Overcoming Kinesiophobia Through Pilates:
A Self Case Study

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Abstract

Kinesiophobia is a disorder where a person believes that movement can cause more injury and pain. A constant cycle of pain, fear, disuse and depression can be a result of Kinesiophobia and it can slow the recovering process from injury.

After a major car accident in 2005, I underwent spine stabilization surgery and rehabilitation was a long, slow process, until I discovered pilates. Before discovering pilates, I had been stuck in a cycle of pain and fear that prevented me from fully recovering from my injury.

This case study will explore how I used a well-designed and progressive pilates program to practice mind-body work, control of movement, breathing, and proper muscle work in order to reduce fear of movement and overcome Kinesiophobia.
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Anatomical Descriptions

A cervical fracture is a break in the cervical (neck) region of the spine. The majority of fractures of the spinal column occur in the cervical spine because it is the most mobile portion of the spinal column, and understandably, the most vulnerable to injury. Although the lumbar (low back) region is most commonly injured during daily laborious activities, the neck is most likely to be injured during high-energy trauma such as motor vehicle accidents. In 2005, I sustained a C1 and C2 fracture of the cervical spine in a car accident. My pilates rehabilitation program was designed to help me overcome Kinesiophobia and to recover mentally and physically following my spine stabilization surgery.
The cervical spine contains 7 bones, called the cervical vertebrae. These bones are stacked on top of one another and linked by discs, ligaments, and muscles. The cervical spine is delicate - housing the spinal cord that sends messages from the brain to control all aspects of the body.

The spine serves to protect the spinal cord. The spinal cord serves as an information pathway between your brain and the peripheral nerves that serve the rest of your body. Everything in your body is controlled by your nervous system. The brain functions as the center of instinctive, emotional, and cognitive processes. Your experience of pain for example, is part biology, but it's also influenced by psychological factors.
Following an acute cervical spine injury, cervical spine stabilization surgery is intended to provide stability to the spine, promote healing, fusion, and allow early mobilization. One of the main restabilization surgical techniques is fusion. I underwent fusion surgery to restore the stability of my cervical spine in June 2005. Fusion is the bonding together of bones, usually with the aid of bone graft or a biological substance. Fusion stops motion between 2 vertebrae and provides long-term stabilization. It is very similar to natural fracture healing. The pictures below, show the fusion of my C1 & C2 vertebrae.
Stabilization procedures are some of the most successful spinal operations today. Many patients generally have rapid recovery and quickly return to activities of daily living with complete resolution of their vertebral pain. Some patients, however, will suffer from conditions like Kinesiophobia and/or chronic pain during the rehabilitation and recovery process. The fear of movement or Kinesiophobia, is rooted in the belief that pain is harmful and threatening.

Sufferers of Kinesiophobia tend to believe that the pain they are experiencing may worsen if they do exercises and certain movements. They start to decrease their physical activity which unfortunately causes even more problems like joint stiffness,
unnecessary muscle tension, supporting muscles weakness, etc. People suffering from Kinesiophobia are in a pain cycle and getting out of this cycle is very hard to do on their own.

Staying active is a critical component of pain treatment. Returning to normal movement is an important step in breaking the Kinesiophobia pain cycle. Pilates exercises can assist sufferers of Kinesiophobia in their efforts to rebuild normal movement and function and thus relieve pain. Pilates is a system of exercises which is designed to stretch, strengthen, and balance the whole body with an emphasis on breath, mindfulness, alignment, and coordinated, flowing movement. Practicing mindful movement with Pilates can bring about sense of freedom, body awareness and presence in the moment. Preparing the brain for movement is a small but important step
in treating Kinesiophobia. As a comprehensive movement system, Pilates can be individually tailored to meet overall fitness, therapeutic, and athletic goals.

"The mind when housed within a healthful body, possesses a glorious power."

Joseph Pilates. Movement is essential for life—from the cellular level to our muscles, bones, and joints. Pilates promotes healthy movement of all of the joints and muscles of the body in order to create balance and uniformity throughout. The central element of Pilates is to create a fusion of mind and body. The goal is to produce a union of mind and body.

