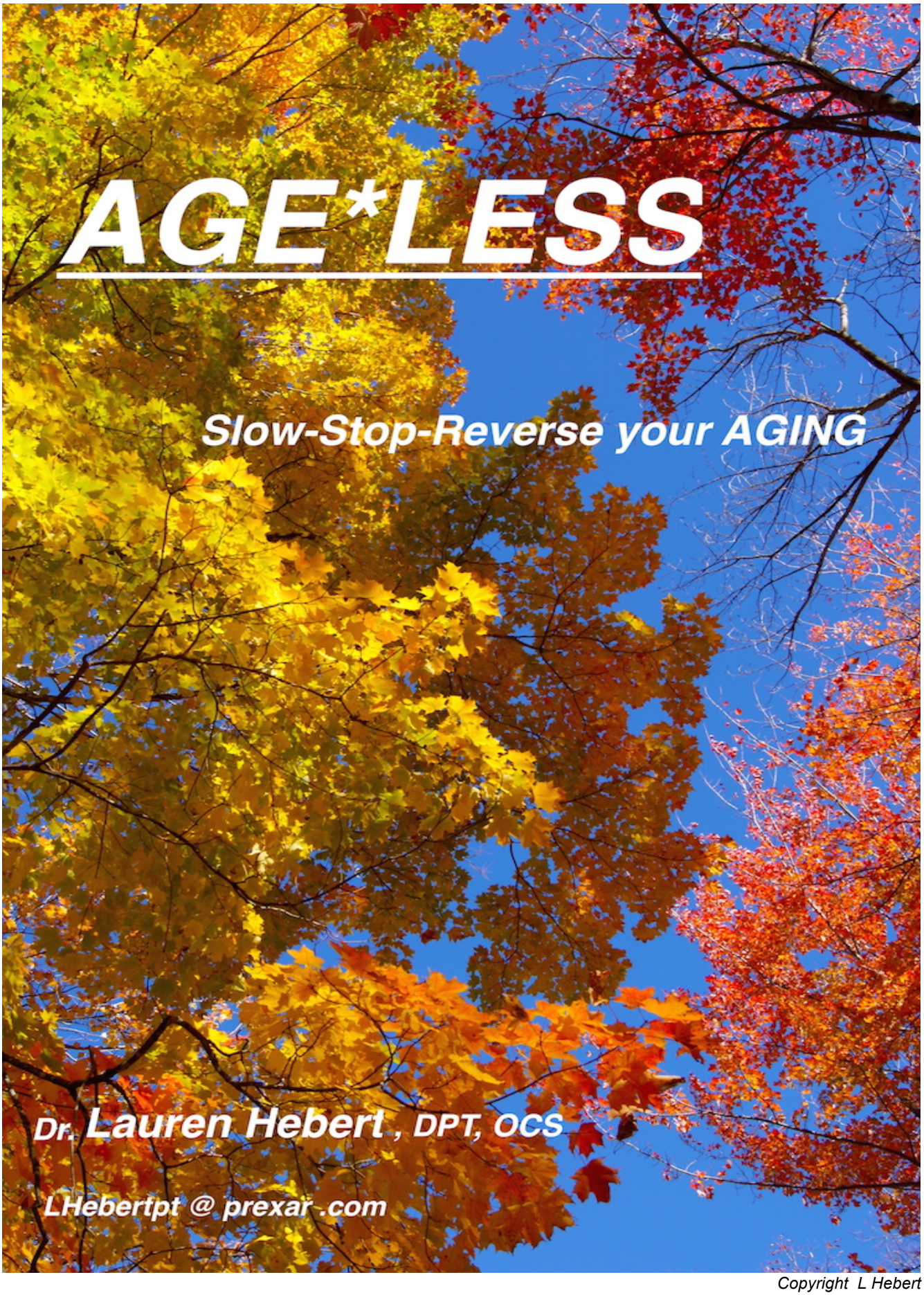

THE AUTHOR…

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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 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 ! …. or your x-rays.

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

MRI's & x-rays often LIE… X-rays and MRI's are very 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 the 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).

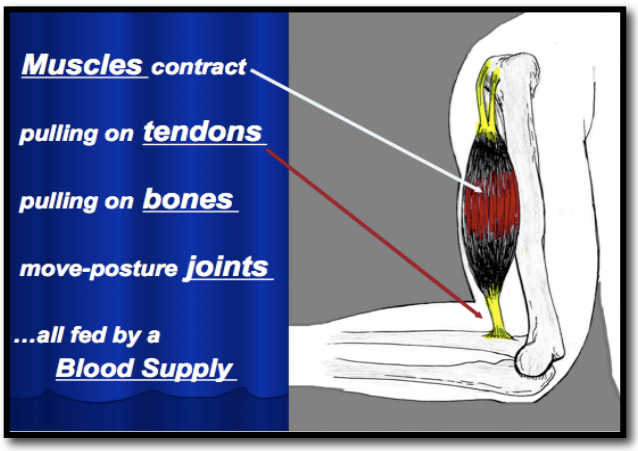
Some people have a LITTLE degeneration and LOTS of pain. But many people have LOTS of degeneration and NO pain. The amount of degeneration does NOT usually match the amount of pain and disability. Aging does require you to have pain, and pain can usually be greatly reduced, despite degeneration. Lots of aging can be reversed. We see 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 actions, then selectively loads specific structures that can reveal where the pain is actually coming from. This non-invasive PT examination (way less costly than an MRI) is key to finding the true source of pain. Muscles, ligaments, tendons, joints each react in their own ways to PT testing… and tells us which exercise, and 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 load 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 ! …(and is often reversible)

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 wastes 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 that reduce 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 degeneration. Restoring and 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, and more likely to be injured. This is aging #1… and starts about age 25.

Aging-2… DRY & BRITTLE (reduced water in tissues)… Musculo-skeletal tissues are mostly water attached to proteins. 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 and inactivity. Tissues get stiffer, weaker, more easily damaged with daily work.
This is aging #2… Loss of water and elasticity, along with the build-up of scar fibers allows tissues to break down more easily.

DEGENERATION … AGING… This is a build-up of scar fibers and reduced water. Tissues gradually become stiffer and weaker.
GOOD NEWS: this is REVERSIBLE. Restoring elasticity and water content is not difficult. The key is MOVEMENT.
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 ... (sorry this page is long, but it is important)

There are two types of pain… acute and chronic. Chronic pain is VERY different from acute pain.
Pain is a BRAIN function, greatly affected by stress, sleep, nutrition, attitude… plus the words and attitude of your doctors!

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 loaded (pulled or squeezed or twisted)... or chemically irritated (chemicals released by tissue damage or by buildup of waste products)... 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 interpreted as "PAIN."

We treat the localized acute tissue pain by reducing swelling, relaxing spasms, 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 gets better. PT can speed this up.

CHRONIC PAIN is very different. It comes from changes in the brain and nerves that become sensitized and over-stimulated. Ongoing pain changes brain and spinal cord to become way more sensitive. Nerves can change from too much acute pain. Nerves that normally sense touch or movement become pain nerves. This makes pain continue even after original injury has healed. The brain now feels normal movement or touch as pain. The injury may be healed, but the pain has taken over in the brain. The pain keeps itself going.

Initially, ACUTE pain ran FROM the broken ankle TO the brain. But CHRONIC pain runs FROM the brain TO the (now healed) ankle. Chronic pain is a disorder of the brain and spinal cord, caused by overstimulation. Pain becomes automated and non-stop, within the brain. That pain can spread to other areas in the brain, projecting pain to others body parts (ankle, knee, hip, lower back). Back pain spreads to neck, arms, and legs. This is similar to "phantom pain" felt by amputees after losing an arm or leg. The missing limb hurts. This is not "psychological'… it is REAL pain, in the brain, due to brain changes from overstimulation.

Prolonged acute pain can change NERVES, making them hyper-sensitive. Non-pain nerves that feel touch, temperature, and movement can actually become pain nerves. Non-pain nerve signals now become pain signals. This further over-stimulates the brain.

Chronic pain causes FEAR that you are experiencing more damage to painful body parts. Fear stimulates pain centers in the brain. Some people are told they are faking or have psychological issues. This creates even more STRESS and anger, which further increases pain sensitivity in the brain. The brain is now coming FROM the brain, felt in the hurting body parts.

This gets much worse when doctors tell you, "your back pain will not get better because you have the spine of an 80-year old," or, "you cannot get better with bone-on-bone arthritis," or "you will end up in a wheelchair." These (usually-wrong!) statements greatly increase fear, depression, stress, and anxiety… stimulating your brain's pain centers. Lack of sleep, reduced activity, poor nutrition, stress, anxiety, anger, depression, fear… all increase pain sensitivity.

Chronic pain comes from an over-stimulated nervous system. Once you LEARN the pain of activity is NOT doing further physical damage, you to be more active with less fear of injury. Increased activity decreases brain pain. Addressing these stresses is critical.

Years of pain leave people worsened by muscle weakness and stiffness from INACTIVITY. Weak muscles now 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 way too quickly. This is poor "aerobic" endurance causing muscles to work without enough oxygen, causing increased waste products in working muscles, causing chemical irritation pain.

Strength, flexibility, endurance must be restored… gently, but daily… to allow improved activity. Once there is 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. Eventually heavier strengthening becomes important to re-train the brain to accept physical loading… with far less pain… and far less disability.

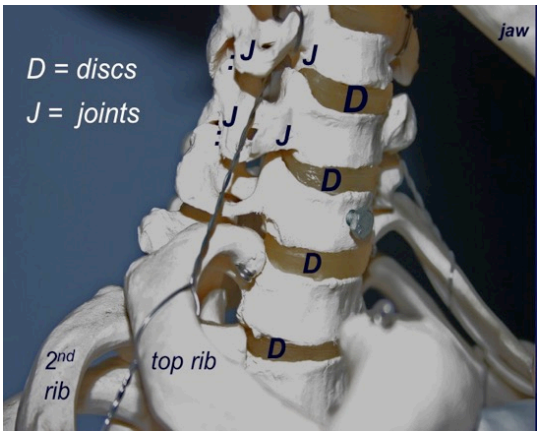
A big issue is SLEEP. Serotonin is an important brain chemical. Pain uses up serotonin. Sleep restores serotonin. Lack of sleep reduces serotonin. Lack of serotonin increases pain sensitivity and depression-anxiety (increasing pain sensitivity even more). Sleep is critical! Lack of sleep makes chronic pain worse. Discuss sleep improvement with a good pain doctor, as there are effective remedies. Building good aerobic activity (walking, jogging, stationary bike) improves oxygen uptake, which can improve sleep.

Chronic pain is treated by EDUCATION (about why you have chronic and how YOU can manage it) plus gradually improving posture and flexibility, strength, endurance. This reduces the pain that comes from defects in posture, flexibility, strength, core stability, and endurance. This not only reduces the pain, it allows you to be more active within your pain levels. Increased activity, reduced fear, improved function can begin to knock down chronic pain levels. YOU can decide to win this.

NECK PAIN… strains, degeneration & dysfunction & aging…

The neck section of the spine is a stack of small bones carrying the weight of a heavy head and arms. The neck must be to be MOBILE for normal movement, but also STABLE to maintain upright posture. The bones are connected at FACET JOINTS, cushioned by DISCS, held together by LIGAMENTS… all moved and stabilized by MUSCLES… all monitored by very sensitive NERVES.

Discs can shrink with age (degenerated discs). Discs can also bulge or rupture, releasing the gel core of the disc to press on nearby nerves to the arms. Joints can become arthritic and grow "spurs" that press on nerves. Ligaments and muscles can be strained by awkward postures. Muscles can weaken and be unable to properly support head and arms posture-motion-loading.



