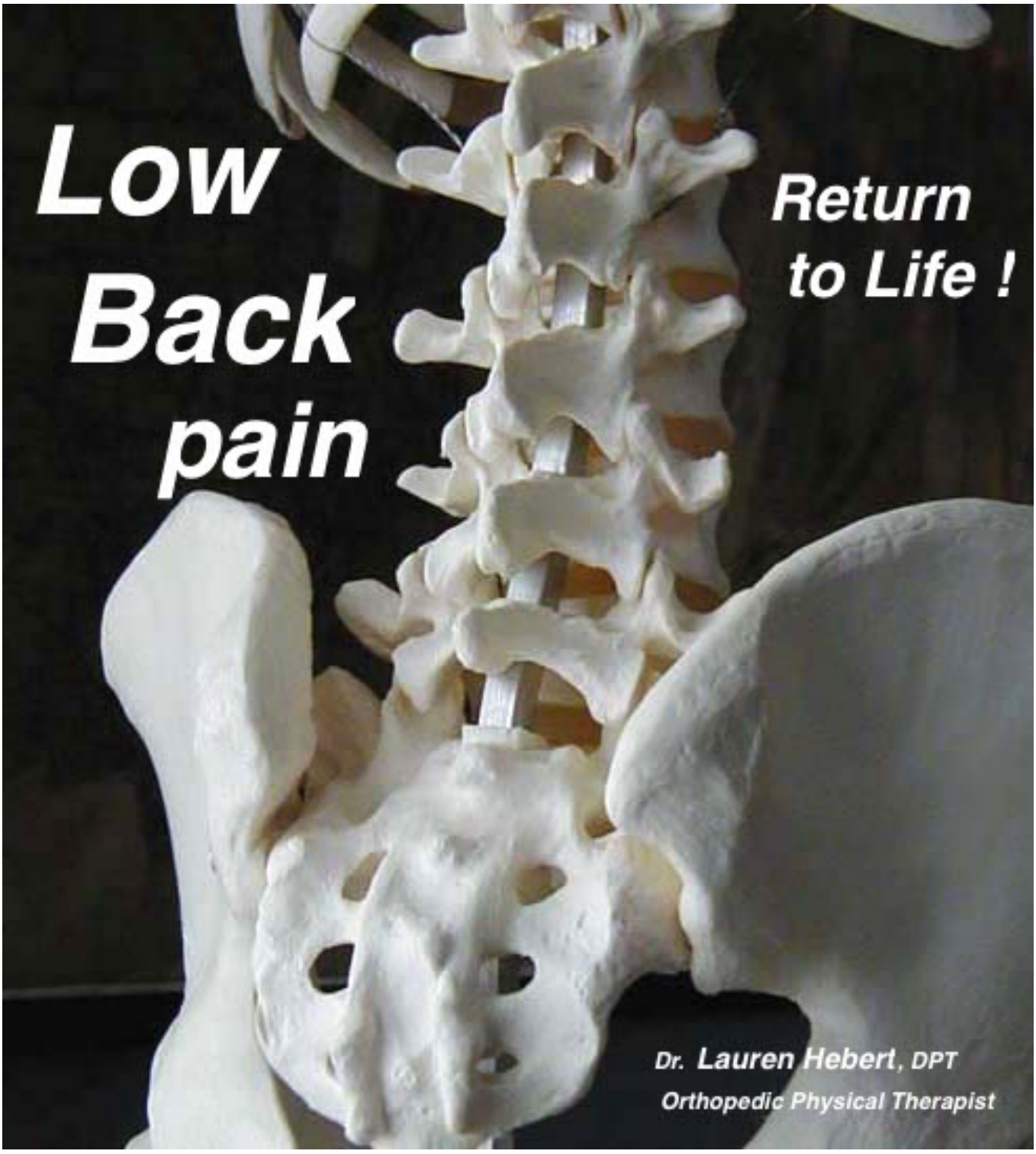
Taking Care of Yourself

Be Your Own Physical Therapist



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This is prevention advice. If you already have a problem, have your physical therapist modify this information for you

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NOTE…

The information in this book is strictly prevention and wellness advice. It is NOT treatment advice directed to any individual. If you already have a problem, you need expert advice that fits YOU. Consult your physician or physical therapist for advice that specifically fits you, based on a good examination. The Physical Therapist is a highly qualified and trained expert on this.

Consult a GOOD Physical Therapist to evaluate and teach you the RIGHT advice that fits YOUR problem.

ONE STARTING POINT… You are NOT your MRI !

How much degeneration do you have? How important is that degeneration? What is on your MRI ?

MRI's & x-rays often LIE… X-rays and MRI's are often NOT accurate! Degenerative changes on an MRI are very often NOT the source of pain! Several studies show that MOST adults with NO back pain have disc changes and arthritis... but NO PAIN. There are similar trends for shoulder pain, knee pain, neck pain. Many MRI findings are often NOT the source of your pain. X-rays and MRI's can be misleading, and can make you decide (wrongly) that you are terribly disabled. You are NOT your x-ray or MRI findings! MRI findings are accurate ONLY if they match certain other tests (PT exam).

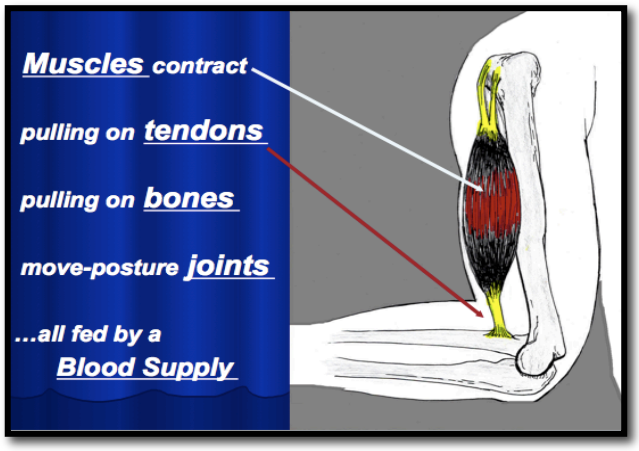
Some people have a LITTLE degeneration and LOTS of pain. But many people have LOTS of degeneration and NO pain. The amount of degeneration does NOT determine the amount of pain and disability. You may discover that much of your degenerative aging changes can actually be reversed (we this every day).

A good physical therapy evaluation can be more accurate than an MRI to identify the cause of your pain. The PT exam uses "movement testing" and "pain behaviors" to assess how symptoms react to certain activities, then selectively loads specific structures that can reveal where the pain is actually coming from. This non-invasive PT examination is key to finding the true source of the pain. Muscles, ligaments, tendons, joints each react in their own ways to PT testing… and tells us which exercise, plus what activity and posture techniques will correct it. This is a much more accurate picture.

YOUR MUSCULO-SKELETAL SYSTEM… How it works… How it breaks down… AGING:

WORK: Muscles contract… pull on tendons… that pull on bones… to move or posture joints… cushioned by cartilage… held together by ligaments. KEY: These are all fed by a BLOOD SUPPLY delivering nutrients and oxygen for the tissues to use as fuel. This produces waste products (acids that eventually become urine). The blood supply must remove the wastes produced by work. But blood supply can be blocked by muscle contraction, tendon tension, and joint loading. This traps acid wastes in the tissues. These acids then cause irritation… pain… inflammation… and gradual damage. This becomes overuse problems such as tendinitis. Over time, this becomes DEGENERATION (degenerated joint, degenerated discs in spine, degenerated tendons)…. This is: AGING !

MUSCULO-SKELETAL DISORDER (MSD)… Painful damage, irritation, inflammation, degeneration of these structures.



