Pilates for Lumbar Hyperlordosis

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Abstract:

Hyperlordosis of the lumbar region of the spine is a common postural deviation that could lead to lower back pain or other issues. Although the cause of lumbar hyperlordosis may vary, in many cases Pilates may be used to help treat and minimize negative effects. This paper will discuss what hyperlordosis of the lumbar spine is and potential causes. The paper will also include a case-study of a hypothetical client, Claire. Claire is a 32 year-old female who has been running and swimming competitively for ten years with little to no strength training. Claire has been complaining of lower back pain and has a hyperlordotic posture that is not structural in nature. The paper will describe a Pilates program that would be appropriate for her and how the program helped her pain and posture.
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Anatomical Description of Hyperlordosis

According to multiple sources, 8 out of every 10 adults will be impacted by back pain in their lifetime (Isacowitz 51; The Good Body website). Spine health and proper alignment play a large role in preventing and treating back pain. For this reason, Pilates is extremely beneficial in helping rehabilitate known injuries and, maybe even more importantly, in promoting proper body mechanics and posture to proactively prevent injury or pain. Prior to getting involved in a body aware activity like Pilates, many people aren’t even aware of their own imbalances. In this paper, I will specifically focus on lumbar hyperlordosis which is a deviation of the lumbar spine that is characterized by overemphasized curve resulting in an anterior pelvic tilt (Isacowitz 44; Isacowitz and Clippinger 23).
In the picture above taken for the Pilates Anatomy book (Isacowitz and Clippinger 22), you can see the forward tilt of the pelvis in the figure on the far right. There are many factors that may lead to hyperlordosis, some of which include: (Spinabifida; Ratini (Web MD); Spine Health Institute)

- Achondroplasia
- Kyphosis
- Osteoperosis
- Obesity
- Spondylothesis
- Discitis
- Benign juvenile lordosis
- Tight lower back
- Pregnancy
- Long Term High Heel Use

It is important to note that some of the causes above are structural and require special consideration (i.e. Spondylothesis, Osteoperosis, Achondroplasia, Discitis to name a few).

Other hyperlordotic individuals are a result of physical activity (or inactivity). Things like obesity, sitting for too long, running form with weak core and glute muscles, or something as simple as walking for too many years in high heeled shoes can also pull the spine out of alignment. The case study I will be discussing is of the later type.

Hyperlordosis, as seen in the below figure from the Pace & Mind website, is commonly indicative of weak abdominal muscles and gluteal muscles and tight hip flexors and lower back muscles (Isacowitz 44; Pace & Mind).

2. Lordosis/Lower Crossed Syndrome (swayback)

(Pace & Mind)
As a result, treatment of non-structural hyperlordosis through Pilates should emphasize strengthening and stretching the appropriate muscles.

**Case Study**

Claire is a 32 year-old female who has been running and swimming competitively for ten years with little to no strength training. She also wears high heeled shoes on a daily basis while walking around the city. Although she takes public transportation, she logs several miles a day walking to and from the bus stop and various errands. She sits at a desk for eight to nine hours a day. Claire has been complaining of lower back pain, but went to the doctor and has no structural spinal issues or disc issues. She also has no acute pain or numbness – just a persistent nagging lower back pain. She is at Intermediate level of Pilates.

**Assessment & Pilates Program for Claire**

The following program was designed to help Claire build strength and flexibility to reduce her imbalances and mostly build a healthy overall body.

**Warm Up**

**Roll Down**

We started each of our sessions with a roll down which allowed me to assess her posture.

**Mat or Cadillac Bed – work through the fundamental mat warm-up:**

These exercises help warm up her body and create focus. Emphasis was placed on reviewing fundamental principles of Pilates, focusing on breath, proper alignment and connection to body.
Pelvic Curl – focus on teaching neutral, paying particular attention to her tendency to move towards hyperlordosis. Also, focus on using abdominal muscles to move spine.

Spine Twist Supine – again focus on staying out of hyperlordosis.

Chest Lift – watch for posterior tilt, focusing on separating use of abdominals from hips.

Chest Lift with Rotation – watch for moving laterally or rocking pelvis.

Leg Lifts – stay in neutral. No overuse of hip flexors.

Footwork

Reformer Fundamental Footwork Series:

- Parallel Heels
- Parallel Toes
- V Position Toes
- Open V Heels
- Open V Toes
- Calf Raises
- Prances

This will be a nice warm up for quads and hamstrings, while lying supine helps Claire notice spinal connection to the mat. For her in particular, it’s a nice way to practice keeping ribs in and maintaining neutral while working legs.

Abdominal Work

Hundred Prep on Reformer Coordination

For Claire, I started slightly lighter in weight than I typically would with just one red and one yellow. This still gave her significant abdominal challenge while allowing her to stay in neutral spine. We focused on working in both directions and especially controlling the movement on the way down – keeping upper abdominals engaged and avoiding excessive arch of the spine.
Hip Work

Basic Leg Spring Series on Cadillac

- Frog
- Circles Down
- Circles Up
- Walking
- Bicycles

Focus here on staying in neutral spine, building hamstring and adductor strength, staying stable through pelvis, and disassociating hips. Building hamstring strength is particularly important for Claire and will focus cueing on getting her to initiate movement from there as well as adductors in frog.

Spinal Articulation

Monkey Original

This exercise is a nice intro to using abdominals to articulate spine and a nice stretch for the lower back.

Stretches

Standing Lunge on Reformer

This is a nice stretch of both hip flexors which Claire especially needs and hamstrings. Cueing was focused on bias toward posterior tilt of pelvis on hip flexor stretch and lift spine and then conversely moving into anterior tilt while stretching hamstring. Claire had a tough time keeping hips square, but slowly will work towards this keeping a safe stretch.

Full Body Integration

Scooter
Focus on staying in a C curve position which is difficult for Claire and moving leg independently of pelvis and upper body. Once Claire had this down, we would move to Round Back and Flat Back.

**Arm Work**

**Arms Sitting Series**

- Chest Expansion
- Biceps
- Rhomboids
- Hug-A-Tree
- Salute

For Claire, we focused on sitting posture, being sure she remained lifted while actively engaging abdominals to avoid excessive arch of back. Focused on sitting upright without leaning back or forward to ensure she is working the right muscle groups.

**Leg Work**

**Single Leg Skating**

This is a great exercise to help build glute strength. Here, I watched to make sure she was staying in neutral without over-arching back. Also, I watched to make sure she wasn’t shifting pelvis to help move the carriage – really targeting the glutes and gaining strength there.

**Lateral Flexion/ Rotation**

**Side Lift on Step Barrel**

This is a nice exercise to start building oblique strength while staying in a bit more protected position for the spine than something like Side Over on the Box. Focus will be on creating length and building oblique strength.
**Back Extension**

**Swan Prep on Step Barrel**

I like this exercise for Claire as the apparatus helps tactically cue the focus of the exercise on the part of the body forward of the arc. It may be difficult with a hyperlordotic client to move from the right place when doing back extension on the floor due to tendency to move from lower back.

**Conclusion**

After working with Claire a few times a week for several weeks, she is really connecting with her body and aware of her tendencies/able to self-correct. Through our sessions, she is gaining strength in all parts of her body and beginning to notice a difference in her posture even in everyday life. She has less frequent back pain, but knows she will need to continue to focus on her Pilates work to continue to move in the right direction. Even more importantly, she has discovered that protecting her body is so important and has started wearing more supportive footwear and getting up and stretching during her work days. By building strength and stretching tight lower back and hip flexors, hyperlordotic posture can absolutely be improved, but proper precautions should be taken to ensure the work is safe and supportive.
References


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