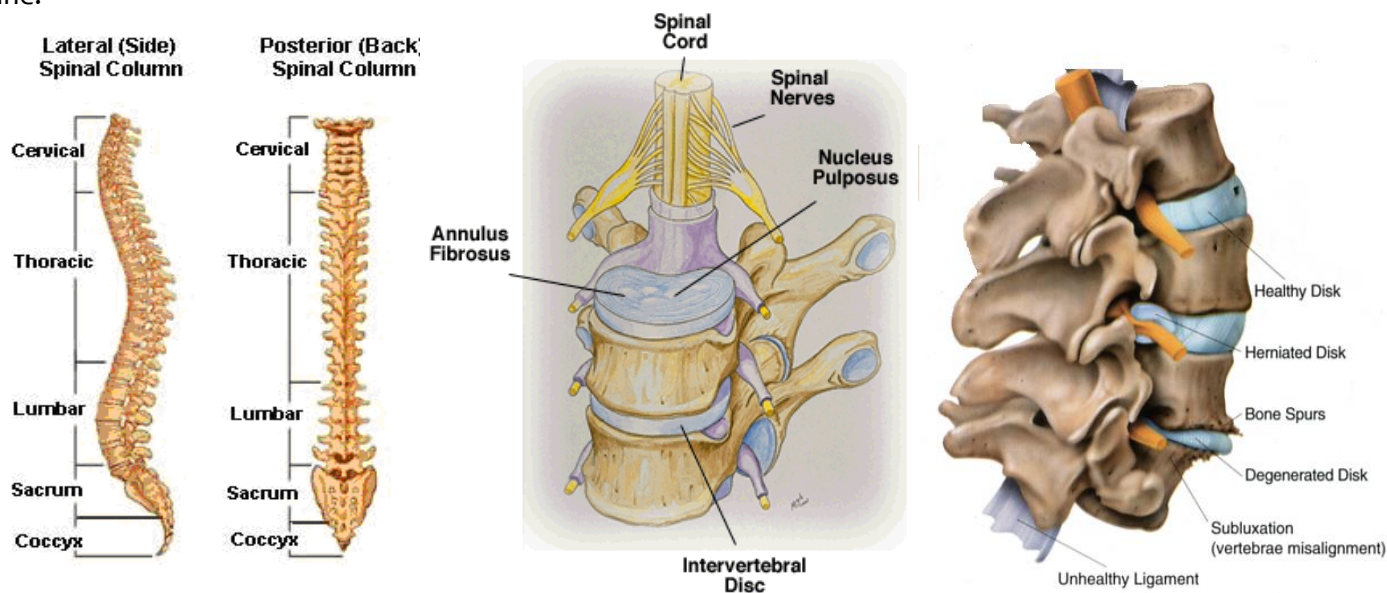
### **Tendon Sheath Inflammation**

Repetitive movements can also damage tendons. When muscles and/or tendons are frequently tense, inflammation can result. Further strain can lead to tears in the tendons. If adequate rest is not taken, the tendon fibers cannot heal, and may be permanently weakened.

Tendons glide within sheaths lubricated by synovial fluid. If this fluid is diminished or thickened from overuse or prolonged static postures, friction between the tendon and sheath can result. The sheath becomes swollen and inflamed, leading to pain. Repeated forced movement may cause the inflammation of additional tissues, which can lead to permanently swollen tendon sheaths. When you work or sit in static postures, circulation can be impeded. When the blood flow to an active muscle is impaired, waste products accumulate and the oxygen supply is diminished, which can over time impair muscle function. The development of fatigue is probably related to the adequacy of blood supply. This tendency can be offset by getting up and walking around regularly during breaks. Most people do not take breaks frequently enough, nor do they have an accurate idea of how much time has passed since they began working. They need timed reminders to be sure they take regular breaks.

**Inflammation:** The inflammatory process, also called inflammation, is best viewed as the body's response to injury, and the function of inflammation is tissue healing. In short, the inflammatory process is a chemical process, and no matter the source of injury, inflammation is the outcome. From a practical perspective, we are all dealing with the inflammatory process at this moment to varying degrees, and this is because we all experience injury on a daily basis, which is either overt (macro-trauma) due to falls and accidents, or subtle (micro-trauma) due to normal activities of daily living. Some of us heal better than others, and part of this is a genetically determined issue; and it is also a dietary issue.

**The Human Spine:** The typical human spine contains 24 moveable spinal vertebra and 23 intervertebral discs. The spine sits upon the sacrum or tailbone. As an infant, when we begin to hold our head up, we develop a reversed C shape spinal curve or lordosis in cervical region. As we learn to stand and walk, we develop a lordotic curve in the lumbar spine.

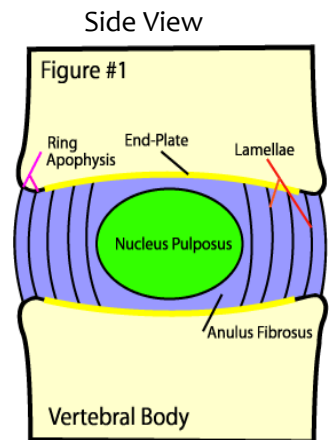
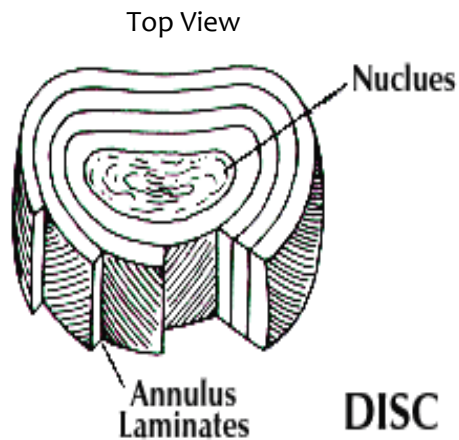
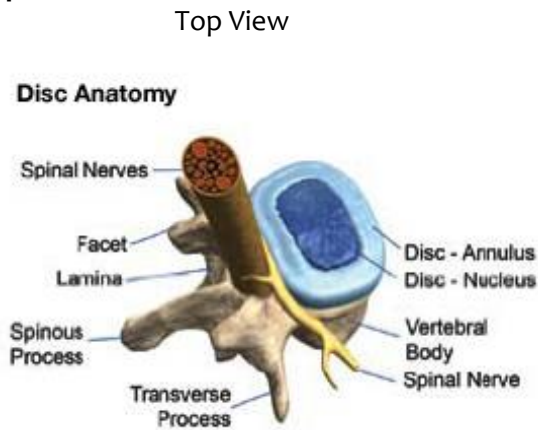


These curves are absolutely essential for proper biomechanical function of the spine, discs, muscles and ligaments. Over time, with age, injuries and postural changes, a loss or change of these vital curves leads to increased stress and wear & tear on the vertebra, muscles and discs.

The spinal vertebra protects the delicate tissues of the spinal cord and spinal nerves. The spinal cord and nerves allow the brain to communicate with all the bodies organs and muscles via electrical signals. In between the vertebra are the spinal discs. The discs function to separate each vertebra so the spinal nerves can exit from the spinal cord. The discs also function as a shock absorber to dissipate the constant downward forces of gravity, body weight and body motion.

**Disc Anatomy:** The 23 intervertebral discs between the spinal vertebrae are doughnut shaped pieces of cartilage, which are one fourth to a half an inch thick. At the center of discs is the nucleus pulposus, a stiff gel-like material (similar to Jell-O) necessary to dissipate the compressive forces of spinal movements, the downward effects of gravity, and body weight. Water makes up about 70%-80% of the nucleus pulposus although the exact percentage varies with age. Bio-mechanically, the fluid nature of the nucleus allows it to be deformed under pressure, but as a fluid, its volume cannot be compressed. When subjected to pressure from any given direction, the nucleus will attempt to deform and transmit the applied pressure in all directions. The center nucleus is contained and surrounded by a series of tough, concentric rings of specialized proteins linked together to form the cross linked layers of cartilage. This structure enables the disc to withstand continuous compressive forces when the spine functions properly. These physical characteristics of the discs permit them to serve as shock absorbers during the constant loading of the vertebral column with daily activities.

## Spinal Disc Function



Since the spinal discs are 70% - 80% water, continuous downward pressure forces water and nutrients out of the disc. And since the discs do not have any blood vessels, nutrients and water have to be pumped inside the disc thru motion, exercise and when the joint is not functioning properly, thru spinal manipulation and spinal decompression.

Imagine standing on a sponge, with constant downward pressure, water would be forced out of the sponge. You would need to take your foot off of the sponge to allow the water to be absorbed. Similarly, the spinal discs need to have the pressure reduced to allow water and nutrients to enter the disc to allow healing of the damaged tissues. Over time and with injuries, the outer fibers of the disc become weakened.

Micro-trauma, poor posture, repetitive stress, poor nutrition are all major factors in the degenerative changes. Spinal disc damage occurs on the microscopic level from both structural / physical damage and chemical / nutritional deficiencies.

The onset of Spinal Disc Thinning, Disc Herniations & Ruptures and Degenerative Disc Disease (known as DJD) can often be subtle. Morning stiffness or minor aches are often the first symptoms. As the disease progresses, there is pain during motion of the involved joint, which is made worse by prolonged activity and relieved by rest.

Disc disorders can be divided into 2 categories, Traumatic and Degenerative. Traumatic Disc Disorder occurs following significant spinal trauma (such as auto accidents & sports injuries). When a large amount of external force is quickly applied to the disc, the outer fibers of the disc are damaged, torn and weakened allowing the central portion (the nucleus pulposa) to bulge or herniated.