The working-aging musculo-skeletal system & its blood supply

PAIN… Pain nerves react to chemical irritation (a build-up acid waste products in working tissues), or by mechanical over-load (such as pinching or pulling), or by lack of oxygen that feeds the tissues. In MSD, oxygen is blocked and acid wastes build up from work demands reducing blood flow that is needed to absorb acid wastes… or from the mechanical load of posture strain… or from muscle contraction, tendon tension, joint compression that block blood supply, oxygen delivery, and acid wastes cleanup.
All these can lead to PAIN and eventually degeneration (aging). Maintaining good blood flow stops and reverses these problems.

AGING-1… SCAR TISSUE … Every day work actions break a few microscopic fibers of muscles, tendons, joints, spinal discs. These heal during rest… with scar fibers… which are weaker and more brittle than the fibers they are healing. A build-up of scar fibers over time makes you gradually weaker, stiffer, more likely to be injured. This is aging #1… and it starts about age 25.

Aging-2… DRY & BRITTLE (water loss in tissues)… Musculo-skeletal tissues are mostly water attached to proteins fibers. Water makes these tissues ELASTIC. Elasticity allows tissues to absorb loading, bending, twisting, and weight-bearing with minimal damage. But these tissues gradually lose water over time… which make tissues stiffer and weaker, more easily damaged with daily work. This is aging #2… Loss of water and elasticity, along with a build-up of scar fibers allows tissues to break down more easily.

DEGENERATION. … AGING… This is a build-up of scar fibers and a loss of water. This reduces elasticity and allows more damage, even with light loading. GOOD NEWS: this is REVERSIBLE. Restoring elasticity and blood levels is not difficult.
A mild increase in flexibility can reverse lots of aging changes. A mild increase in activity CAN turn back the clock. It is worth the effort.

Aging & Degeneration… loss of tissue water & elasticity… gradual damage… BUT very reversible !

New Understandings about CHRONIC PAIN ...

There are two types of pain… acute and chronic. Chronic pain is VERY different from acute pain.

ACUTE pain comes from the injured tissues (sprained ankle) sending information to the brain. Nerve endings in injured or irritated tissues are stimulated when they are mechanically deformed (pulled or squeezed or twisted)... or chemically irritated (chemicals released by tissue damage or by the waste products of over-work)... or starved of oxygen (blood supply blocked by muscle contraction, tendon tension, or joint compression). The nerves send information (nociception signals) to the brain where it is felt as "pain."

CHRONIC PAIN is different. It comes from changes in the nervous system… brain, spinal cord, and nerves that have changed due to too much prolonged acute pain… even after the original injury has healed. This is a totally different type of pain… it is nerve and brain pain.

We treat the localized acute tissue pain by relaxing muscle spasm, stretching tight muscles, improving joint mobility, correcting stressful postures, to reduce loads on overworked tissues, and strengthen weak muscles. These can be very effective... once we identify the mechanical causes of pain from irritated structures. Almost everyone eventually gets better.

But chronic pain is a totally different problem. Chronic pain does not come from the injured tissues (such as an old ankle sprain). The chronic pain is running from the brain to the ankle. Chronic pain is a disorder of the brain and spinal cord, caused by overstimulation. The pain becomes automated and non-stop, within the brain and spinal cord. It is brain pain.

Acute pain that persists for months can change how the brain, spinal cord, and nerves process pain. These changes can make pain worse and much harder to reduce… even after the original injury has healed. The injury heals, but the pain can continue for years. The brain's pain centers have become over-stimulated and cannot find peace. It is similar to "Phantom Pain" in an amputated leg. The leg is gone… but it still hurts (very common). The pain is no longer coming from the injury site. It is coming from the brain remembering the injury signal, even after the injury heals. The patient fears they have ongoing damage and injury, when they actually have brain pain.

Prolonged acute pain can change NERVES, making them hyper-sensitive. Not only do pain nerves become over-sensitive, but the other, non-pain nerves (those that feel light touch, temperature, simple movement) can actually become pain nerves. Non-pain nerve signals now become pain signals. Nerves can even fire off pain signals without any stimulation. They have become over-sensitized.

There are also changes in how the SPINAL CORD transmits signals to the brain. Prolonged ongoing pain can change the spinal cord whereby pain nerve fibers grow across the spinal cord to connect to non-pain nerves. Non-pain sensations such as simple touch, temperature, movement actually become inputs to the brain's pain system. Even light touch creates pain.

In the BRAIN, chronic pain can causes FEAR that you are experiencing ongoing damage to painful body parts. Fear affects pain centers in the brain. Some people are often told they are faking or have psychological issues. This creates even more STRESS. Fear and stress can then further increase pain activity in the brain. The brain is now over-stimulated by stress and fear of activity.

These are neurological problems of an over-stimulated nervous system. But once people LEARN that their ongoing chronic PAIN does NOT mean ongoing DAMAGE in body parts… they often relax and experience less pain! Once they learn the brain creates abnormal pain signals, they feel less stress and fear. Many improve just from being EDUCATED about these chronic pain mechanisms, reducing fear and stress. They learn the pain of activity is NOT doing physical damage. This allows them to be more active with less fear of injury. Increased movement and activity then decreases brain pain.

But years of chronic pain leave people worsened by muscle weakness and stiffness from INACTIVITY. Weak muscles overwork just to maintain posture and minimal activity. Overworking weak muscles can add muscle pain to the chronic pain problem. Pain and inactivity also allow muscle to lose flexibility, pulling you into abnormal postures that can strain tissues, causing mechanical pain. Lack of activity also reduces heart-lung endurance, causing people to become exhausted early in their day. Lack of aerobic endurance causes muscles to work without enough oxygen, causing increased waste products in working muscles, causing chemical irritant pain.

Strength, flexibility, endurance must be restored… gently but daily… to allow improved activity. But once there is less fear over damaging themselves, these people can safely ease into simple exercises that correct flexibility, strength, posture, and endurance to allow them to live more life with less stress, reducing pain. The typical starting point is gentle stretching and walking… daily.

Another issue is SLEEP. Serotonin is an important brain chemical. Pain uses up serotonin in the brain. Sleep allows serotonin to be recovered. Lack of sleep further reduces serotonin. Lack of serotonin increases depression… and pain sensitivity. Therefore, sleep is critical. Lack of sleep makes chronic pain worse. Discuss sleep improvement with a good pain doctor, as there are effective medications for this. Building good aerobic activity (walking, jogging, stationary bike) can improve oxygen uptake, which can help sleep.

Chronic pain is treated by education (your pain is not injuring the tissues) and gradually improving posture and flexibility, then strength, then endurance. This reduces the pain that comes from poor posture, flexibility, strength, core stability, and endurance. This not only shaves off the pain from these musculo-skeletal defects… it allows you to be much more active within your pain levels. Increased activity and reduced fear and improved function then begin to knock down the chronic pain levels. YOU can decide to live with less pain!

LOW BACK PAIN ... STRAIN, DYSFUNCTION, DEGENERATION :

Lower back problems are epidemic in our society. We spend more money on back pain in this country than we spend on cancer care! Back injury is the leading Worker Comp claim category. It is a problem that can easily get very much out of control.

COMPLICATIONS... Back pain is often contaminated by fear, ignorance, faulty assumptions, stress, psychological issues, and incorrect belief systems. Too many people assume that once they hurt their back, they are permanently disabled. This is too often a very damaging INCORRECT ASSUMPTION that can lead to needless disability behavior and loss of motivation to get better.

Another issue is how sensitive the spine is to **pain**. Spine tissues have lots of very sensitive nerves needed to control upright posture, balance, and movement coordination. But that many very sensitive nerves can lead to LOTS of pain from just a minor strain. The amount of pain usually does NOT match the amount of damage.

