Spinal Rejuvenation Therapy™

Can SRT™ Restore Lordotic Curve and Disc Height?
A Review of Two Case Studies

Clinical Practicum Enclosed

By Dr. Fred DiDomenico & Dr. Ian Horseman

Purpose

The purpose of this paper is to explore Spinal Rejuvenation Therapy™ and its effects on range of motion, lordotic curve restoration, increased disc height and overall spinal function and health. We examine two case studies, the results of which may be applicable to other patients with similar complaints.

Spinal Rejuvenation Therapy™

Spinal Rejuvenation Therapy™ (SRT™) is a system designed to restore intradiscal height and lordotic curve. Patients who undergo SRT™ have experienced restoration of normal range of motion and lordotic curve, disc rehydration and increased core strengthening.

The application of SRT™ focuses on six steps which, when addressed in proper combination, impact the spinal health of the patient:

1. Water/Nutrition - The body is approximately 73% water. People who are dehydrated and have musculoskeletal problems are at about 55% water. The spinal disc nucleus is 88% water. Degenerative discs are dehydrated and have abnormal function. The doctor must begin with hydration to achieve disc rejuvenation and reduction of musculoskeletal symptoms. Patients must drink half an ounce of water per pound of body weight per day. SRT™ includes the consumption of 1-2 ounces of mineral salt water and 16 ounces of fresh water infused with nutrients formulated to reduce inflammation and allow disc rejuvenation.

2. Muscles - Muscle spasm prevents motion of the spine, which will not allow spinal structural correction. SRT™ reduces red tissue adhesions and spasms, and begins the remodeling of scar tissue in old spinal injuries, reducing soft-tissue resistance to achieve structural change.

3. Discs - Alternating loading and unloading cycles are utilized to soften the hard gelatinous discs. Once SRT™ is applied to soften and temporarily remove the elastic energy from the disc, spinal change can occur. The loading and unloading cycles also cause disc rehydration for spinal rejuvenation.

4. Motion - Spinal axial distraction (decompression) is applied only after the soft tissues have been prepared. Decompression is utilized to create motion throughout the entire spine. To be effective, decompression must be applied so that it affects the entire spine, all the way down to L5/S1. Spinal structural correction can only be accomplished with full spinal movement. Evaluate for chiropractic adjustments after decompression.

5. Muscle Balance - Body weights are used to retrain proprioceptive reflexes of the brain to allow structural and postural correction of the spine. Patients use weights while performing balance and proprioceptive exercises. This achieves structural correction of the spine while strengthening the muscles of the spine to hold the new structure. This accelerates structural correction of the spine.

6. Isometric Exercises - Muscle support curves. Muscle support the lordotic curve. Once the correction has been made with the previous five steps, the patient can begin performing isometric exercises to strengthen the muscles that will allow curve correction. As the muscles gain strength, they will be better able to hold the new corrected curves.

The benefits of spinal rejuvenation can be more effectively seen in individual case studies. A number of different studies reveal positive changes in range of motion, muscle strength, physical fitness, disc height and restored lordotic curve.

Data

The following were conducted pre- and post-SRT™ for these case studies:

- Active Range of Motion (ROM) testing was conducted on both patients.
- Vertebral measurements and angles for Case 1 included MacNab's line, Ferguson's angle and lumbar gravity line.
- Vertebral measurements and angles for Case 2 included atlas angle and vertebra disc angle.
- Lumbar/cervical lordosis was measured in both cases.
- Anterior and posterior disc heights were determined for both patients.

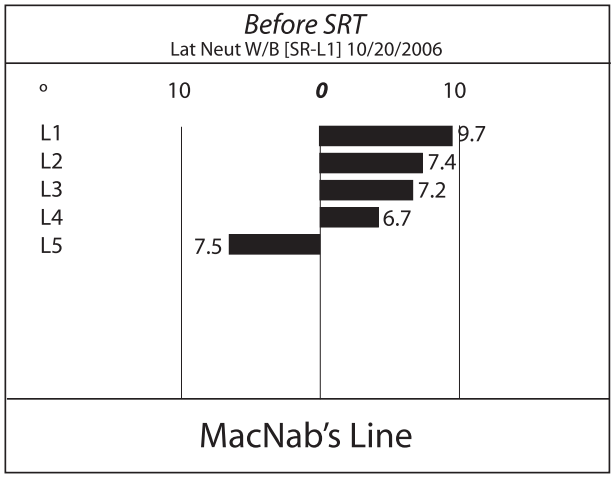
Physical fitness evaluation was given using heart rate variability analysis. Three measurements are included in the heart rate variability analysis: chronotropic reaction (HR supine/max HR), compensation response (min HR/max HR), and orthotest ratio (HR supine/HR upright). These three tests are used to assess physical fitness level. The fitness level is scored as a combination of physiological systems function (scored 1-13, with 1 being best) and adaptation reserve (scored 1-7, with 1 being best).

