

# Running Injury Prevention

## Preventing Low Back Pain

Low back pain is the most common pain syndrome in America today, and it is not limited to only the sedentary. Runners and many athletes suffer from this condition on a regular basis and there is usually a combination of physical causes and altered running or walking biomechanics that may be causing the condition.

### The main physical causes of this condition are:

- Over-pronated or Supinated (high arch) feet
- Tight hip flexors
- Excessively flat or arched Lumbar Spine
- Joint restrictions in the thoracic spine or pelvic region
- Limited Hip range of motion/ Limited hip extension
- Weak Core Stability- Abdominals, Lumbar erectors and Deep Core
- Weak/Inactive Glutes
- Tight Hamstrings
- Altered Hip Extension Pattern- Discussed below

## Hip Extension Firing Pattern

When extending the hip (leg pulling through and back) during running or walking, as in picture 3 below, the glutes should do most of the extension. The low back and hamstrings should be “helpers” during this movement. In many runners, this pattern gets altered due to weak glutes and overactive low back and hamstrings. When this happens, too much stress is placed on the low back and hamstrings. Tightness ensues in these two structures and this is two of the main reasons runners will suffer from low back pain.

## Biomechanical Video Analysis

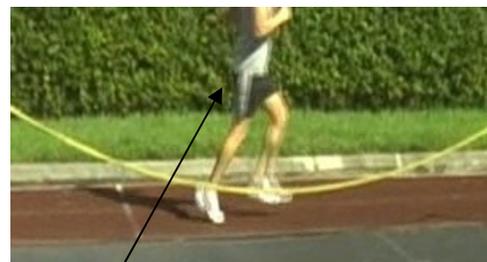
In the clinical setting we evaluate all runners walking and running for clues that may give us the understanding of how their injury is occurring. We don't assess the video for running technique, but rather biomechanical faults that put excessive strain on certain structures that may be causing the runners pain. Below are a few examples of findings that can cause low back pain, amongst other injuries.



**Unstable Foot/Ankle (pronated)**



**Hip Instability**



**Limited Hip Extension**

Other non-physical reasons for the condition can be improper running technique, worn-out or improper running shoes, and increasing mileage too fast. If you feel any of the non-physical reasons may be an issue, please confer with your running store or coach to address them. Another huge problem in today's society is sitting too much. Even as an active runner, sitting constitutes much of our day while at work and home. Research shows that sitting places 40% stress on the discs and muscles of our Lumbar spine and is the main cause of chronic low back pain.

From a physical standpoint, the best way to prevent low back pain is to obviously correct the causes by performing stretches and exercises to correct any of these above dysfunction. Strengthening for the Glute Max, Glute Medius, Foot/ankle and Core (See pictures below) is a must. Secondly, you need to be evaluated to determine if you have excessively tight hamstrings, flat or high arches and unstable ankles, altered curve to the lumbar spine (too flat or too arched), tight hip flexors and other muscular imbalances that places undue stress on the Lumbar spine.



Glute Bridges



Side leg Lifts



Bird Dogs

**Glute Bridges-** Strengthens and activates the Glute Max, the main muscle group responsive for glute function and hip extension.

**Side Leg Lifts-** Strengthens and activates the Glute Medius, the main muscle group in providing hip stability during one leg stance and running.

**Bird Dogs-** Increases core stability and endurance to prevent weakness in the low back.

If you are, or in the future, suffer from Low Back Pain, conservative treatment usually does a great job of freeing you from your pain. In our practice we utilize Active Release Technique ([www.activerelease.com](http://www.activerelease.com)), Graston Technique ([www.grastontechnique.com](http://www.grastontechnique.com)) and Kinesio® Taping along with Chiropractic modalities to treat the pain and prevent it from coming back. I recommend you familiarize yourself with the above techniques if you are a runner; they are the top conservative treatment methods running related over-use injuries.