Further, once these sensitive nerves start feeling pain, it is difficult for them to stop feeling pain, even after the injury has healed. The pain signals just keep on firing. Then, once the nerves finally go quiet and the pain lets up, these nerves may "remember" that pain… leading to twice as much pain, for twice as long, from a lot less injury the next time the spine is lightly strained. Simple movement or touch can become pain signals. This can become a brain, spinal cord, and nerve pain disorder that complicates back issues. This can become long-term CHRONIC PAIN.

Too many people panic when they experience back pain and become terrified of moving, fearing increased damage. This FEAR can lead to poor recovery. Back problems become even more disabling when a healthcare professional frightens the patient with x-rays and MRI findings "Wow, your back is a mess," they may say… dooming the patient to a life of assumed hopeless disability. That healthcare provider has now set the patient up for failure with their very poor choice of words. BACK PROBLEMS CAN GET BETTER.

One huge problem is too much emphasis on the MRI.

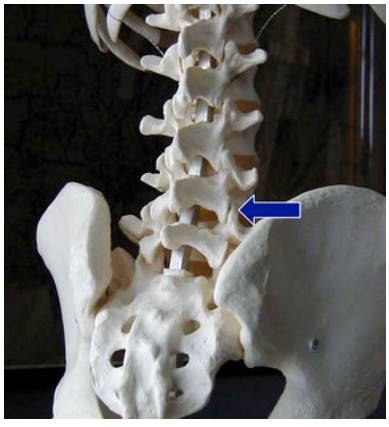
IMPORTANT... X-rays & MRI's are very often NOT ACCURATE ! What ?? Studies show MOST adults with NO BACK PAIN have degenerated discs, bulging discs, herniated discs, degenerative arthritis, stenosis… BUT NO PAIN !
So, if the patient with back pain shows disc damage on the MRI, that is very often NOT the source of their pain!
But too many back pain sufferers decide they are disabled based on their MRI… and so many of them are WRONG about that.
The MRI is proper and valid if there are NEUROLOGICAL symptoms in the LEG (weakness, paralysis, numbness).

HOW BACK PROBLEMS DEVELOP

... Low back pain can develop from prolonged sitting, prolonged or repeated bending, twisting, awkward lifting (heavy or frequent or low or high or combined with reach). Some focus on "lifting injury." But this is often incorrect because back injury is usually the result of multiple issues that accumulate over time, gradually weakening and stiffening the spine, allowing an injury to occur during lifting a seemingly minor load. There are many different back structures that become worn out, stressed, and injured. There is often ongoing degeneration (AGING) that sets the individual up for an injury.

The SPINE is a stack of bones (vertebrae) balanced upright. The spine must be MOBILE for movement, and STABLE for posture. This is a difficult pair of demands on the spine, risking many potential problems, and vulnerable to AGING changes.

The bones are connected at FACET JOINTS, forming a pivot point for movement. These joints run up the back of the spine on left and right sides. They have very sensitive nerves to monitor balance, posture, and motion. Those sensitive nerves can create lots of pain with just a minor injury. These small but loaded joints can become arthritic over time, growing bone spurs that can pinch nerves. Facet joints are stressed by prolonged postures, overhead work, and twisting. Degenerated discs can also stress these joints as discs thin, shifting extra weightbearing loads to the joints.

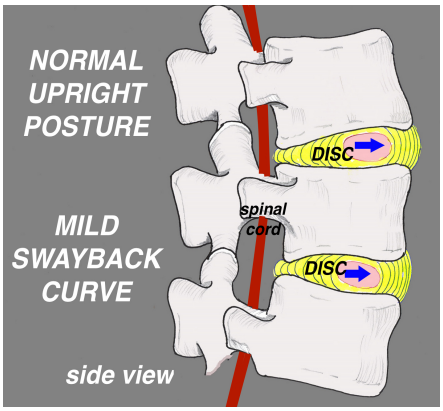


Rear view; FACET JOINTS

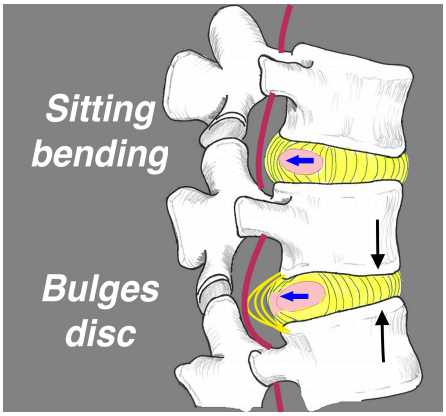
Front view; DISCS

SPINAL DISCS: Lots of problems can come from the discs. Discs are cushion pads between vertebrae, located between the front ¾ of the vertebrae. They are shock absorbers. They also act as ball bearings for the vertebrae to pivot on during bending motions.
When we are young, the discs are 80% water, to allow shock absorption and easy pivoting during bending. But as we get older (even by age 35) discs lose water and elasticity, so cannot absorb loads or bend as well as before. They get thin from water loss, shifting loads to facet joints, causing strains and arthritis. As discs thin, bones sit closer together. This can squeeze nerves passing nearby. This degenerative disc disease. This CAN be improved with certain stretches. Degeneration can be reversed !

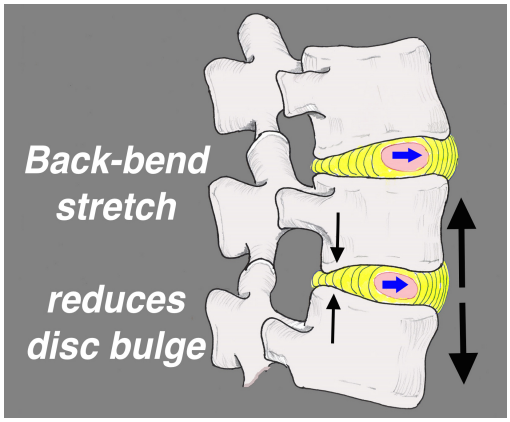
In the center of the disc is a wet gel (nucleus) contained within a tough outer ring (annulus). Bending forward squeezes the front of the disc, pushing that gel back against the back wall of the disc. This wall is weak and can balloon out. This is a BULGING DISC. The gel can eventually break through, causing a RUPTURED DISC. But this is usually not a disaster and is quite reversible. Stretching backward tends to reverse this, pulling the gel back to the center of the disc, reducing the bulge. This is an effective workplace stretching tactic.



Normal posture has slight swayback



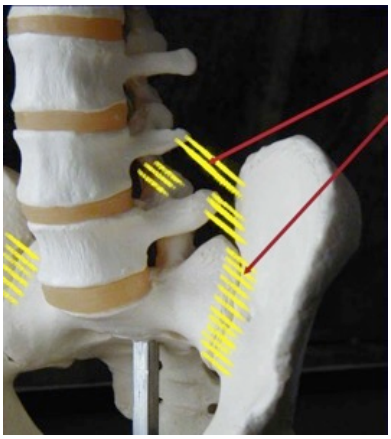
Forward-bend or sit bulges & degenerates discs

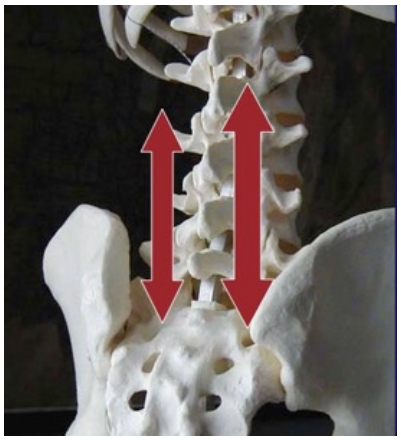


Back-bend stretch corrects disc mechanics

LIGAMENTS; Ligaments are elastic straps that allow reasonable movement while holding all the bones and joints together. You sprain ligaments by forcing movement or posture beyond what the ligaments allow (awkward posture or extreme movement). This hurts (a lot) but heals quickly, but with scar tissue that is weaker and stiffer. That makes the tissues more easily sprained again. Stretching reduces that risk. Spending time in an awkward position or an extreme motion or loading in an awkward position risk ligament sprains

MUSCLES… Muscles have two jobs: move the spine, and hold the spine upright (posture). Pain develops from repeated motions, heavy loading, or sustaining a posture too long… overworking muscles, causing buildup of waste products and tissue damage. Many other problems can cause muscles to go into painful spasms. Muscle spasm is usually caused by other tissues that are strained.


