

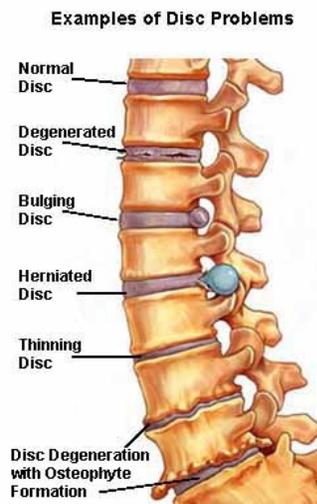
## Herniated Disc: Implications and suggestions for treatment by Anat Price

### A case study

Ann (not her real name) came to see me about a year ago, a few months after surgery on her spine for a severe herniated disc in L5-S1 vertebrae. Her injury happened while she was traveling by car. Ann bent down to retrieve something that had fallen between the two front seats and felt a sharp pain in her back. The pain got worse and soon she began losing sensation in some areas of the left side of her body. An urgent examination revealed that a disc in her spine had slipped. A large part of the disc had fallen along the spine and pressed against the nerve bundle, causing her to lose all feeling in her left leg and the left half of her perineum.

For fear of **Cauda Equine Syndrome** (CES), it was decided to operate her urgently. An implant was inserted surgically in her back to replace the disc. Cauda Equine is a severe neurological syndrome affecting the nerves that serve the lower back and legs. It gets its Latin name from the resemblance of the nerve bundles at the edge of the spinal cord to a horse's tail. Symptoms include: weakness of the legs, numbness in the groin area and loss of bladder and bowel control. It requires urgent surgery because the nerves are thin and highly sensitive and, if not released, might be irreversibly damaged.<sup>1</sup>

A herniated disc has sustained severe damage causing some of its nuclear gelatin fluid to protrude, putting pressure on neural structures,<sup>2</sup> as illustrated on the right:



After a month of lying in bed and three months of rehabilitation with physiotherapy, Ann gradually began to return to activity. When we first met, every movement was making her feel stiff and sore. She had little confidence in her body. Her balance was precarious and she still had no sensation in her left leg, although according to her doctors, feeling should have returned by then, and this led to tremendous stress. Ann suffered from a weak pelvic floor with no feeling when expelling urine and faeces. As

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<sup>1</sup> From: [www.medipedia.co.il](http://www.medipedia.co.il) and [www.pain.co.il](http://www.pain.co.il).

<sup>2</sup> From "Posture and Movement" by Dr. Gil Solberg Page 81

someone who was previously very active, with excellent physical fitness, she felt great disappointment in her body and fear that she might never get better.

At our first meeting, we put together a preliminary list of goals for the yoga classes:

- To restore **flexibility**, especially in her lower back, where the implant made her feel what she described as "a block".
- To **increase** her range of movement
- **Strengthen** in general and in particular her left leg and back.
- Learn to move correctly without **support**.
- Identify through trial and error what her correct **posture** should be.

After several sessions getting to know the limitations and needs of her body, we added new goals:

- Learning to **breathe**. Her breath was shallow and inadequate and was mainly through the mouth and into the thorax.
- **Sensing the digestive system and improving bowel movement**. It turned out that Ann suffered from severe constipation, and lacked the impulse to pass water and faeces.
- Learning to **trust** her body anew.

The sessions were based on the **seven Vijnana principles**; on the knowledge and experience I gained studying Yoga for Women with Mira Arzi Padan, and on experiential anatomy in yoga therapy learned from Michal Yarkoni. Combining these techniques enabled me to approach Ann's treatment with the confidence of having a range of tools at my disposal to relate to her various problems and to alleviate many of her symptoms.

### **Applying the principles of Vijnana Yoga in treating a case of herniated disc**

**Breathing.** We started by observing the breath, becoming familiar with the organs of breathing and feeling the respiratory action through them.

As Ann had shallow, rapid breath only in her chest, we examined together the benefits of deep breathing: stress reduction, massaging the digestive system, creating a slight motion in the rigid lumbar region, activating the pelvic floor and improving blood flow to it. Getting acquainted with her pelvic floor and activating it through breathing would help her acquire better control of her bowel muscles. Synchronizing her breathing with activating her pelvic floor would support her spine better and improve her general posture.

