Working the Curve: Pilates and Scoliosis

Tara Winters
28 December 2017
The Cypress Center 2017
Abstract

Scoliosis is the most common spinal disorder affecting society. Scoliosis can lead to musculoskeletal pain, muscle imbalances, and severe postural dysfunction if left unaddressed. Pilates, with its focus on posture, core strength, and mobility, is an effective strengthening routine in treating scoliosis. Clients with scoliosis may benefit from individualized Pilates exercises tailored to meet specific needs. The purpose of this paper is to examine the effects of Pilates with focus on improving spinal mobility, core strength, and unilateral exercises on a 19-year-old client with scoliosis. The client attended 50 minute sessions two times per week for three months. Exercises included spinal articulation, core strengthening, and trunk stretching movements. The client reached all goals by the end of the three months. Pilates is an effective movement practice for a client with scoliosis.
# Table of Contents

Anatomical Location and Diagram............................................................................................................Page 4

Body of Paper........................................................................................................................................Page 4

References/Bibliography.........................................................................................................................Page 9
Anatomical Location

The area of the body associated with scoliosis is the spine. The spine is made up of 33 bony vertebrae and can be divided into 5 areas. These areas include the cervical, thoracic, lumbar, sacral, and coccygeal regions. The cervical and lumbar regions are lordotic curves, while the thoracic and sacral curves are kyphotic. Infants are born with a predominantly kyphotic spine which develops into the natural curves by puberty. The spinal column houses the spinal cord, also known as the central nervous system. This bundle of nerves originates in the brain and exits between the vertebral joints to innervate various parts of the body.
Scoliosis is a prevalent spinal disorder characterized by a 10 degree or greater lateral curvature of the spine. This disorder has a genetic link and is found more commonly in women than men. Scoliosis is characterized as either idiopathic or non-idiopathic. Types of idiopathic scoliosis include infantile, juvenile, adolescent, and adult. Types of non-idiopathic scoliosis include congenital, neuromuscular, and mesenchymal. Scoliosis is named by the direction of lateral spinal curve and area of location in the spine. If left untreated, scoliotic curves can worsen and eventually lead to cardiopulmonary dysfunction and musculoskeletal pain. Pilates, an alignment-focused exercise practice, can be a beneficial addition in the management of scoliosis. Sessions that involve integration of individualized mobility and stability exercises can have significant impact on the progression and severity of this spinal disorder. This paper will explore the Pilates conditioning program of a 19-year-old female with idiopathic scoliosis and incorporate the research surrounding the topic.

The client is a 19-year-old female with the onset of right-sided thoracic scoliosis at approximately 13 years of age. The client presents with lumbar, thoracic, and cervical pain which prevents her from sitting in class for extended periods of time. The client also rides horses five times per week and is at the beginner level in Pilates. With the right-sided spinal curvature, it is likely that the client has a decreased thoracic kyphosis, limited range of motion, muscle tightness, and muscle strength imbalances. Pilates sessions will focus on identification of asymmetries, abdominal strengthening, trunk muscle stretching, postural awareness, and proximal hip muscle strengthening. The following paragraphs will highlight the BASI Block System, specific exercises for this client, and reasoning behind the exercise choices.
The client will spend the first 20 Pilates sessions performing the fundamental BASI warm-up at the beginning of the session. Following the first 20 sessions, the patient performed the intermediate warm-up. Footwork is initially performed on the reformer to allow the client to practice lumbo-pelvic control and gain understanding of neutral spinal alignment. In later sessions, footwork is performed on the Wunda Chair to challenge the client’s upright posture. Abdominal work will include hundred prep, leg changes, and the roll up on the Avalon Arm Chair. Later, the client will perform the short box series on the Reformer. Hip work is performed on the Cadillac with yellow, or light, springs in the form of the supine hip series. Spinal articulation initially includes bottom lift on the Reformer and progresses to semi-circle and short spine. Stretches initially include the four Ladder Barrel stretches and the pole series stretches in alternating sessions, then progress to shoulder stretch on the Cadillac. Full body integration includes saw and side reach on the Cadillac. Arm work begins with the Ped-A-Pul exercises – extension, adduction, up/down circles, and triceps. Arm work then progresses to the arms standing series at the Cadillac once the client is at the intermediate level. Other full body integration exercises the client will perform once at the intermediate level include upstretch 2 on the Reformer and sitting forward on the Cadillac. Leg work for the client includes the gluteal side lying series and progresses to include single leg skating on the Reformer. Lateral flexion/rotation exercises consist of side over prep on the Ladder Barrel and side stretch on the Wunda Chair. Mermaid is another lateral flexion/rotation exercise that is appropriate for this client. Finally, back extension exercises begin with swan basic on the Wunda Chair and progress to back extension single arm on the Wunda Chair and swimming on the mat. Rest breaks are
provided as needed in the form of the rest position to stretch the spine. The reasons for the choices made for this conditioning program are included in the next paragraph.

This Pilates conditioning program is tailored to meet the client’s specific needs. Breathing is emphasized throughout each session to promote abdominal contraction and improve body awareness. Many of the exercises chosen are unilateral. This allows the client to recognize asymmetries within the body and promotes strengthening on the weaker side. Footwork on the Wunda Chair somewhat mimics horseback riding and reinforces good posture during this activity. Abdominal work is performed in the form of the short box series at later sessions for oblique emphasis. Hip work is done on the Cadillac rather than the reformer to challenge the client unilaterally and promote lumbopelvic stability. In clients with scoliosis, it is typical that one side of the trunk will have less flexibility than the other. The spinal articulation, lateral flexion/rotation, and full body integration movements mentioned above will promote spinal muscle stretching and vertebral mobilization. The stretching exercises on the Ladder Barrel promote unilateral mobility deficits in the lower extremities. The pole series is helpful in improving client postural awareness and abdominal activation, both of which are paramount for clients with scoliosis. The leg and arm work are both performed unilaterally. The gluteal leg series improved proximal hip strength and lumbopelvic stability. All of the exercises chosen will promote core stabilization but core has the most emphasis in the abdominal work and full body integration exercises chosen for the client. Core strength is vital when working with scoliosis as research shows that strong core musculature will support the spinal column. This conditioning program is research-based and designed to improve postural awareness. Ideally, this will translate into activities of daily living to improve the client’s quality of life.
With scoliosis as such a prevalent spinal disorder, it is important to understand how exercise can have a positive impact in overall treatment. Pilates has the potential to improve body awareness, posture, and strength leading to an improved quality of life. Specifically, a routine that involves trunk stretching, core strengthening, spinal mobilization and unilateral exercises is shown to be effective in improving function for a 19-year-old client with scoliosis.
References/Bibliography