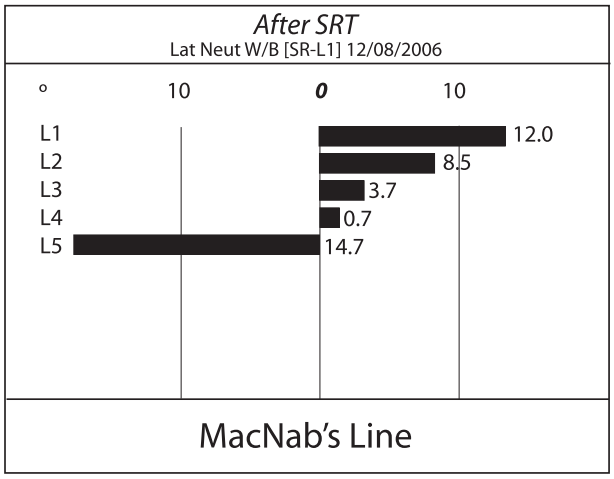
Case 1 – 45-Year-Old Female – Lumbar Spine

The patient in Case 1 presented with pain and discomfort in the lumbar spine area.
The patient received care according to the Spinal Rejuvenation protocol presented above for a six-week period.

- Initial active range of motion (ROM) testing revealed that the patient was slightly hypermobile in lumbar lateral flexion 37˚/30˚. Upon re-examination, this had been reduced to 14˚/22˚.

- MacNab's line measurements (pre- and post-SRT™) indicated the following changes:



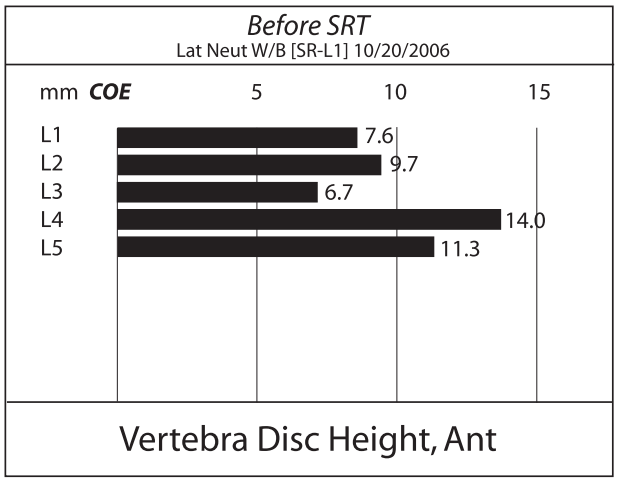


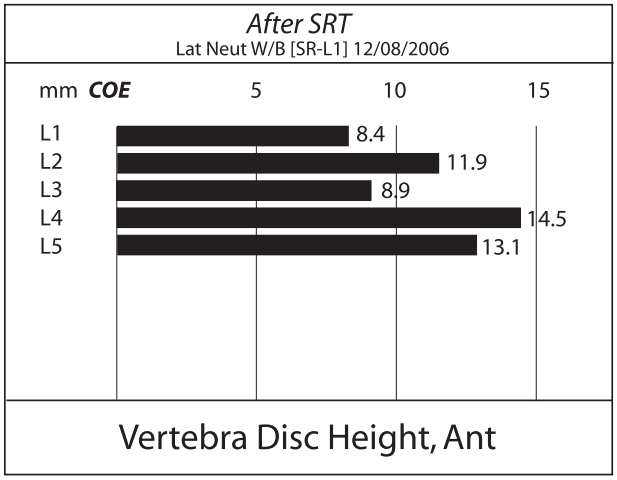
- Ferguson's angle was initially found to be only 9.5°. After SRT™, this angle was almost doubled to 18.3°.