Discs (D) thin with age, increasing load on joints (J), cause arthritis-spurs that pinch nerves to arms.

FORWARD HEAD POSTURE…slouching

** One critical risk factor for aging at the neck is: **FORWARD HEAD POSTURE**… SLOUCHING… ROUND-SHOULDERS.

AGING CHANGES… Note: degeneration does NOT always cause pain! It often does not, since most get better with simple exercises.

Discs, joint cartilage, ligaments, muscles are about 80% WATER at age 20. But by age 50 we lose HALF of that water. These tissues shrink, become brittle, less elastic, and weak. This changes the mechanics of the neck… shifting posture, reducing mobility, stressing muscles. Posture gets stressed as the head shifts forward and upper back rounds over (slouching). This posture habit increases loading on all the tissues. This makes aging and degeneration get worse, faster. Arthritis spurs and disc shrinkage shifts bones, which can pinch nerves to arms and hands. Increasing mobility, more daily activity (walking, for instance), and better attention to posture ("Be an inch taller!" the physical therapist yells loudly) can halt and reverse all this. One key: change your posture frequently !

The biggest risk is the time spent SLOUCHING… ROUND-SHOULDERS… FORWARD HEAD. This strains neck and upper back structures. Prolonged sitting can lead to FORWARD HEAD POSTURE. Reaching with arms adds more loading stresses to neck. Sitting at computer all day can cause posture to get steadily worse, weakening muscles. Twisting (such as backing up a forklift) further stresses joints and discs. These can be reduced and reversed simply by changing posture frequently and by micro-stretches during workday.

FIXING THIS… (Even slight improvements can reduce pain) (posture variety, flexibility, strength, physical conditioning)

For care of the neck: Improve your posture; better yet, change your posture frequently; improve flexibility; improve joint mobility; restore strength at muscles that work all day holding your head upright. It is easy to improve joint mobility just a little, muscle flexibility just a little, muscle strength just a little, and pay attention to improving posture habits just a little… resulting in excellent reduction in pain.
And people get usually better (even with degenerated discs, bone spurs, herniated discs, degenerated joints. These CAN be pain-free!

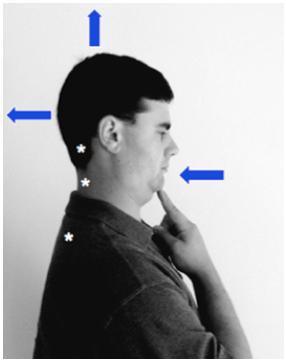
Most people with neck problems have FORWARD HEAD POSTURE (slouching, rounded shoulders). The upper back curves forward, then upper neck tips backward to keep vision level. This creates posture strain that age the neck and upper back. Joints get stiff here, and Muscles can tighten in this position. Gentle stretches to key muscles allow improved posture (often all it takes to ease pain).

1. Posture is critical… BE AN INCH TALLER. Yes, it is that simple. Constantly remind yourself (some actually place small post-it sticker on the edge of the computer screen or car dash that says, "BE AN INCH TALLER" as a reminder). Pull shoulders slightly back, head tall, chin down slightly, tongue on roof, teeth not touching (to relax jaw muscles, which eases neck tension).
2. POSTURE VARIETY is far more important than 'perfect' posture… At a desk, change chair height two inches up or down every half hour. Change how neck is aligned slightly so that weight-bearing loads are rotated among more joints and discs for shorter time periods. Do the same in your car, adjusting seat often to provide some sitting posture variety. Stop, stand up, stretch low back backwards 10 seconds, once every hour. In the office, seek to switch between sitting versus standing.
3. CHIN-TUCK & NODDING… Hold head upright and tall. From that position, nod head very slightly up and down less than an inch 10 times. This "sponges" tissues being compressed at upper neck and under base of skull.

4. STRETCH CHEST MUSCLES… These get tight from years of slouching. Stand facing into corner of room. Place forearm against these adjacent walls (elbows bent; hands at shoulder height). Move closer and deeper into corner so that walls stretch arms back, pulling on chest muscles. Let this stretch up to 30 seconds.

5. STRETCH SIDES OF NECK… Head tall upright; place left hand atop right shoulder; hold shoulder down as you tip head sideways to left (NOTE: your neck wants to cheat at this by turning face toward left. Don't let it. Keep face turned slightly toward the hand on your shoulder) as you stretch 10-15 seconds. Don't force this; be gentle. The stretched muscle (scalene) is a breathing muscle, so if you exhale during stretch, it will lengthen nicely… below…

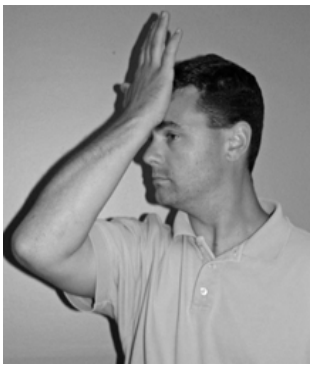
Forward Head Posture



Chin-tuck… Be an inch taller

Side-bending stretch (exhale!)

6. STRENGTHEN MUSCLES… Neck muscles work hard all day holding the head upright. Weak muscles overwork to maintain posture. Start with simple isometrics with head upright: place hand on left side of head; push head and hand together with about half your strength only 3 seconds, then push on right side; go each way 5 times. Then do same front to back 5 times each. Another is to lie on back and lift head only ½ inch; hold 5 seconds; repeat 5x.



isometric pushes; 3 seconds each way; 5 times left-right; then 5 times front-back; while keeping head upright.

7. DAILY LIVING STRESSES… Sleep-bed pillow: Place towel roll inside pillowcase, pushing it to lie along front edge of pillow so it will lie under your neck to support neck (side-lying or back-lying). In car, place towel roll behind lower back. Supporting curve of low back will improve head-neck posture. Change car seat adjustment often, to provide variety of car siting posture. Use same principle working at a desk: change seat height, for posture variety. Get up and walk around often. Stretch break at least hourly.

Towel roll in pillowcase to support neck

Lumbar roll in car corrects both low back and neck posture

TRACTION

Traction at neck can be effective… IF it is done correctly. If your PT or chiropractor is using traction, they should use a version that does NOT use a strap pulling on your CHIN. A chin-strap can stress your TMJ-jaw joint, which can then cause neck muscles to tighten, making traction ineffective or even harmful. Many docs miss this. Traction should pull only at back of head, not at chin.

We often advise patients to do their own traction using a towel, folded twice the long way, ends tied together with a cord, with the cord then tied to doorknob. The proper length of this should allow about half of the towel to rest on floor. You then lie on your back on floor about three feet from door, placing head in that towel loop so that it wraps around your ears, cradling your head. Your position should cause towel loop to hold your head only one inch off the floor. Relax here. This creates a light traction as you relax here for 10 minutes, This often works very well for many with chronic neck problems. Legs lie flat, or one bent up slightly if low back is uncomfortable.

But… be sure that your PT approves this, to make sure it is right for YOU.

Folded towel looped around ears, tied to doorknob, positioned so that head is held an inch off floor… relax 5-10 min

PAIN CONTROL

1. Ice or heat ?? There is no correct rule here. Try heat; later try ice, to see which works best for YOU. 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.
2. See the chapter on TENS use, later in this book. Also, note the chapter on CHRONIC PAIN, earlier in this book.
3. Acupuncture point stimulation can be effective for headache, TMJ, neck pain. This can be done with TENS or by rubbing corner of ice cube on the acu-point for one minute (not comfortable, but often effective). Acu-points for this are Li-1, Li-4, Li-5. Li-4 is the best (master) point. It is on back of hand over the belly of the web-space muscle (between index and thumb). Li-1 is located just off the lower edge-corner of the index cuticle, thumb-side of index nail. Li-5 is where the based of the thumb joins the wrist in the empty pocket between those bones.

   **** NO ACUPUNCTURE STIMULATION IF PREGNANT! ****

Acu-points for head-neck-arm pain

Mid-Back (thoracic) Problems … (upper back rounds over with age)

** The MOST important risk factor for aging at mid-back is: FORWARD HEAD POSTURE… SLOUCHING… ROUND-SHOULDERS, just like at neck. Upper back bends forward, then head tips back on neck to level vision… stressing neck, upper back and shoulders.

As we get older, the middle to upper back (between shoulder blades) tends to round over (kyphosis) and get weaker, vulnerable to muscle strain or rib sprains where ribs attach to spine. It gets worse when we sit or drive. The upper back curls forward, stressing joints and ligaments here, plus weakening muscles of neck, back, and shoulders. We must then tip head backward on neck to restore level vision. This compresses joints, muscles and nerves at upper neck. The shoulder blades shift forward and tip down, closing in on rotator cuff tendons of shoulders. This all risks spine strain, spine arthritis, headaches, and rotator cuff shoulder problems.

The goal is to stop and reverse round-shoulders forward-head posture habits, increase spine-rib mobility, and strengthen these muscles. Again, start with "BE AN INCH TALLER!" reminding yourself to hold head more retracted and taller, to reverse slouching. Next, improve mobility by stretching this part of spine (sideways, turning, gentle back-bending). Next, strengthen upper back and shoulder blade muscles with theraband elastics or by lying on belly to do" airplane" arm lifts… on belly, arms out to side, lift arms 3 sec 10x.


Be an inch taller !!


Pull to full twist 15 sec


Pull elastic wide…

or…


prone "airplane" arm lifts, 3 sec, 10x

HEADACHE …(many headaches come from NECK and TMJ-jaw problems)

Headache is the leading doctors' office complaint today. Some people suffer relentlessly with headaches for years without relief. But there is needless suffering when certain issues are overlooked and left untreated. Physical therapy can be very effective for headache control. The physical therapist evaluates the neck and jaw to identify posture and movement problems causing many headaches. These issues are usually easily corrected with a few very simple exercises and posture tricks.

Head and neck posture problems are a very common source of headache. Many (most) people have a degree of round-shoulders, slouching, forward-head posture. The upper back is rounded forward (flexion). Then, the upper neck and head is tipped backward (extension) to restore level vision. This is an abnormal and stressed posture that can compress nerves between to base of the skull and top bones of the neck. A network of very sensitive nerves runs through the upper neck, under the skull, and up the back of the head to the scalp, all the way to the eyebrows. This posture squeezes these nerves, causing headaches. This is Occipital Neuralgia.

Nerves to upper neck joints can "refer" pain from these joints up to the head: cervico-genic headache (headache coming from neck). This can also cause vertigo-dizziness. Treating the neck with gentle mobilization-manipulation, traction, stretching, TENS, strengthening, correcting posture risks… can greatly reduce headaches.

A very common cause of chronic headache is working on a computer while wearing bifocal or otherwise split-vision eyeglasses. These often force you to use a forward head posture to watch a computer screen with the reading portion of your eyeglasses. Switching to single-vision reading eyeglasses when on computer can be very effective. See later chapter on computer ergonomics for more.

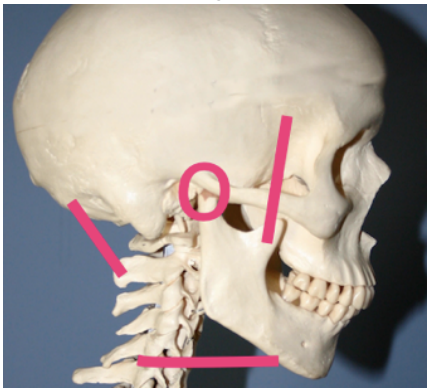
Reading portion of eyeglasses can force you into poor posture to read computer screen

T.M.J. (JAW) problems (Jaw is part of the neck, and a common headache source)

T.M.J. or T.M.D. … temporo-mandibular joint disorder (PT's prefer the term "dysfunction"). TMJ dysfunction is VERY common, but usually overlooked. Many with TMJ dysfunction do not have obvious jaw symptoms. They have plugged ears, tinnitus, sinus congestion, headaches, neck pain. The jaw joint is used during chewing and talking. But there is much, much more to the TMJ, such as balance control. TMD is usually NOT a dental issue (although some dental problems, even dental treatment, can irritate the TMJ).

