Pilates and Scoliosis
- A Case Study -

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Course year 2013 in Paris, France
Scoliosis is a condition of curvature of the spine, that represents imbalance in the structure of the spine and its connecting frame. This means that a person’s every move is affected, whether sitting, standing, walking, working or exercising.

In this paper we will explore how BASI Pilates can help bring balance and relief from the symptoms of scoliosis. With Karen M., a case study, we will get to know her particular symptoms, sensations and see how incorporating the BASI Block system into her sessions affects her movement patterns and most of all brings on subtle, yet effective changes to offer her a more balanced musculo-skeletal environment.

After a 10 week program, Karen M. is experiencing less tension, and more strength. She is able to relax more easily during sessions and in her daily life as well as enjoy moving in a combination of both support and freedom.
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**Definition of scoliosis**: Scoliosis is a lateral curvature or deviation (right or left) of the spine greater than 10° and associated with vertebral rotation. In scoliosis, the vertebral column seen from the front or back is no longer straight. Although the most evident anomaly is in the frontal plane, vertebral rotation makes scoliosis a three-dimensional deformity. Therefore, in addition to the lateral curve, alterations in the sagittal plane may also be evident as well as the development of a back prominence or hump.

In short scoliosis is an alteration of the normal morphology of the spinal column. It may have an unknown cause or be secondary to an underlying disease. The most important problem related to scoliosis is the progression of the deformity and the resulting collateral effects. There are a series of parameters, including age, sex and the type of curve, that indicate the risk of progression.

Individuals with scoliosis often display some type of trunk asymmetry. One shoulder may appear to be higher than the other, there may be a tilt at the waistline, or one scapula may be more prominent. An effective way to detect scoliosis is to have the client bend forward with the knees almost straight and flexing the waist (forward-bending) and viewing from behind.

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![Fig 1.](image1.png) ![Fig 2. various scoliosis curvatures](image2.png)
In order to understand the effects of the BASI Pilates method on scoliosis, we will use a case study. Karen M., her daily routine and her movement background, will give us a starting point, after which we will incorporate a 10 week program and see the changes that come about. The BASI method and its unique Block system will enable Karen to sense, and feel her body in a new way, bringing about awareness, offering relief to the tighter areas, while promoting strength in the weaker zones. Overall, adding more balance and a stronger sense of symmetry to her body.

Karen M. is a 60 year old woman, a retired musician, who currently works as a volunteer for handicapped children. She has hyper-extended joints, which has brought some disadvantage to the scoliosis issue, but this also possibly results in less tension overall. No matter what, she has a curvature that is convex to the left and concave on the right, with some of the usual rotational variation. Therefore her right shoulder is lower and her left hip hikes higher (or the waistline dips to the right).

Karen has a keen body awareness, developed from her musical background: the need for her body as a tool to perform her instrument, endurance and flow; as well as many years studying and practicing different movement types such as Tai Chi, Pilates and Gyrotonic/Gyrokinetics. Karen sees an Osteopath when she is in severe discomfort or pain. One of our goals is to minimize those visits, using the Pilates method for prevention and maintenance. She is of an Intermediate level, but can perform some Advanced exercises when supervised.

Karen is quick to put the blame on the scoliosis for any misalignment as she sets herself up on the reformer, or when I correct her posture in a specific position. I therefore make sure not to bring up the scoliosis with her. I try to take her mind away from focusing on imbalance and bring her into her body with a deepening of internal awareness and sensations, some imagery and the pursuit of relaxation at first.

It is my belief that without relaxation, we cannot bring about change, the body will tend to fight the movement, go into its usual routine pathways and not be as receptive to the changes that can come from a method such as Pilates. So my first focus is on
relaxation, by bringing on deep breathing. Karen lays prone on a mat, or the Cadillac bed and we start deepening the breath. Breathing in through the nose, filling the lungs with air and exhaling through the mouth allowing the body to release any tension, bones to imprint, muscles to melt and joints to relax. The floor should carry the weight of the body and the breath should continue to flow in and out, like the waves on a beach. With the relaxation process begun, I bring Karen into a sitting position, sitting on the edge of the Cadillac, with feet propped up on a box and a soft ball placed under her right armpit. This set-up will allow Karen to slowly expand the lesser developed side of the lungs with the proprioceptive message of the ball, which is malleable and has the appropriate ‘give’. After a set of 10 full breaths, we remove the ball and allow her to check into her sensations. Does this side feel a little more expanded, or full? Is the breath easier or fuller than it seemed before? We repeat the breathing exercise with the ball on the other side and allow her once again to notice the different sensations, as this is now the convex side. I repeat one more set on the right, or concave side, so the message is more solid.

At this point, with relaxation and breathing enhanced, we are now ready to bring on the BASI Pilates movements, in the Block sequence. This is a sample of the sessions done during the 10 week program. We return onto the mat for the Warm Up Block. Here, Karen will start some pelvic rocks, posterior and anterior, supported by the breath and motivated by the abdominals. These will lead into the Pelvic Curl. After 3 reps, we add an arms extension overhead, giving Karen an extra stretch and reach as she curls back down. Next we incorporate a set of Chest Lift and Chest Lift with Rotation, followed by a set of Leg Lifts on each side. To finish the warm-up we will do a version of Spine Twist Supine, with the legs propped up on a Swiss ball, so they are supported during the rotational phases and the spine stays more relaxed. We concentrate on lengthening the spine during the movements, deep breathing and allowing the motivation of the movement to come from her center.