We practiced different types of breathing, sometimes with the touch of my hands or hers on the relevant part of her body. Later we worked on synchronizing very slow breathing movements.

Using Analoma Viloma with the help of my hands, she learned to extend and delay exhalation–inhalation and develop an awareness of those parts of her back and later her front and other parts of her body that had been denied to her since her surgery.

The Vayus were very significant for her. She felt they gave her a vertical and central support "in place of" her damaged spine. Vayu practice also helped her experience expansion where there was tightness. She started practicing paying attention to her breathing at different times and in different situations throughout the day, becoming aware of her breath and the ways it can be used for support.

In the first few months, I did not teach Ann Kapalabhati as I was worried that exhalation would create an internal abdominal pressure pushing her pelvic floor downwards and putting pressure on her vertebrae.

**Relaxation.** Relaxation was, and still is, one of the hardest things for her. Beyond having to deal with the stiffness and contraction in her back, Ann is under constant pressure at work, and is the mother of 3 children. Feeling that she was not recovering as the doctors expected added to the stress and tension she already felt.

We practiced different relaxation techniques, primarily through breathing and later using guided imagery. I made sure to practice poses from the previous class at the start of the next one, so that she could try to relax in familiar ones, with no "surprises" that might take her back to a state of stress. In this way we released her body and mind from the kind of stress that might arise in anyone's practice, especially people who feel the limitations of their body when trying new poses. Sometimes I showed her, at the end of a class, the poses we were going to practice in the next one, so that she could think about them and imagine herself performing them, as in the principle of Intent. It helped her greatly not to be taken by surprise in the next lesson, to feel confident in tackling new poses, and to be able to let go inside.

Later, as her self-confidence grew, we also practiced relaxing in new poses. She noticed that when she was more relaxed she had less pain and more flexibility in her movements. This recognition strengthened the principle of Intent and encouraged her to apply the various breathing and relaxation techniques in her everyday life.

**Rooting.** Ann had such limited confidence in her body, feeling like a leaf "blowing in the wind" that the experience of Rooting was very significant for her. Together we looked for places where Ann could let herself go into the pull of gravity and then root. This gave her support in standing poses and lying down poses. The mantra she kept in mind was **support precedes movement**. Lying on her back, Ann observed the different parts of her body touching the mat and, as she exhaled, she let them be heavy, loose and more present.

With time, Ann noticed that when she let her body sink into the mat, it was not limp but on the contrary, more alert, as if getting power from the ground. She experienced rooting as she pressed her foot into the mat against the ground. She felt the small changes that rooting produced in her body.

Later we sat opposite each other on chairs. I fitted hers with a back-rest to support her back. We pressed our feet against a stool that was adjusted to the level of the legs. We pressed our hands against our inner thighs, front thighs etc. Ann also sat on a physio ball, where to be stable she had to activate her inner postural muscles. Sitting on such a ball encourages rooting while finding balance and moving the pelvis. Along with feeling that rooting was deepening, Ann also began to feel her inner stabilizing muscles, the Mula bandha and the Uddiyana bandha.

Gradually, we progressed to standing poses, first with the support of a wall, and then, when Ann felt stable enough as she slowly regained her balance, without. Ann feels that Rooting makes her more connected to the world, more stable and stronger, receiving support and trusting her body again.

After practicing Rooting and Relaxation for some time, we came naturally to the principles of Connection, Expansion, Intent and Quieting the Mind, which includes the practice of sitting.

**Connection and Expansion.** These were practiced together, since there is no expansion without connection. For Ann this practice was very significant, especially when she felt that her vertebrae “collapsed” on each other, with no feeling of space between them. She succeeded, using the principles, in feeling her body elongate and expand from an internal connection. Along with Rooting and Relaxation, these principles have helped her feel supported from within, stable, strong, breathing and alive.

We applied the experience of connection to the internal organs too and to the front part of her body, which she had not been conscious of, since her injury. Learning about internal anatomy, visualizing the fullness of the internal organs and recognizing the volume they occupy, developed her awareness of the stability of the skeleton. Using the softness of the internal organs as a guide allowed movement to be soft and flexible.