The TMJ is much like the knee: with a meniscus disc, ligaments, muscles, synovial (joint lining) tissues, and with very sensitive nerves. Each of these is vulnerable to abnormal posture and movement stresses, just like at the knee. The TMJ has a DISC between the jaw and its skull socket. Disc is very mobile and can shift out of place when jaw muscles quit working properly. This can be corrected with a simple exercise. A slight change in tongue and jaw posture habits can correct functioning of the disc.

JAW IS PART OF NECK… Many muscles tie the jaw to the neck. Neck posture affects jaw posture, and vice versa.
The TMJ is a vital part of posture and balance control. TMJ is one of the most sensitive joints in the body, filled with very sensitive nerve endings that help monitor balance and posture. These nerves work closely with nerves in the neck. A mild mechanical stress at the TMJ can stimulate pain at the neck, and vice versa. Head-neck- slouching posture changes pull on all these muscles, stressing jaw joint. neck, and shoulder girdle. Pain then changes how jaw muscles control the jaw, shifting the disc and straining jaw-neck soft tissues.



TMJ is part of neck, sharing many muscles, affecting each other's posture and pain

HIDDEN T.M.J. SYMPTOMS… The most common first symptom of a TMJ problem is usually a "plugged" ear. Patients suspect an ear infection. Their doctor checks and sees nothing, but prescribes antibiotics anyway. They don't work because there is no infection. Swelling in the TMJ joint feels like a plugged ear, because the back wall of the TMJ is the front wall of the ear canal. Thus, TMJ swelling feels like a plugged ear. Many docs miss this.

Pain at the jaw is an obvious symptom. But these sensitive TMJ nerves can also cause other, more remote symptoms such as feeling like your ear is plugged, chronic sinus congestion, ringing in the ears, dizziness, swallowing difficulty, neck pain, and headaches. Nerves in TMJ can tell nerves in sinuses to dilate the blood vessels, congesting the sinuses. Chronic allergy symptoms are often a TMJ issue. Nerve activity from TMJ issue may spread activity in the nearby ear nerves, causing ringing in ear (tinnitus). That same nerve bundle controls inner ear balance signals (dizziness-vertigo).

There is often clicking in the joint during jaw open-close motion, caused by a small disc of cartilage sliding out of place. This can even lock the joint. It is similar to a meniscus problem in the knee. This can lead to lots of joint damage. A simple (but not foolproof) self-test is to place your fingers on TMJ (just ahead of ear) and open-close jaw. Feel a click? Watch in a mirror. Does the jaw shift slightly to one side on opening? These usually imply a mechanical TMJ issue.

Some patients come to us with jaw pain. But many do NOT have any jaw pain. They come to us for neck pain, headache, or dizziness... which we then discover are likely coming from a TMJ problem. They will then admit to ear symptoms, sinus congestion, tinnitus, or history of a neck injury. TMJ is often the underlying hidden problem.

FIXING THIS… TMJ problems are (usually) very easy to correct or improve with very easy exercises and simple posture tricks. The TMJ is very responsive to simple exercises that correct posture and movement stresses, just like at the knee.. It is always best to try these conservative, safe, usually effective physical therapy procedures before you subject yourself to the costs, pain, and risks of surgery, braces, breaking and resetting the jaw, extensive dental work, injections, and medications. TRY P.T. FIRST… cheaper, easier, effective,

Patients with TMJ dysfunction often have abnormal jaw-tongue POSTURE, with poor COORDINATION in jaw MUSCLES. Most patients do not even realize this. TMJ dysfunction is usually easy to reverse simply by correcting jaw posture and muscle coordination.

CORRECTIVE EXERCISE: (this so easy) Place the tip of your tongue against the roof of your mouth, about half-way back. Press lightly and keep it there as you open your jaw. It will not open fully, but that is OK. Open and close this way ten times, keeping tip of tongue at roof. Move only your jaw, keeping face relaxed. Try not to grimace. Do in front of a mirror at first to make sure you are moving as described. This exercise activates a key muscle that is often not working with TMJ dysfunction, causing that disc to slide out of position. See illustration below. This usually corrects the disc problem.

TMJ exercise: Tip of tongue on roof, hold it there as you open jaw 10x. Often.
TMJ resting POSTURE: Tongue rests flat on roof, teeth NOT touching. All day.

POSTURE CORRECTION: (also so easy)

This is very important to the TMJ. The NORMAL RESTING POSTURE of the TMJ is... tongue rests flat against roof, back away from teeth slightly... and the teeth do NOT touch. The only time teeth should touch is during chewing, not at rest. Constantly remind yourself of this posture: head tall (slouching forward head posture usually accompanies TMJ dysfunction)... tongue flat at roof... teeth not touching. Pay attention to this during driving, computer work, watching TV.

Head tall… Tongue rests flat on roof… teeth NOT touching… all day reminders

DAILY LIVING ACTIVITY IRRITATIONS:

Clenching habits are very common, but most are not aware of this. Many clench or simply rest teeth together when they drive, do computer work, watch TV. This quietly keeps TMJ slightly loaded and irritated. Again, constantly remind yourself to BE AN INCH TALLER plus TONGUE RESTS FLAT ON ROOM with TEETH NOT TOUCHING…. as your all day posture habit pattern.

Any trip to the DENTIST (such as a cleaning) is likely to bring back some TMJ problems. Do these exercises and posture corrections just before and just after dentist visit. Explain to dentist you have some TMJ dysfunction, so you will need to occasionally take a few seconds to do the TMJ exercise during dental procedures.

YAWNING can hurt a TMJ dysfunction. When you yawn, press tongue at roof. Do not chew gum, as it overworks the TMJ. Some have nervous habits involving CHEWING on matchsticks or pencils, which can keep TMJ irritated. Minimize wide or heavy chewing.

Many with TMJ issues have an abnormal SWALLOWING pattern that can stress the TMJ. They tend to place tip of tongue against back surface of the front teeth when the swallow. This is not correct. The proper swallowing pattern is to anchor tongue at roof of mouth, with teeth not touching, during swallow. If you have a TMJ problem, it is good to practice tongue-at-roof, teeth-not-touching swallowing.

PAIN CONTROL:

See acupuncture point icing, described earlier for neck pain (uses same points). The TMJ often responds well to acu-point icing. Direct ice packs for 3-5-10 minutes or warm packs for 10 minutes directly over a sore jaw may reduce pain. Try ice, then later try heat to determine which works best for you (it varies among individuals). Plus, see later chapter on TENS use for pain.

HEADACHE & NECK PAIN from wearing BIFOCALS during COMPUTER work !

One of the most common causes of neck pain and headache (usually overlooked!) is wearing bifocals, or progressives, or other split-vision eyeglasses while working on a computer. These eyeglasses often require a stressed neck posture to look at a computer screen as eyes look through reading portion of eyeglasses. This very often leads to neck pain, TMD, and headache.

Bifocals are made for reading a book. Using these to read an upright computer screen requires you to lean forward at upper back to bring vision close enough for eyeglasses to focus, then tip the head backward to look through reading portion of eyeglasses. This can severely stress the neck, upper back, and TMJ.

There is excessive rounding-over at the upper back, creating ligament strain and muscle weakness in the upper back. Then, there is backward bending of head on neck of the upper neck compresses muscles and nerves at the base of the skull. This posture also strains several jaw muscles. All this risks upper back, neck, TMJ, and headache problems. Very common, but usually overlooked.

Rounded over upper back; with head tipped back on neck

Bad vs good smart-phone posture: keep head tall & arms supported

CORRECTIVE ADVICE:

Simple changes in computer ergonomics and eyeglasses design, combined with two simple stretches will usually correct these risks. When on computer, switch to single-vision eyeglasses (full-size, not tiny little reading glasses) but with a slightly longer focusing distance (a slightly lower diopter strength) than you would select for book reading. This allows a more upright head posture and wider visual field, which allows some variety of head posture during computer work. THIS WORKS. Also, place keyboard so you have desk space where you can rest your forearms during typing. This reduces neck posture loads.

Change seat height 2 inches up or down every half hour for posture VARIETY. Do the TJM and neck exercises hourly, as described earlier. Frequently get up and walk around. Also, keep head tall when looking at smartphone. If on phone lots, use a headset !

If you spend hours daily on computer, you MUST do something to stay in shape. Excessive computer time WILL hurt your body !
At least: a daily walk, frequent stair-climbing, fitness activity-exercises. USE IT or LOSE IT !!!

ALSO… See our later chapter on COMPUTER ERGONOMICS for more details.

LOWER BACK PROBLEMS ! 80% of us will experience back pain !

The LEADING cause of missed work, disability claims, workplace injury. Fully 80 percent of adults will suffer back pain. Americans spend more money on back pain then they spend on cancer !! But back problems almost always get better. A back strain does NOT mean a permanent disability… unless you freak out over it.

"It really hurts; I am damaged!" Probably not. The spine is full of very sensitive nerves that control balance. So, a small strain can really hurt a LOT. But the amount of pain does NOT match the amount of damage. Don't freak out. You will recover. If you become afraid of the pain, the pain gets worse and can become long-term chronic pain. You will very get better if you keep moving (at a reasonable level; don't over-do it)… especially if you are guided by a good physical therapist.

"But, my MRI shows herniated discs, degenerated discs, stenosis, nasty arthritis. You can't fix these." That is WRONG !

MRI's & x-rays often LIE… 65+ percent of adults with NO BACK PAIN have degenerated discs, herniated discs, stenosis, arthritis … but NO PAIN. So, if you have back pain and your MRI shows a bulging disc, etc, you cannot say that is your pain! Misleading! Don't let an MRI make you decide you are disabled! Too many people decide they are disabled because their MRI shows "damage".

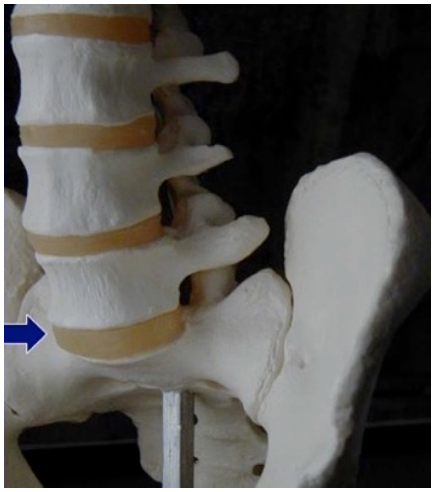
PT examination uses "movement testing" and "pain behavior" (pain response to sitting, walking, standing, getting up in AM, night symptoms). This method of examination is VERY accurate to find what actually is causing your pain. That allows the PT to select exactly the right exercises that can correct the true mechanics of your pain. Certain stretches can correct disc bulging and reverse disc degeneration; others reduce arthritic joint stresses; others improve the stability and control of your spine. You CAN get better.

Low Back Pain, Dysfunction, Aging and Degeneration...

Aging can cause stiffness, weakness and degeneration. But just a mild improvement in flexibility and strength can reduce pain a lot! Back degeneration is the result of multiple issues that accumulate over time, gradually weakening and stiffening the spine, allowing injury to occur with a seemingly minor load. Damage comes from prolonged sitting, prolonged or repeated bending, twisting, awkward lifting. There are several back structures that become worn out, stressed, and degenerated.