Ligaments bind bones together


Muscles move and stabilize spine

AGING CHANGES… (KEY: AGING CHANGES CAN BE REVERSED!)

Discs, ligaments, joint capsules, muscles are 80 percent water when we are young, but quickly loose much of that water by age 35-40. Tissues lose their ELASTICITY and STRENGTH, making them easily damaged. Years of use and abuse cause buildup of scar tissue, further reducing elasticity and strength. Each year it becomes easier to sustain and injury with less and less strain.

These aging changes can be reversed with simple specific stretches we will discuss later. Maintaining a reasonable level of daily activity is also critical. The older we get, the more we need to make an effort to at least take a daily walk (if winter weather blocks that, replace walking with stationary bike or treadmill). YOU HAVE TO MAKE THE EFFORT. And it is not a big effort. AND IT IS SO WORTH IT !

FLEXIBILITY AND MOVEMENT ACTIVITY REVERSES AGING !

PREVENTING DAMAGE… Stay flexible and strong… plus use your back properly… such as:

POSTURE risks… Too much TIME in one position can strain and block circulation, causing degeneration. Key is to STRETCH out of that position often when you feel strain. You may have to stretch every few minutes, but that can save you from serious problems.

POSTURE VARIETY is key… such as frequently switching between sitting and standing.. or frequently switch to a different work task. Change desk chair height often, for posture variety. Adjust car seat often for variety. On a longer drive (more than an hour) discipline yourself to get out of car to briefly stretch every 30-45 minutes. If sitting is prolonged, do standing back-bend stretch… plus try to do some of the work standing. Switch between sitting and standing. Use small roll or pad behind lower back when sitting in car.

Stretch out of stressful postures often


Switch between sitting versus standing


10-second back-bend; often

PERFECT LIFTING every time is critical… Damage can accumulate slowly over time with little or no pain, until something lets go. Position the load very close before lifting… …just a few inches closer greatly reduces mechanical load risk. Position feet wide, one foot turned in the direction you plan to move load, to reduce twisting. Then position your back: tuck your chin in and lift your chest to arch your back inward… squat at knees (for thighs and back to share load). Then put it down the same way. If load is heavy: DON"T DO IT.


Wide stance; bend knees; tuck chin in to push chest out to arch back inward

LIFTING ERGONOMICS: Try to reduce weight lifted… how often you lift… how low you lift… how high you lift… twisting with load… reaching for the load. Avoid lifting over an obstruction. Reducing just one or two of these, just a bit, greatly reduces injury risk. You cannot afford an injury. Lift perfectly, every time ! Stretch backward after lifting loads below waist height, requiring bending while lifting.

AT HOME RISKS... Your easy chair-sofa should have small pillow behind lower back to support curve. Get up to stretch backward often. For yard-work… stretch often; take your time; don't lift heavy or awkward; get help. Don't push yourself beyond reasonable limits. Tasks that used to take you two hours when you were younger should be eased out over four hours, with frequent breaks, as you age. Yes, you are aging. Get used to it. Adapt to protect yourself. If planting your garden used to take all day, then let it now take two or three days. It is OK to slow down a little to preserve your ability to live your life and do your projects with minimal pain.


bending


prolonged sitting


change seat height often


Lumbar support cushion

FIXING IT… END OF THE DAY RECOVERY STRETCHES

1. Improve DISC mechanics… Reduce forward bending, repeated bending, too much sitting, and low lifting. We spend way too much time sitting and bending… damaging discs. Reverse this by frequent 10-sec backward bending stretches. This restores water content in discs and reduces disc bulging. Frequent standing back bends during the day, then at end day lie on your belly propped up on-elbows one minute or full press-ups to stretch backward 3 seconds, 5 times.

Back-bend10 seconds, often during day

Relax prone on-elbows for one minute at end of day

2. Improve hamstring flexibility. Tight hamstrings (back of thighs) stiffens coordination between hips and low back during bending. They also tilt pelvis bone into stressed position that strains hip and pelvis joints. Best method to stretch hamstring in lying on back; hold thigh at arm's length as you straighten at knee for 30 seconds… picture BELOW…

3. Improve hip mobility, to allow hips and lower back to align and move with less strain. Keep one leg flat as you bend other leg pull thigh toward chest… 30 seconds each side. Picture ABOVE.

4. Then STRENGTHEN the deep core muscles that stabilize and protect the spine… planks and power-bridges, BELOW:

Lift butt. Hold it up and reach out one leg 3 sec, then other leg 3 sec, 10 paces

On toes & forearms: lift torso on toes; hold prolonged

5. Take a WALK !! … so very good for you …for so many reasons. Aerobic conditioning can greatly help your back, and so many other body systems. 20-30 minutes.

NOTE: These are to keep a healthy back healthy. If you already have a back problem, See your Physical Therapist to approve or modify these to fit YOU. The Physical Therapist is, by far, the MOST qualified expert for this.

SACRO-ILIAC JOINT (SIJ)… (PELVIS) … (very often part of a lower back problem)

Pelvis is the bridge between hips and lower back (see picture). Pelvis attaches to base of spine (sacrum). This joint carries a heavy load, but is firmly held by ligaments running from lower vertebrae to pelvis. It hardly moves at all. BUT a bulging disc or degenerated disc allows vertebrae to settle closer, allowing these support ligaments go slack. This allows sacro-iliac joint to shift, causing abnormal strain in low back, buttock, hip, even down to knee. It may not shift much at all, but the ligaments and joint can be strained.


rear view, and…

front view of sacro-iliac joint

When this joint is stressed, it can tighten the rotator cuff of the HIP and can lead to hip BURSITIS and eventually hip ARTHRITIS. It also changes how thigh muscles control the knee, adding to knee strain. Aging shrinks discs and allows SIJ to become unstable… while gradually weakening muscles fail to stabilize the SIJ. SIJ problems often accompany disc problems, causing slight shifts in loading at pelvis. These shifts can affect hip and knee issues. This can be corrected by keeping back, hips, and hamstrings flexible, plus building core stability strength (per exercises above). See our later section on the HIP.

Do NOT do these if you have an ARTIFICIAL HIP ! Have your PT modify these to fit your issues.


Stretches described above for low back …plus…


Hip rotator stretch (right heel on left knee, pull right knee across chest, twist to right, 30 sec… then do other side)

PLUS: the strengthening exercises described on previous page, to stabilize the sacroiliac region.



HIP PAIN… (We include this because low back and hip problems often occur together)

First… is it really a hip problem?… or is it from your lower back (very common)? This is an important distinction. Usually (not always) hip pain felt in the BUTTOCK is very often a low back issue. Pain coming from the hip joint itself (such as degenerative osteoarthritis) is usually felt in the groin and-or upper front of thigh. Hip problems sometimes put pain into the knee (several hip muscles run down to the knee to help support knee ligaments.) The lower back, hip, knee, ankle, foot all affect one another as we stand and walk, carefully aligning our weightbearing from the floor to our head to balance upright. Problems at one region often create problems at the others.

