

The Use of Postural Reeducation and Strengthening Exercises in the Reversal of Functional Scoliosis: A Case Report

Cory Marcoux, BS, DPT Student

Department of Physical Therapy, University of New England, Portland, Maine



Background & Purpose

- Non-structural scoliosis: abnormal spinal curvatures that have sufficient mobility, and can therefore resolve with postural change.¹
- There is a multitude of research regarding structural and idiopathic scoliosis, but very minimal literature about non-structural (functional) scoliosis and more importantly, how to treat it.
- The purpose of this case report was to examine the use of stretching, strengthening, and postural reeducation for a patient who presented with a non-structural scoliosis.

Case Description

- Female (37) who underwent a left-sided lumbar discectomy at level L5/S1 following an acute onset of left foot-drop.
- Later presented with severe back pain and spasms from an infection of the disc at the surgical site, resulting in an abnormal, protective posturing.
- Patient was seen for a total of eight weeks.
- Treated with interventions including pain management, postural reeducation, and strengthening exercises in the home health care setting.

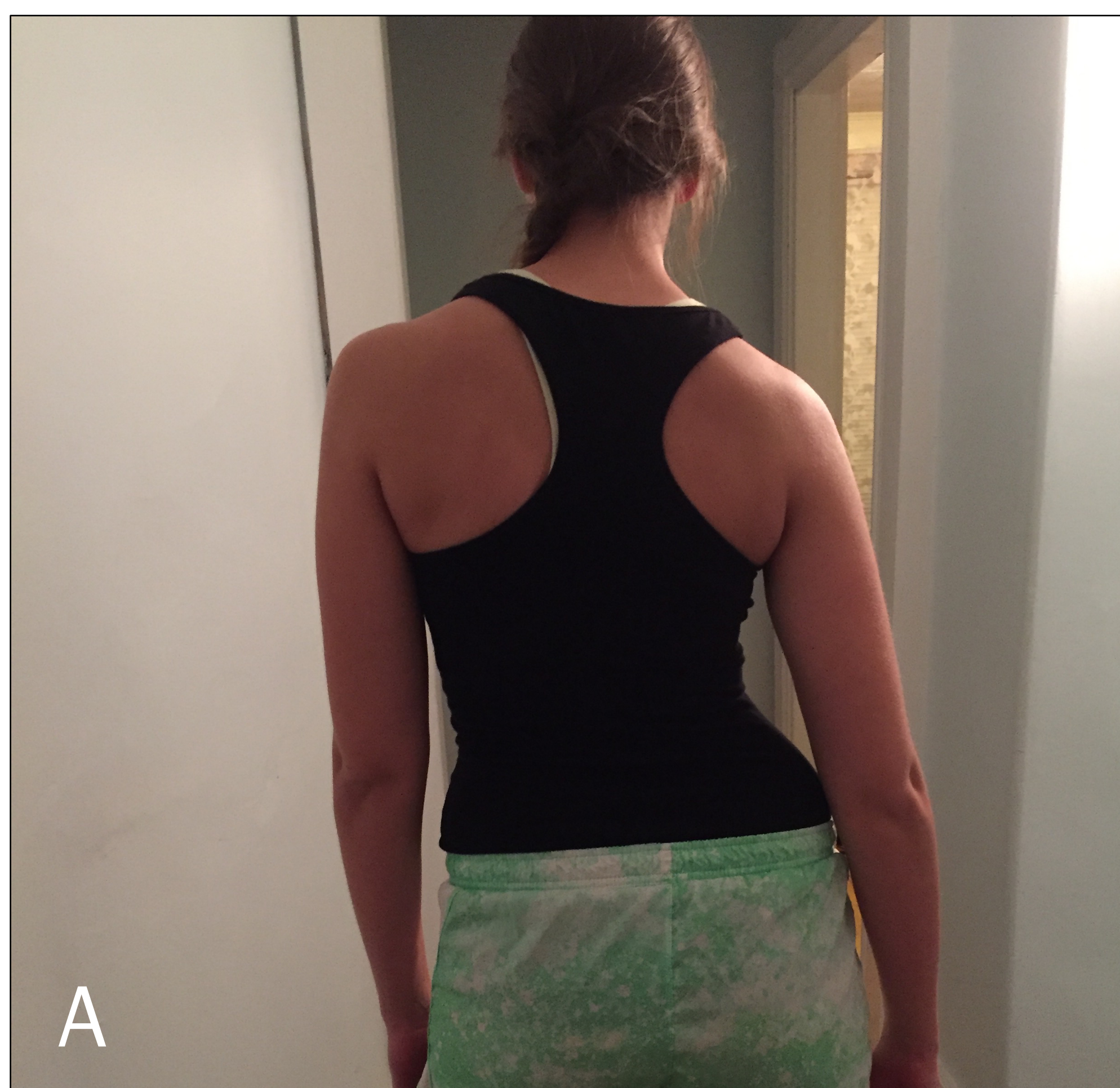


Figure A: The patient's posture consisted of an anterior pelvic tilt, posterior rotation of the pelvis on the right, upward tilt on the right, downward tilt on the left, lateral glide of the ribcage to the left, and lateral thoracic flexion to the right.