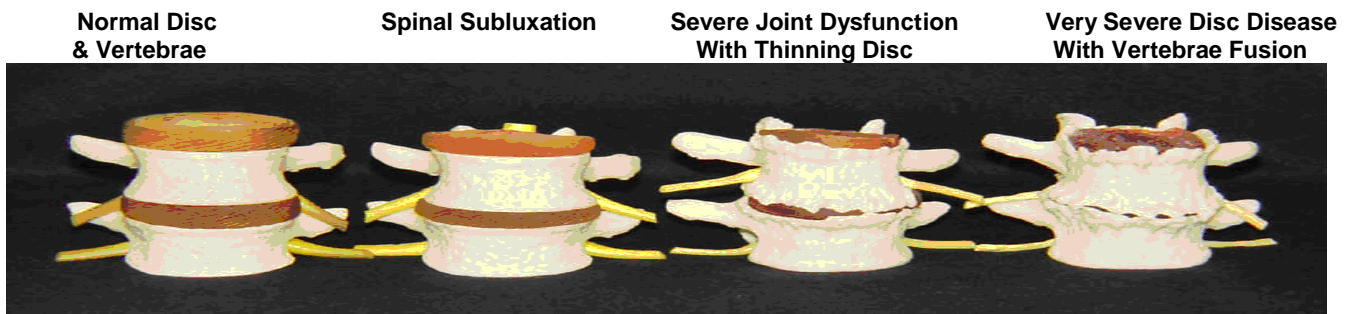
In Degenerative Disc Disease (DJD) the “wear and tear” process occurs slowly over time due to repetitive micro-trauma. This repetitive micro-trauma is caused by spinal muscle tightening, joint mis-alignment, spinal subluxation due to over-use, poor posture, abnormal spinal curvatures and minor injuries. DJD and Osteoarthritis (OA) usually occur simultaneously. Failure to treat these injuries correctly leads to the slowly developing permanent disc damage and bone changes. The cumulative effects over the years, leads to degenerative changes in the collagen matrix of the cartilage. Damage to the cartilage results in the release of enzymes that further destroy the spinal cartilage components.

It is said that your body remembers every injury that has occurred over the years in the form of scar tissue. Old injuries can later resurface as a variety of symptoms such as muscle stiffness, joint pain, reduced range of motion, muscle spasms and later arthritis. Just like every deep cut to the skin leaves a scar, every injury or form of trauma to the “soft tissues” (muscles, tendons, ligaments, discs and connective tissue) leaves a scar which can permanently effect the function of that area at least on a microscopic level.

Over the years, the altered function of the injured area often leads to more permanent changes to the structural supporting tissues; the bones, discs. This altered function is osteoarthritis (OA), which is a defect in the bone and/or cartilage size, shape, function and cellular make-up. In OA/Joint Injuries, there is a switch from tissue building to tissue destruction. This makes OA both a structural disorder as well as a metabolic disorder, meaning treatment must consist of *both* correction of biomechanical alteration of the joints and supplementation of nutritional defects and deficiencies.

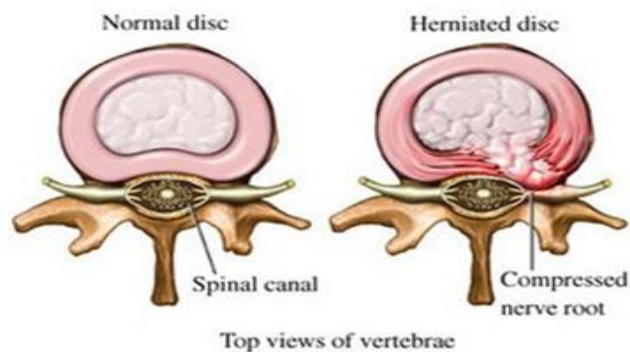
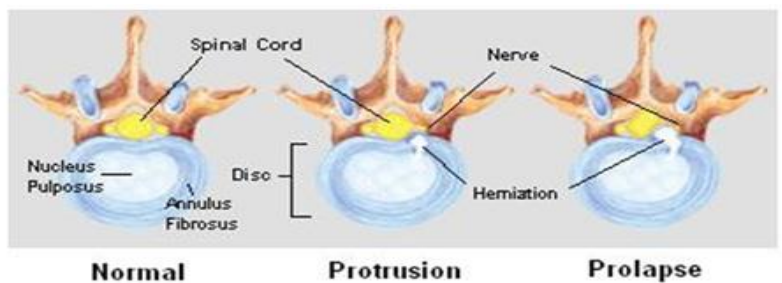
The cells which make and repair cartilage (chondrocytes) no longer do their job efficiently. In healthy joints, cartilage is manufactured and maintained without incident. But in OA and Joint Injuries, there is a disruption in this process and the cartilage that is produced is weaker and becomes soft. Then it becomes pitted and frayed. Finally, it wears away altogether. Proper nutritional supplements for OA/Joint Injuries are called chondroprotective nutrients. These nutrients help restore the healthy tissue building process to normal and repair and reverse the years of tissue damage, which is OA.

Its important to look at the injuries that can lead to OA, particularly in regard to what happens to joints after they have been damaged. That way, by intervening early with nutritional weapons, you can further protect yourself from later consequences. Injuries can be either acute or chronic. A sudden blow to the joint is an example of an acute injury. There's usually a rapid change in the joint structure, including damage to the cartilage. Chronic joint injuries happen over time, as a result of repetitive motion, nutritional deficiencies, overuse and joint mal-position. Chronic injuries to the spine result in joint mal-position and disc degeneration.



Although ‘bulging disc’ is a popular term, it is usually not representative of what is really going on at the spinal level. It is used because it is easy to understand. Most people really have a herniated disc. This again is a broad category, which further breaks down into two more diagnostic terms. By strict definition, a broad-based herniation involves between 25 and 50% of the disc circumference. A focal herniation involves less than 25% of the disc circumference. Herniated discs may take the form of protrusion or extrusion based on the shape of the displaced or herniated material.

The disc is composed of layers of ligaments (annulus fibrosis) arranged in a criss-crossing matrix that hold in a gel-like substance (nucleus pulposus), giving the disc its "shock-absorbing" ability.

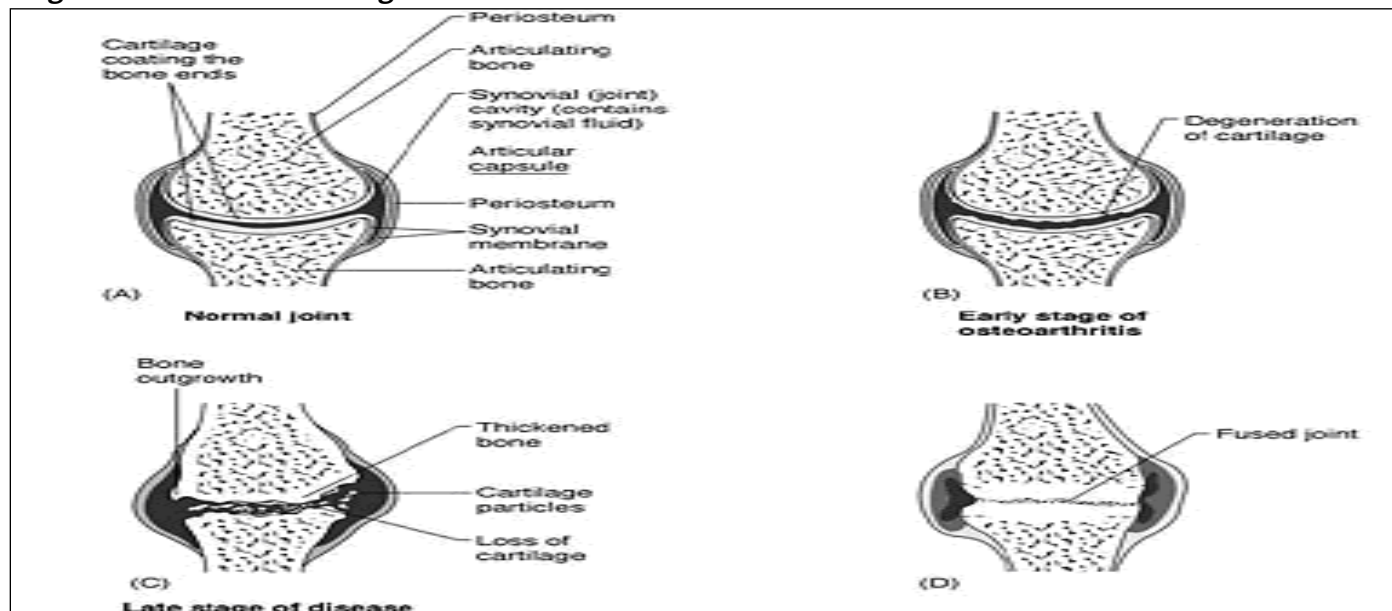


The simple fact is that if you have a herniated disc, the disc material can press on the nerve roots or central nerves running through the central canal where the spinal cord lives. This can produce serious back and leg pain, as well as, numbness, tingling, and muscle weakness.

Occasionally, the disruption and injury in the annulus fibrosis can be the source of back pain. The outer 1/3 of the annulus fibrosis has a nerve supply, and if the center nuclear materials are migrating through the weakened annulus, this can cause pain.

This condition is sometimes referred to as internal disc disruption. This is very difficult to see on MRI or CT scans and is considered to be the early stages of a herniated disc, although it is still not visible on advanced imaging. This condition responds well to non-surgical spinal decompression, allowing blood, water, and nutrients to enter the disc and begin healing the damaged annulus fibrosis.

### Diagram of Joint Arthritis Progression



Spinal Decompression Traction Therapy can be very effective in treating these difficult conditions. The treatment results in an unloading of the offending disc structures, which in turn creates a negative intradiscal pressure inside the disc. This facilitates water and nutrient exchange into the disc, thus, allowing the injury to heal. It also can cause a vacuum-like effect, allowing the displaced materials to return to a more centralized position. Over time, this treatment allows collagen, one of the body's healing proteins, to form. Collagen can then repair the cracks and fissures in the annulus fibrosis. In addition, the inner matrix material of the disc becomes healthier with the exchange of water and nutrients. Spinal stabilization rehab exercises should follow a common sense spinal decompression therapy program.