BACK PROBLEMS HURTING AT HIP… Hip pain is common with some lower back problems. Bulging disc may press on nerves and back ligaments that refer pain to the hip. Disc problems also cause mechanical problems at the SACRO-ILIAC joint (where hips connect to lower back; discussed earlier). This joint is under heavy load, but is held firmly by ligaments running from lower vertebrae to pelvis. But a bulging or degenerated disc allows vertebrae to settle closer, letting ligaments go slack. This allows sacro-iliac joint to shift, causing pain in hip. This can cause rotator cuff muscle at hip (PIRIFORMIS) to tighten, loading and stiffening hip joint. This can also irritate tissues on outside of hip, causing HIP BURSITIS.

Sacro-iliac joint (arrow)

Hip rotator (piriformis) stretch

Low back, sacro-iliac, and hip issues may be reversed with a few simple stretches. It starts with the low back flexibility and core strength exercises described above (and reviewed here)… plus a specific stretch to the rotator cuff of hip (pictured above). For right hip: place right ankle atop left knee; pull right knee across toward left as you twist chest toward right. Stretch 30 seconds. Clear this with your Physical Therapist. DO NOT DO THESE IF YOU HAVE ARTIFICIAL HIP !

Low back flexibility & strength helps hips !

NOTE… These are all wellness-prevention exercises. If you already have a problem, you need expert advice that fits YOU. Exercises for lower back issues require they be properly selected and instructed. The Physical Therapist is the MOST qualified and trained expert on this. **Consult a GOOD Physical Therapist to evaluate and teach you the RIGHT exercises for YOUR problem.**

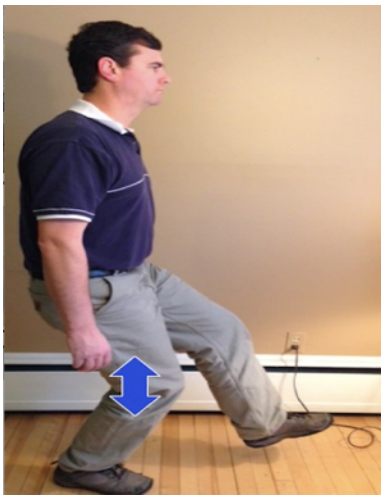
HIP ARTHRITIS… DJD (degenerated joint disease)… The hip joint can wear out quite a bit before pain appears. Pain is typically felt in the groin or upper front thigh. It may come from excessive loading such as obesity or standing on hard surfaces for years. Lack of activity can also do damage (sitting at desk or in vehicle). Joint surfaces (cartilage) need active loading and unloading cycles… such as walking to load and unload joints rhythmically. This "sponges" the joint surfaces to help feed and water the cartilage. Lack of activity allows cartilage to starve and dry out, leading to arthritis.

Left hip from behind; thigh attaches to pelvis

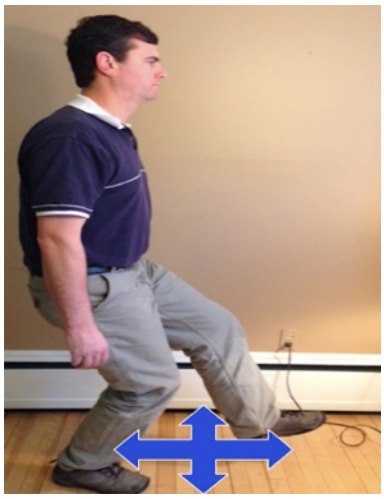
Sitting bends the hip into a stressed position, while depriving the joint of movement needed to feed the joint. Some muscles lose flexibility, while others lose strength. Avoid prolonged sitting. Stand and stretch often. A joint that is beginning to age (DJD) can benefit from restoring flexibility and strength. The lower back exercises illustrated above are important to the hip, as these stretch and strengthen muscles joining the hip and low back. Lower back exercises can help hips.

Rotator Cuff of the HIP… The hip rotator cuff (piriformis) is key to reducing arthritis risks. This muscle often gets tight with back and SIJ problems. Stretching the piriformis is shown above.

BALANCE RISKS: The hip's role in balance stability role can be weakened with age. Two simple exercises that restore stability control are (1) standing on one foot, holding other leg up. Very slightly bend knee to lower your height only two inches; then straight back up. Repeat this to fatigue. And (2) balancing on one foot, holding other foot up slightly. Keep balanced on the stance foot as you move the lifted foot slowly front-to-back-to-each-side. Keep going to fatigue, each side. The stance leg is exercising balance-stability control.



very shallow mini-squats



balance on one leg

side-step with elastic at ankles

ARE YOU LIMPING?...

If pain is causing you to limp with an abnormal walking pattern, this can make the hip worse and lead to knee problems. It is good to use a cane (held on the GOOD side!!) to protect hip and knee from further damage.

Repeat… you hold that cane on the good side to protect the opposite hip.

Are you too proud to use a cane? Get over it.

It is OK to give in (it is temporary) and use a cane to protect your hip while you restore hip function with exercises. Why choose to suffer and cause more damage? Be smart… use the cane. It sure beats a fracture !

RECOVERY from WORKPLACE BACK INJURY:

Almost everyone will get better, regardless the treatment (unless it is incompetent damaging “treatment”), or even with no treatment. But some treatment approaches have been found to actually slow recovery. These include too much rest, especially bed-rest. This is made worse if you are AFRAID to move, fearing you are doing more damage. A back injury hurts a lot. But that does not mean lots of damage. The amount of pain usually does not match the amount of damage. STAYING ACTIVE within reasonable limitations is very important.

Medications, used carefully short term, can ease pain and spasm… to allow early activity and to tolerate corrective exercises. Manipulation can ease pain, but too much of it risks making spine unstable. It should be used in with exercises that correct the mechanical issues.

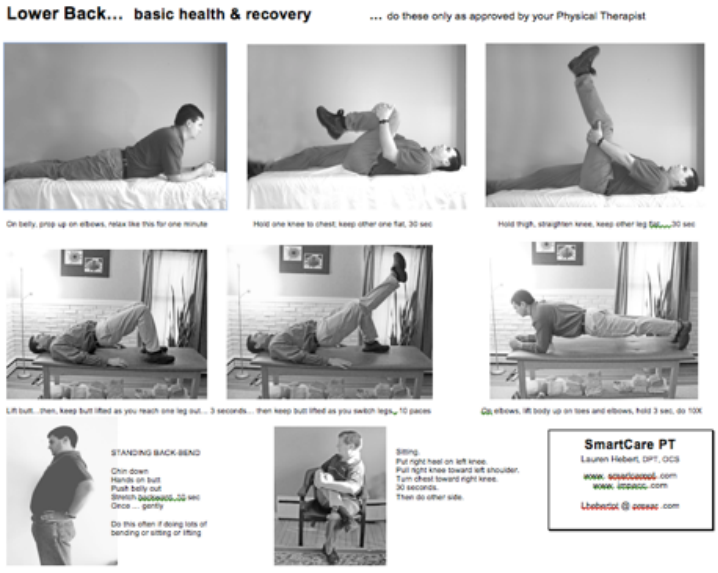
The MOST effective approach is EDUCATION on what is mechanically wrong and how to fix it… plus education on how to properly react to pain… plus EXERCISES to correct disc mechanics, then flexibility, then strength, then stability coordination. One must maintain a reasonable amount of ACTIVITY to preserve and restore musculo-skeletal function and prevent fear of moving. Restricted duty ismuch better than lost work days, if at all possible. It is important the employee work with a healthcare provider that does not enable or encourage disability behavior, and avoid making employee feel their situation is dire and hopeless, avoiding telling patients, “Wow, your back is a mess,” or heavily focusing on the MRI as a valid source of examination (MRI is so often wrong!)