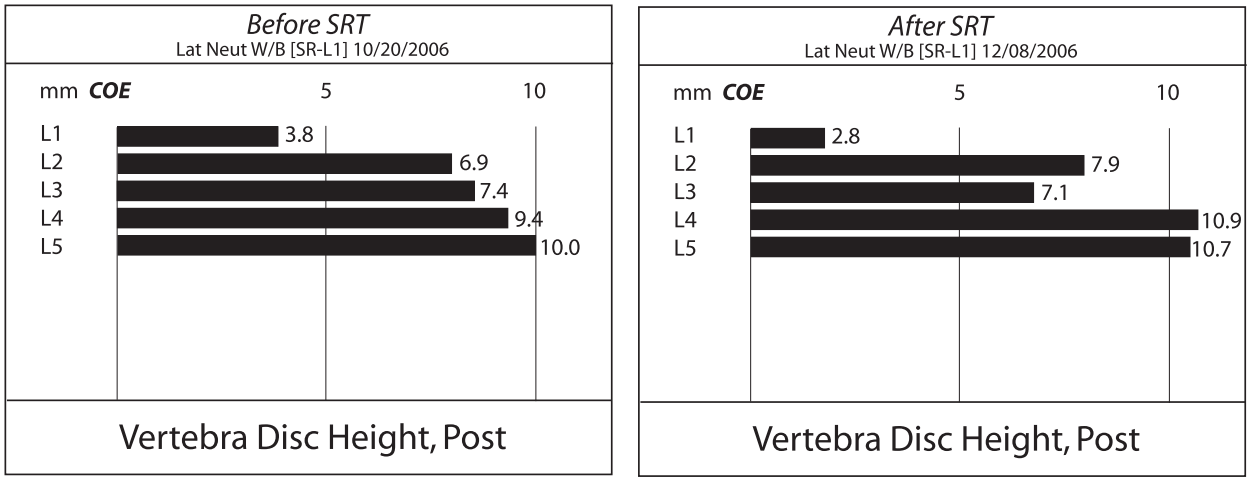
- The lumbar gravity line intersected the sacral base in sector 3 (posterior third) on first examination. This moved to sector 2, closer to the anterior third of the sacral base, in the post exam.

- Lumbar lordosis was first measured at only 15.6° (standard range is 50°-60°). While still not within the standard range, this was increased to 27.6° at post exam.

- The anterior disc heights and the posterior disc heights both increased:







- The heart rate variability analysis comparison demonstrated the following changes:

  - Chronotropic reaction decreased from 0.76 to 0.68.
  - Compensation response decreased slightly from 0.76 to 0.75.
  - Orthotest ratio increased from 1.03 to 1.16.

The patient's level of physical fitness improved from 10/5 to 8/4. This is considered "close to average level" for the physiological systems and "slightly reduced" from average level for the adaptation reserve.

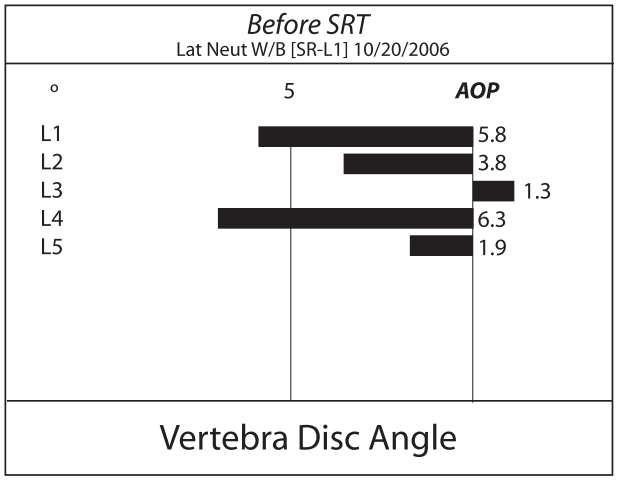
Case 2 – 39-Year-Old Male – Cervical Spine

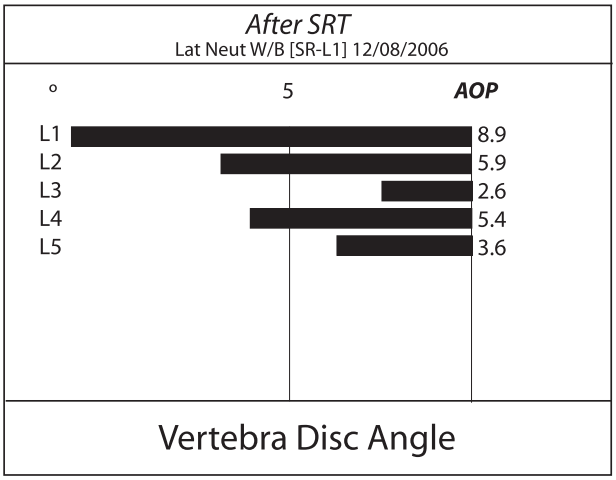
The patient in Case 2 initially presented with discomfort and restricted movement. The patient received care according to the Spinal Rejuvenation protocol presented above for a seven-week period.