**Case Study**

In 2005 I had fractured my C1 and C2 vertebrae in a car accident, which required spinal stabilization surgery. While the surgical goal of restoring stability to my spine was successful, traditional physical therapy had not been successful in reducing my physical and mental pain. Following spinal stabilization surgery, I fell into a cycle of fear and pain which prevented me from fully recovering mentally and physically.

Cervical spine pain sufferers often experience a Catch-22; movement is essential to healing, but movement hurts. It is easy to get stuck in a pain fear-of-movement cycle. Fear of pain also negatively affects neuro-muscle connection and muscle recruitment, so exercises may do more harm than good. However, movement heals and can play a crucial role in the treatment of cervical spine pain. That said, it really does matter what kind of exercises and instruction you practice during recovery. In an effort to break free of Kinesiophobia, I turned to Pilates at the recommendation of my physical therapist. In
my very first pilates session, I found the work and movements to be pain-free, gentle, and safe.

In practicing pilates, I learned to be mindful of my movements. While engaging in pilates exercises, I found that when my mind and body connected, there was restoration of confidence in movement. While performing pilates exercises, to develop the mind-body connection, I had to consciously focus my attention to the finer-details of what I was doing. When we use mind control over muscles, we are successfully “working the Pilates system.” Joseph Pilates. What begins as movement and exercise with conscious control, shifts with practice to be a comfortable and correct way of using our bodies for everything we do. In my pilates practice, the element of ‘comfort’ paved the way for breaking free from the fear associated with movement.

As Rael Isacowitz, founder of BASI Pilates, describes, “The mind and body share a nourishing, symbiotic relationship that brings about profound and at times inexplicable results. This mind body relationship lies at the heart of pilates.” I was fortunate to have found a pilates instructor that was trained in Basi Pilates. I immediately identified with the principles embodied by the Basi Pilates Method. With each session, my instructor ingrained in me the importance of proper breathing, control, precision, awareness, and mental clarity. With each session, the movements seemed to heal my body physically and mentally.

The below program was designed specifically for me by my Basi Pilates Instructor in September of 2005. This program was designed shortly after my spine stabilization surgery and after traditional physical therapy failed to help me overcome
Kinesiophobia. The goal of my program was to achieve harmony within, build a greater sense of body awareness, concentration, and connection. Simultaneously, control, precision, and a deeper understanding of breath were also goals of my program. Striving for physical and psychological strength was essential for my overall well-being and ultimately ridding myself of my fear of pain and movement.

Setting the stage for relaxation and calm were essential in executing the exercises in my pilates program. Beginning my program with a Roll Down was the first step. A roll down allowed my instructor to assess not just my posture and alignment but allowed for an assessment of my body in the present. The roll down both literally and physically (verbally and nonverbally) opened the door for communication as to how my body was feeling in the moment, on that day. My instructor encouraged communication as part of my pilates program. This element of communication put my anxiety and fears about movement at ease. Moreover, the roll down was the first step to being aware of what my body was telling me. According to my pilates instructor and Rael Isacowitz, the roll down should be used as a tool for assessment and as a means to focus the mind and the body. Of significance importance, the roll down as part of my program would be used to improve the strength and control of my abdominals and back extensors which were vital to rehabilitating my neck injury.

We then moved to the Fundamental Warm up on the Mat: Pelvic Curl, Supine Twist, Chest Lift, and Chest Lift with Rotation. The Warm Up was used as a means to prepare my body for the work ahead of me, it encouraged me to engage my body physically and mentally. The Warm Up set the tone to coordinate the body, mind, and
spirit throughout the program. This tone was vital in creating an environment where I felt safe to freely move, without fear.

My pilates program was primarily executed on the Reformer. According to Rael Isacowitz, the Reformer is the most user friendly. The next exercise in my program was Foot Work. Performing Foot Work on the Reformer placed my body in a comfortable and non-weight bearing supine position, and facilitated balanced muscle recruitment. Again Foot Work opened the door for more communication with my instructor regarding my flexibility, strength, alignment, stabilization, asymmetries, and movement patterns.