The spine is a stack of bones (vertebrae) balanced upright. The spine must be MOBILE for movements and STABLE for posture. The bones are connected at FACET JOINTS, forming a pivot point for movement and posture. These joints run up the back of the spine. They have very sensitive nerves to monitor balance, posture, and motion. But that sensitivity can create lots of pain from just a minor injury. These small 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 stress these joints as discs shrink, increasing loads on joints.

Rear view; FACET JOINTS



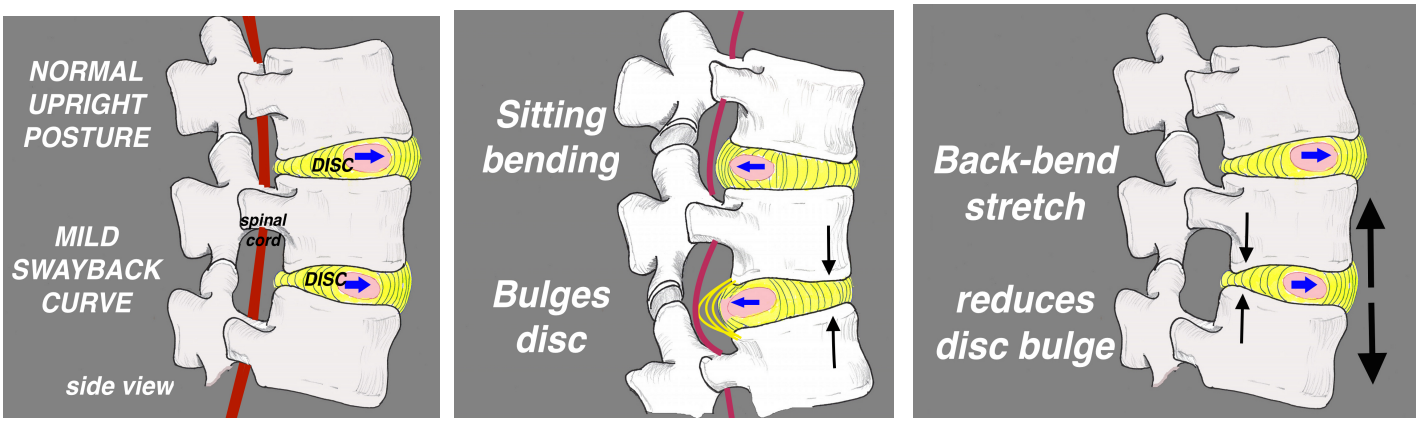
Front view; DISCS

DEGENERATED DISCS: Some problems come from the discs, directly and indirectly. Discs are cushion pads between vertebrae, at the front ¾ of the vertebrae. They act as shock absorbers. They also act as ball bearings for the vertebrae to pivot on during bending motion

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) disc lose water and elasticity, so cannot absorb loads or bend as well as before. Discs get thin from water loss, shifting loads to facet joints, causing joint strain and degeneration. As discs thin, bones sit closer together. This is degenerative disc disease. This can squeeze nerves passing nearby. This is stenosis. These age changes can be improved with reduced posture stress plus certain stretches that restore better movement. Degeneration, even severe, is not always a source of pain. Simple exercises can reverse the pain, even without reversing the degeneration. Don't decide you are irreversibly disabled, even when there is lots of degeneration.

In the center of each disc is a wet gel (nucleus) that is surrounded and 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 can weaken and balloon out. This is a BULGING DISC. The gel can eventually break through, causing a RUPTURED DISC. This is usually not a disaster, and is reversible.

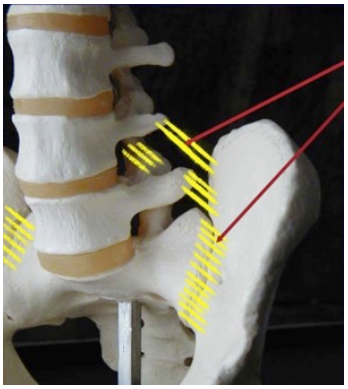
Stretching backward may reverse this, pulling the gel back to the center of the disc. The front of the disc is very strong and usually does not bulge. Stretching backward can also draw water back into the disc. This may actually reverse degeneration.



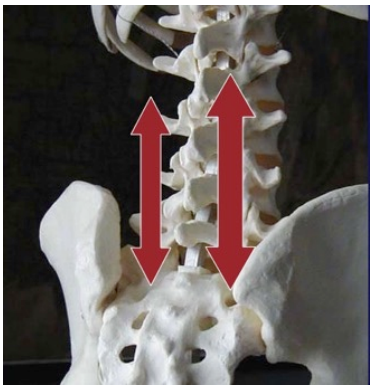
Normal posture has slight swayback…… Forward-bending stresses discs (bulging, rupture, degeneration)… Back-bending corrects disc mechanics

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. This hurts (a lot) but heals quickly, but with scar tissue that is weaker and stiffer than the original ligaments. That leaves a weak-stiff area more easily sprained again. Daily aging also allows scar fibers to gradually build up, stiffening and weakening the spine. And this can be improved with simple stretching, restoring elasticity.

MUSCLES: Muscles have two jobs: move the spine, and hold the spine stable (posture). Pain comes from repeated motions, heavy loading, holding a posture too long. This overworks muscle, causing buildup of waste products and tissue damage. Their job is to control loads on discs, ligaments and joints. But muscles will not work when you are bent forward more than half-way (hands going below knees when bent forward), allowing injuries. Your back muscles are very strong, among the strongest in your body. But muscles can gradually weaken with age and lack of activity. Keeping them strong is NOT difficult; you simply have to commit to doing it. So worthwhile!



Ligaments (yellow)



Muscles (red) stabilize spine

SUSTAINED POSTURE… Prolonged standing stresses facet joints, which tightens muscles. Bending stresses discs. Prolonged Sitting stresses discs and weakens muscles. The key is to frequently stretch out of the position. POSTURE VARIETY is key.

Standing…

Bending…

Sitting… …just frequently stretch out of that position!

Frequently STRETCH out of the work position

Change seat height often, at least hourly for posture VARIETY

FIXING IT… FREQUENT WORKDAY MICRO-STRETCH… and … END OF DAY RECOVERY EXERCISES

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) may stress 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. ** **DO NOT DO THIS IF YOU HAVE A HIP REPLACEMENT !**

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 belly on elbows, lift torso on toes; hold prolonged

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

Pelvis is the bridge between thighs 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 slightly slack. This can stress the sacro-iliac joint, causing abnormal strain and pain in low back, buttock, hip, thigh, even knee. It may not shift hardly at all, but the ligaments and joint can become stressed, and feel like it is "out". Patients who tell me their hip feels "out" usually have this problem. And easy to "fix".


rear view, and…

front view of sacro-iliac joint (SIJ)

When the SIJ is stressed, the rotator cuff of the HIP (piriformis) tightens, which can risk hip BURSITIS and eventually hip ARTHRITIS. It also changes how thigh muscles control the knee, adding to knee strain. SIJ problems often accompany disc problems, causing slight shifts in loading at pelvis. Aging can shrink discs and allow SIJ to become unstable… as hip muscles overwork trying to stabilize the SIJ. This can affect hip and knee issues. This can be reversed by keeping back, hips, and hamstrings flexible; plus building core stability strength (per exercises above) to stabilize SIJ. 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 as 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)

There are other exercises and physical therapy techniques that can be very effective, but require a PT examination to identify them.

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 that fit YOUR problem.**

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

POSTURE Risks… Too much time in one position can strain tissues, causing damage. The 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. Whatever position you find yourself, stretch into the opposite direction. If bent forward, stretch backward. If tipped to left, stretch to right, etc. If sitting is prolonged, do standing back-bend stretch… plus try to do some of the work standing. Frequently seat slightly higher or lower every few minutes for POSTURE VARIETY. Switch between sitting and standing. Use small pad behind lower back when sitting in car… IMPORTANT in a car: stop to get out and stretch every half hour of driving. Change seat fit often for position variety. Easy to do!

Stretch out of stressful postures often


Switch between sitting versus standing


10-second back-bend; often

PERFECT LIFTING can be critical… You have only ONE back to use to earn a living and support your family. Pay attention.
Position the load very close before lifting. Getting 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 push your chest out to arch your back inward… squat at knees (for thighs and back to share load).
Tighten belly and buttocks to stabilize and protect discs, ligaments, joints, muscles. Then, put the load back down the same way.
If load is heavy: DON"T DO IT. Get help or use assistive equipment, such as a dolly. Your back is very strong, but it's your only one.


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

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. Stretch after lift. Modify your work demands to reduce risks!
Reducing just one or two of these, just a bit, reduces injury risk. You cannot afford an injury. Pay attention to technique.

Change desk chair height often, for posture variety. Use low back support pad in car. 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.

SLEEP POSITIONS… If your sleep on your back, place pillow under knees to bend knees slightly. If you sleep on your back, place thin pillow under belly. If you sleep on your side, place pillow between knees. Plus, try bending top leg forward, while keeping bottom leg more straight back. One side will be more comfortable than the other. Change positions often.

OTHER AT HOME RISKS… Your TV easy chair should have small pillow to put behind lower back, plus 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 should be eased out over four hours, with frequent breaks. Pace your yard-work for more rests and stretch breaks. 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. It's also OK to back off more risky tasks. Get help where it is safer to do so.
Do you really think you are still as strong and flexible and fit as you were 10-20-30 years ago? So many of my patients admit their back injury came doing something stupid. Stop denying the reality of getting a bit older. It's not that difficult to avoid life-changing injury.

HIP PAIN… (Lower back and hip problems often irritate each other)

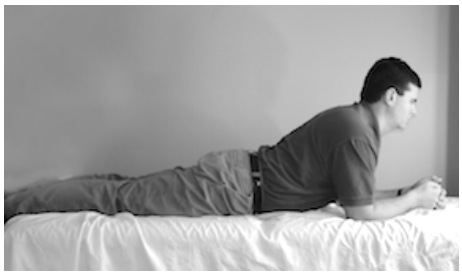
First… is it really a hip problem?… Or is it from your lower back (very common)? This is an important distinction. Usually (not always) hip pain felt in the BUTTOCK is very often a low back issue. Pain coming from the hip joint itself (such as degenerative osteoarthritis) is usually felt in the GROIN and-or upper front of thigh. Hip problems sometimes stress 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 weight-bearing from the floor to our head to balance upright. Problems at one region often create problems at the others.

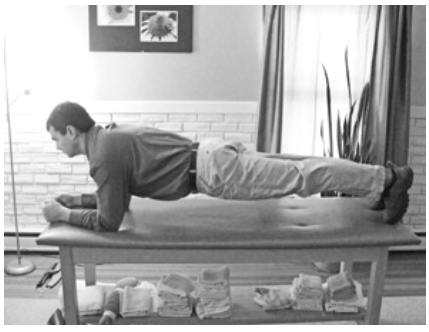
BACK PROBLEMS HURTING AT HIP… Hip pain is common with some lower back problems. Bulging disc may press on nerves and back ligaments that refer pain to the hip. Disc problems also cause mechanical problems at the SACRO-ILIAC joint (where hips connect to lower back; discussed earlier). This joint is under 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 stresses sacro-iliac joint stability. 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. It can also squeeze the sciatic nerve leading to sciatica (often mistaken as a bulging disc).

Sacro-iliac joint (arrow)

Hip rotator (piriformis) stretch

Low back, SIJ, 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 !** (See your physical therapist for specific safe advice).





Low back flexibility & strength helps hips !