- Testing revealed reduced ROM for cervical flexion (22˚), cervical lateral flexion (22˚/19˚) and almost no ROM in left lumbar lateral flexion (1˚). Post-SRT™ testing revealed increased ROM for cervical flexion from 22˚ to 58˚. Cervical lateral flexion ROM was more than doubled, from 22˚/19˚ to 46˚/38˚. Left lumbar lateral flexion ROM was restored to 21˚.

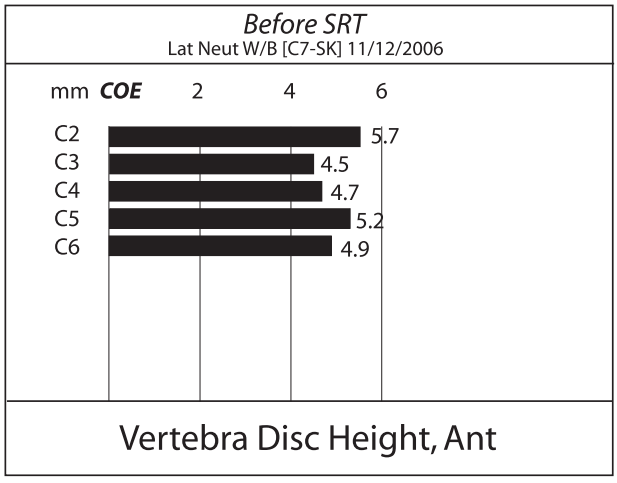
- Cervical lordosis was found to be 25.6˚, which is below the normal range of 35˚-45˚. This was increased to 37.4˚, bringing it within the normal range.

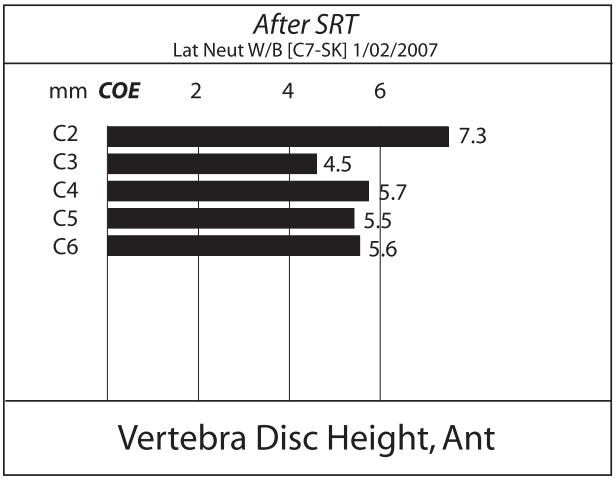
- The atlas angle was only 3.1˚ S initially. This was expanded to 12.8˚ S.