Treatment should start quickly, be hands-on, with lots of time spent on education about their problem. Treatment should emphasize teaching the patient what THEY must do to get better (activity; corrective exercises). Treatment should not require endless clinic visits.

EXERCISES must be designed to fit examination findings from MOVEMENT TESTING. The physical therapist will have the patient bend in certain directions to assess movement and pain response. This movement testing identifies which structures are actually hurting, better than will an MRI in most cases. These findings identify the correct exercises to reverse the problem. Some patients need to initially stretch backwards to correct disc mechanics, while others need to stretch forward to unload other structures. Then specific strength exercises are added, then core stability coordination exercises to prevent recurrence of injury. The objective to simply to restore function: flexibility of key muscles, mobility across joints and discs, strength of muscles to stabilize an upright moving spine. This is accompanied by correcting ongoing risk factors such as time spent sitting, standing, bending, lifting, and other loading demands.

Early and ongoing physical activity is essential. The inured worker must also correct their posture habits and workplace ergonomics to reverse the forces that contributed to the injury. The physical therapist should communicate to the workplace what changes are needed to avoid re-injury. The therapist should also recommend exactly what WORK RESTRICTIONS are needed to keep the worker at work or return them quickly to their job if they are out on lost time. The workplace and therapist must communicate to identify what restrictions are needed and how to evolve the worker back to regular duty. There should NOT be a prolonged period of lost time nor a drawn-out period of restricted duty. Restricted duty should last days, maybe few weeks at most… NOT months.

Restricted duty must be done correctly. Simple giving someone an easy desk job can actually make them worse if they have a disc problem, for instance. Restricted duty starts with protecting injured structures with reduced demands, but quickly evolves toward more demanding tasks using work as a carefully progressing exercise activity, to recondition and retrain the body to tolerate full work duty. This requires cooperation among employer, employee, and healthcare provider to ease this along efficiently. But it can be challenging.



Sample self-care low back health exercises, customized to the individual based on physical therapist evaluation

WORKPLACE MICRO-STRETCHES… (workplace injury prevention)

We provide workplace musculo-skeletal injury prevention programs to workplaces across the USA.
A key part of our program is to set up a collection of MICRO-STRETCHES workers should perform every hour or two during work day.
Below is a copy of one example program.

At your job or at home during life activities… while doing tasks that risk pain problems… consider doing those Micro-Stretches that target your pain issues.

We accompany these with our ergonomics suggestions, such as our page on Computer Ergonomics.

SmartCare's 'NO-LOST-TIME' Micro-Stretches… (do NOT start these without proper instruction)


Chin tuck, gently 10 sec.


Stretch neck sideways 10 sec


Shrug & inhale 5 sec, then….


Relax & exhale 5 sec.


Dangle & swirl arm around 10x


Palm up, stretch wrist back 10 sec.


Palms down, elbows straight, Curl fists down & out, 10 sec


Hands on butt, push belly out stretching back gently 10 sec


Hold thigh, straighten knee to stretch back of thigh 30 sec.


One leg extended back; lean forward to stretch calf 30 sec


Grasp thumb, tilt down 10 sec


Sitting, stretch forward 10 sec


Stretch- sideways 10 sec


Sitting, pull into full twist 15 sec each


Heel on knee, pull knee across chest toward knee …30 sec

COMPUTER WORK-STATION Set-up… new improved tactics

New ergonomics tactics

Bifocal eyeglasses cause neck posture strain-headache

Place MONITOR squarely in front, NOT off to one side… top edge of screen at eye-level (unless you wear bifocals!)
NOTE: Wearing BIFOCAL-progressive eyeglasses for computer work risks serious neck-headache problems as you slouch forward and tip head back to see screen. Use single-vision reading glasses here !

Push KEYBOARD in 4-6 inches from edge of desk, then place gel pad here for arm support. Rest arms to type.
NOTE… Best: place computer in CORNER to allow full surface support for forearms. See pic below

KEYBOARD TRAY is often too low… but switching every hour between keyboard in tray versus placed on desk provides work posture VARIETY, which can be good for posture work relief.

MOUSE should also be pushed in to allow forearm support, with gel pad placed in front for hand-wrist rest.
Also, switch between using MOUSE versus TRACKBALL every 1-2 hours for wrist posture VARIETY.

TELEPHONE… do NOT EVER hold telephone handset between head and shoulder. Use HEAD SET !!

PEN-PENCIL… place padded SLEEVE over pinch surface to reduce pinch risks.

CHAIR… Most important to be height-adjustable. The KEY is to CHANGE height often, 2 inches up or down every hour for posture variety, PLUS do a standing back-bend stretch every hour.

STANDUP OPTION… Many offices employ STANDING DESKS with tall chairs to allow switch between sitting versus standing Another option is the VARI-DESK platform placed on conventional desk, which allows worker to raise computer to standing height, for work posture VARIETY… much cheaper-easier option than standing desk-chair.

Do our MICRO-STRETCHES hourly to keep circulation to working tissues !!

Vari-Desk allows switching between sit vs stand

Corner desk setup allows best arm support

STRESS worsens Pain… then, pain worsens stress…

Back pain creates stress. You suffer…you worry… you are afraid. This causes much stress… which causes more pain.

Stress creates lots of brain activity. This brain activity creates "background static" that spreads through the brain.
This static creates spreads down the spinal cord, to the nerves, to the muscles… making muscles TENSE.
This muscle tension adds to pain and spasm. It can get steadily worse over time, especially when it prevents recovery, especially when it stops you from living your life.

A simple RELAXATION EXERCISE can greatly reduce this process. Do this often through the day.
Make fists and shrug shoulders as you inhale 3 seconds (this drives that static way up)…
then relax and exhale 5 seconds (that static drops to almost zero)… do 2-3 cycles of this.

This forces the brain and muscles to consciously FEEL the DIFFERENCE between TENSED versus RELAXED. Purposely feeling that difference allows brain and muscles to re-discover relaxed non-tense resting state. Simple and effective. Do this often through the day.

Clench-shrug-inhale 3 sec… then …

Relax and exhale 5 sec.. do twice

At end of day, especially going to bed for the night, you can do a lying-down, full-body version of this. This helps sleep.
Simply lie on back with one or two pillows under legs. Do this clench-inhale, relax-exhale cycle, starting at thighs-buttocks (clench thighs-butt as you inhale 3 seconds, then relax and exhale 5 seconds, 3 cycles of this), then go to belly-buttocks (clench-inhale 3 sec… relax exhale 5 sec… 3 cycles), then upper body (clench fists-shrug shoulders-inhale 3 sec… relax and exhale 5 sec for 3 cycles). Pain cannot recover without proper SLEEP. This can give you much better sleep.

These relaxation exercises become even more effective with practice, especially if you try to clench only lightly, followed by relax fully. Relaxation becomes more effective as you concentrate on feeling the difference between slightly tensed versus fully relaxed.

ICE or HEAT ??

There is no correct rule here. Try ice; later try heat, to see which works best for YOU. Most PTs recommend ice as the first step, as it is usually more effective (but not on everyone!) and is overall safer.
But use these ONLY if you have normal nerve function, no numbness, no stroke history. Use these only for brief periods such as maximum of 20 minutes for heat, or maximum of 10 minutes for ice. There is a risk of burns or frostbite, so protect skin with towel layers … and do NOT fall asleep during heat or ice use.

T.E.N.S. for PAIN CONTROL… (TENS doesn't FIX anything, but can make you more comfortable)

CAUTION… DO NOT USE TENS if you have a PACEMAKER, INTERNAL DEFIBRILLATOR, or are PREGNANT.

CAUTION… TENS does NOT cure anything. It only reduces pain. You do not want TENS to mask an undiagnosed medical problem such as an infection in a joint, cancer, other medical problem causing pain. Be safe !