See your Physical Therapist to evaluate your pain and design exercises that fit your problem. Manipulation often helps, but short term only, and must be accompanied by corrective exercises to get long term improvement. Avoid repeated manipulation to avoid making structures too unstable. And actually DO your exercises. If they hurt, they need to be modified. “No pain no gain” is NOT correct.

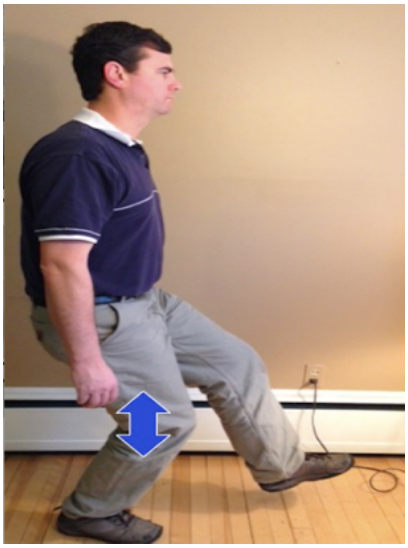
HIP ARTHRITIS… DJD (degenerated joint disease)… The hip joint can wear out quite a bit before pain appears. Pain is typically felt in the groin or upper front thigh. It may come from excessive loading such as obesity or standing on hard surfaces for years. Lack of activity can also do damage (sitting 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; femur (thigh bone) attaches to pelvis

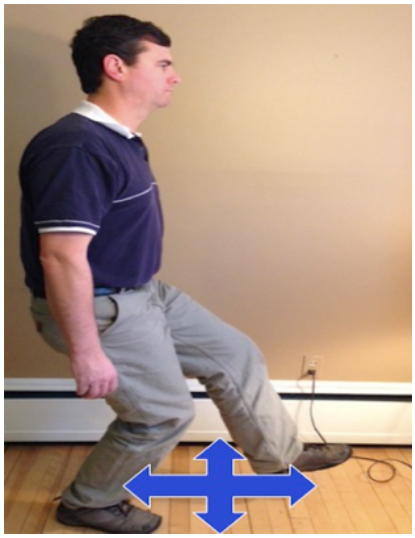
Sitting bends the hip into a stressed position, while depriving the joint of movement needed to feed the joint. Some muscles lose flexibility, while others lose strength. Avoid prolonged sitting. Stand and stretch often. A joint that is beginning to age (DJD) can benefit from restoring flexibility and 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 (chair technique). Once fully stretched, it may need specific strengthening.

BALANCE RISKS: The hip's role in balance stability can weaken 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 knee 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 and 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 … (goal is to be able to stand on one leg 30 seconds)

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.

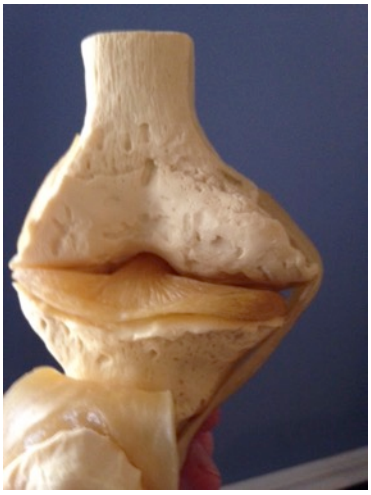
Are you too proud to use a cane? Get over that. Why volunteer for more damage? You already look old and helpless without the cane. It is OK to give in (it is temporary) and use a cane to protect your hip (or knee) while you work to recover hip function with exercises. Why choose to suffer and cause more damage? Be smart… use the cane. You cannot afford to fall and suffer a fracture !
50 percent of patients over 65 will DIE within a year after a hip fracture ! 50% ! Be smart about using a cane, or even a walker.

KNEE PROBLEMS…

There are many types of knee problems. The joint surfaces are covered in cartilage (which wear down with arthritis), and is held together with ligaments (that can be strained), and has another layer of cartilage (meniscus) between the bones for added cushioning. Knee is stabilized by various muscles, that can become weak. This can risk several potential problems… including a fall that can break a hip.

Knee side view

Knee front view



Meniscus (patella moved aside)

The meniscus can be torn in a sudden injury, or slowly wear out with aging or over-use. As it gets older, it becomes easier to tear. Typical injury force is twisting (twisting at body while standing on foot). Pain can be severe. Knee can even "lock" up with a tear. This often resolves with rest and physical therapy. Sometimes it requires surgery to remove or repair, but results are inconsistent.

There are ligaments are along the outside (lateral) and the inner side (medial). These can be torn with a sprain force pushing knee inward or outward. There is one critical ligament deep in the core of the knee that keeps tibia (shin) from sliding too far forward on the femur (thigh bone). This is the famous ACL (anterior cruciate ligament). This can be injured during a severe sprain. Surface cartilage can wear down, creating degeneration that can become arthritis. But pain is not always arthritis. Many people have lots of arthritis with no pain. Knee pain can also occur with foot problems that tilt knee out of alignment, or weakness at hip muscles that stabilize knee when the foot is planted on the surface.

The patella (kneecap) is a critical component. It is buried in the thigh muscle (quadriceps) tendon where it crosses the front of the knee. The patellar is pressed firmly against the end of the femur when the knee is loaded in a bent position. This can wear the cartilage surface on the back of kneecap, starting a cycle of arthritis. The patella needs to be aligned perfectly to work properly. But certain problems can tilt the patella a bit toward the outside of the knee, creating abnormal loads on the back of the patella. This can contribute to knee pain. Pronated (flat) feet can also cause this issue, and worsened by weak hip muscles.

Pain can weaken knee muscles, reducing their stability and protection of the knee. Other muscles may get tight, pulling knee out of alignment. Correcting tight and weak muscles can greatly help knee problems. Many problems get better once these are corrected.

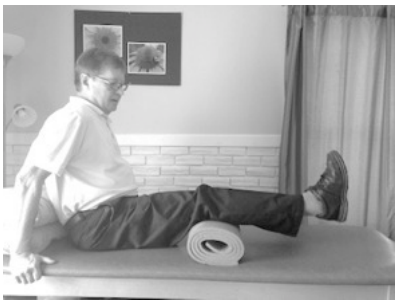
FIXING IT… Stretch hamstrings. Strengthen quadriceps (front of thigh). Stretch calf (it crosses behind the knee, making it a knee muscle as well as an ankle muscle. Build coordination at ankle… critical to stabilizing knee. Correct flat feet… improves knee alignment.

BUT many people are doing incorrect knee exercises. Deep squats or deep leg presses or lifting weights from a fully bent knee position can cause irritation to back of kneecap. These are intended to strengthen quadriceps, which is very important. But you need to use PROPER TECHNIQUE. Your physical therapist can advise on what is best for YOU. Often lifting lighter loads at higher reps works well.

CORRECT EXERCISES… First, strengthen quads (front thigh)… These STRAIGHTEN knee, stabilize patella, and protect ligaments. For many people these exercises should focus on straightening at the final 1/3 of movement, from bent 30-40 degrees to fully straight. There are several methods to strengthen quads… (and new ones being studied) (Check with your PT to update this)

1. Short-arc quad lifts. Sitting or lying with legs flat; roll under knee so it is slightly bent. Tighten thigh hard, pressing back of knee down into roll as you straighten knee and lift foo, with a firm, quick contraction, held 3 seconds. Relax. Repeat 25x. Can add heavy boot or a 3lb ankle weight. Better to go with lots of repetitions, instead of very heavy weights. See below.

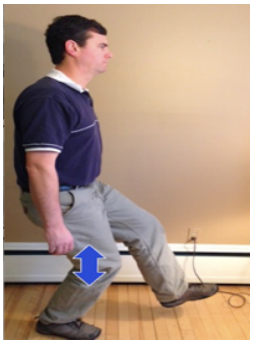
2. Leg press or Total Gym push-offs; push with knees from a partly-bent starting position. Push to straighten only the last few inches. Keep these leg-presses shallow, not deeply bent. Respect pain; don't push through pain here. Your PT may then have you progress to loading in a more bent position, if that fits your situation.


Straighten knee at its last few degree


Shallow push-offs

3. Another very simple strength exercise is to simply repeat sit-to-stand, then stand-to-sit, in a chair without using your hands to help. Repeat to fatigue. This is very simple, no equipment, easy to fit into your day, easy to keep score, easy to push as you get stronger.

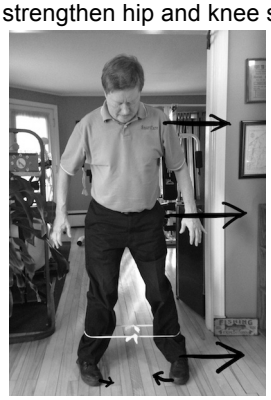
4. Standing on one foot; do shallow squats, not deep, bending knee only part way. Touch a countertop surface with one hand, slightly, only to protect your balance. Hold this to fatigue, twice each side. Quick and easy to fit few sets of these into your day.


Very shallow mini-squats while standing on one foot

ANKLES & HIPS HELP SUPPORT KNEES… Balance control at ANKLE greatly helps knee stability. Stand on one foot, barely touching a countertop surface with one hand, if needed (but try to not touch hardly at all, challenging your balance). As you hold one foot up off surface, move that lifted foot slowly from front to back to left to right, challenging your balance on the standing leg. This forces ankle muscles on the standing leg to work hard at keeping you balanced on that one leg. Keep moving the lifted leg in all those directions until the standing leg gets quite tired. Keep score by timing yourself. Goal is to stand on one foot 30 seconds or more.


Balance on one leg as you move other leg to front-back-left-right

HIP STABILITY helps protect knee! Strengthening side hip muscles can help knee stability. Walk sideways with a therapy elastic around ankles (keep toes turned inward slightly) to strengthen lateral hip muscles that help knee stability. Sideways lunge-hops also strengthen hip and knee stability and coordination: Lightly hop sideways left and right. Repeat these to fatigue.

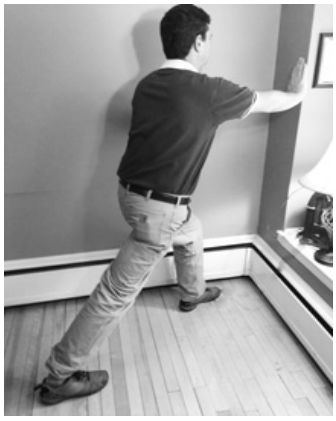

Walk sideways with elastic at ankles


Hop sideways left-right

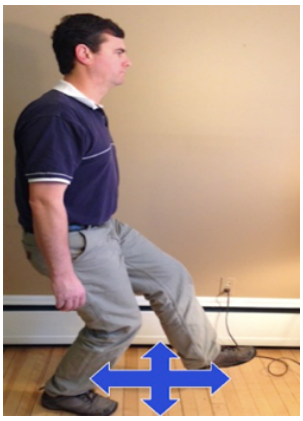
ANKLE-FOOT-HEEL PAIN…

Achilles tendon (heel cord) can develop tendinitis. Heel pain is also very common. There are several possible issues here, but what is important is to restore flexibility at calf and muscle stability control across the ankle. There are two simple steps that can help most foot-ankle-heel problems. RESTORE FUNCTION: strength, flexibility, balance control.

First step is STRETCH CALF and heel cord. Stand facing wall, one foot stepped forward, other foot back away from wall (lunge position). Back foot stays flat and its knee stays straight. Lean forward onto hands on wall, so that at back foot the shin is bent forward toward its toes, stretching calf 30 seconds. The second exercise is the SINGLE LEG STANDING BALANCE, described on previous page.