**Movement.** For the first few months her mobility was minimal. We focused mainly on gentle movements to soften her lower back, her shoulders and her hip joints, to stretch her legs and slowly open her very tight chest. We gradually moved on to gentle postures that elongate and strengthen the muscles. In each lesson we only practiced a few poses, imagining each one before practicing it. Sometimes she received “homework” to imagine the poses for the next lesson. As we imagined and then practiced a pose, we tested what happened with her **breath**, what happened in her **body**, what was going on in her **mind**.

An example of a sequence in a lesson during the first month:

1. Lying down, with the feet on the mat or raising the knees according to her ability, observing the body and its contact with the mat.
2. Observing the breath by placing the palm of one hand on the abdomen with the other resting on the chest. Watching what happens in the abdomen and the chest on inhalation and exhalation.
3. Extending the exhalation with the sound "sssssss."
4. During exhalation, rooting the right foot into the mat, letting the right pelvis roll a little and letting it drop down with inhalation. Repeating on the left. Repeating the sequence several times. Being aware of the pelvis and waist against the mat.
5. Rooting with both feet simultaneously against the floor without lifting the pelvis or the waist and synchronizing with the breathing. Long exhalation while making the “sss” sound. Rooting the feet and watching what happens to the legs, the pelvic floor, the lower abdomen, the waist and so on.
6. On hands and knees, making circles with the pelvis to release stiffness in the lower back.
7. On hands and knees, rooting the hands, collecting the transverse abdominal muscles in, and the pelvic floor. Stretching one leg back, fingers on the mat, moving the heel down to the mat.

8. Slow and gradual transition to standing. The hands support the body by leaning into and pushing against a chair. Knees and shins rest on the mat in a kind of "on all fours" position. One leg is released and the foot placed on the mat. Rooting with this foot, the body weight transfers to it, so the other leg can be released and the other foot put on the mat. Now this is a sort of a crouch near a chair and supported by it. Going all the way up into standing needs to be done slowly, step by step, still using the chair-rest. A few moments of standing, paying attention to the feet and the weight distribution. When standing, shifting the weight from one foot to the other, slowly.
9. Moving the pelvis and releasing it with circles and figure of eight movements, while making the sounds ("mmmm" "Ahhh" "zzz") in a deep tone that reaches the pelvis. The freedom of movement in the pelvis and back should be checked before making the movements and the sounds, and again afterwards.
10. Finishing with tadasana. Observing the feeling of the entire body, from feet to head. Deep breathing with hands resting in Namaste on the chest.

An example of a sequence of lessons after 4 months:

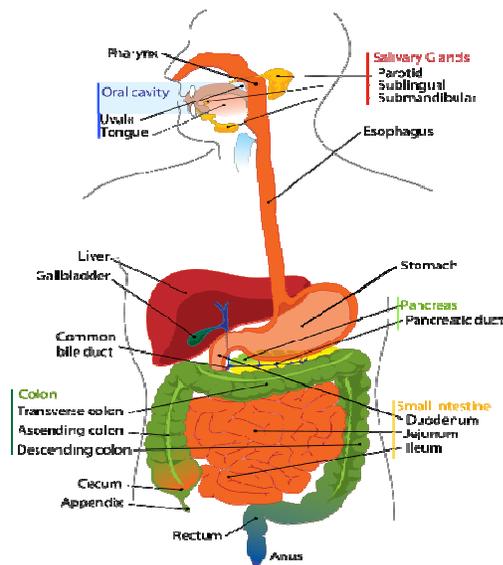
1. Lying down, relaxing the body into the mat.
  2. Breathing the internal Vayus. Directing attention to the central line of the body that can be felt in this practice.
  3. Ujjayi breathing along the central line created by the Vayus, Breathing along the spine caresses it from inside.
  4. Hugging the knees and swinging from side to side.
  5. An exercise to strengthen the abdomen: stretch the legs out on exhalation, one leg at a time. Root one foot on the mat to support the body. Observe the lower back, note how the back is placed on the mat. Is it by muscular effort in the back or by the back filling with breath? In the initial stages, until there is a feeling of working the abdomen, the leg is close to the body. Later, the foot can go further out, until the foot touches the floor. The knee is kept bent.
  6. Transfer to all fours. Go up on an exhalation into Downward Dog, making the sound "sssss". Go down again. Inhale, then exhale and go up again while producing the same sound.
  7. Transfer to standing. Tree Pose by a wall.
  8. Chaturanga. Standing at arm's length from a wall, with the hands on the wall. Exhale, bend the elbows bringing the entire body close to the wall and then taking the body back to standing. Both movements are done while exhaling and paying attention to the rooting of the arms and legs and the use of other stabilizing muscles. This pose is effective for strengthening the abdomen, the torso and the extensor muscles of the spine.
  9. Standing with the feet hip width apart, knees relaxed. Stretching the arms, releasing the shoulder joints and breathing into the shoulder blades while doing just the arm movements of Gomukhasna / Garudasana.
  10. Finishing with Tadasana.
- In the first months of practice, we ended each class standing, so as not to burden her with transitions at the end of the lesson.