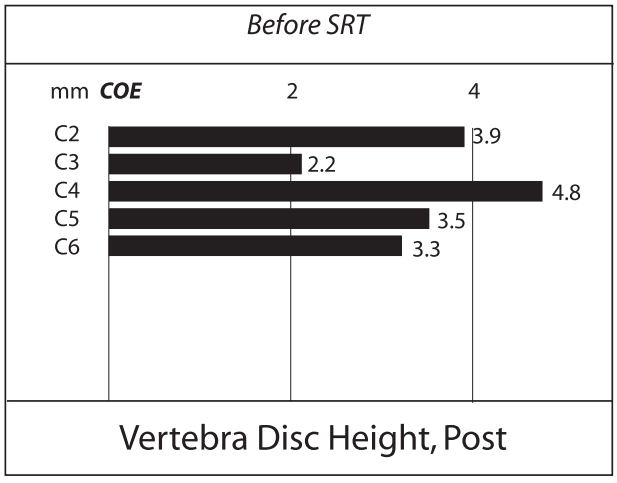


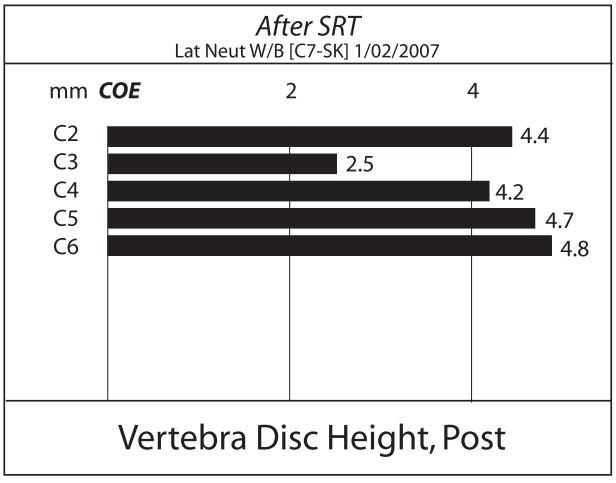


- Vertebral disc angles were improved as follows:









- The vertebral disc height measurements increased both anteriorly and posteriorly:
- The heart rate variability analysis comparison demonstrated the following changes:

  – Chronotropic reaction decreased from 0.88 to 0.83.
  – Compensation response increased slightly from 0.87 to 0.89.
  – Orthotest ratio increased from 1.07 to 1.16.

- The patient's level of physical fitness improved from 10/7 to 10/6. This is still considered "moderately reduced" from the average for the physiological systems, but the adaptation reserve moved up one level from the lowest level.

Analysis

These two case studies demonstrate significant benefits from short-term (6-7 weeks) use of Spinal Rejuvenation Therapy™. These benefits include increased ROM, increased lordotic curve, increased vertebral disc heights and improved physical fitness.

Reviewing each of these cases individually, the following consistencies are seen:

Increased Range of Motion

While increased ROM is seen at a number of levels, the greatest benefit of Spinal Rejuvenation Therapy™ can be seen in areas that are either hyper- or hypomobile. In both case studies, SRT™ made an impact in normalizing ROM in the area of complaint. Most patients can expect to experience an increase in ROM with SRT™.

Improved Vertebral Disc Angles

In the cervical study, SRT™ clearly demonstrated an improvement in vertebral disc angles. A reverse angle was eliminated in the cervical segment, establishing a more normal curve.

Normalized Lordotic Curve

In both case studies, the patient experienced an increase in lordosis of approximately 12°. This can be very significant for patients with severe spinal instability. In the second case study, this improvement brought the patient up to the normal range. SRT™ has the potential to improve the spinal stability of hypolordotic patients.

Increased Vertebral Disc Heights

In the first case study, the disc height at L3 was initially greater posteriorly than it was anteriorly (7.4mm vs. 6.7mm). This situation was corrected post-SRT™, with the anterior disc height increasing to 8.9mm and the posterior disc height reducing to 7.1mm. The average increase in lumbar vertebra disc height was 1.5mm on the anterior and 0.4mm on the posterior.

A similar situation occurred in Case 2, also at C3. The posterior disc height was initially slightly higher than the anterior disc height (4.8mm vs. 4.7mm). This situation was again corrected post-SRT™, with the anterior disc height increasing to 5.7mm and the posterior disc height decreasing to 4.2mm. The average increase in cervical vertebral disc height in the second case study was 0.7mm on the anterior and 0.6mm on the posterior.

Improved Physical Fitness

The patients in both of these case studies began with physical fitness scores that were at best "moderately reduced" from average levels. Improvements in these scores were seen after the SRT™ protocol was applied. Both patients experienced an improvement of one level in their adaptation reserve score. The patient in the first case study experienced a two-level improvement in their physiological systems, while the second patient experienced none.

The amount of improvement in physical fitness varied between the two case studies. While the results suggest patients will experience some improvement over the short term, results will vary according to the patient and their condition.

Conclusion

While limited in their scope, these case studies demonstrated several important benefits to these patients when Spinal Rejuvenation Therapy™ was applied to their condition. The period of care (six and seven weeks) was relatively modest given the results.

These patients experienced improved range of motion, normalization of their lordotic curve, increased vertebral disc heights and improved physical fitness. These results were established based upon several different types of tests and measurements.

Doctors of chiropractic are encouraged to gain additional information about Spinal Rejuvenation Therapy™ and its potential benefit to their patients.