### Chiropractic is extremely effective here.

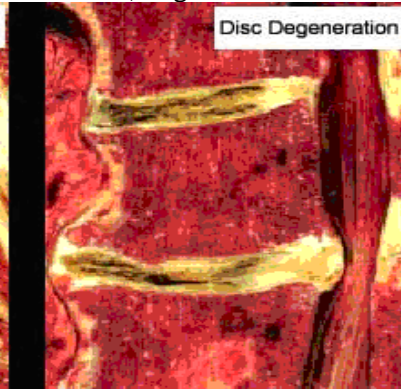
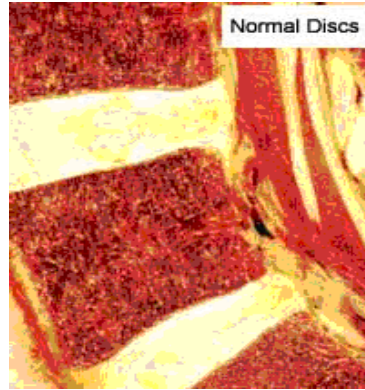
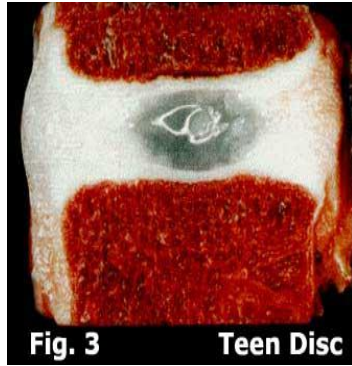
Healthy cartilage when seen under a microscope should be very smooth like glass or ice. But when damage has occurred such a physical trauma or inflammation, the cartilage surface becomes damaged, pitted, cracked and brittle. The intervertebral discs between the spinal vertebra are doughnut shaped pieces of cartilage, which are one fourth to a half an inch thick. At the center of discs is the nucleus pulposus, a stiff gel-like material that helps to dissipate the compressive forces of spinal movement and the downward effects of gravity and body weight.

Bio-mechanically, the fluid nature of the nucleus allows it to be deformed under pressure, but as a fluid, its volume cannot be compressed. When subjected to pressure from any given direction, the nucleus will attempt to deform and transmit the applied pressure in all directions. Water makes up about 70% of the nucleus pulposus although the exact fraction varies with age. The next major components of the discs are proteoglycans; which are groups of proteins linked together to form cartilage material. The nucleus is circled by a series of tough, concentric rings and layers of cartilage. This structure enables the disc to withstand continuous compressive forces. The physical characteristic of the discs permit them to serve as shock absorbers when the load on the vertebral column is increased with daily activities.

## Cross Section of Human Cadaver Lumbar Spine & Disc

Normal Health Disc is Thick & White

Diseased, Degenerated disc is Grey



The spinal discs have a very poor blood supply, with only blood vessels around the outer edge of the disc. When there is an increase in downward compressive forces due to mal-position and postural changes and as we age, the blood supply to the disc is reduced. Smoking, many drugs, posture and lack of proper spinal motion greatly reduces this blood supply. Remember that the blood brings vital nutrients to all the tissues of our body. When there is decreased blood flow, there is decreased nutrition to the disc.

Loss of motion restricts blood flow, while proper joint motion increases the blood flow to the discs and other areas of cartilage. Undernourished disc cells set the stage for a lot of aches and pains. The cartilage cells (chondrocytes) can be stimulated to repair damaged cartilage with reduced pressure, proper motion and nutrition. What are the treatment options to properly address all of these issues?

### Treatment Options

Most low back pain can be treated without surgery. Treatment involves using analgesics, reducing inflammation, restoring proper function and strength to the back, and preventing recurrence of the injury.

**Ice & Heat:** Although ice and heat (the use of cold and hot compresses) have never been scientifically proven to quickly resolve low back injury, compresses may help reduce pain and inflammation and allow greater mobility for some individuals. As soon as possible following trauma, you should apply a cold pack or a cold compress (such as a bag of ice or bag of frozen vegetables wrapped in a towel) to the tender spot several times a day for up to 20 minutes. After 2 to 3 days of cold treatment, they should then apply heat (such as a heating lamp or hot pad) for brief periods to relax muscles and increase blood flow. Warm baths may also help relax muscles. Patients should avoid sleeping on a heating pad, which can cause burns and lead to additional tissue damage and inflammation.



**Bed Rest:** 1–2 days at most, and **only** for the severe cases. A 1996 Finnish study found that persons who continued their activities without bed rest following onset of low back pain appeared to have better back flexibility than those who rested in bed for a week. Other studies suggest that bed rest alone may make back pain worse and can lead to secondary complications such as depression, decreased muscle tone, and blood clots in the legs. Patients should resume activities as soon as possible. At night or during rest, patients should lie on one side, with a pillow between the knees (some doctors suggest resting on the back and putting a pillow beneath the knees). Alternate the use of ice for 15 minutes for pain and moist heat for 15 minutes to relax muscle tightness, always end with ice.



**Exercise:** Exercise can be an effective way to assist in recovery from low back pain and help strengthen back and abdominal muscles. But the research shows specific core strengthening exercises under the doctor supervision is most effective. Maintaining and building muscle strength is particularly important for persons with skeletal irregularities. Doctors and physical therapists can provide a list of gentle exercises that help keep muscles moving and speed the recovery process. A routine of back-healthy activities may include stretching exercises, swimming, walking, and movement therapy to improve coordination and develop proper posture and muscle balance. Yoga is another way to gently stretch muscles and ease pain. Any mild discomfort felt at the start of these exercises should disappear as muscles become stronger. But if pain is more than mild and lasts more than 15 minutes during exercise, patients should stop exercising and contact a doctor.

**Medical Treatment:** Traditional medical treatments for back pain are pain killers such as non-steroid anti-inflammatory medication (NSAID's). Pain management may be helpful to reduce the severe pain levels but should only be used for very short periods. Medication helps to reduce pain and inflammation but rarely treats or corrects the underlying cause of the condition and are rarely effective longterm. Of course, most medications can not / should not be used long-term due to the serious side effects. Imagine the dashboard oil warning light goes on in your car, would you cover the light bulb up so you don't see it or take the light bulb out, or would it make more sense to find the reason the warning light came on and perhaps add oil to the engine.

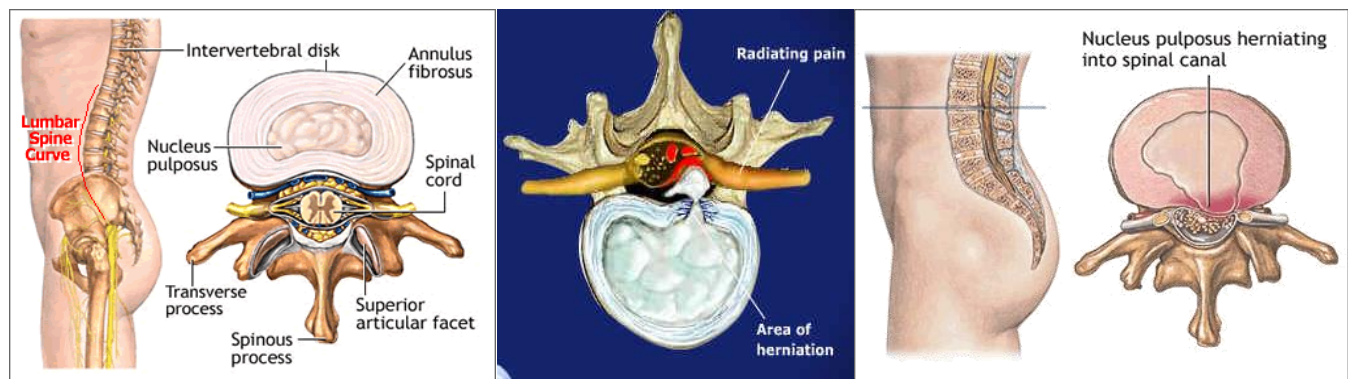
**Medications:** Medications are often used to treat acute and chronic low back pain. Effective pain relief may involve a combination of prescription drugs and over-the-counter remedies. Patients should always check with a doctor before taking drugs for pain relief. Certain medicines, even those sold over the counter, are unsafe during pregnancy, may conflict with other medications, may cause side effects including drowsiness, or may lead to liver damage. Over-the-counter analgesics, including nonsteroidal anti-inflammatory drugs (aspirin, naproxen, and ibuprofen), are taken orally to reduce stiffness, swelling, and inflammation and to ease mild to moderate low back pain. Counter-irritants applied topically to the skin as a cream or spray, stimulate the nerve endings in the skin to provide feelings of warmth or cold and dull the sense of pain. Topical analgesics can also reduce inflammation and stimulate blood flow. Many of these compounds contain salicylates, the same ingredient found in oral pain medications containing aspirin. Anticonvulsants — drugs primarily used to treat seizures — may be useful in treating certain types of nerve pain and may also be prescribed with analgesics. Some antidepressants, particularly tricyclic antidepressants such as amitriptyline and desipramine, have been shown to relieve pain (independent of their effect on depression) and assist with sleep. Antidepressants alter levels of brain chemicals to elevate mood and dull pain signals. Many of the new antidepressants, such as the selective serotonin reuptake inhibitors, are being studied for their effectiveness in pain relief. Opioids such as codeine, oxycodone, hydrocodone, and morphine are often prescribed to manage severe acute and chronic back pain but should be used only for a short period of time and under a physician's supervision. Side effects can include drowsiness, decreased reaction time, impaired judgment, and potential for addiction. Many specialists are convinced that chronic use of these drugs is detrimental to the back pain patient, adding to depression and even increasing pain.

Please keep in mind that NSAID's have an inherent risk of gastrointestinal (GI) ("stomach" and "intestinal") disorders such as: perforation, ulceration and hemorrhages. The New England Journal of Medicine reported that it has been conservatively estimated that 16,500 NSAID-related deaths occur every year in the United States, and conservative calculations estimate that approximately 107,000 Americans are hospitalized every year due to NSAID related GI complications. The number of deaths reported in the same study due to AIDS was 16,685. In addition to gastrointestinal disorders, drugs such as VIOXX have been known to cause serious cardiovascular (CV) events such as: heart attacks, strokes and heart failure. There have been similar complaints from other NSAID's such as: Bextra and Celebrex.

**Epidural Injections:** Injection within the epidural space of the spinal cord with corticosteroids, lidocaine or opioids may appear to reduce pain in some patients, they have no proven benefit in treating neck or upper back symptoms. In the instances that people find improvement, the effects are often temporary and require repeat injections, and several per year are not uncommon. There is also an increase in risk in contracting a spinal infection that can lead to meningitis. In fact, the results of a randomized, double-blind trial, published in the June 2003 issue of the Annals of Rheumatic Diseases indicated that an epidural steroid injection was no better than an epidural saline ("salt water") Injection (i.e. placebo) for sciatica. These findings are consistent with those of another definitive trial presented at the a recent American College of Rheumatology meeting. This is not an effective procedure!