After several months, we added other exercises such as:

- Lying face down, doing poses for strengthening and elongating the back: Salabhasanas with different variations, emphasizing support, rooting, relaxation, elongation in two directions, proper rest, short durations at first and longer durations later.
- Cat pose: arching and then rounding the back and synchronizing these two movements with the breath. These two movements were practiced later, as in the beginning any rounding movement, even the most delicate, was painful. After several months of practice, as her muscles softened and her hamstrings and back muscles elongated and generally she trusted her body more, gentle arching and rounding in rhythm with her breathing became possible. We were strict about not contracting the space between her vertebrae, bearing in mind that initially her muscles around the damaged disc were very rigid, the body's defense for preventing further pressure on the injured spot.

### The digestive system

When we got to know each other and trust in the therapeutic process had been established, we addressed her worries about her digestive system. Someone suffering persistently from irregularity of their bowel movements revolves around the issue all day long: counting the days between motions; feeling pain, bloating and heaviness in the abdomen as the days pass, with tension building up and re-activating the stress cycle, which in turn affects the digestive system. High stress levels mean the sympathetic nervous system is more active, routing the body's energy to organs related to the Fight / Flight / Freeze mechanism by,



for example, increasing the blood flow to the leg and arm muscles, increasing the heart rate, sharpening the senses etc. This, in turn, reduces the activity of the parasympathetic nervous system, responsible for the gastrointestinal tract. Alongside balancing the nervous system through asana practice and pranayama, we focused on various aspects of the digestive system.

For example, in the large intestine, where the final absorption of fluids and salts from digested food takes place, and waste is consolidated into stool, the stool moves by peristalsis of the bowel to the anus. These contractions by involuntary muscles are controlled by the autonomic nervous system.

I followed the recommendations of a specialized pelvic floor physiotherapist and advised Ann to foster new habits for evacuation such as going to the toilet at regular times, keeping her back upright when sitting on the toilet seat, putting her feet on a stool where she could root and push on exhalation. At the same time we also worked with experiential anatomy and guided imagery in relation to the large intestine.

For example:

- Together we looked at pictures in an anatomy atlas and discussed the function of the intestine.
- I massaged her along her colon which felt very tense and stiff, precisely on the right, uninjured side. Ann felt this was due to the extra load on the right side, the “strong” side.
- Stimulation of the **vagus** nerve. One of the main nerves of the parasympathetic system, this originates from the brain and innervates the digestive system, among others. Full diaphragmatic breathing has the effect of massaging the internal organs, so is one way to stimulate the digestive system. When the vagus is stimulated, the parasympathetic system relaxes and calms the body and strengthens the vitality of the digestive system.
- Understanding that the movements of her gastrointestinal tract carried on regardless inside her body, even in the rigid area around the herniated disc, made her feel softer and more flexible, allowing her to release the waste with less effort.

Practicing the Bandhas created a sense of vitality, tone and flow to the internal organs. A year later, when her body and her energy had strengthened, we also practiced gentle Nauli. Direct discussion of the large intestine and the opportunity to talk about things that many people feel are better left unsaid, plus the intimate and supportive framework between us, gave her a kind of communication with her bowels. She gained a feeling of control and of having some influence on her digestion.

