How to Alleviate Back Pain and Prevent its Recurrence
Adapted from Dr. Stuart McGill’s book The Back Mechanic

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Introduction
Back pain is one of the most common conditions our athletes experience, regardless of sport, gender, or age. It comes in many forms; gradual, dull, and achy to sudden, sharp, and stabbing. What begins as tightness may progress to pain, and can eventually lead to season ending injuries like a pars stress fracture of the low back. The debilitating effects cost our athletes practice time, competitions, and degrades their overall quality of life. The mechanisms that create pain are numerous. Since there are so many, only a specialist can help you identify your specific cause of back pain. Luckily, you can potentially alleviate your pain without knowing the direct cause. If you consult with Sports Medicine and Athletic Performance early enough, we may be able to put your back pain into remission.

Obviously, this guide is not intended to replace expert medical care. It exists to help our student athletes identify pain patterns, relieve the pain, and learn how to prevent it from coming back. With help from Sports Medicine and Athletic Performance, you are taking a major step toward actively participating in your own recovery.

The Cause of Back Pain
Below is a list of risk factors that are known to correlate with back pain:

- A recent growth spurt
- Males are twice as likely as females to have back pain in early adolescence
- Abrupt changes in training frequency and intensity
  - High school sport participation is a prime example of an abrupt increase in frequency and intensity when kids may be asked to train every day and compete on the weekends
- Repeated extension of the lumbar spine
  - This is especially true of athletes because many sport movements put the back in extension
  - If the muscles that counteract extension are weak, then we have a recipe for back pain
- Lack of requisite mobility in the lumbar spine
- Repeated micro-trauma of the lumbar spine
  - Like repeated twisting or bending in baseball

In conjunction with the risk factors, back pain can also be the result of one or a combination of the following issues:

- Poor movement quality and posture
  - Bending at the waist instead of the hip
  - Lifting loads with a rounded back
  - Excessive twisting or twisting under load
  - Rounded back while sitting
  - Excessive arch in the low back to keep chest upright
- Inadequate muscle control, strength, or coordination
  - Glute inhibition
    - The muscle does not turn on when necessary, which forces other muscles and structures to pick up the slack or over-compensate
  - Core Muscles
    - Tight psoas
      - The psoas is the only muscle that crosses the hip and the low back, therefore it exerts influence in both areas
  - Weak Internal and External Obliques
    - The obliques help brace the spine from the sides, so when weak they cannot stabilize the back while twisting or bending
- Traumatic injury
  - Car crash
  - Sports injury
How to Desensitize the Back

Back pain is like a scab on your skin. Every time you provoke back pain, it is comparable to ripping off the scab, therefore extending the recovery time. This is called sensitization. To reduce pain, we must desensitize the nerves and muscles of the back. The only way to completely desensitize the back is to avoid experiencing the pain. This is easier said than done. Here are some helpful guidelines to reduce the occurrence of pain:

- Practice good spine hygiene
  - This means do not assume pain is a foregone conclusion, practice postures and movements that do not illicit or increase pain
- Good movements and postures
  - Learn to brace the core for certain movements
    - Bracing is contracting the core as if you were accepting a punch to the stomach
  - The Lunge
    - Lunging helps get you closer to the floor without bending at the waist
    - Great for picking up objects, tying shoes, or rising from the floor
  - Sitting
    - Roll the pelvis forward and lift the chest to establish a neutral spine position
    - Reset the back after sitting by standing and reaching as high as you can for :10 seconds
  - Standing
    - Try to keep muscles relaxed with hands at your side or behind the back
    - Carrying the hands in front of the body creates compression forces on the spine
  - Walking
    - Speed walking helps contract and stretch muscles in an appropriate, coordinated pattern, which is very beneficial for the back
  - Bending
    - The 1 Leg Russian Dead Lift (RDL) helps brace the core and trains the body to move through the hip
- Sports Medicine and Athletic Performance can help teach you the movements and postures that do not create or increase back pain