**Surgery:** Spinal surgery is a very serious procedure and should always be the absolute last resort after all conservative treatment options have been tried. Spinal surgery has many long-term side effects and a potential for chronic pain, back weakness, paralysis, even death. Given that there have been advances in spinal surgery, the outcomes can still be very unpredictable. In failed back surgery, post-operative pain syndrome is a very disabling and troubling reality of surgical intervention. According to the 2002 Johns Hopkins White Paper on “Low Back Pain and Osteoporosis “\* by John P. Kostulka, M.D. and Simeon Margolis, M.D., PhD., surgery "is not the treatment of choice for most people with back pain." The report goes on to say “fewer than 5% of people with back pain are good candidates for surgery”. "Surgery ought to be used when all other measures have been explored, and only if it appears that there is a strong probability that it will improve the condition." An article in Spine reviewed the outcomes and complication rates for surgical intervention in degenerative disc disease. Complication rates were as high as 55% and included: hematoma, neurologic adjacent segment degeneration, infection and hardware/instrument-related issues. Another study determined the effects of single-level (2 vertebrae) and 2-level (3-4 vertebrae) spinal fusion success rates reported 53% with "good" and "fair" results with single- level fusion and no "good" results with 2-level fusions. Having read about the possible side effects relating to these “traditional” treatments, you might want to consider the drugless, non-surgical approach that Non-Surgical Spinal Decompression has to offer.

**Physical Therapy:** Physical Therapy (PT) rehabilitation is excellent to help strengthen the para-spinal muscles once the proper spinal joint mechanics have been restored and the pain is reduced. But it is important the correct the joint subluxations with chiropractic treatment and reducing the pain along with rehab. Physical therapists provide services that help restore function, improve mobility, relieve pain, and prevent or limit the permanent physical disabilities of patients suffering from injuries or disease. Treatment often includes exercise, especially for patients who have been immobilized or who lack flexibility, strength, or endurance. Physical therapists encourage patients to use their muscles to increase their flexibility and range of motion. More advanced exercises focus on improving strength, balance, coordination, stabilization and endurance. The goal is to improve how an individual functions at work and at home.



**Massage:** Massage Therapy (MT) can be helpful to reduce muscle spasms and stress, but again, it does not address the underlying cause, which is the joint mis-alignment or subluxation and muscle weakness. It's a great adjunct to the doctor's work: to prepare for treatment before, or to help integrate it afterwards, lowering anxiety levels, giving you a sense of well being; relaxing tight muscles, releasing endorphins, the body's own natural pain killers. Incorporating massage therapy in addition to Chiropractic and Physical Therapy is a great adjunct to help speed recovery. Look for an experienced massage therapist with training in sports massage or deep tissue massage.

**Chiropractic:** Doctors of Chiropractic – often referred to as chiropractors or chiropractic physicians – practice a drug-free, hands-on approach to health care that includes patient examination, diagnosis and treatment. Chiropractors have broad diagnostic skills and are also trained to recommend therapeutic and rehabilitative exercises, as well as to provide nutritional, dietary and lifestyle counseling. Chiropractic Manipulation Therapy (CMT) corrects the spinal subluxation, which over time, restores proper joint motion / joint mechanics, which then allows the muscle and ligaments to become more relaxed. This reduces the downward pressure on the spinal disc, thereby addressing the basic cause. Chiropractic treatment is safe, natural, and can be effective for acute and chronic low back pain and disc injuries. This treatment allows movement and distraction of the vertebra reducing pressure on the disc and gently stretching the muscles and ligaments.

The most common therapeutic procedure performed by doctors of chiropractic is known as “spinal manipulation,” also called “chiropractic adjustment.” The purpose of manipulation is to restore joint mobility by manually applying a controlled force into joints that have become hypomobile – or restricted in their movement – as a result of a tissue injury. Tissue injury can be caused by a single traumatic event, such as improper lifting of a heavy object, or through repetitive stresses, such as sitting in an awkward position with poor spinal posture for an extended period of time. In either case, injured tissues undergo physical and chemical changes that can cause inflammation, pain, and diminished function for the sufferer. Manipulation, or adjustment of the affected joint and tissues, restores mobility, thereby alleviating pain and muscle tightness, and allowing tissues to heal.

Chiropractic adjustments are extremely safe, effective and rarely causes discomfort. However, patients may sometimes experience mild soreness or aching following treatment (as with some forms of exercise) that usually resolves within 12 to 48 hours. Each year, more and more research proves that Chiropractic treatment for neck and low back pain is very safe and effective and should be the first choice of treatment options, and followed by Physical Therapy for active back exercises to strengthen the core muscles.

**Spinal Decompression Traction Therapy:** Spinal Decompression Traction is a newer technology used primarily to treat disc injuries in the neck and in the low back. Spinal Decompression Traction is a computer controlled, specialized traction unit designed to reduce the intra-disc pressure allowing the central disc nucleus to essentially be reabsorbed and also allowing vital nutrients and water to be pulled back into the disc for cellular repair to occur. This treatment option is very safe and utilizes FDA cleared. The spinal distraction is offset by cycles of partial relaxation. This technique of spinal decompression therapy, that is, unloading due to distraction and positioning, has shown the ability to gently separate the vertebrae from each other, creating a vacuum inside the discs that we are targeting.

This "vacuum effect" is also known as negative intra-discal pressure. The negative pressure may induce the retraction of the herniated or bulging disc into the inside of the disc, and off the nerve root, thecal sac, or both. It happens only microscopically each time, but cumulatively, over four to six weeks, the results are quite dramatic. The cycles of decompression and partial relaxation, over a series of visits, promote the diffusion of water, oxygen, and nutrient-rich fluids from the outside of the discs to the inside. These nutrients enable the torn and degenerated disc fibers to begin to heal.

For the low back, the patient lies comfortably on his/her back or stomach on the decompression table, with a set of nicely padded straps snug around the waist and another set around the lower chest. For the neck, the patient lies comfortably on his/her back with a pair of soft rubber pads behind the neck. Many patients enjoy the treatment, as it is usually quite comfortable and well tolerated. Spinal Decompression Traction is very effective at treating bulging discs, herniated discs, pinched nerves, sciatica, radiating arm pain, degenerative disc disease, leg pain, and facet syndromes.

**High Power Laser Therapy** High power Laser therapy is the state-of-the-art and highly effective method of treating chronic or acute pain and other neuropathies by actually accelerating the cells natural healing process in areas of the body previously only visited by drugs or surgery. Cells that are damaged and poorly oxygenated as a result of inflammation, swelling or trauma have been shown to have a significantly higher response to laser therapy irradiation than normal healthy cells. At a cellular level there are photoreceptors, that when stimulated by deep penetrating photons, activate a biochemical cascade of events resulting in increased DNA/RNA synthesis, increased cAMP levels, protein and collagen synthesis and cellular proliferation. The product of these reactions is rapid regeneration, normalization and healing of damaged cellular tissue. Photonic stimulation is the trigger for these metabolic changes. During each session, the Class IV Laser's energy increases circulation, drawing water, oxygen and nutrients to a painful and damaged area.



### **Conclusion:**

Therefore, proper management and treatment of back pain requires treating both the physical/structural component and the chemical/nutritional component. Use pain medication only in the extreme cases and for short term. Chiropractic spinal manipulation therapy (CMT) and Spinal Decompression to address the physical / structural damage, Physical Therapy later to address the muscle weakness and imbalances, and recommended specialized nutrients to address the chemical / nutritional deficiencies. Research has proven the combined approach of Chiropractic , Decompression, Laser and Physical Therapy exercises is more effective than either one on its own.



## Nutritional Requirements for Disc & Joint Repair

**Glucosamine Sulfate** (GS) is one of the most important nutritional supplements for joint, cartilage and disc repair and health. What makes Glucosamine so special for joint health? Glucosamine is a modified sugar molecule manufactured by the chondrocytes of the cartilage in our bodies from blood sugar glucose and an amino acid called glutamine. Unfortunately, the chondrocytes can not simply make more Glucosamine any time they need to repair cartilage. During joint degeneration and arthritis, chondrocytes have been “reprogrammed” to destroy cartilage. Manufacture of new cartilage cannot keep pace with the destruction. In some severe joint damage, chondrocytes have been told to stop making Glucosamine. Supplemental Glucosamine can actually reverse the breakdown of cartilage and rebuild it. Glucosamine can do this because it is almost completely absorbed from the gut into the blood stream. Like other nutrients, some Glucosamine finds its way to the synovial fluid and blood vessels surrounding the cartilage, where it diffuses into the cartilage. There, chondrocytes eagerly take up Glucosamine, so the manufacture of new collagen & cartilage can take place.

Once inside the chondrocyte, Glucosamine is known as a rate-limiting chemical. This means that the chondrocytes determine whether or not they can make more cartilage by how much Glucosamine is present. The more Glucosamine, the more cartilage repair. Less Glucosamine, less repair. The quality and purity of the GS is extremely important for absorption through the intestines into the blood stream and absorption into the cells to obtain beneficial results. Recommended therapeutic dose is 1200 – 1500 mg per day in divided doses. Glucosamine Sulfate has been shown to be more effective than Glucosamine HCL. Read the labels, cheaper is not better. Cheaper retail store brands have fillers and binders which can prevent complete absorption. These fillers can cause allergic and inflammatory reactions within the intestinal lining further decreasing the effectiveness of the product, which means the need for larger dosages to achieve desired results.

The Glucosamine you ingest in tablet form can convince your chondrocyte cells to rebuild, repair, and maintain healthy joints. Think of the chondrocytes as microscopic biochemical factories combining Glucosamine and other nutrients to produce cartilage. Chemical and physical stress, age, poor diet, drugs and other pollutants mean that chondrocytes cannot always produce enough Glucosamine, and degeneration occurs. Remember, chondrocytes have a major disadvantage when it comes to their metabolism; they have a very poor blood supply. Glucosamine Sulfate is extremely safe, with no side effects, toxicity or drug interactions. Recommended Product: **ArthroGenX**

Water in the form of purified water, not coffee or soda, is required for life. The human body is composed of approximately 60% - 70% water. The average person has a total body water content of about 10 gallons. Each day the body requires an intake of over 2 quarts of water to function optimally. About 1 quart each day is provided in the foods we eat. Which means we must drink *at least* one quart of water per day to maintain good water balance. We need to replace the water that is lost through urination, sweat, and expired through our lungs. More liquids are needed in warmer climates or for physically active people, and the elderly, especially with prescription medications. Drink *at least* 6 – 8 large glasses of purified water each day.

