The Way Forward:
Pilates After Spinal Surgery

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Abstract

At some point in their lives, most people will experience back pain. It may be nothing more than a dull ache or it could be debilitating pain. It may be cervical or in the lumbar area. The prognosis may be a simple muscle strain requiring rest or a structural anomaly requiring surgery. The various problems and solutions most likely fall somewhere in-between.

In this case, the client, Jane, suffered a severe sports injury that left her with degenerative and ruptured discs in the L4-S1 region of the lumbar spine.

After years of surgical and non-surgical interventions, Jane is trying Pilates to gain strength, flexibility, but most importantly, functional mobility.

The following BASI conditioning program is to be considered a roadmap for a way forward.
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The human vertebral column is made up of 24 vertebrae: 7 cervical in the neck, 12 thoracic mid-back, 5 lumbar in the low back and concluding with 4 to 5 fused sacral segments and coccyx.

There are 4 natural curves in the vertebral column. The cervical and lumbar regions bend anteriorly to form lordotic curves while the thoracic and sacral sections bend posteriorly forming kyphotic curves.

In between each vertebra is a disc that acts as a shock-absorber while providing stability to the moving parts.
The abdominal muscle group includes the Rectus Abdominis, External and Internal Obliques and the Transverse Abdominis. These muscles support the lower back and help to alleviate pressure from the spine. They work together to form a girdle to stabilize and support the entire region.
The Erector Spinae Group laterally flex and extend the vertebral column and support the upper spine. These muscles, along with the abdominals, should be strengthened for an effective back program.

The Multifidi are deep, short muscles that help link the vertebrae together. They rotate and extend the back and are important for spinal stabilization.
Spinal surgery is a sticky wicket. Back pain/injuries, along with resulting surgeries are as individual as snowflakes. The only constant is that lifestyles are never the same afterwards. At the very least, a patient after spinal surgery is more cautious in everything he or she does than before.

In this study, we have a middle aged- woman we’ll call Jane. In her late thirties, after almost a decade of practicing the sport of Tae Kwon Do and attaining her First Degree Black Belt, Jane got hurt. She was “swept” from behind landing very hard on her gluteal region without anything to break her fall. She knew immediately damage had been done.

The anatomical pictures depict that the lumbar vertebrae has larger bones as it was designed to support the weight of the upper torso. The discs between the vertebrae allow for flexibility and movement. They help transmit stress from one vertebra to the next. As in Jane’s case, when a disc is injured by trauma, the resulting injury and inflammation cause the disc to lose water and therefore height. With a loss of height, the affected vertebra becomes structurally unstable causing additional stress on joints and nerves leading to spasms, pain and immobility. That little snowflake mentioned earlier will soon turn into a massive snowball that will roll right over your normal way of life.

A bulging disc presses on the nerve of the spine creating anything from a tingling sensation to severe pain, numbing and weakness in the low back including the buttock and down the leg. When a disc ruptures, you’ll know it. The pain will be so intense, it will literally bring you to your knees and you’ll end up in the emergency room with a morphine drip just to take the edge off. After a course of conservative options, surgery usually follows.
In 1997, Jane had a micro-discectomy that removed the extruding material from the ruptured disc, therefore relieving pressure from the spinal cord. She retired from Tae Kwon Do and after a modest amount of recovery time, continued with an active, albeit low-impact lifestyle.

Fast forward to the fall of 2011 when familiar, painful sensations began to occur. It’s a known fact that up to 10% of people who undergo the relatively common discectomy procedure will have to have a repeat surgery, often including fusions. Unfortunately, there is a degenerative domino effect that occurs in the spine after injury, trauma or surgery. Since Jane’s L5, S1 vertebrae fused naturally after her first surgery, more load was put on vertebrae L4, L5 subjecting them to massive wear. Activities that were once enjoyable such as golf, yoga and bike riding became intolerable. Although Jane was only 53, she felt 83.

Before any competent doctor will agree to perform surgery, a series of nonsurgical options must be tried and evaluated first. Treatments for Jane that gave no relief included
physical therapy, chiropractic manipulations, epidural cortisone injections, nerve cauterizations and a new mattress.

Treatments that worsened Jane’s condition included physical therapy with traction, pressure point message and Rolfing.

Treatments that gave only short-term relief were hot baths, light massage, rest, acupuncture and drugs that included anti-inflammatories, muscle relaxants and narcotics.

After almost two years, three different doctors, various nonsurgical treatments, a modified lifestyle, another herniated disc with a trip to the ER, it was time for another surgery.

In August of 2013, Jane had a posterior laminectomy with decompression and instrumentation (rods and screws) at L4, L5. The surgery was more invasive, the scar bigger and the recovery time much longer and harder.
Joseph Pilates meant for his exercises to be rehabilitative. It was after all, when he was interned during World War I, that he attached springs to the bedposts to first help wounded soldiers recover from their injuries.