### **Balance between the left side and the right side**

After her body strengthened significantly, Ann noticed that the left side was still weaker. Observation revealed that she had hardly any sensation of touch along the back of her left leg. It worked, but had no feeling. Feeling so conscious of that side greatly disturbed her and hindered the process of strengthening it.

We started working on this issue from several directions:

1. Ann observed me doing a pose that worked the left leg, and then did the pose herself. Touching the leg muscles as they worked, both mine and hers, raised awareness of muscle movement. Previously she did not believe that anything was “going on” there because she could not feel it. After several sessions working like this, she developed clearer sensations and greater confidence in herself and her leg. The idea for this practice comes from the concept of “**mirror neurons**” that operate both when a person is doing something and when she observes someone else performing the same action. These neurons translate instantly from visual to motor and are probably responsible for learning by imitation in humans and animals. After several months of meticulous practice, Ann reported a slight increase in sensation and in touch.
2. **Removing thoughts – by the cultivation of the opposite.** (Yoga Sutras of Patanjali, 2.33, translated by Orit Sen-Gupta). When someone’s body has sustained an injury, her focus is naturally drawn to the injured side. This is a natural and healthy physiological survival mechanism. We can, however, choose to return to the calmness of the center. Is it possible to feel a quiet, balanced and

neutral sensation along the midline? Or is it possible to focus on a place where there is a clear sensation and then let it "trickle down" to the place where there is no sensation at all? Is it possible to find some continuity rather than a sharp transition from "there is" (sensation) to "there isn't" (sensation)? Here, too, the various breathing exercises came to our aid, especially being able to focus not just on one place, but rather to expand from it to nearby areas.

3. Ann's back clearly had one side longer than the other. After practicing asanas for releasing joints and lengthening muscles, even asanas as simple as moving her arms and pelvis drawing gently the figure eight, she felt more balanced and her right and left sides are now more even. Naturally, this physical sensation also affected her self-confidence and peace of mind. Because she achieved a feeling of peace and balance from this practice, Ann practices at home when she feels the need.
4. We tackled the issue from another angle by looking at different **developmental patterns** (inspired by the book "The Flexible Mind" and also using the Body-Mind Centering approach of yoga therapy). The idea is to work in reverse and stimulate the nervous system to create new neural connections to replace the damaged ones. Using the developmental patterns called "Naval Radiation" as a model suggested the idea of support from the center to the extremities of which there are six: two arms, two legs, head and tail, and from these back to the center. All the "limbs" are in a relationship with the center and have an equal role, like a Starfish. Movement on this model can help open energy channels and the flow of body fluids, even to a "limb" that is less functional than the other "limbs" (in this case the left leg). So, when moving, a feeling of "wholeness" is created as a basis for a continuous transfer of strength between the vertical skeleton and the bones of the limbs.

### **Finding the central line**

Since Ann felt her spine was like a block instead of being a strong, continuous structure supporting her entire body, and because of postural faults that probably existed before her injury and surgery, and certainly afterwards, we kept looking for new ways to strengthen her awareness of the central line of her body. Ann was so shaken by her traumatic accident that she welcomed our exploration of ways to get her back into balance, i.e. to find her center.

1. Vayus breathing from bottom to top created the feeling of a *pranic* spine supporting her. Once she found this line, Ujjai breathing along it gave her a feeling of quiet and meditation. Poses felt more stable and supported by the new central line she created for herself.
2. Finding other central lines in the body through experiential anatomy: The digestive tract begins in the mouth, where food enters, and ends in the anus. This tube offers a vertical support to the body in general and in particular to the spine, and can also provide a clear feeling of the center. Practicing poses using this model, gave her a sensory connection to her front, with her gastrointestinal tract and organs providing deep, soft internal support for posture and movement.