**Minerals** are required for all enzymatic reaction in the body. Since the soil is deficient, the diet is deficient in minerals. Heart disease, diabetes, osteoporosis and muscle spasms are due to lack of minerals. A Comprehensive Multi-Vitamin / Multi-Mineral taken with each meal is required to supply the numerous nutrients which are necessary to maintain health. Look for a multi-vitamin/multi-mineral which contains amino acid chelated minerals for more complete absorption.

**Essential Fatty Acids** (EFA's) from Fish Oil in a purified form, are needed for repair of all damaged cell walls and to control inflammation naturally. Over 1 trillion cells in our body, each cell has a membrane made up of specialized fats. Without proper fatty acid balance, the body can not heal, and chronic disease develops. EFA are also an effective anti-inflammatory at therapeutic doses. Recommended daily therapeutic dose is 1 – 3 grams daily in divided doses. Recommended Products: **ArthroGenX, UltraGenesis Multi-Vitamin/Multi-Mineral, EPA/DHA Concentrate**

More Info at: [www.Bio-Genesis.com](http://www.Bio-Genesis.com)



## ***Do You Suffer From:***

***Herniated Disc  
Spinal Stenosis***

***Multiple Herniated Discs  
Degenerative Disc Disease***

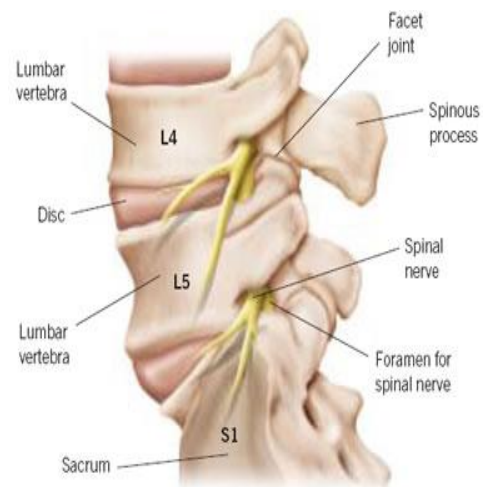
***Chronic Neck or Back Pain  
Facet Syndrome***

***We Can Help! Safe, Non-Surgical, Non-Invasive, Drugless Therapy is Here!***

### **Part II Understanding Spinal Decompression Therapy**

Decompression Therapy is a modern, high tech, non-surgical traction procedure that effectively treats disabling low back, neck, and radiating leg and arm pain. This type of traction is very successful in relieving pain associated with disc herniation, degenerative discs, and posterior facet syndromes, due to decompression of spinal discs and facet joints. Since 2006, I have had great success using this treatment in my private practice on patients of all ages, (youngest 24, oldest 85) as well as success in my work with the Naval Health Clinic treating the United States Marines.

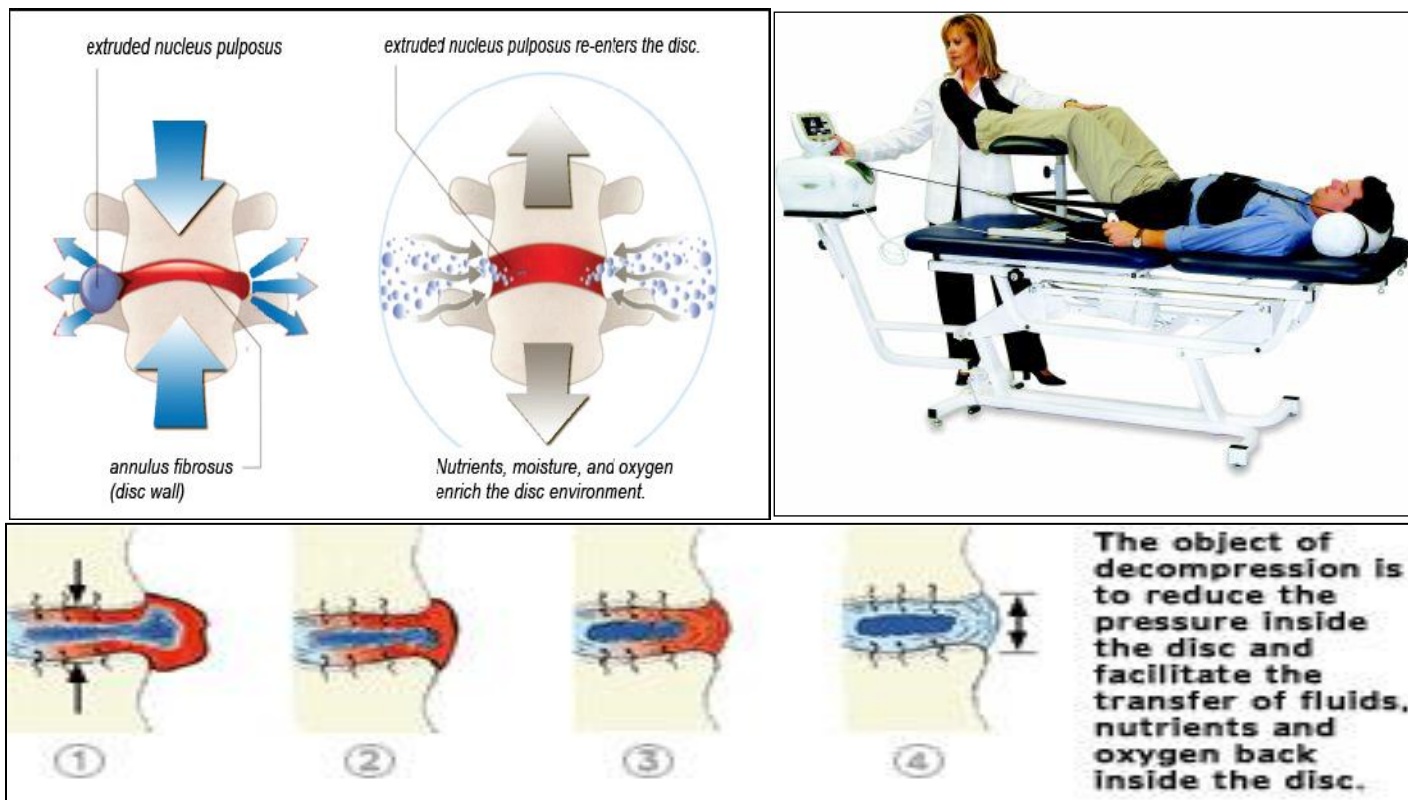
This therapy effectively enhances the healing process and renders quick, effective and amazing pain relief that enables most patients to return to a more active lifestyle. Research to develop this procedure was conducted by prominent physicians, engineers and technicians at major teaching hospitals.



Our DTS Triton traction system is FDA approved and has been clinically proven with a very high success rate for the pain and symptoms associated with herniated and/or bulging discs... even after failed back surgery.

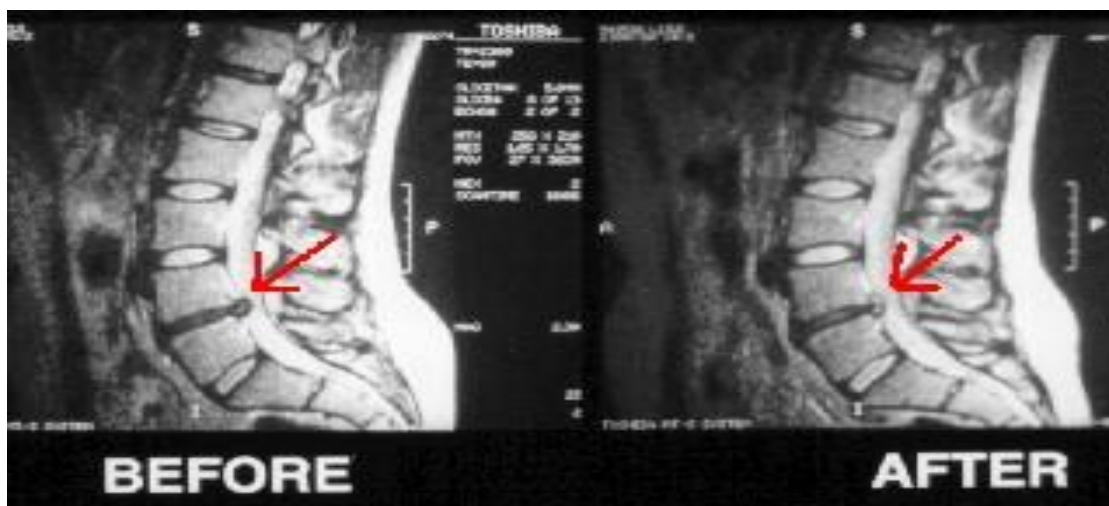
Research indicates that the disc is responsible for a significant number of lumbar/leg pain and neck/arm pain syndromes. Compression increases internal disc pressure leading to possible protrusion, herniation and bulging of disc material. Decompression therapy in conjunction with the additional treatment modalities provided in our clinic can, in most cases, effectively relieve the pain and disability resulting from disc injury and degeneration, aiding in the healing of damaged discs and reversing dystrophic changes in nerves. DTS Triton spinal traction treats the functional and mechanical aspects of disc pain through non-surgical traction (decompression) of spinal discs.

The computer controlled DTS Triton spinal traction equipment is designed to apply distraction and decompression to the patient's spine without producing reflex paravertebral muscle contractions. By significantly reducing internal disc pressure, DTS Triton spinal traction promotes retraction of the herniation back into the disc and promotes intake of fluids, oxygen and other substances necessary for healing the disc. This activity stimulates repair and inhibits leakage of materials from the nucleus of the disc.



Clinical studies verify the significant reduction of internal disc pressures which result in the non-surgical traction of the disc and nerve root. Older, conventional traction has never demonstrated a reduction of this internal disc pressure; on the contrary – many older traction devices actually increased internal disc pressure, most likely due to reflex muscle spasm.

