Low Back Pain (LBP) during Exercise

Potential Risk Factors for LBP:

- Smoking
- Gender (male)
- Genetic predisposition
- Prior episodes of LBP
- Pregnancy
- Sedentary lifestyle
- Prolonged sitting
- Poor posture
- No warm up prior to exercise
- Keep moving even when exhausted
- Poor technique
- High training volume without rest

What are the core muscles?

Often when we hear about low back pain, we also hear about **core muscles**. Core muscles are part of the body's natural method of stabilizing the spine. The core muscles, along with the intra-abdominal pressure, help to form the round cylinder that is utilized to support the spine. The core actually consists of two separate groups of muscles, the inner and outer core muscles.

The **inner core** consists of the muscles of the pelvic floor, the transversus abdominis (TVA), diaphragm, and the multifidus muscles (which span the vertebrae along the back side of the spine). The TVA wraps all the way around the stomach and attaches to the spine. This is what helps to form the cylinder. When contracted (in conjunction with the pelvic floor and diaphragm), it helps to increase the intra-abdominal pressure to support the spine. When this is performed, it is known as the Valsalva maneuver.

The other muscles that help to support the spine are known as the **outer core** muscles. These muscles are responsible for movement of the trunk and spine as well as aiding in stability. The inner core muscles do not actually help produce any trunk or spine gross movement. The outer core muscles consist of a group of muscles known as the lumbar paraspinal muscles, the quadratus lumborm, the internal and external obliques, and the psoas major and minor. Notice that the rectus abdominis, "the six pack" muscles, are not listed. They are responsible for lumbar flexion, but they don't aid in spinal stability although they look cool!

The **posterior chain** is another common term that is utilized when referring to spinal stability. The posterior chain muscles work with both the inner core and outer core muscles. The muscles of the posterior chain are often defined as the lumbar paraspinal muscles (the muscles that extend the spine), the gluts, and hamstrings.

Weakness in the core muscles and posterior chain muscles is highly correlated to low back pain.

General Prevention for LBP:

- If you smoke, stop.
- Limit your sitting.
- Sit with good posture.
- Perform standing back extensions.
- Stretch your hip flexors.
- Perform press-ups.
- Stretch your hamstrings.
- Eat healthy.
- Hydrate frequently.

Prevention during Exercise:

The Warm Up: A Multifaceted Approach

- **Cardiovascular warm up.**
- **Dynamic warm up.**
    - During the dynamic warm up, perform exercises such as: forward and backward leg swings; side to side leg swings; squat with rotation; inchworm wiggle; and walkout hop. Forward bend and twist to the easy side to increase the length of the hamstrings. Split leg forward bend with rotation to the easy side. Scorpion stretch and perform press-ups.
- **Activity specific warm up.** This is when you perform the activity or exercise you will be participating in, but with a lighter load or at a decreased intensity.
- **Between sets.** Do not sit. Stay up and moving.
- **Activate the multifidus.** Recommended exercises include: bridging and the superman exercise. I typically advise 20-30 repetitions for each exercise. Utilize these exercises in conjunction with press-ups to improve mobility and prepare the area for activity.
- **Cool down.**
    - Keep moving.
    - Perform static stretching.
    - Utilize the foam roller.
    - Take the necessary time to cool down.
- **Take cross training seriously.**
    - Train your weak areas.
    - Break out of your routine to propel yourself forward.
- **Take aches and pains seriously.**
    - Address potential issues early. Do not let the pain linger.
- **If it hurts, don't do it!**
    - If the activity is causing pain, then you will need to modify the activity or discontinue it completely.

    - If you don't have adequate range of motion (ROM) to perform the activity with a low load, then definitely don't attempt it with a high load or higher velocity.
    - Work with your coach. Poor form and technique will often cause pain. With instruction, you can avoid pain and injury while taking your training to the next level.
- **Get adequate rest.**
    - Your rest and recovery days should be as intentional as your training days.
- **Seek help early.**
    - If you're experiencing chronic aches and pain or you're struggling with an aspect of your training, seek help from your coach, physical therapist or physician.
- **Lumbar extension strengthening exercise.**
    - Incorporate strengthening exercises as part of your weekly training routine.

Initial Treatment (immediately following injury):

To safely self-treat your low back pain, first take a moment to assess your symptoms and pain level. What led to your pain and/or injury? Did the pain come on suddenly or slowly? Evaluate the severity of the injury.

The rule of thumb for movement: **If the pain worsens by spreading peripherally down the buttock and into the leg and/or foot, then the condition is worsening. We must stop that activity. If the pain centralizes and returns back toward the spine (even if the pain worsens slightly), then keep moving as the condition is actually improving.** For a thorough discussion and an excellent treatment resource, please refer to ***Treat Your Own Back*** by Robin A. McKenzie.

Although most LBP isn't considered serious, the pain tends to re-occur. One major reason for this is that the deep stabilizing muscles, known as the multifidus muscles, reflexively shrink, weaken, and lose function. Without proper rehabilitation, the muscles will not fully recover. This increases the risk of future episodes because the spine no longer has the ability to stabilize itself normally.

- Perform press-ups.
- Perform standing back extensions.
- Activate the multifidus. *(Refer to the recommended exercises above.)*
- Don't sit–walking is critical to your recovery! It's the number one way your spine receives nutrients and disposes of metabolic waste products. Walk frequently, and try to avoid any prolonged sitting.
- If you sit, use good posture.
- Ice as needed for pain for no more than 20 minutes per hour. Use a barrier (like a towel) to prevent frost bite.
- Use topical analgesics for pain.
- Seek help from your coach, physical therapist or physician.

Kinesiological Taping:

- "H" pattern
- Star pattern

Both of these methods are quick and easy to apply and are beneficial. (You could also search YouTube for videos on how to apply Kinesiological tape.)

Long Term Treatment & Management:

The good news is that low back pain should not prevent you from exercise. Once you have recovered from the initial acute phase, then a return to exercise is an important component to long term management.

Initially as part of a long term strategy, address the factors (and potentially lifestyle choices such as smoking) which led to or increased your risk of developing LBP. In almost all cases, this includes addressing chronic poor posture while sitting and standing, excessive sitting or flexion activities.

As part of your management strategy, weekly targeted exercise to maintain and improve lumbar extensor and posterior chain strength is critical. Your baseline minimum should be to perform at least 10 minutes per week of focused lumbar paraspinal muscle strengthening. Utilizing as little as 10 minutes per week of strengthening can be an effective method to control and prevent low back pain.

Recommended LBP Management Techniques:

- Address and eliminate as many risk factors as possible.
- Initiate a daily (or nearly daily) lumbar range of motion and strengthening protocol.
- Try to avoid lumbar flexion, particularly at the near end of range flexion and especially under load.
- Try to avoid lumbar rotation, particularly under load.
- Avoid uncontrolled eccentric movements like moving down into a squat, returning down after a dead lift or running downhill out of control. All eccentric movements need to be performed under control.
- Avoid lifting or performing any exercise beyond your technical capability or capacity.
- Always use proper form and technique.
- Address any asymmetry related issues.
- Download **10 Minutes a Day Low Back Pain Prevention Guide** at **www.thePhysicalTherapyAdvisor.com/crossfit/**

Questions?

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