We also worked with a spinal development model: "**soft spine – Notochord.**" The notochord is a kind of a primal, primitive, soft spine that develops in the embryo. In the mature body, a memory of the notochord remains in the inter-vertebral discs and

the inner strip along the spinal canal (the Posterior Longitudinal ligament). The yogic perception of the Sushumna parallels this. Working with this idea, allowed Ann to experience movement with a soft and free spine, balancing her digestive system with her nervous system (the notochord is located between the digestive tube and the spinal cord) and finding a quiet, supporting center. Finding her center gave her not only physical stability and balance, but also a mental and emotional anchor.

### **Implementing new patterns**

An automatic repetition of patterns and movement limits our ability to choose. When change occurs, our nervous system absorbs new information and builds new paths of movement, action and thought. We allow the Samskaras (imprints) to unravel and we create new patterns.

The somatic experience (muscular, physical and neurological) is the most significant, since it lets someone who normally suffers pain experience pain-free moments, opening the mind to other possibilities.

Occasionally, we tried something new that Ann hadn't tried before, for example, a new way of entering a familiar pose, a new facial expression or a new movement. We cultivated a focus on "what I can do", "where I don't feel pain" and maybe even "where it feels pleasant right now". Most people who suffer from a chronic ailment will target most of their attention and energy to its location. Looking at somewhere which is not painful, even something small or irrelevant like the little finger or the elbow, opens the opportunity to begin healing from that place.

Studying the model of the five Koshas (*Taittiriya Upanishad*) also suggested a new way of looking at things. Understanding that we are made up of different layers that influence each other and interact with each other, means we can work on a layer that is not necessarily physical, and through it start the healing process.

### **Summary after years of practice**

Ann strengthened considerably. She now breathes consciously, is aware of her posture and practices yoga in a general class, with special adjustments if necessary. She gained in self-confidence, her fitness increased and she is able to travel around with her family. She feels that her pain has decreased significantly. Even if sometimes she is still in pain, her inward connection makes her feel capable and stable, and gives her a source of support to rely on. As she expressed it, she felt that doing yoga "put the oxygen back into her life."

I asked Ann what, in her opinion, helped the healing process. Her answer was that beyond the gradual guidance, constructed step by step, of pranayama and physical asanas, she felt that the connection between us, that is, between teacher and student, was of great importance. It was a relationship of trust and confidence. She felt that I could contain her troubles and pains, both physical and emotional, without panicking. Checking what worked for her at that moment, that day, allowed her to come to practice just as she was, without diminishing her sense of wholeness.

An excerpt from a letter she wrote to me:

" ... At first we did exercises and slow movements that were broken down into smaller movements. Anat taught me to breathe and feel every movement combined with the breath. Yoga really connected me to my body, increased, if not created, my awareness of the way I stand physically and in the world in general. Rooting (a new word I adopted and learned to appreciate) increased my ability to pay attention to the breath and breathe more and more correctly. I really felt the effects of attention to my breathing, movements and posture during the day, even after class. Now, a year after individual weekly lessons, I can see my improvement clearly; how much stronger and more flexible my back is, with an increasing range of movement. My left leg, which had residual nerve damage and numbness all along the back, has also improved. Not only is it stronger but I have more sensation there. I delight in doing a complete practice and feeling the precision of movement combined with breathing – those moments that just connect you to yourself and the universe. An opportunity to thank you, Anat, with all my heart."

**Acknowledgements**

During my work with Ann I relied on the study of Vijnana Yoga and I was helped by the wise advice of my teachers **Orit Sen-Gupta** and **Noga Barkai**.

I also relied on studies of Yoga-for-Women with **Mira Artzi Padan**, particularly for the rehabilitation of the pelvic floor.

From my Yoga Therapy teacher, **Michal Yarkoni**, I took many ideas for therapy in the area of visualization and experiential anatomy. Since I am not a therapist in psychological trauma, I was also helped by her experience and training in the fields of Somatic Experience (SE), and Body-Mind Centering (BMC).

And finally, a big thank you to Ann who trusted me and agreed to walk this path as I accompanied her.

**About the author**

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Anat has been practicing for fifteen years, and teaches yoga to groups and individuals in a private studio in the Sharon area and in Ra'anana. She teaches Vijnana yoga, Yoga-for-Women and yoga for pregnancy. She also runs a yoga therapy group. When necessary she holds private sessions at the studio or in the student's home.

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