



# Osteopathic Approach to Decompensated Scoliosis: A Case Report

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## Introduction/Background

Scoliosis is a complex spinal deformity that causes musculoskeletal imbalance, pain, and functional impairment. Adult degenerative scoliosis occurs without preexisting spinal deformity through degenerative change such as asymmetric disc space collapse and facet degeneration with/without listhesis. Over time, these changes can cause disturbance in sagittal balance. Decompensated scoliosis requires individualized care, including surgery for severe cases. Osteopathic manipulative therapy (OMT) aims to improve alignment, correct somatic dysfunction, and optimize neuromusculoskeletal function. While OMT has been described in management of scoliosis in adolescents, reports on its use in adulthood remains limited.

## Case

A 71-year-old woman presented with altered posture and gait with associated low back pain. Patient reported symptoms started suddenly, after sleeping in a car overnight eight months prior to presentation. She was previously evaluated and treated by providers from multiple specialties and had trialed various medications without improvement of symptoms. Physical exam showed left lateral pelvic shift and right lateral shift of the trunk while standing. Osteopathic findings showed somatic dysfunction of all body regions, most significantly along the thoracolumbar curve. Radiographs showed 0.5 cm leg length discrepancy, right hip joint space narrowing and 18-degree thoracolumbar dextroscoliosis.

## Methods: Osteopathic Structural Exam and Treatment



\*Image taken with patient permission for clinical and educational use

- Head:** Bilateral L>R suboccipital hypertonicity
- Cervical:** C3 ERSI, C7 FRsR, CT junction restriction
- Thoracic:** Dextroscoliosis, T2-4 NRISr, T5 ERSI, bilateral paraspinal hypertonicity (R>L)
- Rib:** Right first rib elevated
- Lumbar:** Lumbosacral junction restriction, L1-4 NRrSI, L5 FRsI, bilateral paraspinal hypertonicity (R>L)
- Sacrum:** L on R sacral torsion (L ILA posterior, R sacral sulcus deep)
- Lower Extremity:** Right posterior hip capsule restriction, minor left posterior-medial hip capsule restriction, left proximal quadriceps cylindrical fascial restriction
- Upper Extremity:** Bilateral (R>L) scapula restriction
- Pelvis:** Right anterior innominate rotation
- Abdomen:** Right hemidiaphragm and crus restriction

### Treatment:

Modalities used included myofascial release, balanced ligamentous tension, articular technique, high velocity low amplitude, muscle energy, Still technique, counterstrain and soft tissue release throughout the ten body regions.

## Results

The patient underwent three OMT procedures emphasizing thoracolumbar side bending mobility over three months. Pain scores remained 5/10 to 8/10 throughout. However, pre-and post-treatment measurements during the third office visit showed an 80% reduction in the difference between ASIS heights from 1.25 cm to 0.25 cm, and Cobb angles measured with a scoliometer at T3 and L1 showed a 50% and 40% reduction, respectively.

## Discussion

This case demonstrates the effectiveness of OMT in managing adult decompensated scoliosis. It details structural findings, applied techniques, and functional changes using OMT. Despite pelvic obliquity improvement with treatment, functionality was limited by pain and decreased hip mobility. Further research is required to demonstrate the impact and generalizability of OMT on spinopelvic alignment and its relationship to decompensated scoliosis in adulthood.

## References

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## Pre and Post-treatment Measurements

Cobb Angle Degree (Scoliometer)	Pre-treatment	Post-treatment
T3	4	2
T7	0	0
L1	5	3

Shoulder Height (AC joint to ground)	Pre-treatment	Post-treatment
Left	54.9 in	55 in
Right	55.25 in	55.5 in

Hip Height (ASIS to ground)	Pre-treatment	Post-treatment
Left	37.75 in	36.5 in
Right	36.5 in	36.25 in

ROM Sidebending (finger to ground)	Pre-treatment	Post-treatment
Left	24.5 in	24.75 in
Right	21.5 in	20.6 in