Pilates for Low Back Pain

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Abstract

Most people will experience Low Back Pain at some point in their life. The most common cause is muscle strain often related to heavy physical labor, lifting or forceful movement. Other causes may be from bending or twisting in awkward positions or standing or sitting in one position for too long.

This study helps to determine if Pilates is an effective method to relieve Low Back Pain (LBP). A program was created and assigned to a 42 year old female with symptoms of LBP. The symptoms started after trying Crossfit and continued as she was riding her horse. She was preparing for competition and the pain and discomfort persisted preventing her from training and ultimately withdrawing from competition.

The program entailed three months of two one hour private sessions every week. The client reported significant relief from her Low Back Pain and continued to practice Pilates for further strengthening, mobility, and relief of her LBP. Now a year out from starting Pilates the client reports living in a pain free body and feeling stronger than she has ever felt in her 42 years!
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**Anatomical Description**

The lower back (L1-L5) is referred to as the lumbar spine. It is built for both power and flexibility. Actions such as lifting, twisting, and bending all occur from here.

There are several distinguishing characteristics of the lumbar spine:

- The weight of the entire torso is supported by the five vertebrae of the lumbar spine L1-L5. They are the biggest unfused vertebrae in the spinal column which allows them to bear the weight of the entire trunk.
- The two lowest segments L4-L5 and L5-S1 bear the most weight therefore most subjected to injury and wearing down.
- The lumbosacral joint is where the lumbar spine meets the sacrum allowing for rotation and the pelvis and hips to swing while walking.
The muscles of the lower back stabilize, rotate, flex, and extend the spinal column.

Important muscles of the lumbar spine include:

**Multifidus:** stabilizes and rotates the lumbar spine. This long muscle travels nearly the entire length of the spine.

**Longissimus:** begins in the middle of the lumbar spine and continues up the transverse process.

**Spinalis:** this muscle begins as a thick tendon from the sacrum and travels up into the neck, inserting at the spinous process of the cervical vertebrae.
Case Study

Page is a 42 year old active female experiencing Low Back Pain. She originally came into the studio after injuring her back doing Crossfit. The pain and discomfort was inhibiting her ability to comfortably ride her horse and train for competition as a Three Day Eventer.

Page’s goals were to alleviate the Low Back Pain, gain core strength, and increase flexibility and overall mobility. Ultimately she wanted to be comfortable, pain free and strong enough to continue riding and training for competition.

Due to the level of discomfort that she was experiencing we had to start our program very slowly. Decreased pain came after three private sessions for three consecutive weeks. Once the pain was tolerable we met regularly for three months for two private sessions a week.
**Conditioning Program**

**First 3 weeks:** we spent the majority of our sessions releasing and elongating her glutes/hamstrings and trying to create length in her spine especially her lumbar region. I chose exercises throughout our sessions that encouraged and increased pelvic-lumbar stabilization. Roll downs caused discomfort so they were avoided until pain subsided. We did a modified **Warm Up** with really small pelvic tilts trying to deeply engage her lower abdominals from the pubic bone to her naval emphasizing the breath and attempting not to clench the glutes to make that tilt occur. We moved on to a modified supine spine twist with legs crossed and a very small range of motion to keep the work in her obliques and out of her quadratus lumborum. We finished the warm up with Chest Lifts and then Leg Lifts (8 on each side) instead of chest lifts with rotation which aggravated her back. **Footwork (parallel heels/toes v position toes v position heels open v heels open v toes calf raises and prances)** was done on the Reformer on a relatively light spring resistance to challenge Page to find her abdominals. **Abdominal Work (Hundred Prep and a modified Coordination)** was also done on the Reformer. Page was asked to do Coordination with legs reaching to the ceiling at 90 degrees to help encourage deep abdominal engagement allowing her to stay in more of an imprinted spine keeping her out of her back and in her belly. **Hip Work (Frog, Circles Down, Circles Up, Openings on the Reformer)** It was important to continually cue Page through this series to maintain a stable pelvis keeping the tailbone anchored and watching her range of motion so she stayed in her belly and didn't allow her legs to drop too low so the back engaged to help assist in the movement. **Spinal Articulation** was
not added until the end of our fourth week of work. When we did add it in we started with Bottom Lift and Bottom Lift with Extension really staying in a small range with the height of her bridge. Stretches on the Ladder Barrel (Gluteals, Hamstrings, Adductors, Hip Flexors) we were very slow and cautious with the stretches we did. The report that Page gave me after our first three sessions was that she felt fatigued by the time we got to her stretches and sometimes her belly gave up and the back kicked in to help maintain the flat back position while stretching her hamstrings and glutes. Therefore we did a modified supine hamstring (legs perpendicular to the floor) and glute stretch (figure four) with feet on the wall slowly bending and straightening the legs. Full Body Integration I was not added until the end of our fourth week of work. When we added FBI I we started with Scooter to continue working on the development of pelvic and trunk stabilization and strengthening her abdominals. Leg Work on the Wunda Chair we started with Hamstring Curls again focusing mainly on pelvic lumbar stabilization with her body in a stable and comfortable supine position not subjecting her to the potential of pulling her back into hyperextension if she were prone. Lateral Flexion and Rotation we started with Mermaid on the reformer to help increase Page's overall spinal mobility and oblique control. She stayed in a very limited small range of motion while rotating until she developed a better overall awareness of her body and the ability to keep her abdominals deeply engaged when adding rotation. Back Extension we stayed away from until the discomfort in her lower back had dissipated. As she became more aware of her abdominals and the ability to stabilize her pelvis we added Cat Stretch on the mat.
**Conclusion**

In conclusion, I feel confident in saying Page has made significant improvement in her Low Back Pain and has achieved her goals that she set when she first came into the studio. Her goal now is to maintain a life without Low Back Pain and feeling as strong and as balanced as she feels today by continuing her Pilates practice.

Page has reported after the three months of two one hour private sessions:

- Her Low Back Pain has dissipated dramatically.
- She has gained noticeable core strength which she directly correlates to a stronger seat in her saddle better balance on her horse and increased endurance while training.
- Overall increase in her mobility and flexibility.
- She is now comfortable pain free and strong enough to continue trading for competition.

Page undoubtedly attributes the dissipation of her Low Back Pain and her stronger more balanced and pain free body to her dedication commitment and consistency to her Pilates practice. She plans on continuing with her two private sessions a week and when ready adding mat and equipment classes.
Works Cited