SO, HAVE YOUR PT DETERMINE IF IT IS PROPER FOR YOU TO USE A TENS. And do your exercises !

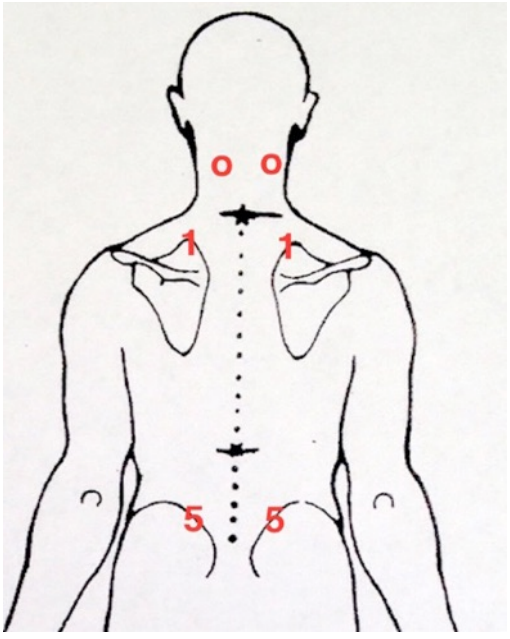
Transcutaneous (through the skin) Electronic Nerve Stimulation… is a non-invasive application of pulsed electricity through the skin to stimulate certain nerve endings that can reduce the activity of pain nerves. Pain nerves endings from a source of injury or irritation in the body (sprained ankle, for example) deliver pain signals to spinal cord where they connect with nerve tracts delivering pain messages to the brain. Other nerve endings deliver other sensations (touch, temperature, position) to the spinal cord and on up to the brain. These non-pain nerves can crowd out or inhibit or quiet the pain nerve messages that enter that same part of the spinal cord. This is how TENS eases pain.

There are two methods of TENS… a conventional method… and acupuncture stimulation. The conventional method uses gentle stimulation at or near the pain source, while acupuncture stimulation uses acupuncture points that relate to pain source. They also use very different electrical settings.

The electricity SETTINGS are… pulse RATE (pulses per second), pulse WIDTH (duration of each pulse in milliseconds),, and INTENSITY (strength of current). Conventional TENS settings are: HIGH RATE (~150 pulses per second) and LOW WIDTH (~50 millisec), with INTENSITY turned to gentle-medium. This can be operated for any length of time, even hours of use if needed. Some TENS units have another setting called MODE where the stimulation is distorted to prevent nerves from adapting to and ignoring ongoing stimulation. Select: M or Modulation on this.

Acu-point stimulation is the opposite setting profile: LOW RATE (~4 pulses per sec) with HIGH WIDTH (~200 millisec) with intensity set uncomfortably high and run briefly for about 10-15 minutes. It uses a short period of uncomfortable stimulation to the acu-points your therapist selects (10-20 minutes of moderately uncomfortable stimulation, then off),

PAD LOCATIONS for conventional TENS are to place pads on either side of a joint (knee, ankle, wrist), or along the length of an extremity along edge of pain region (such as top of forearm and outside of arm for tennis elbow pain, for example), or horizontally across the pain region if in the torso (neck, lower back). Simply try to locate pads along the path of the pain. Also, you do not need to use four pads… one pair of pads is usually all you need, even though the device provides for four pads. See illustrations on following pages for pad locations.

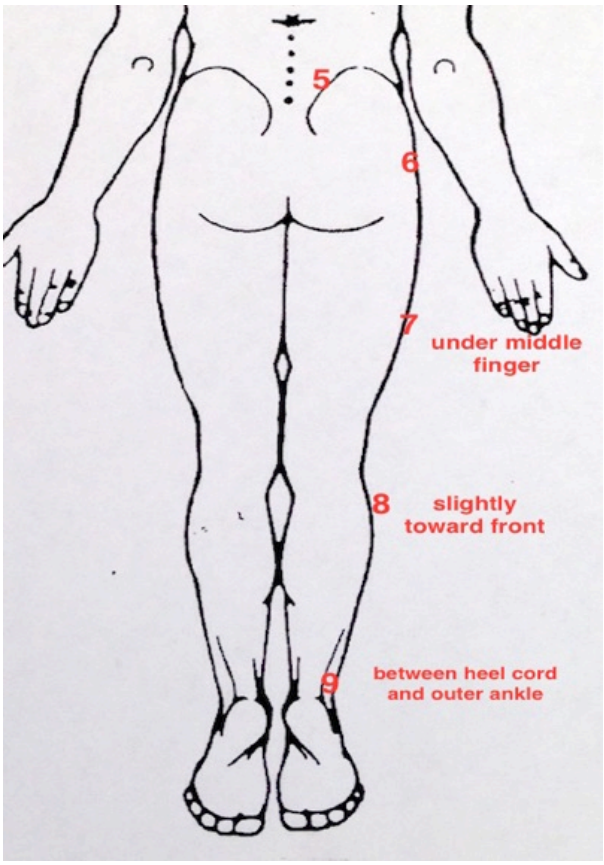


Spine (neck or low back) pain… using conventional TENS settings…

Place pads horizontally across pain levels. For mid-neck pain, place pads on left and right "0" sites. For lower neck or across shoulders, place pads on left and right sites "1". For neck pain that runs down into upper shoulder area, place one pad on site "0" and other on site "1". For lower back pain that does not run down leg, place pads across left and right sites "5". Simply place pads to the left and right of the pain.

1. Conventional TENS… pulse rate high; pulse width low; intensity moderate-comfortable… can run a long time like this.

2. Acupuncture TENS… pulse rate low; pulse width high, intensity strong-uncomfortable… run for 10-15 minutes.
Pain relief with acupuncture TENS is often delayed, but more prolonged, than conventional TENS.

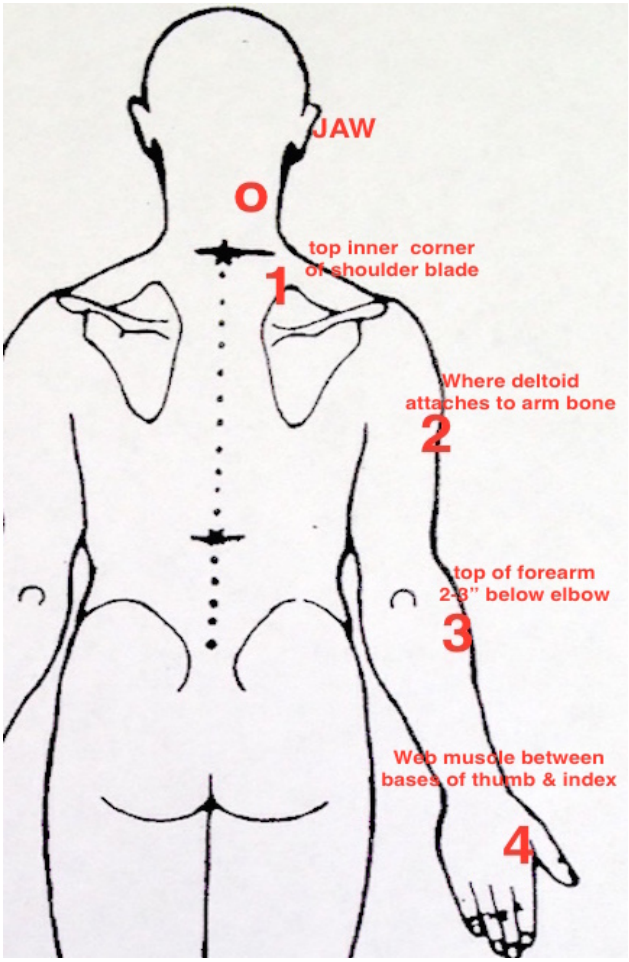


For back pain that runs down a leg, or for hip pain, using either conventional or acupuncture settings: place one pad at or above upper region of pain and other pad just below lower region of pain, so that pain lies between the pads.