The next Exercise in my pilates program was Abdominal Work with the Hundred Prep performed on the Reformer. The Hundred Prep was aimed at focusing and developing my abdominal muscles. The goal of the Hundred Prep as part of my program was to further develop pelvic-lumbar stabilization and strengthen my abdominal muscles and back extensors. From there, we progressed to Hip Work, with the Supine Leg Series on the Reformer: Frog, Circles Down, Circles Up, and Openings. The goal of this exercise was to focus on the control of my pelvic-lumbar region, strengthen my hip adductors, and develop hip adductor flexibility.

Because my spinal injury was located on the cervical area of my spine, specifically, the C1 and C2 of my vertebrae, my instructor was able to implement Spinal Articulation as part of my Pilates program with the Bottom Lift exercise. Working with my spine was one of the first steps in overcoming my fear of movement. In the words of Rael Isacowitz, the spine is the central pillar of the body not only in terms of bone structure but also in terms of muscular support and neurological well-being. Feeling
comfortable to roll / curve and unroll my spine was a major step in restoring and rehabilitating my spine. Bottom lift was dedicated to developing not only spinal articulation but also developing control of my hip extensors. Bottom Lift acted as means to flow through movement of my spine in a controlled way that promoted a keen sense of awareness of my mind and body as a whole.

For Stretching my program typically included either of the following: Standing Lunge on the Reformer or Stretching on the Ladder Barrel, Hamstring Stretch, Gluteal Stretch, Adductor Stretch, and Hip Flexor Stretch. Stretching is key for optimal function and movement. Flexibility and range of motion were key components to my program. Deeply stretching my muscles provided both a focused and meditative state where I was able to take deep long breaths, relax, and achieve a sense of mind body connection.

After stretching we shifted focus to Arms; starting with Arms Supine Series on the Reformer. With Arm Work, as per Rael Isacowitz, the notion is that one are of the body is being stabilized while the other are moves freely. The Arms Supine Series required that I engage and stabilize the core. This series was particularly valuable to me as it placed my body in a safe, comfortable, and non-weight bearing position. The objectives of this series of exercises included: strengthening my shoulder extensors and adductors, strengthen, elbow extensors, develop trunk and scapular stabilization, and improve shoulder mobility. Furthermore, to feel my entire spine imprinted on the Reformer proved to provide me with the means to connect mind and body, to focus the
work in a safe place. Once again, setting the stage for a place of ease and calm was imperative to helping me overcome my fear of movement.

   Leg work performed on the Wunda Chair came next with Leg Press Standing. The function of this exercise in my program was to focus on imbalance and work on muscle recruitment, and alignment of my body. This work required that I be aware, precise, initiate control, and concentrate. All such factors were factors in my realization that the mind controls the body.

   Lastly, we focused on Lateral Flexion and Rotation with Mermaid and Back Extension with Breaststroke Prep on the Reformer. Lateral Flexion work with Mermaid on the Reformer provide the means for me to work on imbalances brought on by my spinal injury. As stated by Rael Isacowitz, lateral flexion and rotation are important in both everyday activities and athletic pursuits. Without spinal lateral flexion and rotation, abdominals are not trained to their full capacity. Mermaid paved the way for developing oblique abdominal control, should mobility and stability, and most importantly, increasing spinal mobility. Strengthening and increasing my abdominal strength was key to rehabilitating my spine injury and to achieving spine stabilization.

   The last exercise in my program was Back Extension work with Breaststroke Prep, starting out with the variation where the trunk is not lifted in order to protect my cervical spine injury. The deep muscles of the back are responsible for spine stabilization. My instructor promoted a focus on stabilizing the lower back, and concentrating the movement in the mid and upper back. My goals were to strengthen my back extensors, develop scapular stabilization, and develop abdominal control.
Breath was a key component in learning and executing Breaststroke. Breath work and using deep inhalations, helped me to focus and fall into meditative place where I was able to engage the mind and body to accomplish the exercise. Breaststroke proved to be an appropriate exercise given my fear of movement and injury. The exercise used relatively light resistance and has a large base of support making the work feel safe and user friendly. Finally, the Roll Down was used to conclude to our program. Concluding with the Roll Down encouraged me to refocus my mind and observe and reflect on how my body and mind felt after my session.