***MRI of Lumbar Spine shows Before and After Decompression Therapy***



The most recent research trial sought to correlate clinical success with MRI evidence of disc repair as a result of such treatment and found that reduction of disc herniation ranged between 10% and 90% depending on the number of sessions performed, while disc annulus healing was evident in all cases.

The most recent clinical study of 219 patients has shown that this type of non-surgical therapy, provided nearly immediate resolution of symptoms for 86% of the participants, and 84% remained pain-free 90 days after the treatment was finished.

### **DTS Spinal Decompression vs. Surgery:**

**Surgery Facts:** In some cases surgery is necessary, more often it is not necessary.

- Risk of death
- Risk of complications from anesthesia
- Risk of possible infections.
- Prolonged recovery time after back surgery is generally 6-8 weeks for health patients
- Another 6-8 weeks of rehabilitation and physical therapy at 3 to 5 times per week
- Very Low rate of successful long-term results
- Significant lost time from work & normal Activities
- Usually some long-term limitations and / or residual or chronic pain
- Without insurance, the patient's cost for surgery is often well over \$25,000.
- Even with insurance, patient's share of surgical cost is often over \$4,000 to \$10,000.
- Additional lost income from loss of work during recovery
- Permanent damage to the spinal muscles, tendons, ligaments and discs.



### **DTS Decompression Facts:**

- Non-invasive and extremely safe.
- No injections. No knives. No drugs.
- Safe, Natural Therapy
- No patient hospitalization.
- Long-term effective results with better outcomes
- Relief of acute or chronic (long term) low back pain and /or associated leg pain or numbness
- Successful in 60% to 85% of patients.
- Early return to work & normal activities
- Cost effective treatment and Significantly less than surgery.

**Our DTS Decompression vs. Other Clinics** Since around 1999, numerous companies have begun to market elaborate decompression tables complete with marketing brochures, TV and radio commercials, some even have televisions built into the table. These tables look very high-tech and impressive to the untrained eye. Many tables have additional options such as an elevated lift table or television. These options are costly, and that cost is passed on to the patient. But the main functional internal components that produce the spinal decompression are very similar in all the tables. We use the latest version of the Chattanooga Triton DTS computer controlled spinal decompression. Chattanooga has manufactured traction and decompression tables for over 30 years. In fact, the Chattanooga Triton DTS is used in more clinics world wide than all the other companies combined **including the US Navy Hospitals and clinics** where I treat the US Marines.

**How Much Will DTS Cost?** We want to help and we believe finances shouldn't stand in the way of your good health. Unfortunately, No Insurance Plan Covers or Pays for Spinal Decompression Therapy. Clinical Studies on Spinal Decompression Therapy (SDT) for healing of damaged disc show that approximately 20 successive treatments are required for the best results for pain relief and disc repair. Therefore, we offer treatment plans based on this research of 20 treatments within 4-8 weeks. Most area clinics charge \$150 - \$250 per Spinal Decompression treatment or \$3000-\$5000 for 20 treatments. Our clinic decompression program consists of 20 Spinal Decompression Therapy Treatments (sold only in a packaged treatment program of 20 treatments... which includes use of Whole Body Vibration Therapy rehab and is 25% -50% less than other clinics.\* (when paid in full with cash or credit card).

**What Are The Treatments Like?** After lying on the comfortable DTS Triton spinal treatment table, you will be fitted with a support system. The support system helps to stabilize your body. The advanced computer controlled system automatically adjusts to the proper angle of pull (distraction), allowing us to target the specific discs that are causing your pain and symptoms. The distractive forces utilize a computer controlled logarithmic curve to avoid reflex responses which would create muscle spasm. The split table design decreases friction and allows separation of the vertebra. Basically, you lay down on the table and the DTS Triton spinal traction computer system simulates an anti-gravity effect on your spine that helps herniated material return toward its normal position thus reducing pressure and pain. Patients describe the treatment as a gentle, painless, intermittent pulling sensation. Many patients actually fall asleep during treatment!

**How Long Are Treatments And How Many Do You Need?** Patients typically undergo 18-20 treatment sessions as recommended in clinical studies for best results. Each treatment lasts about 20 minutes.

**Can DTS Triton Spinal Therapy Help My Pain?** Though each patient is different and no doctor can guarantee success, the clinical results of this type of therapy have been shown to be effective in up to 86% of patients treated. The common problems of many back conditions are damaged discs and poor spinal muscle control. Our treatment program addresses both of these core problems. The specially designed DTS Triton spinal traction system creates a controlled unloading of the spine which appears to decrease disc pressure thus increasing blood and nutrient exchange. This exchange of fluids is something the damaged disc desperately needs to help it heal from the inside out. Muscle strength, control and endurance can all be improved with our spinal therapy program that includes specific controlled spinal exercises.

**Will DTS Triton Spinal Treatments Hurt? Is it Safe?** DTS Triton Spinal Traction Therapy treatments are one of the most gentle and comfortable therapies available. The treatments utilize FDA cleared equipment with proven safety and efficacy. Most patients report a mild sense of stretch on their back or hips, and often fall asleep during treatment sessions. The DTS Triton system is produced by one of the world's largest manufacturers of hospital based therapy and rehabilitation equipment.

**How is Spinal Decompression different from older type traction?** Older type traction is a simple steady force that is put on the patient's body with the intent of unloading the body's joints, muscles and other structures. For example, hanging upside-down is a common method to put the spine into traction. Rather than one's body weight putting stress on the spine, which is what happens when standing erect; the body weight is working to unload the spine. Various forms of traction have been around for over 1000 years; however, pain relief has been inconsistent and short-lived until now. In fact, several clinical studies have shown ordinary (old type, steady pull) traction to be an ineffective form of back and neck pain relief. The reason is unexpected, but pretty simple.

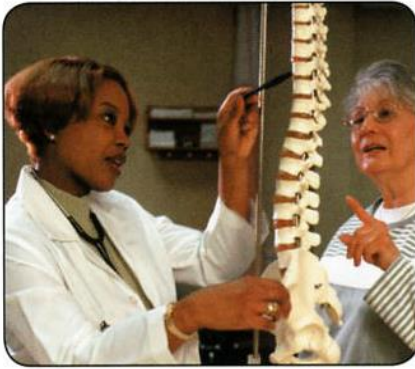
Our bodies react to the steady pull of the traction on the spine by contracting, or squeezing, the muscles surrounding the spine. Rather than achieving the desired effect of unloading the spine, the pressure on the spine is actually increased, thus increasing intradiscal pressure. Thus this old type of traction does NOT allow the discs to re-hydrate and heal, which is what ultimately yields pain relief.

DTS Triton Spinal Traction, on the other hand, is a modern, computerized, updated form of traction. Computer technology is used to control variations in the unloading (traction pull) of the spine, effectively avoiding the body's muscle contraction response. Notice in the figure below that the traction tension is varied over time according to the graph. The doctor can control how many progressive tension steps are experienced by the patient before reaching the maximum tension. The doctor also has complete control over how long the tensions are held steady and how often they are repeated through the computerized system.

**Will My Pain Go Away For Good?** Although it is difficult to predict the future, experience has shown that most patients do find long-term relief or effective management of their pain when they complete the entire recommended program of treatments. Regular home exercise and periodic treatment will help in maintaining your spinal health and reduce the probability of reoccurrence. As with any comprehensive rehabilitation program, your continued home care exercises and discretion in some daily activities is the key to long-term relief.



## Getting Started



At your first visit, your doctor will recommend an X-ray or MRI to pinpoint the specific areas of damage and discomfort. Using this information, your doctor will determine your course of therapy and whether you are a candidate for Spinal Decompression (SD).

## The Pressure Is Off!

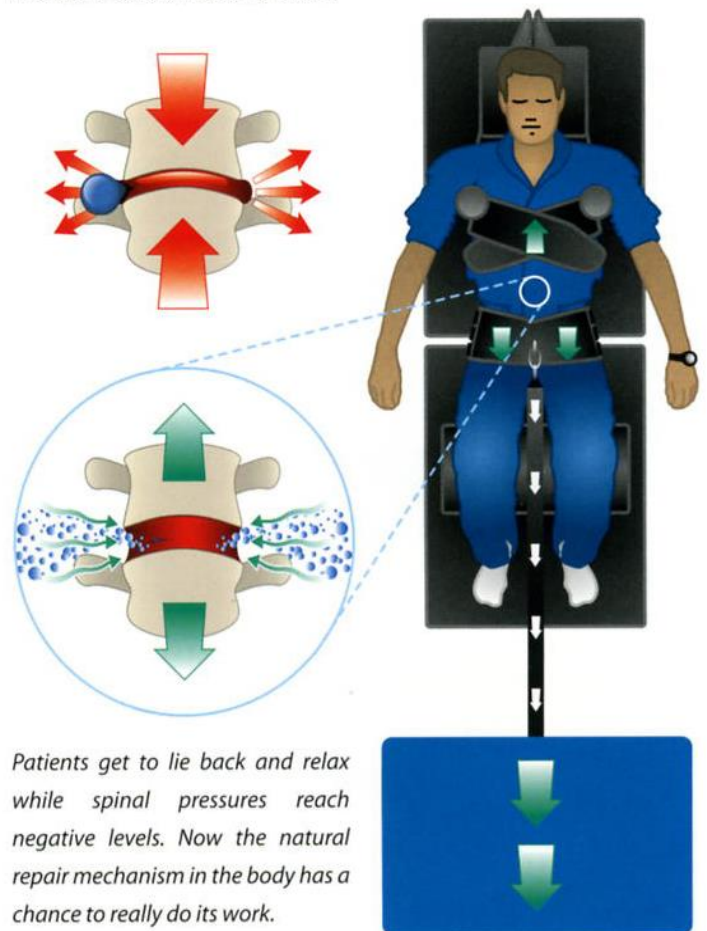
At the beginning of each session, you will be comfortably fitted with a pelvic harness designed to achieve optimal decompression of the lumbar spine. As a session of SD commences, you will notice a slow, gentle lengthening in your spine as your discs are gradually decompressed and relieved of pressure. This process is safe and relaxing. While some patients with extensively injured discs have reported mild discomfort during the first few treatment sessions, their discomfort subsides upon subsequent visits. A patient safety switch, or quick-release clasps on the upper-body harness, provide an extra safety feature, allowing you to stop at any point should you feel discomfort. Each treatment session lasts approximately 30–45 minutes.