Calf stretch rear foot, knee straight



Single-leg standing balance

Roll cylinder under arch, at bedside, before any steps

HEEL PAIN…

Pain under heel, toward inner side of foot, especially worse when getting out of bed in the morning for the first few steps, suggests PLANTAR FASCIITIS (a 'tendinitis' at bottom of foot). Some call it heel spurs. But heel spurs don't usually cause pain. Instead, chronic plantar fascia heel irritation causes the bone spur to develop. Plus many people have spurs but NO pain. Surgeons used to take out the spur, but soon discovered it usually did not correct pain. The spur is usually not the cause of the pain. Pain comes from irritated plantar fascia-ligament, and is similar to tendinitis. It needs better elasticity and muscle control and load response. It can be very stubborn!

Here is a unique PT trick. Plantar fascia-ligament under the heel gets irritated during the day. Then at night when it is unloaded and resting, it starts to heal by growing new scar fibers. But when you get out of bed at morning, the first few steps break those new fibers (which is why those first steps really hurt). And you are again back to square one in healing. This can be key to fixing it… what you do when arising in the morning

The trick is: upon waking up, before you take ANY steps or weight-bearing, roll the underside of foot over a firm cylinder (such as short length of 2-3-inch PVC pipe) under your arch toward heel, lightly but gradually increasing pressure over one minute of rolling. This stretches the scar fibers, rather than rips them, creating a flexible strong scar. Some suggest using a frozen water bottle… except you defeat this when you walk to refrigerator to get it. The PVC pipe section or other hard cylinder can be stored under bed for you to access without walking to get it.

It is also important to stretch calf (30 seconds leaning against wall, as shown above) plus strengthen ankle stability muscles (balance on one leg for as long as you can as you move other leg (the one you hold up) around to challenge your balance, as shown above).

Many people have a pronated (flat) foot, where arch collapses during part of the walking cycle. This stresses plantar fascia, heel cord, ankle, knee, and hip. These people may benefit from a properly designed shoe insert. It can make a big difference. Start with a PT-recommended basic insert (such as the Freedom BFO, at Amazon.com) before investing is a costly custom orthotic (which is usually not covered by insurance).

Another consideration… If you have the same heel-foot pains in BOTH feet at the same time… it is likely plantar heel pain is actually coming from your LOWER BACK or SCIATIC NERVE. It is too much of a coincidence to have the exact same problem at both feet at the same time… for it to be coming only from your feet. Lower back problems can irritate sciatic nerve slightly to generate pain where the sciatic nerve ends in plantar heel pain site. Trying the lower back exercises described earlier MAY help foot problems.

SHOULDER PAIN… (rotator cuff and other issues)

First, understand that many shoulder pains (especially at TOP of shoulder or near shoulder BLADE) actually come from the NECK. One way to confirm this is to tip your head backward and toward that pain side. If this head-neck position causes that "shoulder" pain, then it is a neck problem. Also, many people have both a neck AND a shoulder problem…because neck and shoulder problems often irritate each another. Many people with shoulder pain will develop a neck problem, and vice versa.

Several issues can irritate the shoulder. Many shoulder issues get better with improved posture and strengthening key muscles. First is POSTURE. Many people SLOUCH, rounding over at shoulder with forward head posture. This shifts shoulder blade forward and tilts it downward, crowding shoulder tendons (especially rotator cuff). This also creates weakness between shoulder blades, making posture worse. It is easy but important to correct this abnormal posture. Simply remind yourself (constantly) to BE AN INCH TALLER… tuck chin in and pull shoulders back (below). This is really simple but important for shoulder, neck, and even low back health… so easy.

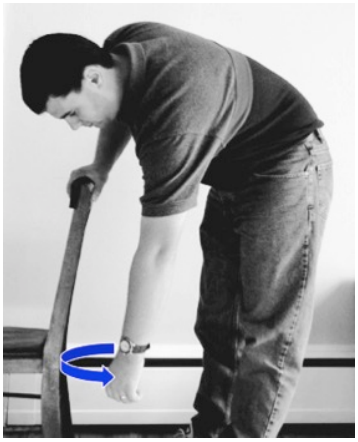
Reaching far or high (prolonged, repeated, or with a load) can pinch rotator cuff tendons and bursa tissues between humerus (upper arm bone) and the acromion (outer edge of shoulder blade, just above top of humerus. This is where most shoulder problems begin.

When shoulder hurts or you when stress it with lots of REACHING (reaching high or far away).,,, reverse that stress by frequently stop and dangle it down relaxed and swirl it around 10x (below). This is very good for the shoulder, especially the rotator cuff tendons.

Weak muscles between spine and shoulder BLADES can stress the shoulder joint and rotator cuff due to poor mechanical stability. It is important to strengthen the muscles of shoulder blades and upper back. Pulling shoulders back using therapy elastic band: or lying on belly, lifting arms out to sides (airplanes) to strengthen upper back muscles to control shoulder blade stability.

REACH: high, far, prolonged, with a load

Slouching… Be an inch taller !



Dangle relaxed & swirl around 10x

Wide shoulder retract strength

On belly; arms out lift arms (airplane lifts)

Arm at side; rotate outward, on elastic

Another muscle that helps shoulder mechanics is the lower part of rotator cuff (infra-spinatus). It helps unload the upper part of rotator cuff, where most problems develop. This muscle rotates forearm outward with upper arm held against body.

Strengthening this muscle can help many shoulder problems. Pulling on elastic therapy band can strengthen this muscle: arm at side, rotate arm outward 3 sec, repeat 10X (see above). Keep elbow held against ribs as you rotate forearm outward. This can also be done lying on your side to do this motion while holding a 3 lb weight, 20x.

NOTE… During strengthening exercises, one must fatigue a muscle to make it stronger. But one must also avoid irritating the muscle or its tendon when starting exercise… to be conservative when starting any exercise. CONSULT YOUR P.T. for advice,

ELBOW PAIN… (Tennis Elbow: outer elbow … Golfer's Elbow: inner elbow)

Pain on outside of elbow (lateral epicondyle) is often TENNIS ELBOW. But this is a WRIST loading problem. Muscles that stabilize the wrist during grip loading originate on outside of elbow. This tendon origin is thin, weak, not much blood supply, and poorly angled to tolerate loads that are heavy, repeated, or prolonged, even when load is light. Example is picking up jug of milk hurts outside of elbow. Tendon fibers on outside of elbow break, then heal with scar (weak fibers) that break down further, and become frayed… causing pain. There are many sensitive nerves nearby that can become over-active. The inflammation goes away quickly, but the over-stimulated nerves can keep the pain going (which is why cortisone injections often do not work). Once pain gets established, it is difficult to stop.

Quick-easy tests for tennis elbow: 1. Load test: Lifting milk jug or even coffee cup will hurt. 2. Stretch test: Put elbow straight, palm-down, close fist, curl wrist down toward palm. This pulls on tennis elbow tendons and hurts. 3. Palpate test: With elbow bent, feel the shallow bony knob on outside of elbow, Press on its flat top shelf of bone… very tender with tennis elbow.

FIXING IT… Can be difficult and slow to recover. First… REST. Stop doing what hurts, to allow it to heal without setbacks. Second… You want a flexible healing. Stretch gently but often, 10-20 seconds, using the stretch test position described above: elbow straight, palm down, close fist, curl wrist down in palm direction. Rotate arm inward and fist outward for more stretch. It will not be comfortable.


Tennis elbow load mechanism


Tender lateral elbow site


Tennis Elbow Stretch

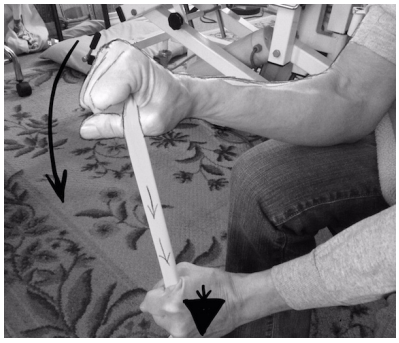
A tennis elbow "strap" around upper forearm may help some people, but not many. May be worth trying, but stop if bothers.
We find that wearing a firm WRIST SPLINT at the hand often works better to rest-relax wrist muscles-tendons that originate at elbow.
TENS, ice, heat can all be safely tried. Their effectiveness varies widely, but safe to explore and try. Then strengthen when pain is less.

Pain on the INNER side of elbow (medial epicondylitis) is usually GOLFER'S ELBOW. It often comes from too much gripping-pulling. But other issues may be hurting here. Some neck problem contributing pain here (see chapter on neck). There is often a nerve problem (ulnar nerve irritation where it is pulled around bony knob, the "funny bone'). There can be an irritation of the muscles that curl wrist and grip hand where they attach here. There is often irritation of the muscle that turns forearm into palm-down direction (pronator) because that also attaches here. Gently stretching each of these is key to reducing problems here. Then restore strength to prevent recurrence.

Specific STRETCH for Golfer's Elbow: Hold arm straight at elbow, in a palm-up position, with hand open. Tip that hand backward to stretch palm-side of forearm. Use other hand to coax full stretch. Gently 15-30 seconds once. See picture below.


Golfer's Elbow Pronator stretch


Golfer's elbow night splint


Eccentric strengthening with elastic band… slowly lower under load

Another issue is many people SLEEP POSITION, with elbows tightly folded. This pulls on ulnar nerve where it threads around inner elbow, causing irritation. A splint or wrap that prevents elbow from bending more than half-way, worn at night, is often effective (cubital tunnel splint) because it prevents elbow from bending more than a right angle during sleep (pictured above).

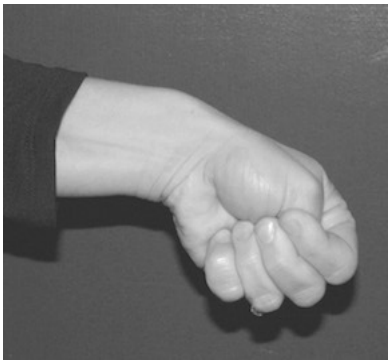
If you have a stubborn problem here, you may need help from a good Physical Therapist. Your PT will guide you in most effective treatment that fits you. PT may also try kinesiology tape, cold laser, dry needling, manipulation, and other tactics. But once pain is reduced you must recover the strength you have lost. But strengthening can bring back pain if not done correctly. Seek PT advice!
Eccentric strengthening: Pre-load wrist in tilted-up position; pull elastic to load; then lower hand slowly holding that load… repeat 5-10x. A little pain during and few minutes after is OK. Increased pain for hours means too much loading, so back off. See picture above. Progress to more repetitions and heavier elastic (Thera-band or light bungee cord-strap).

WRIST-THUMB-HAND PROBLEMS

WRIST pain from overuse… but is it the wrist or is it actually the THUMB? You need to determine which it is.
Wrist pain at the thumb side of wrist is often a tendinitis of thumb tendons or a thumb joint arthritis, rather than a wrist problem.

To test for THUMB tendon problem, curl thumb into palm and close fingers around it. Hold thumb like this as you tilt your wrist sideways toward little finger (see picture). If that really hurts along thumb side of wrist, you have a THUMB tendon issue. This is important if you are considering a wrist brace for wrist pain. A typical wrist brace immobilizes wrist, BUT allows thumb to remain free to move, keeping thumb tendons irritated. If the self-test shows thumb tendon pain, then you do NOT want to use wrist splint. Instead, try THUMB SPICA splint that rests the thumb. The joint at base of thumb (the CMC) is prone to degenerative arthritis, and may also be helped by thumb splint. You can find these splints on Amazon.com way cheaper than obtaining them from a clinic. (Guess where the clinics get theirs!)

There is a stretch for these thumb tendons. It is the same as the thumb tendon test… done gently but often.