<table>
<thead>
<tr>
<th>BASI Block</th>
<th>Exercise</th>
<th>Reason</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Warm Up</td>
<td>Roll Down</td>
<td>Develop Spinal Articulation of the Spine. Improve control of the abs and back extensors. Stretch the back extensors. Align the body and focus the mind.</td>
</tr>
<tr>
<td>Warm Up</td>
<td>Fundamental Mat</td>
<td>Prepare the body for work both physically and mentally.</td>
</tr>
<tr>
<td>Foot Work</td>
<td>Foot Work on the Reformer</td>
<td>Warm body in preparation for session and training for the lower limbs. Focus on the positioning of the pelvis and spine.</td>
</tr>
<tr>
<td>Abdominal Work</td>
<td>Hundred Prep</td>
<td>Focus on developing the abdominal muscles. Develop pelvic lumbar stabilization</td>
</tr>
<tr>
<td>Hip Work</td>
<td>Supine Leg Series</td>
<td>Focus on stability, the control of hip joint, and develop pelvic lumbar stabilization.</td>
</tr>
<tr>
<td>Spinal Articulation</td>
<td>Bottom Lift</td>
<td>Develop &amp; improve spinal mobility and articulation, develop hip extensor control and control of the trunk muscles.</td>
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<tr>
<td>Stretches</td>
<td>Standing Lunge Or Stretching on the Ladder Barrel</td>
<td>Achieve relaxation of the muscles being stretched and the body in general. Increase hip flexor and hamstring flexibility. Improve back extensor control. Develop pelvic lumbar stabilization.</td>
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<tr>
<td>Leg Work</td>
<td>Standing Leg Press on the Wunda Chair</td>
<td>Emphasize hip abductors and hip adductors. Improve functional movement of leg, improve balance, align pelvis and trunk, develop hip &amp; knee extensor control.</td>
</tr>
<tr>
<td>Lateral Flexion and Rotation</td>
<td>Mermaid on the Reformer</td>
<td>Develop functional and healthy movement of the spine. Increase spinal mobility. Develop oblique abdominal control. Enhance shoulder mobility and stability.</td>
</tr>
<tr>
<td>Back Extension</td>
<td>Breaststroke Prep</td>
<td>Strengthen back extensors, develop scapular stabilization, and develop abdominal control.</td>
</tr>
<tr>
<td>Conclusion</td>
<td>Roll Down</td>
<td>Refocus mind and body. Mobilize the spine and coordinate breath and movement. Observe and reflect on how the body and mind feel.</td>
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</table>
As my confidence in movement increased, my pilates instructor progressed my program with the use of assists and modifications without compromising the integrity of the exercises. My BASI instructor continued to creatively adapt to my needs (injury, fear of movement) and ultimately, addressed my body and mind as a whole. My instructor was able to achieve this by consistently creating a safe teaching environment, providing clear instruction, openly communicating with me at all times, and in her ability to show me empathy and patience. Together, we worked through my Kinesiophobia by helping me realize the power of connecting the mind and body to execute the work.

**Conclusion**

Pilates is a mind and body technique. As Rael Isacowitz states, “the ultimate goal in the practice of pilates is complete and total well-being.” The program created for me by my Basi instructor helped me to realize the power of the mind. The exercises in my program promoted natural movement and a means to re-educated my neuromuscular system. The program created and tailored for me by my Basi instructor, fostered a calm and meditative environment which made movement feel safe and achievable. Realizing and utilizing the powers of my mind were key in helping me to overcome my fear of pain and in turn rehabilitate from my spinal injury. With the proper instruction, Pilates can help those who are struggling with mental and or physical pain, with a means to tap into, and coordinate the body, mind, and spirit in order to achieve total health, inside and out.
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