## Typical Treatment Regimen

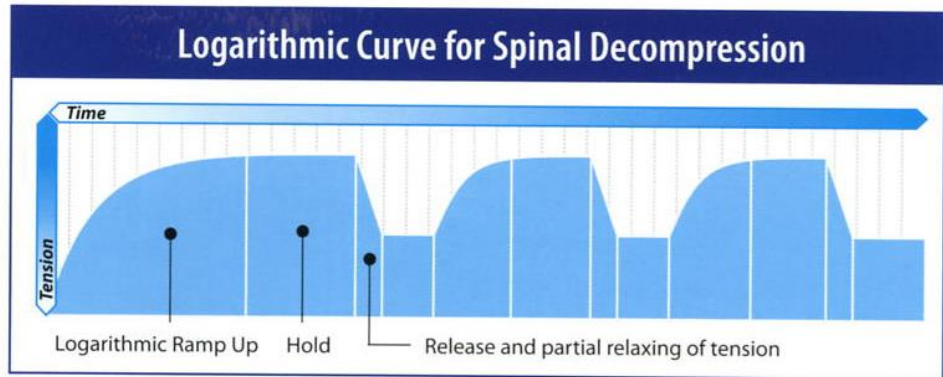
A typical SD treatment regimen consists of about 20 daily sessions over four to six weeks. Some conditions require fewer visits; some require more. Many patients report relief from their pain and other symptoms during the first few treatment sessions, and most experience dramatic pain relief after completion of their prescribed SD program.

As a session of Spinal Decompression progresses, the discs are relieved of pressure, or decompressed, creating a vacuum of negative pressure within the disc. Since nature abhors a vacuum, many experts believe this decompressed state aids in pulling nutrients, oxygen, and moisture back into the discs.



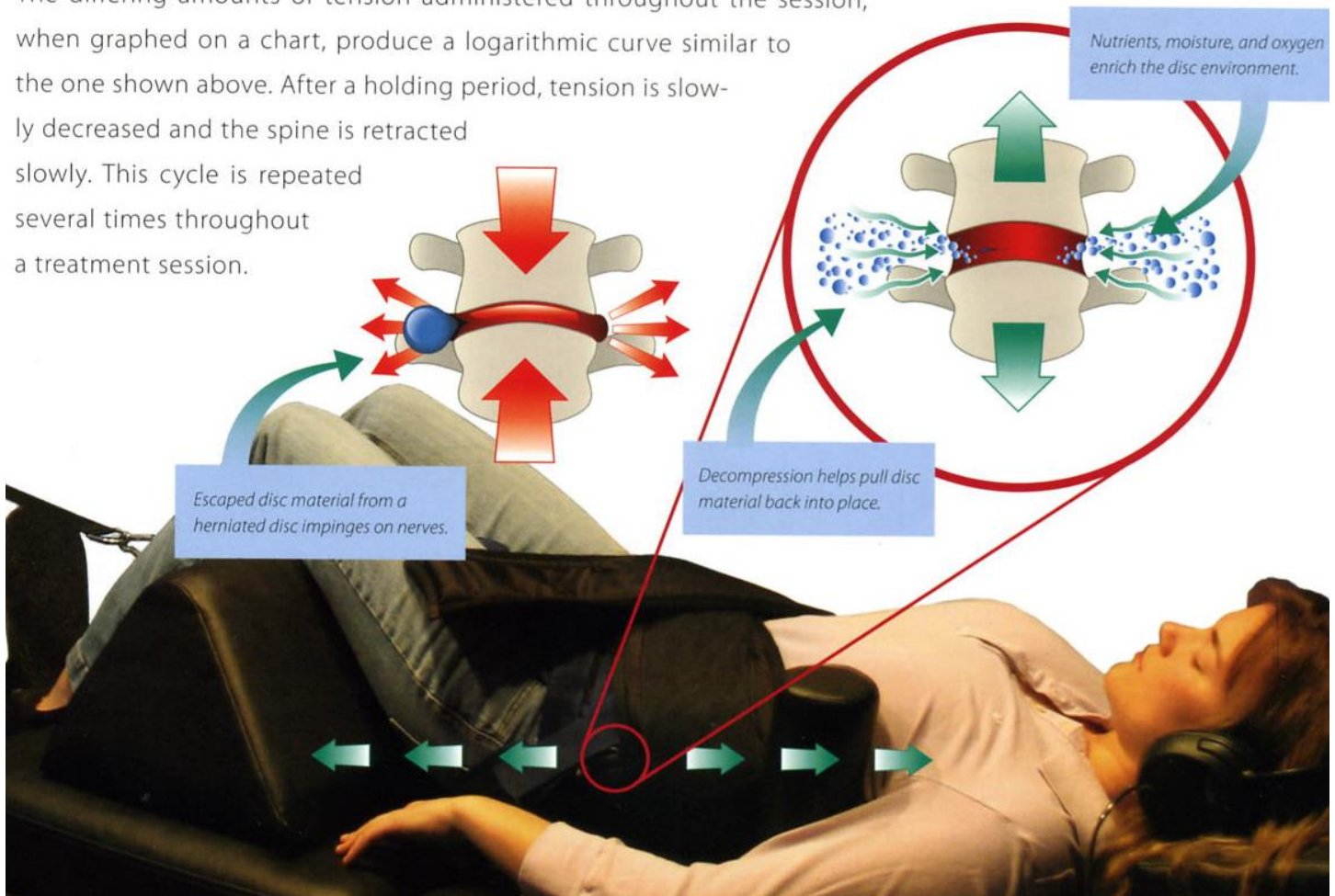
## Formula for Relief

Each automated session of Spinal Decompression (SD) cycles the patient through a series of gentle pulls, holds, and releases. Super-smooth transitions between each phase of Spinal Decompression can make for



an experience so relaxing during which patients often fall asleep. As a session of Spinal Decompression commences, tension slowly mounts, lengthening the spine. Up to one-half of the patient's body weight, plus as much as 25 pounds of tension, can be exerted directly on the injured discs—all without triggering the "guarding" proprioceptor response. This is where spinal pressures drop and decompression actually occurs.

The differing amounts of tension administered throughout the session, when graphed on a chart, produce a logarithmic curve similar to the one shown above. After a holding period, tension is slowly decreased and the spine is retracted slowly. This cycle is repeated several times throughout a treatment session.



# How Decompression Works

High intradiscal pressures cause discs to bulge out and press painfully on nerve roots. They also make for a compressed, anaerobic environment unsuitable for healing. Spinal Decompression (SD) produces negative pressures within the disc, creating a vacuum effect which many doctors believe helps the disc draw in nutrients and fluids to promote the repair of injured discs and surrounding tissues. This vacuum has also been shown to aid in the retraction of escaped cushioning gel from herniated discs.

## Traction Is Not Decompression

With traction, weights are added one by one to the end of the traction bed, which, in turn, adds tension to a harness secured around the patient's pelvis, lengthening the spine. The intention is to relieve pressure, but the linear force of this traction can produce spasming which may lead to greater injury. Studies confirm that the benefits of traction come from simply immobilizing the spine. In fact, the Quebec Task Force ruled in 1996 that traction was not an effective treatment for chronic herniated discs; the results are not long-lasting and cannot produce negative pressures in the disc. Like traction, SD also lengthens and exerts tension upon the spine. However, the approach is far different, producing vastly superior results.



## When Negative Is a Positive

Much like gauging the air pressure in a car tire, scientists have been able to use pressure sensors to measure the various pressures put on spinal discs while lifting, standing, sitting, lying down, undergoing traction, and during SD therapy. Like other pressures found in the body such as blood pressure, intradiscal pressure is measured in millimeters of mercury (mmHg).

While traction, physical therapy, and manipulation may reduce disc pressures to as low as 40 mmHg, only SD has been shown to achieve negative pressures within the spine. It has been clinically proven that SD creates negative pressures as low as -160 mmHg\* within the injured disc during the treatment session!†

## Fooling the Back Into Relaxing

Normally, pulls exerted on the spine trigger sensory receptors in the back to tighten the muscles surrounding the vertebrae and discs in an effort to protect them from injury—a mechanism in the body known as the proprioceptor response. SD bypasses this response by gently pulling on the spine and relaxing the back over an extended period of time, allowing the spine to be repositioned without tension and without setting off the “lock down” proprioceptor response.





# Decompression Works



Clinical Studies have shown an 86% **Success Rate** with Spinal Decompression treatment.

\* Research results vary, some Decompression table manufactures have suggested up to a 86% success rate. Individual results will vary greatly depending on many factors, such as the patients, age, past injuries, overall condition, diagnosis, exercise and rehabilitation of the core and paraspinal muscle, consistency of treatment.

## MRI of Lumbar Spine Revealing a Large Disc Bulge    MRI After 20 Decompression Treatments



**Downward Pressure From Bodyweight & Gravity  
Constantly Compress the Damaged Disc**

**Decompression Therapy Reduces  
the Downward Pressure to allow Healing**



Is your doctor suggesting surgery, pain management, or more physical therapy?

See if our Safe, Painless, Non-Invasive Treatment is Right for You

Call our clinic Today to Schedule your

**FREE CONSULTATION & 1 FREE DECOMPRESSION TREATMENT**

Get the same Treatment that I provide to the U.S. Marines!



Non-surgical spinal decompression therapy as performed in our office is highly successful, non-surgical alternative procedure for relieving low back, neck, and arm and leg pain.

**DTS Spinal Decompression is an effective treatment for:**

- Neck & Back Pain
- Herniated or Bulging Discs
- Degenerative Disc Disease
- Facet Syndrome
- Neuropathy
- Chronic Pain
- Sciatica
- Post-surgical patients
- Spinal Stenosis
- Carpal Tunnel Syndrome... and more



The information contained in this brochure is for educational purpose only. This is not intended to diagnose, treat or cure any condition. The FDA has not evaluated this information.

# Advanced Healing Therapy Program

## *21st Century Pain Relief at the Speed of Light*

### ***Accelerates Healing & Relieves Pain Fast***

#### ***Healing Your Pain, Changing Your Life***

At Laser Spine and Sport, we have invested in the latest cutting edge 21st Century Technologies, combined with years of clinical experience; we can provide you with the most advance therapies to help actually your body heal, Quickly, Safely, Naturally.