May run TENS at moderate comfortable conventional setting for longer times, or at a strong acupuncture setting, high intensity for 10-15 minutes, then off… pain relief often delayed but more prolonged with this method.

DO YOUR EXERCISES and be more active… activity reduces pain.

Today's TENS pads are peel-and-stick, re-usable pads. The sticky gel is mostly water, but will dry out with use, reducing sticky. With each use (after the first time) trickle a very small amount of water onto pad. It will get slimy slippery at first. Let it dry 10-20 seconds and it will become tacky again, ready to apply. When not using pads, place on their plastic sheet and place in baggy to avoid drying out. You should get 10-20 uses from each pad.



Pad locations for neck, arm, headache pain; conventional or acupuncture methods. For neck pain that runs into shoulder or down arm: place one pad at neck "o" site, with other pad just below how far down the arm the pain is running "site 1-2-3-4".

For headache, place one pad on upper back of neck (just above site "o") and other pad to site 3 or 4… with acupuncture setting (run it strong for 10-15 minutes; pain relief is often delayed).

For TMJ pain, place one pad on "JAW" site (where jaw connects to skull just ahead of ear) and other pad at site "o" or site "1" with TENS running moderate-comfortable conventional setting. Using an acupuncture setting directly over the TMJ may be too irritating for such a sensitive structure, so use acupuncture settings (strong) with upper pad at site "o" or "1", with other pad on site "4".

For shoulder, elbow, arm, wrist pain… place one pad on the primary sore spot, with other pad on site 2-3-4, whichever one is down the arm from the primary sore spot, using conventional settings. If trying acupuncture settings, always place lower pad on site 4 (this one is a "master point" for pain control in neck-arm region).

Conventional TENS… pulse rate high; pulse width low; intensity moderate-comfortable… can run long a time like this.

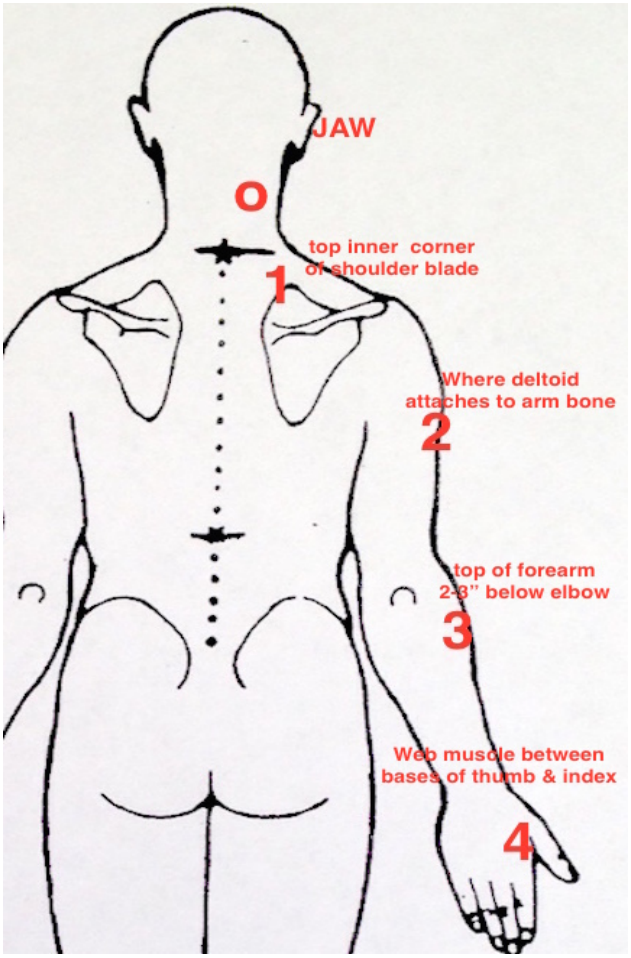
Acupuncture TENS… pulse rate low; pulse width high, intensity strong-uncomfortable… run for 10-15 minutes.
Pain relief often delayed but more prolonged than conventional TENS.

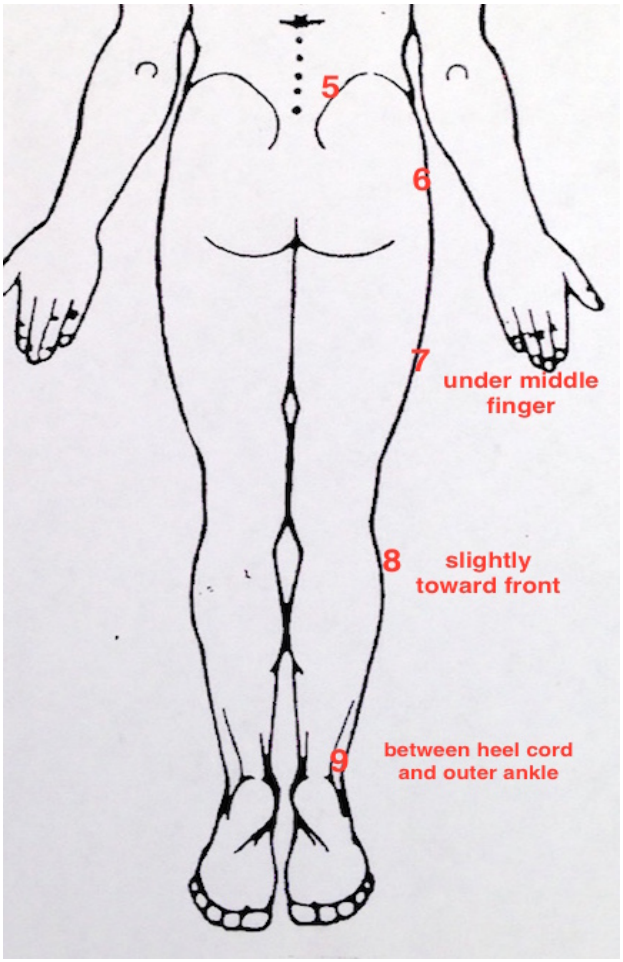
ALSO… use this pain relief to do your exercises and be more active with normal movement. This also reduces pain.

ACUPUNCTURE POINT ICING…. Another pain control tactic.

You may not need to use a TENS to find pain relief… simply by rubbing an ice cube on the acupuncture points described above for TENS tactics. The trick is to over-stimulate key acupuncture points with the edge of an ice cube… not merely using a cold pack, but rapidly chilling just the point for just one minute.

Use the points described above for TENS. Per the illustrations, neck-headache-TMJ-arm pain problems may respond to icing sites 1-2-3-4 (site 4 is the most effective of these). Low back, hip, leg pain may respond to sites 5-6-7-8-9.





Conventional cold packs is another method whereby you simply apply cold pack over the pain site,,, only for 10 minutes at a time and use cloth over skin to avoid frostbite. This can be done as often as needed. Cold packs are safer that hot packs, due to burn risks. Hot packs are not safe with diabetes or peripheral neuropathy or other neurological conditions.

Ice massage is another tactic. This is more intense than conventional cold packs, but can be more effective. With this technique, rub ice cube on skin 3 minutes directly over the pain region. The cold is very intense but done only for short period. This is NOT comfortable to do, but often reduces pain well once done.

NOT EVERYONE RESPONDS THE SAME. Some people get great relief from these methods… others not at all.
Reminder… these do not "fix" or "cure" anything. They only (maybe) reduce your pain. It is critical that you be evaluated by your PT to make sure it is proper for you to use these, and are not "masking" a problem that needs other treatment. PT should show you what exercises to do to improve your problem.