



Back Pain: Root causes and solutions

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Disk herniations or bulges, degenerative disk disease, lumbar stenosis, low back strain and other maladies of the spine are diagnoses we often encounter when speaking of back pain. More often than not though, these are signs of a problem-*not the problems themselves*. At the root of most people's back pain and these diagnoses are faulty movement patterns. The movement patterns have created abnormal stresses to the spine which has then adapted creating these physical problems.

The causes of back pain can be traced to age-related changes, poor movement habits and/or work habits and weakness developed through lack of use or prior back injury. Ergonomic corrections are only half the solution for back pain because every individual brings a unique history to their work. Each person is exposed to particular stresses (whether environmental or genetic) that have formed their strengths, weaknesses and limits in range of motion. That is why there is no one-size-fits-all solution to back pain. Understanding and fixing impairments gets to the heart of back pain and can be relatively simple once the impairments are identified.

Back pain occurs at vertebrae that move too much or are hypermobile rather than vertebrae which move too little. An analogy would be repeatedly bending a pipe which eventually breaks at the one point it could bend the most. When vertebrae do not move, they are protected. When vertebrae move too much (or are poorly controlled during a movement), they are vulnerable to injury. Therefore, in the spine there are usually one or two vertebrae that move more than the others and back pain ensues.

Below I describe the three root causes of back pain and brief descriptions of simple strategies to correct them. Each one describes the conditions under which the vertebrae move too much. For instance people who suffer from extension problems have backs that either extend (or arch) too much or they have little muscular control over their spinal extension. Again, this will most likely occur at one or two levels rather than the entire spine.

1. Extension Problems

Spinal extension describes a spine which slightly more arched or has more lordosis. The low back has difficulty flattening and/or is hypermobile into extension. Therefore the spine does not flex (or flexes at only one or two vertebrae) while bending over creating low back pain. This is exacerbated by poor habits and lack of awareness of their consequences.

Habits that contribute to extension problems:

1. Standing with locked knees
2. Standing with swayback posture
3. Forward flexion primarily through hip flexion
4. Return from bending with an extended spine

Recommendations for relief:

1. Unlock knees when standing.
2. Draw in belly button to activate core and counter extension and maintain flattened spine.
3. Forward flexion stretch.
4. Flatten back against wall and activate abdominal muscles to stabilize spine.



Figure 1. Extension Problem. This woman's spine does not flex while bending forward.

2. Flexion Problems

The low back flattens or flexes too easily typically due to lack of hip flexion and/or lack of spinal extension.

Habits that contribute to flexion problems:

1. Work performed by flexing at the spine instead of hips.
2. Sitting with posterior pelvic tilt or in chair that is too low.

Recommendations for relief:

1. Draw in belly button to stabilize against spinal flexion while forward bending.
2. Practice hinging from hips keeping spine in extension while forward bending.
3. Sit forward in chair possibly with lumbar roll or pelvic wedge.



Figure 2. Flexion Problem. Note the lack of hip flexion and that the spine flexes primarily from one level creating back pain.

3. Rotation Problem

The spine is rotated more to one side than the other. Often this syndrome is established while sitting due to unloading of the bones of the spine (vertebrae), whose contour normally restricts rotation in standing. While sitting, the intervertebral disks are loaded more due to the “unlocking” of the spinal vertebrae allowing rotation to occur.

Habits that contribute to rotation problem:

1. Sitting in a rotated position, i.e. due to desk set-up or TV position
2. Sleeping on one side or rotated
3. Weight bearing through one leg or hip more than another
4. Work or play habits requiring rotation

Recommendations for relief:

1. Center your work station
2. Identify rotation habits and correct them
3. Correct asymmetrical weight bearing



Figure 3. Asymmetrical spine rotation is most likely due to a rotated spine. This person's spine is rotated to the right.

Fixing back pain involves first identifying the root causes—the subject of this article. Following the simple recommendations mentioned above can reduce your back pain. I help people by teaching specific exercises addressing these deficits one-on-one or in a group format. Ultimately specifically targeting weakness will offer the best results.

Rick Olderman, owner of Z-Line Training, is a licensed sports and orthopedic physical therapist, personal trainer and Pilates instructor. His work experience has spanned private clinics, health clubs and corporate clients. His specialty is treating chronic and recurring injuries with special attention to injury prevention. Rick's unique hands-on clinic topics include Fixing Chronic Back Pain, Fixing Neck & Shoulder Pain, Fixing Hip and Knee Pain and Injuries and Exercise. He also fits individuals with custom foot orthotics to correct biomechanical problems and pain in the feet. Whether people suffer from degenerative disk disease, herniated disks, stenosis, carpal tunnel syndrome, headaches, recurrent shoulder impingement, groin pain or bursitis pain, Rick's distinctive clinics and unique treatment approach teach people how to correct the root causes leading to these tenacious and costly problems.