Our Program has highly significant success rate ( 75-90%) in relieving most types of Pain because our **Advanced Healing Laser Therapy Program** targets the source of pain and actually repairs damaged cells, accelerates healing of the cells, reduces inflammation and pain, rather than only treating the symptoms.

**All done safely with No Side Effects, No Drugs!**

#### **What to Expect with our Healing Therapy Program**

Your first visit will consist of:

- Regional Evaluation by our Doctor or medical staff
- Your Treatment plan will be personalized based on length and severity of condition  
Treatment Plan is based on medical necessity may be a combination of the following:  
Healing Laser & LED Therapy, Various Myofascial Release Methods, Whole Body Vibration Therapy, Joint Mobilization / Manipulation, Custom Molded or Semi-Custom Foot Orthotics, Specific Nutritional Supplement Recommendations and Dietary restrictions.
- Treatments administered by our Doctor or Certified Laser Therapist.



Our Healing Therapy Approach Actually Accelerates Healing of Injured Tissues, rather than masking the symptoms with medications. These therapies stimulate nerves which signal increased cellular functions to produce vital chemicals necessary for damaged tissues heal on their own, without interference from pharmaceuticals. The Body Heals from Inside out. Our program enhances the natural biological repair process without outside interference.

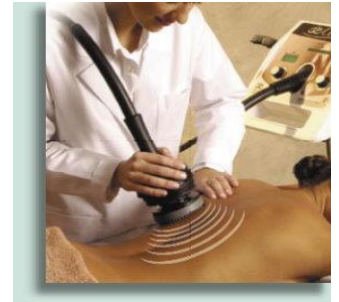
**High Power Laser Therapy** High power Laser therapy is the state-of-the-art and highly effective method of treating chronic or acute pain and other neuropathies by actually accelerating the cells natural healing process in areas of the body previously only visited by drugs or surgery. Cells that are damaged and poorly oxygenated as a result of inflammation, swelling or trauma have been shown to have a significantly higher response to laser therapy irradiation than normal healthy cells. At a cellular level there are photoreceptors, that when stimulated by deep penetrating photons, activate a biochemical cascade of events resulting in increased DNA/RNA synthesis, increased cAMP levels, protein and collagen synthesis and cellular proliferation. The product of these reactions is rapid regeneration, normalization and healing of damaged cellular tissue. Photonic stimulation is the trigger for these metabolic changes. During each session, the Class IV Laser's energy increases circulation, drawing water, oxygen and nutrients to a painful and damaged area.



**LED Light Therapy** We use a state-of-the-art pulsed LED light therapy systems. Flexible neoprene pads are placed on the skin over an area of pain, injury, or where support and increased circulation are needed. Therapy pads contain brilliant red, blue and near infrared LED's that penetrate deeply into tissues for rejuvenation. Resulting increases in circulation allow more energy and nutrient rich blood to reach challenged areas and promote wellness and pain reduction. The LED light system is a photo-modulated (pulsed, light emitting diodes) device also known as low-level light therapy (LLLT). The infrared and visible red are the heart of the LED therapy system, providing gentle but powerful non-coherent light. This system uses a carefully timed sequence of settings, known as pulses, to create an environment in which change may occur within the cells more rapidly.



**Myofascial Release Techniques (MRT)** We use a variety of methods to address the soft tissue component of pain or an injury. Active Release Technique (ART), Myofascial Release Techniques (MRT), Instrument Assisted Release Technique (IART), Groston Technique are all methods used to treat injuries of the muscles, ligaments, tendons, nerves and fascia, otherwise known as “soft tissue injuries.” We offer manual ART, MRT, as well as IART with the use of motorized G-5 DeepTissue massager, Rapid Release Technology instrument, and the IMPAC Percussor instrument. MRT addresses tissues and structures that have been overused or over-stressed. This can happen from repetitive movements, holding a position for a long period of time or acute injuries (such as a muscle pull or tear). Your body’s natural response to these types of injuries is to produce tough, fibrous scar tissue which restricts the proper movement and elasticity of the tissues. Over time, this scar tissue builds up in the affected soft tissues, reducing blood circulation and causing the muscles to become tight and weak. Your joint motion also becomes altered and nerves may get pinched or trapped. This leads to symptoms such as pain, reduced range of motion and loss of strength. When nerves are involved, you may also experience numbness and/or tingling. MRT treatments increase blood circulation to injured muscles, tendons, ligaments, nerves and fascia. This increased blood flow will help open the channels for the healing cells to access the injured tissues, break up the scar tissue, reduce inflammation and pain, and allow your body to heal those areas naturally.



**Joint Manipulation / Mobilization** All of the joints in the human body are lined with tiny pressure-sensitive sensors called mechanoreceptors. If the joints are not in proper alignment, the mechanoreceptors will be compressed and subsequently send stimulating nerve impulses to the brain. Your brain depends on this nerve stimulation (feedback) from the joints of the body for its health and wellbeing and to assure optimal neurological function. Reciprocally, there are nerve impulses that are sent back to the actual joint from the brain to stimulate the local muscles. This reflex actually helps to stabilize and strengthen the joint and slow down the progression of arthritis. Chiropractors locate the joints that are “restricted, locked up” or out of proper mechanical alignment. Then using our hands and/or specialized instruments to perform an adjustment of that joint, or manipulation, Doctors of Chiropractic restore proper motion through a gentle impulse placed on the joint. The manipulation or adjustment usually produces a feeling of euphoria and wellbeing as the brain, nervous system and joints are stimulated and the joint, surrounding muscle and ligaments relax, improving / restoring better function.



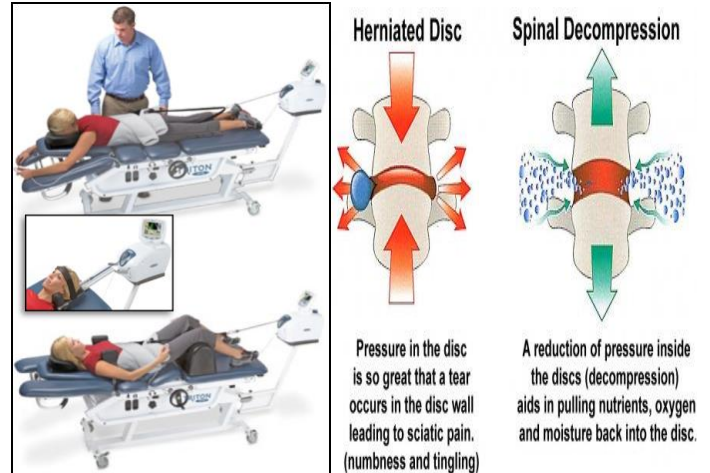
**Natural Nutritional Pain Control** In an effort to reduce your pain and inflammation naturally, and enhance healing and speed recovery during your program, we offer several professionally formulated, natural products which are very safe and effective. When human tissues are injured, it is the individual cells which are damaged. Complete healing on the cellular level requires very specific nutrients. Nutritional deficiencies will slow, delay and even prohibit proper and complete tissue healing. Therefore, In order to get the most out of your treatment program, it is also important to provide your body with vital nutritional support for the cellular repair which we are try to stimulate with the various therapies we provide. To get the best result, ask us which product is best for your condition. \*Drugs do not accomplish this and should only be used for extreme pain/inflammation.



**Whole Body Vibration Therapy (WBV)** WBV transfers vibrational energy to the entire body. These vibrations results in rapid and intense muscle fiber contractions 30-50 times per second. WBV has been shown to increase bone density and muscle strength, increase in flexibility and range of motion. The quick contractions of muscle fiber not only created flexibility, but also increase tissue repair and growth, it has also been shown to burned fat, increased cellular metabolism, improved blood and lymph circulation, improved cellular oxygen and nutrient delivery which slows the degenerative/ageing process all while accelerating healing.



**Spinal Decompression** Spinal Decompression Therapy is a modern, high tech, non-surgical, spinal decompression traction procedure that will apply distraction and decompression to the spine without producing reflex spinal muscle contractions designed to treat a variety of mild to severe low back pain, neck pain, disc injuries as well as radiating leg or arm pain. It works by reducing downward pressure on the spinal discs to relieve pressure off the nerves. It actually helps re-educate muscles, ligaments, and tendons, creating a healthier disc environment. Spinal Discs are under constant downward pressure from body weight, gravity and normal daily activities. Due to injuries, posture, age, joint misalignment and repetitive stress, the disc material weakens. This is a slow gentle process allowing the discs, muscles and tendons to respond to the treatment. Safe, gentle, effective alternative to chronic pain, injections or surgery.



**Concentrated Oxygen Therapy** Your brain and nervous system need two things to survive: fuel and activation. Fuel comes in the form of glucose and oxygen. You get the glucose from the food you eat BUT as you age, your ability to utilize oxygen decreases. We are giving you oxygen to help you heal faster. Damaged cells require more energy and oxygen to heal. We want to get you better as fast as possible so we may provide therapeutic concentrated oxygen to assist your body in the healing process. The normal air in the room contains about 21 percent oxygen, and our O2 concentrator then concentrates the air to 90 to 95 percent oxygen, providing oxygen at a continuous rate of flow. This means you receive over 450 percent more concentrated oxygen than what you typically breathe. Oxygenation of tissues is vital for tissue healing and pain reduction.

**For more detailed description of each of these therapies, please call our office to schedule a Free Consultation or visit our website:**

[www.LaserSpineandSport.com](http://www.LaserSpineandSport.com)

\* These statements have not been evaluated by the Food and Drug Administration. This information is not intended to diagnose, treat, cure or prevent any disease.

**\* IMPORTANT NOTICE:** Medicare / HMO / PPO Does Not Cover or Pay for Spinal Decompression Therapy since this is a new therapy. Some other clinics may attempt to bill inappropriate insurance codes, bill it as other therapies, and/or bill under the medical doctor license, which are all **Insurance Fraud**. This illegal and can result in criminal action against both the doctor and the patient. The patient would have to repay the insurance company for the illegally billed services. In 2010, a local Medical Doctor lost his license due to fraudulent Decompression billing. Please do not participate in insurance fraud and please do not ask my office to attempt this illegal activity.

I am confident that my vast clinical and professional experience can provide you the help you deserve. I provide the same Decompression treatment program to my private practice patients as I do to the U.S. Marines I treat with great success.