The next phase of the session will be on the Reformer with the Foot Work sequence: Parallel Heels, Parallel Toes, V Position Toes, Open V Heels, Open V Toes,
Calf Raises, and Prances. Next comes single leg Foot Work, which is even more important in determining a dominant side tendency, asymmetries of movement and in the pelvis’ capacity for stability. We continue with Single Leg Heel and Single Leg Toes.

We’re going to proceed with the Abdominal Work Block, where Karen will perform the Hundreds Prep and Coordination exercises. We will then sit up on the box for the Short Box Series. This series will bring in more of a 3-dimensional look at her spinal motions and many adjustments can be made, as the positioning makes it easy for hands on work from the instructor. I encourage slow movement and deep breathing, especially for Round About with its increased range of motion and difficulty factor.

The next Block is Hip Work. Karen executes the Frog, Circles Down and Up, Openings and Extended Frog Reverse. I then remove one strap and have her try leg extensions on the working side while the other leg is in tabletop position. This reveals any tendencies for hiking hips, pelvic instability and encourages her to really find anchoring and reach through her sit bones. This is repeated on the other side.

We continue onto Spinal Articulation with the Bottom Lift and Bottom Lift With Extension, paying particular attention to the symmetry of her spine and pelvis as she peels off the mat and returns to the mat, vertebrae by vertebrae. We return into the straps for Short Spine, which is a great continuation into finding the sensations in order to achieve symmetry and smoothness. Sometimes adding a thin pad onto the carriage, where she has less contact with the carriage, enables more sensation and tactile feedback.

Karen then sets up into Kneeling Lunge for the Stretches Block before starting the Knee Stretch Series for the Full Body Integration Block. We add the Down Stretch exercise to the Block, getting her back prepared for extension and stabilization later on. The Arm Work Block will include the Arms Sitting Series and careful attention to the spinal positioning, the symmetry of shoulders and the ease of the neck and shoulder area. We then kneel into Shoulder Push, with the goal of testing her sides for Shoulder
Push Single Arm. Here we can really focus on the individual sides and their respective needs.

Since Karen likes jumping, I encourage movement that brings lightness and a smile to the session and she lies back down on the carriage ready for the Leg Work Block with the Jumping Series. Here she has the ability of concentrating on something fun, that activates her legs while maintaining the feedback of back on carriage for an easy and relaxed spine.

Next we head to the Wunda Chair for the Lateral Flexion/Rotation Block. There she will perform the Side Stretch exercise. Here we will take our time and really feel the lengthening quality that can come through this lateral movement. The reach of the sit bones against the Wunda Chair to elevate the spine and bend with that up and over movement, or arc of the body. We will continue with the Basic Swan for the Back Extension Block, and bring particular focus to the smooth and symmetric back extension phase, while constantly encouraging lengthening and reaching in opposition. An image to mention: the shoulder blades gliding along the back like 2 bars of soap. Next is the Back Extension Single Arm, quite a bit tougher than Basic Swan, especially in order to maintain symmetry, and not begin any rotation or compensations. Here lengthening is still encouraged, but widening is also emphasized, in order to keep the body expansive, avoiding shrinking or hiking.

For the cool down and to check in with the spine, Karen performs a slow and controlled forward fold. When she is down low, she lets go of her arms, her head and goes for several deep breaths, allowing the spine to stretch out with gravity over her legs. The rolling back up and its abdominal support is also encouraged to be at a very slow pace, as it can really give a sense of realigning, and there is time to think about symmetry and sensations. We talk for a few moments about how she feels after the session and in comparison with before and she always responds with positivity.

For Karen these sessions are very personalized as no two scolioses are exactly the same. Pilates is therefore a great method for people with this condition as there is
much focus on the stretching and lengthening component, conditioning the body as a whole, the emphasis on working in a balanced, more symmetrical way, the ability to work individual sides and this great focus on the breath and how it affects everything within the ‘container’ of the body or internal sensations. Pilates can work with various tools to accommodate the discrepancies between sides of the body, the resistance of the machines offers a keener awareness of sensations and more feedback for the client. The instructor’s eye is very valuable as the client cannot always trust that they are placed correctly and with symmetry at all times, their proprioception suffers from years of living with an unbalanced spine. But this proprioception improves with time. The Pilates method can also be done at home, at work, or while traveling, so it is encouraged to give the client homework, so the work can continue when they are outside the studio and bring changes that are more constant and lasting.

In conclusion, the Pilates method in general is a great tool for someone with scoliosis. The BASI Block system in particular, with its progressive and evolving sequence brings a safe and effective path for the client. By bringing relaxation into the session, as well as deep and thorough breathing, the body is much more receptive to the movement and the demands on the body are met with less resistance, less of a tendency to go for instinctual reaction mode. This relaxation allows the overused muscles a chance to let go, the weak ones an opportunity to strengthen and the symmetry and balance to evolve more thoroughly. The patterns that have come about over the years have the chance to be undone, in order to find new more healthy movement pathways. Combined with the instructor’s guidance, the Pilates method and the BASI Block system become a team, to bring the client more self-awareness, the chance to be in a pain-free situation and the tools to make more progress on their own.
Bibliography

The definition of scoliosis, the figures, and parts of the anatomical description are sourced from:
http://www.eurospine.org