Pilates for Scoliosis

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Abstract

I did my case study on myself. I am a 30-year-old female with a 51-degree left lumbar scoliosis. I experienced back pain on a daily basis. I knew I needed to do exercises to strengthen my back, but the typical gym exercises did not appeal to me. When I started doing Pilates, I fell in love with it right away and saw the potential benefits for my back. I worked with an instructor who was focused on helping me achieve good alignment instead of accepting my crooked body as normal. I no longer experience back pain on a regular basis and my back is much stronger and more flexible.
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Anatomy of the Spine and Scoliosis

The spine is divided into three sections: cervical, thoracic, and lumbar. Each section contains individual bones called vertebrae. There are 7 cervical vertebrae, 12 thoracic vertebrae, and 5 lumbar vertebrae. The sacrum is below the lumbar vertebrae and is actually five vertebrae fused together. In a normal spine there are four curvatures that are vital to flexibility, balance, and stress absorption and distribution. These are the cervical lordosis, thoracic kyphosis, lumbar lordosis, and sacral kyphosis. These should not be confused with the spinal disorders called lordosis and kyphosis. Lordosis is an excessive inward curve of the spine and kyphosis is an excessive outward curve of the spine. Scoliosis is an abnormal lateral (side-to-side) curve of the spine. Scoliosis occurs mainly in the thoracic and thoraco-lumbar regions. There are two basic types of scoliosis: structural and functional. In structural scoliosis, rotation of the vertebrae occurs in combination with lateral curvature, which usually causes a protuberance of one side of the rib cage. This is the worse type of scoliosis, and it can be progressive. In functional scoliosis, fixed rotation does not occur, and the curvature is usually non-progressive. This type of scoliosis is classified into postural, which disappears on forward bending, and compensatory, which is most commonly due to a short leg.

There are many causes of structural scoliosis, but the most common (80 - 85%) is unknown, or idiopathic. Idiopathic scoliosis typically develops during rapid growth periods of the spine. The earliest form, infantile, occurs in the first three years of life, and usually resolves with time. The juvenile form occurs up to the age of nine, and is believed to be genetic. The adolescent form, which generally occurs from ages nine to fourteen, is the most common, and the most severe cases involve females.
Case History

I did the case study on myself. I am a 30-year-old female with left lumbar curve scoliosis. I was diagnosed at age 15. The doctor told my mother and me that there was nothing to be done and did not refer me to a specialist or even recommend any exercises. My scoliosis progressed from a 37-degree curve at age 17 to 51 degrees at age 27 in 2004. I have structural scoliosis, so the vertebrae in the scoliotic curve are rotated almost 45 degrees. This caused my ribs to protrude on the left side of my back and my scapulae to track improperly. My pelvis was also rotated and my right hip was higher than my left. Because the muscles of my lower back were weak, my hamstrings were very tight and inflexible. I could barely touch my toes.

I was lifting weights and doing cardio off and on throughout my twenties. I knew I needed to work my back more to strengthen it and help prevent progression of the curve, but I did not really do anything for it and experienced daily back pain. I started mat Pilates in 2004 and took classes regularly for about 1½ years. In January 2006, I started equipment work and saw the potential in Pilates for helping alleviate my back pain.
Conditioning Program

My Pilates instructor, Jennifer, worked hard to align me properly during exercises. My pelvis was tilted and rotated, which felt like straight to me. However, the two sides of my body did not work evenly. Jenn made sure to rotate my pelvis so I was in alignment instead of sitting or lying or working with one hip higher than the other. She put a lot of emphasis on aligning me and helping me learn what that felt like so I could maintain it during daily activities. Below is a typical workout she did with me. I highlighted the exercises she saw as helpful and describe the benefits in the following paragraphs.

There were multiple beneficial exercises from the Abdominal Short Box Series. Round Back helped me learn to stabilize my lumbar spine and pelvis. Flat Back taught me how to recruit my spinal extensors. Climb-a-Tree helped me learn to control my back extensors and stretched my hamstrings, which helped create stability in my lower back. Hip Work helped me with pelvic lumbar stability.

She chose Short Spine and Long Spine to articulate my spine since I did not do much of that on my own before Pilates. That position was also the best way for me to see how my pelvis was rotated, forcing me to use my muscles unevenly. Since I could see it, I could correct it on my own and eventually learned how being truly square felt.

Kneeling Lunge stretched out my tight hamstrings and Side Splits helped with trunk stability. The Up Stretch Series stretched my hamstrings and helped develop trunk stability. Arms Kneeling and Side Arms Kneeling helped create strength and stability in my trunk. I already had very strong abdominals and needed to work on strengthening my
back. Doing the kneeling series made me focus on recruiting my abdominals and back muscles to work together.

Mermaid helped with spinal mobility, much like Short Spine and Long Spine. It also taught me scapula stabilization. The exercises in the Back Extension Long Box Series all assisted in development of back extensor strength.

Foot Work
Parallel Heels
Parallel Toes
Small V Toes
Open V Heels
Open V Toes
Calf Raises
Prances

Abdominals
Hundred
Coordination
Short Box Series

Hip Work
Frog
Up Circles
Down Circles
Openings

Spinal Articulation
Short Spine

Long Spine

Stretches
Kneeling Lunge
Side Splits

Full Body Integration
Up Stretch Series
Down stretch

Arm Work
Arms Kneeling
Side Arms Kneeling

Leg Work
Jumping

Lateral Flexion/Rotation
Mermaid

Back Extension
Long Box Series

I no longer get to work out with Jenn on a regular basis, but I continue to do the exercises she taught me in order to strengthen my back and increase flexibility in my hamstrings. Some of the other exercises I incorporate into my workouts on a regular basis are Swan (mat and Wunda Chair), Swimming, Chest Expansion and Rhomboids from the Arms Sitting Series. These exercises have definitely helped strengthen my back, and I do not experience lower back pain on a regular basis. My curve has not
progressed since I began intense Pilates work. I have gained a lot of flexibility in my hamstrings and back. I can now lay my forearms on the floor when I do a roll down. I hold my pelvis in proper alignment and my hips are actually almost even. Pilates has worked wonders on me. I have strength and definition I once thought I would never achieve, and an improved self-image.
Bibliography

http://www.backpainguide.com/

http://www.scoi.com/spinanat.htm

http://www.spineuniverse.com/

Appendix I – Spine Anatomy Illustration
Appendix II – Scoliosis Illustration