How to Train the Core

While the core muscles produce some torso motion, their main function is to prevent motion, which protects vital structures like internal organs and the spine. The action of tightening the core to prevent motion is called “bracing”. Bracing creates a girdle of muscle that keeps the spine neutral under load and during dynamic movements, while keeping internal organs in place. For the best core integrity, the front, sides, and back must be trained to brace in coordinated and equivalent intensities. The following Big 3 exercises help build a strong girdle of muscle that protects from every angle:

- The Modified Curl-Up
  - Lie on your back with one knee bent with that foot flat on the floor
  - Tuck hands under lower back and float the elbows
  - Lift your head and shoulders off the ground
    - Try not to create any movement in your low back (use the pressure on your hands to judge if creating movement)
  - Brace and hold for :10-:20 seconds each
• **The Side Bridge**
  - Lie on your side propped up on your forearm with your elbow directly beneath your shoulder
  - Stack your feet on top of each other and lift the hips off the ground
  - You should be trying to create two straight lines on your body:
    - A straight line from your ankle to your shoulder
    - A straight line starting from between your feet through your spine to your head
  - If the exercise is too difficult with feet stacked, try bending the knees 90° and bridging from the bent-knee position
  - Brace and hold for :10–:20 seconds each

• **The Bird-dog**
  - Assume a quadruped (crawling) position on the floor:
    - Hands underneath the shoulders and knees underneath the hips, flat back
  - Brace the core and raise your arm forward and up while kicking your leg back and up
    - You are trying to create a straight line from hand to foot
    - Point your thumb to the sky and pull your toe toward your shin
  - Brace and hold for :10–:20 seconds each

• Perform 3 sets on each side of each exercise up to 6 days per week
  - The goal is to balance your strength across the three areas of your core
  - Target the hardest exercises to strengthen the weakest area
• **Consult with Athletic Performance and/or Sports Medicine for establishing the correct technique**

**Other Considerations and Tips**
Reducing painful episodes and training the core are steps in the right direction. Adjusting other lifestyle factors can also help alleviate and prevent back pain.

• **Sleep**
  - The proper amount of sleep is essential to good health
  - Our bodies recovery from daily insults while we sleep
  - Without sleep, we potentially prolong our recovery from back pain and injury
  - Try to get 8 hours of sleep a night and 9-10 hours are ever better

• **Nutrition**
To properly recover from injury, the body needs enough calories and nutrients to repair damaged tissue.

See the Gator’s Guide to Nutrition under the resource tab on our webpage: https://www.shschools.org/page/athletics/athletic-performance

- **Walking**
  - Walking is very rehabilitative for the back because it provides the correct balance of stretch and activation for the back muscles involved.
  - Make sure your shoes are not increasing your back pain by having an excessively high heel.
  - If walking induces pain after a certain amount of yardage/mileage, STOP! Try to add distance or time on subsequent walks. Do not plow through the walk with pain.

- **Stretching, Pilates, Yoga**
  - These modalities can be beneficial, but only when it does not cause pain.
  - Find a practitioner that understands back pain and who will help you avoid painful positions and movements.

- **Chiropractic**
  - Be cautious about seeing a chiropractor before getting a full evaluation for your pain.
  - Depending on the injury, an adjustment may make the pain worse.

- **Surgery**
  - Most back pain goes away on its own without surgical intervention according to the Mayo Clinic.
  - Surgery is not nearly as effective as surgeons claim because the causes of back pain are so complex and diverse, it is difficult for any surgeon to accurately pinpoint the direct cause.
  - Do everything in your power to avoid this outcome.

**Conclusion**

Back pain can strike at any time and can be a very persistent companion. Properly desensitizing your back, building your core strength, and adjusting your lifestyle can help improve your condition and make you less susceptible to pain in the future. Sports Medicine and Athletic Performance can help you with this process. By teaming up, we can address your issues and get you back in the game!