Thumb tendon test or stretch


Thumb spica splint for thumb pain

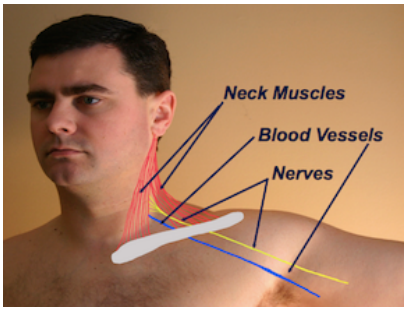

Wrist splint to rest wrist structures

WRIST PAIN (on little-finger side)… Pain on the little finger side of the wrist is common and may suggest a problem with a meniscus-like structure (the TFCC). This is vulnerable to overuse and sprains. It can be difficult to manage. Rest is the key step. Pain here that does not improve with rest and wrist splint implies you need to see a PT, OT, or orthopedic physician.

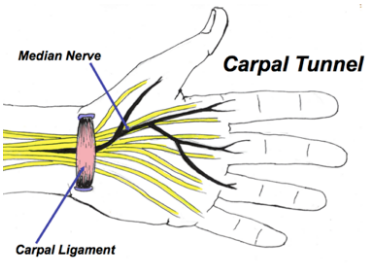
WRIST TENDINITIS… tendons on the front of the wrist run from inside of elbow to fingertips, for grip and pinch work. Overworking these can cause tendinitis. These will then need stretching to encourage better healing and elasticity. A splint can help rest tendons and wrist joint to allow healing. There needs to be a balance between rest versus activity. Wrists need both, but not too much of either. Swelling of these tendons where they enter the hand can pinch nerves to the hand where they all pass through a narrow channel (the Carpal Tunnel). This can damage these nerves… Carpal Tunnel Syndrome (CTS). Knots of scar tissue on tendons (ganglion) can cause "trigger finger" where that knot gets caught in ligaments that hold the tendons in place, causing clicking or locking.

CARPAL TUNNEL SYNDROME (C.T.S.) causes numbness at index, long and part of ring finger, especially at night and when driving or holding sustained grip-pinch (reading book or holding tool in hand). Key self-treatment is to wear wrist splint at night, plus gentle stretching wrist backward (golfer's elbow stretch, above). If thumb is also numb, the nerve is being pinch above the wrist such as at forearm (pronator) or at neck. Self-treatment is wear wrist splint AT NIGHT (for repair positioning), reduce work demands, and gently stretching wrist backward (elbow straight, palm-up; see picture below). If problem is stubborn, see a PT or OT to avoid surgery.

Another risk for this is a slouched neck posture, which can tighten lateral neck muscles, squeezing nerves and blood vessels passing through neck on their way to hand. Compressing these nerves and blood vessels by tight neck muscles can irritate nerves further down the arm, especially at the carpal tunnel. Stretching lateral neck and keeping a tall head posture are key. Symptoms felt on BOTH hands strongly suggests this is a NECK problem (thoracic outlet compression) or medical issue. See chapter on neck care.



Nerves to carpal tunnel squeezed at neck…



or…. pinched at wrist…


Carpal tunnel & pronator stretch


Lateral neck stretch

ERGONOMICS Risks for C.T.S. …

Work risks are… pinch or grip that is forceful, repetitive, or prolonged. A bent wrist positioning during grip or pinch makes this worse. Vibration is also a strong risk (power tools, for example). Forward head posture adds to CTS risk. Stress, poor sleep, bad diet, obesity, smoking, and various medical issues (thyroid problem, menopause, diabetes, pregnancy) can also contribute to CTS.

One may need to improve the ergonomics of their job (see upcoming page on Computer Ergonomics, as an example). Minimize grip force or duration. Grip diameter should be about 2 inches. Seek more variety of work tasks and postures, because doing the same action all day increases risks. Frequently switch between sitting and standing, if appropriate. Resting arms on work surface reduces neck loading, improving arm-hand work tolerance. Frequently stretch throughout the workday (See our page of workplace stretches).

Self-care for the wrist includes getting enough rest, maybe with a splint (especially wornat night), frequent stretching at wrist and neck, plus maintaining more upright tall neck posture ("Be an inch taller"). Rotating between two different jobs every few hours is very effective, as it allows better circulation to working body parts. And address the non-workplace stresses listed above

Grip or pinch, with bent wrist & forward head

Grip size too small & heavy

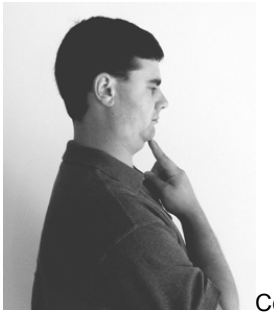
Grip size good & padded

Switch between mouse & trackball for variety.
Resting arm on work surface to reduce neck load.

Micro-stretching
See micro-stretch handout

Night splint for better rest-recovery

Good neck posture and flexibility helps maintain good blood supply and healthy nerves to arm-hand (be an inch taller!).



Correct slouching: be an inch taller

Lateral neck side stretch

Vari-Desk: Switch between sitting vs. standing, easing neck, low back, arm issues

WORKPLACE MICRO-STRETCHES…

We provide workplace musculo-skeletal pain prevention programs at 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 workday. Below is a copy of one example program. At your job or tasks at home… doing tasks that risk pain problems… consider doing Micro-Stretches.

Make sure your Physical Therapist selects the right ones to match your work demands, and teaches you how to properly do these. 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.

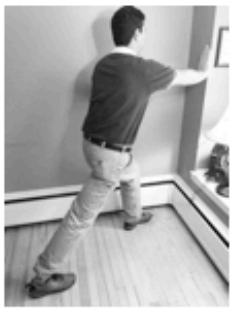

Dangle & swirl arm around 10x


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 risks 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 hold telephone handset between head and shoulder. Use a HEAD SET !!

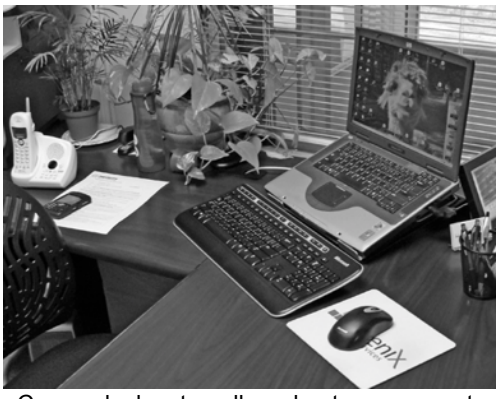
PEN-PENCIL-STYLUS… place padded SLEEVE over pinch surface to reduce pinch risks.

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 get up, walk about and do a standing back-bend stretch every hour.

SIT-STAND OPTION… Many offices use STANDING DESKS with tall chairs to allow worker to switch between sitting versus standing… SEEKING POSTURE VARIETY. Another option is the VARI-DESK platform placed on conventional desk, which allows worker to raise computer to standing height, then back down for sitting…posture VARIETY

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

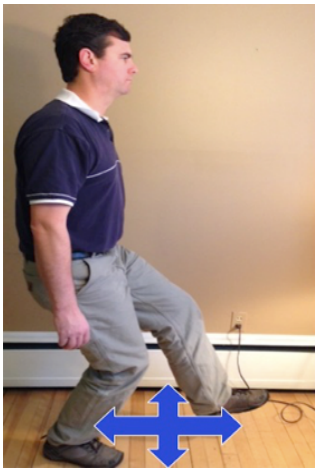
POOR BALANCE ? DO YOU FALL ?.... Do you come close ?

As we age, we gradually lose our balance. We fall down more often. Eventually we suffer a nasty fracture.
This is how elderly suffer hip fractures. Someone over age 65 who breaks a hip has a 50% chance of dying within a year !

As aging wears down joint cartilage in feet, ankles, knees, hips (degenerative arthrosis), we also lose nerve endings in those joints, needed for balance control. Neuropathy and reduced circulation may also shut down those nerve endings. Weakness, stiffness, poor posture also contribute to gradual loss of balance control. But: THIS IS REVERSIBLE.

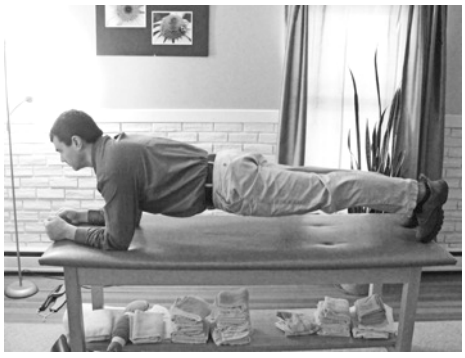
Quick self-test: How long can you balance standing on one foot? Normal is 30 seconds. How close are you?
Don't be discouraged. You can see rapid gains just by practicing this often as an exercise (next to countertop for safety).

FIX THIS…. You can greatly improve you balance safety with a few simple exercises that can wake up the remaining nerves and build msucle control. First, build strength in hips and lower back with the core strengthening exercises described in the low back pain chapter. Second, do single-leg standing balance drill, standing on one leg for as long as you can, hand barely touching support surface occasionally as needed. Simple and quite effective.



Stand on one leg; move other legs back-forth-left-right to challenge balance. Go to fatigue, on each leg

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



On belly on elbows, lift torso on toes 3 sec 10x

VERTIGO… DIZZINESS…

This is common and can feel really nasty and frightening. But it is usually a simple problem. Testing and treatment can be (often unnecessarily) complicated, costly, prolonged, frustrating, extreme suffering… OR IT CAN BE SIMPLE and EASY!

Too often doctors subject you to lots of extreme tests looking for rare diseases, dragging out your suffering. But it is often better to start with having a Physical Therapist do a very simple test (Hallpike-Dix Test) to see if the vertigo-dizziness is coming from a tiny stone in your inner ear (which is where MOST vertigo comes from). If the test is positive, the therapist does a very simple procedure (Epley Maneuver). It is gentle… takes 5 minutes… and get RID of vertigo in 80% of cases on the first try. Easy, cheap, effective, quick, painless. Vertigo? Call a Physical Therapist and ask if they know how to do Epley maneuver for BPPV vertigo. Try that FIRST, before undergoing costly invasive tests.

T.E.N.S. for PAIN CONTROL… (works well for some people, not so much for others)

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

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

SO, HAVE YOUR PT DETERMINE IF IT IS PROPER-SAFE FOR YOU TO USE A TENS.

And don't be suckered into buying or renting an expensive and complicated TENS.
The simpler cheaper ones deliver the SAME stimulation. One example many PTs use is the TENS-7000 costing about $ 25 from Amazon (versus the complex ones for $ 500+ from some clinics… but offer no real advantage).

Also, be sure to do the proper exercises to correct the causes of the pain.

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 block or quiet the pain nerve messages that enter that same part of the spinal cord. TENS eases pain by stimulating these non-pain nerves that can quiet pain nerves.

There are two methods of TENS… a conventional USA 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). Some TENS allows current to be constant, burst or modulation. We use Modulation

Conventional TENS settings are: HIGH RATE (~150 pulses per second) and LOW WIDTH (~50 millisec), with INTENSITY turned to confortable/medium. You can run this 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.