When Jane gave up yoga because there was too much twisting and torqueing and it was too stressful for her fragile back, she decided to give Pilates a try. She had done some research and was impressed with the fact that many of the fundamental exercises kept a neutral spine. She found that not only is Pilates gentle on the joints but it works to develop the small muscles that stabilize and support those joints and the surrounding larger “mover” muscles. As the small stabilizer muscles become stronger, they become acclimated to help carry the stress of movement, thus, giving the larger, oversized muscles a break.

Jane’s lumbar fusion now limits her range of motion. Her center of gravity has also shifted. Her lower back doesn’t curve. She compares it to having a 2 x 4 strapped to her lumbar area. Because of these limitations, hyperextension or any excessive loading in the lower back area is contraindicated. Spinal articulation with any sort of rocking is almost impossible for Jane. It’s common for back muscles such as the Latissimus Dorsi and the Erector Spinae group to be tight post surgery along with the Quadratus Lumborum, Obliques and hip flexors and extensors. Considering it can take a year or more for bones to fuse completely together, we will start our Pilates program slowly with weekly evaluations on a BASI Block System Chart that will include notes. We will also follow the maxim of Jane’s doctor who counsels her that if it hurts while performing the exercise, stop immediately but if it hurts the next day, it’s probably OK.
For our program to be successful, Jane must be consistent in her Pilates practice, she must commit to at least two days a week, three days would be better. Her goals are to strengthen her core muscles to support her back, greater flexibility, reduced or no pain and an overall sense of wellness, all of which Pilates facilitates so well.

To start Jane’s program, warm-up exercises are essential. Slow and steady is the key. Warm-ups will also get Jane more familiar with correct body positioning and alignment such as neutral spine and pelvis, lateral breathing and stabilizing targeted muscles.

Warm-ups on the mat will start with a Roll Down to assess posture and alignment since Jane has no issues forward flexing. We will move onto Pelvic Curls, Spine Twist Supine, Chest Lift and Chest Lift with Rotations. As sessions continue, I will add Single Leg Lifts/Changes, Leg Circles and Hundred Prep. As stated in the BASI Block System, there will not be any Spinal Articulation or Full Body Integration for at least 10 sessions, maybe more depending on how Jane functions.

We will continue on to the Reformer with Foot Work. According to Bernie Nelson, the owner of Body and Core Pilates in Palm Beach, Florida, the Pilates foot series enable a client to work their legs without putting strain on their backs. Also, as we work on Single Leg Series, we will address muscle imbalance and weakness inherent after surgery.

Abdominal work might entail Hundred Prep on the mat or Reformer or Standing Pike/Standing Pike Reverse on the Wunda Chair. We will move on to the hips starting with the Reformer Supine Leg Series graduating to the Cadillac Basic Leg Springs and Cadillac Supine Single Leg Series.

The Block will continue with Standing Lunge for stretches and the Supine Arm Series. The Leg Block will utilize the Wunda Chair for Standing Leg Press or the Magic Circle. For
Lateral Flexion, nothing feels better than Side Stretch on the Wunda Chair or we might go back to the mat for Side Lifts, graduating to the Reformer for Mermaid. Back Extension will continue on the mat or include The Breast Stroke Prep on Reformer, but we will start with the variation where the trunk is not lifted. The Roll Down will conclude our first workout.

To continue the Pilates repertoire with Jane, communication and evaluation are very important. For the program to be effective, exercises should gradually evolve. Together, we will work on her limitations using modifications and assists as needed without changing the essence of the exercises.

In conclusion, hopefully, Jane will realize as many other Pilates converts have, that the program Joseph Pilates invented is about quality over quantity. These blocks of exercises, that at first seem gentle, when performed correctly, will be more beneficial to her spine, body and spirit than others that involve more repetitions and vigorous high-impact moves. With Pilates, you can move forward after spinal surgery regaining strength, balance and an active lifestyle.
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### Reformer Fund Warm Up
- Roll Down
- Pelvic Curl
- Spinal Twist Sup Chest Lift/Rot

### Foot Work Series
- Par. H/T
- V Pos T
- Open V H/T
- Calf
- Raise/Prance
- Single Leg H/T Prehensile

### Abs
- Hundred Prep
- WC-Standing Pike Stding Pike Rev

### Hips Series
- Frog Circles
- Up/Down Openings
- C Basic Leg S-Frog, Circles D/U, Walking, Bicycle

### Spinal Art.
- Standing Lunge

### Stretches 1

### Full Body 1

### Arms Series
- Supine: Ext, Add, Circles
- Up/Down Triceps
- Magic Circle

### Legs 1
- WC-Standing Leg Press
- Magic Circle

### Lateral Flex/Rot
- WC-Side Stretch
- M-Side Lifts
- Mermaid

### Back Ext. 1/2
- Breast Stroke Prep
- M-Back Ext
Bibliography


URL: www.smoothfm.com.au