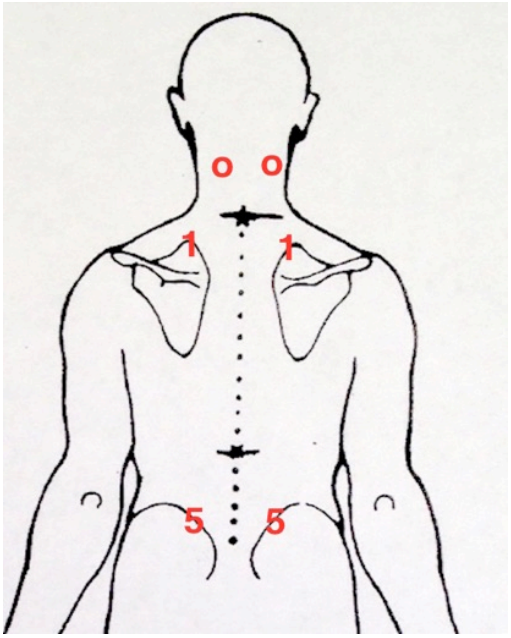
Acu-point stimulation is the opposite setting profile: LOW RATE (~4 pulses per sec) with HIGH WIDTH (~200 millisec) with intensity set uncomfortably high and run briefly for about 10-15 minutes. It uses a short period of uncomfortable stimulation to the acu-points your therapist selects (10-20 minutes 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 device provides for four pads. See illustrations on following pages for pad locations.

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.

1. Conventional TENS… pulse rate 150; pulse width 50; intensity = moderate-comfortable… can run a long time like this, for hours or even all day if needed. We start with this approach first.

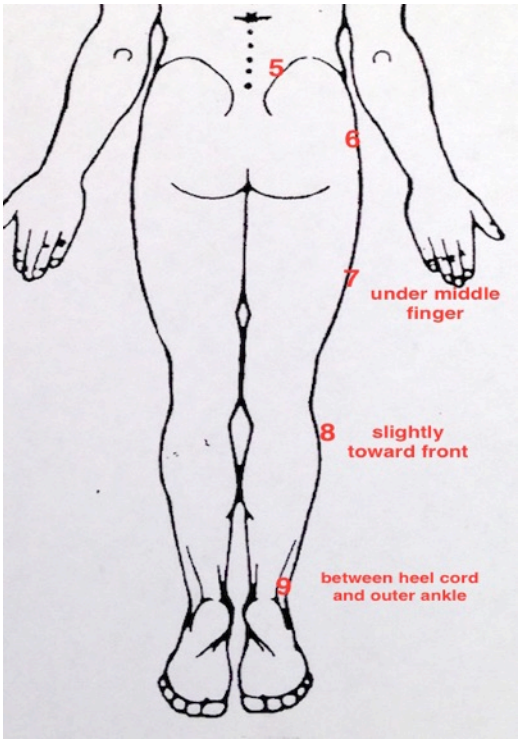
2. Acupuncture TENS… pulse rate 5; pulse width 150, intensity = strong-uncomfortable… run for 10-15 minutes, then off. Pain relief with acupuncture TENS is often delayed, but more prolonged than conventional TENS.



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”.

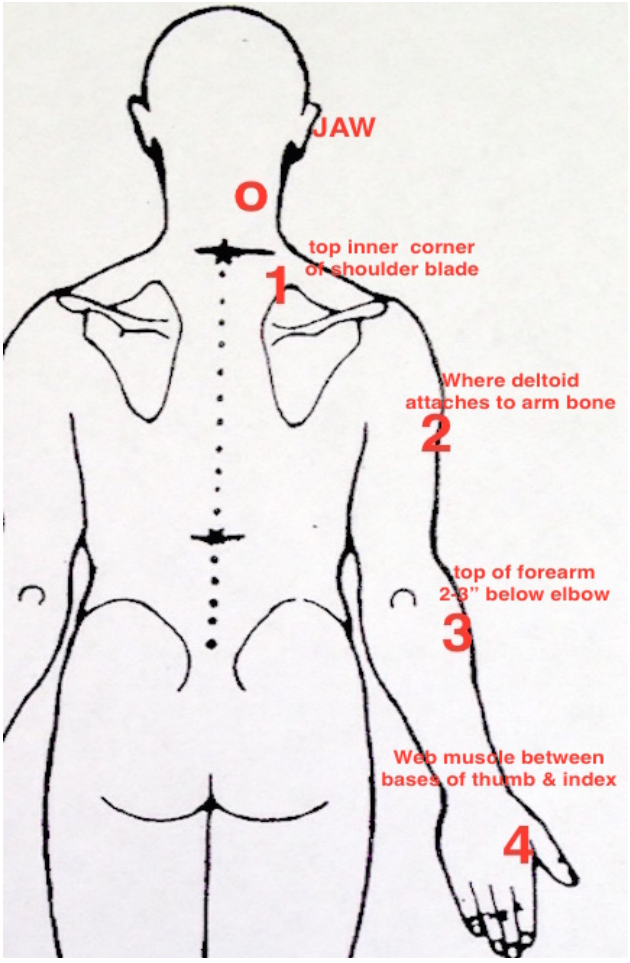
For lower back pain that does not run down leg, place pads across left and right sites “5”. Simply place pads to the left and right of the pain.



acupuncture point locations for back-to-leg pain

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 and stimulates recovery of function. You want that.



Site for neck, arm, headache pain; conventional or acupuncture

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 a long time like this.

Acupuncture TENS… pulse rate low; pulse width high, intensity strong-uncomfortable… run for 10-15 minutes.

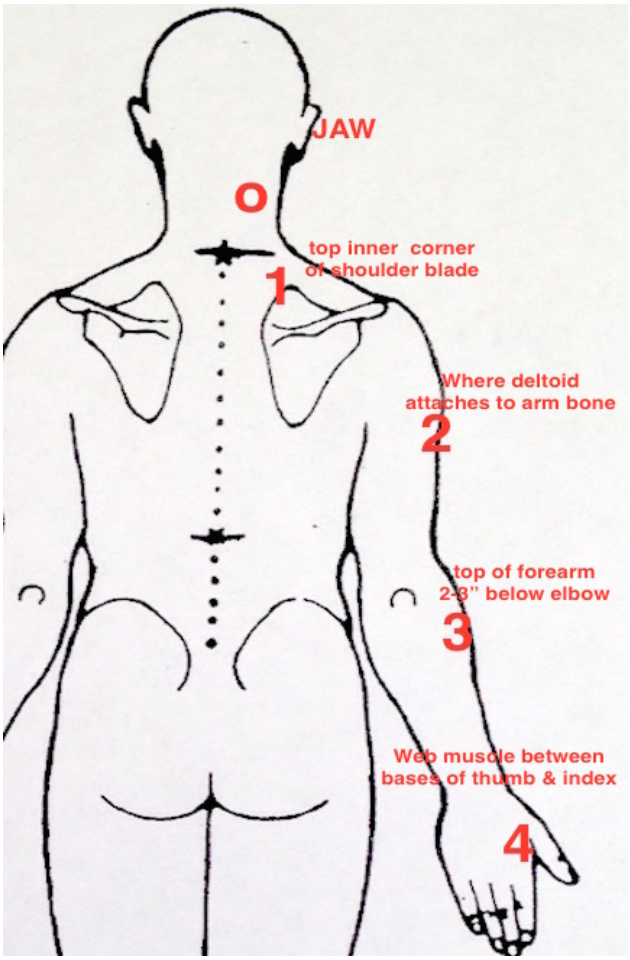
Pain relief often delayed but more prolonged than conventional TENS.

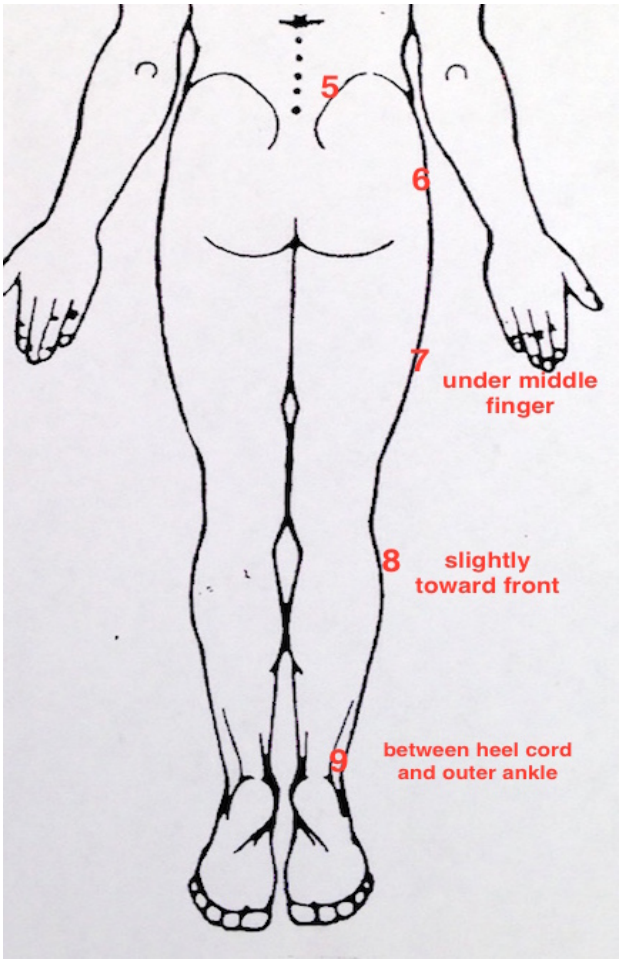
ALSO… Use this pain relief to do your exercises and be more active with normal movement. This also reduces pain.

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.





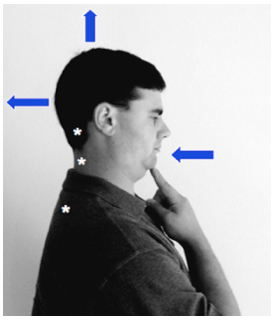
Conventional cold packs is another method whereby you simply apply cold pack over the pain site,,, only for 10 minutes at a time and use cloth over skin to avoid frostbite. This can be done as often as needed. Cold packs are safer that hot packs, due to burn risks. Hot packs are not safe with diabetes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

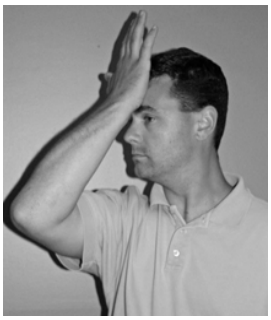
NOT EVERYONE RESPONDS THE SAME. Some people get great relief from these methods… others not at all.

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. Your physical therapist will show you what exercises to do to improve your problem.

SUMMARY of Exercises to reduce AGING changes… simple, easy, quick… no excuse:



Be an inch taller



Isometric pushes 3 sec. left-right, then front-back, 5x each

Seated twisted stretch 15 sec each

Pull elastic wide 3 sec… or… prone airplane arm lifts, 10x

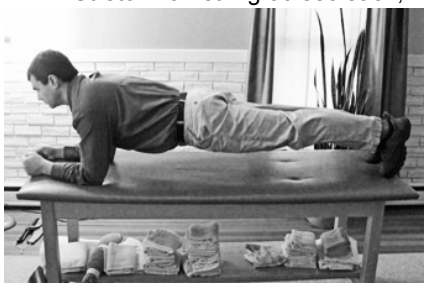
Standing back-bend 10 sec once…. often all day

Prone on elbows one minute

Stretch hamstring 30 sec each, then,

single knee-to-chest 30 sec each

Lift butt 3 sec, 10x



On forearms & toes: plank, hold 30-60 sec

Heel on knee, pull across, twist into it 30 sec

Balance one leg, move other Front-back-sides, to fatigue

Hop sideways 10+ each way

ACTIVITY and MOVEMENT is very ANTI-AGING !!
WALKING ! Stationary bike or treadmill in winter. Climb stairs. Stand up from sitting on chair, not using hands, repeat to fatigue

NOTE…. HAVE YOUR PHYSICAL THERAPIST SELECT THE EXERCISES THAT ARE RIGHT FOR YOU !
(example: bending thigh up toward chest is NOT good if you have a hip replacement)