Interventions

- Postural Awareness
- Postural Stabilization
- Neuromuscular Reeducation
- Training of Specific Gait Components
- Motor Control Retraining
- Strengthening (Resisted and Isometric)
- Flexibility
- Breathing Strategies

Visit	Stretches	Postural Retraining	Therapeutic Ex
1	KTC, HS, pelvic alignment, hip ER, piriformis, ITB	Stance with R side pushing ribs towards neutral/door frame	U CS, PPT x10, mini-squat x10
2	Lumbar self-traction in hook lying	Seated reach up-tilt to neutral	Log roll w/ bedrail to R, wall sit w/ reaches to neutral posture, sumo squat hold x4 breaths
3	Mini-lunge quad stretch w/ FWW	Doorway stretch w/ towel roll, neutral stance in front of mirror w/ L UE assist	B CS w/ TB x6, seated lateral trunk flex w/ TB, I trunk ext into pillow x5 s
4	LE baby rock, HS, adductor, lumbar self-traction	Mirror stance w/ L UE assist & R UE to 90° shoulder flex → 180° flex → 90° abd → neutral	U CS, on t-ball: sacral flex/ext, CW/CCW, pelvic up-tilts L & R x10
6	Modified child's pose rollout on t-ball seated in chair		Same seated exercises from visit #4 w/ bigger t-ball
8		Self-rib glide w/ inferomedial pressure on L w/ hold x30 s	On t-ball: shoulder ext and rows with green TB x10
12	R sided lumbar/thoracic lateral flex over couch, standing runner's stretch	Rib glides to R to get to neutral → add TB resistance x20	
14		Outdoor walk x20 feet farther than previous visit	B calf raises, marches, and hip abd w/ B UE assist at counter x10

*Ex: exercise, KTC: knee to chest, HS: hamstring, ER: external rotation, ITB: iliotibial band, R: right, U: unilateral, CS: clamshell, w/: with, FWW: front-wheeled walker, L: left, UE: upper extremity, B: bilateral, TB: theraband, I: isometric, ext: extension, s: seconds, LE: lower extremity, flex: flexion, abd: abduction, t-ball: theraball, CW: clockwise, CCW: counter-clockwise

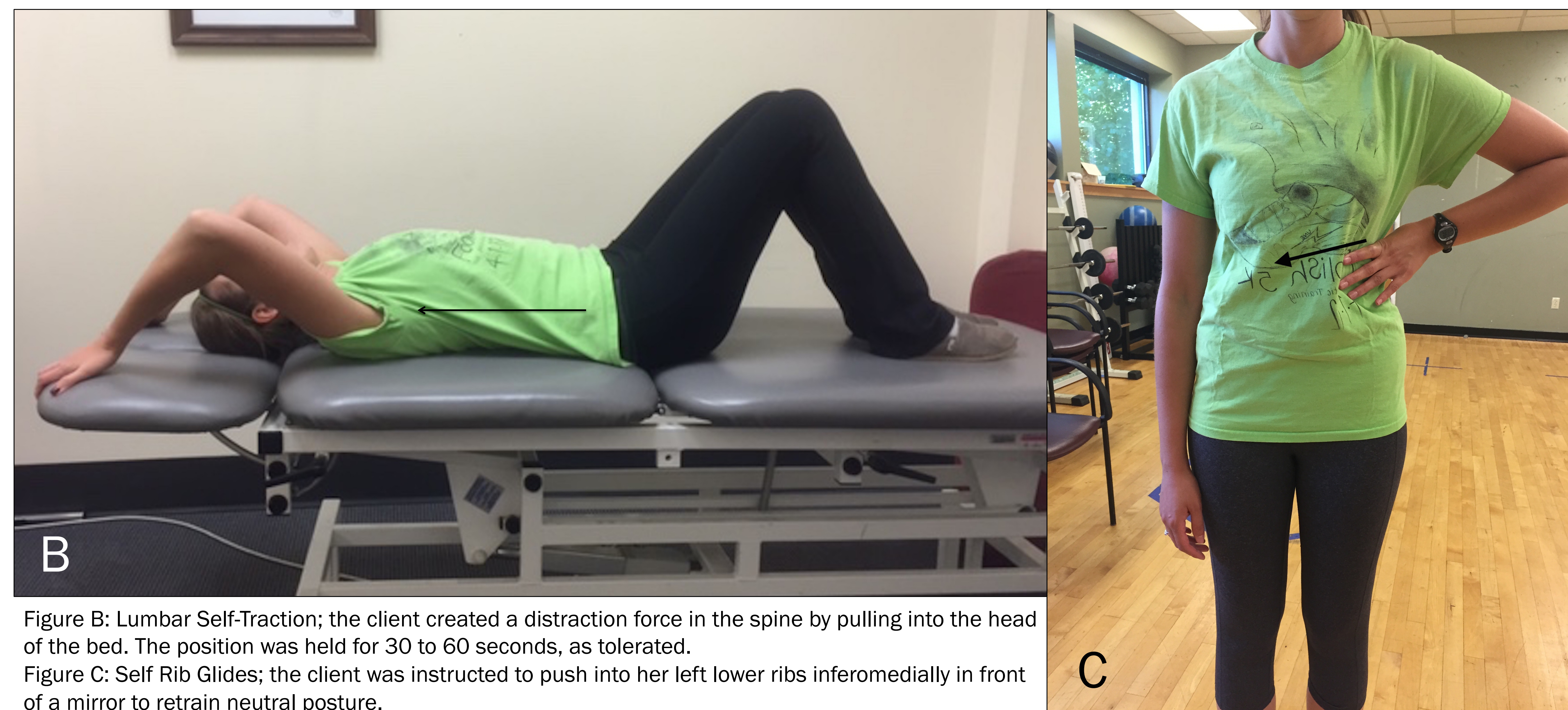
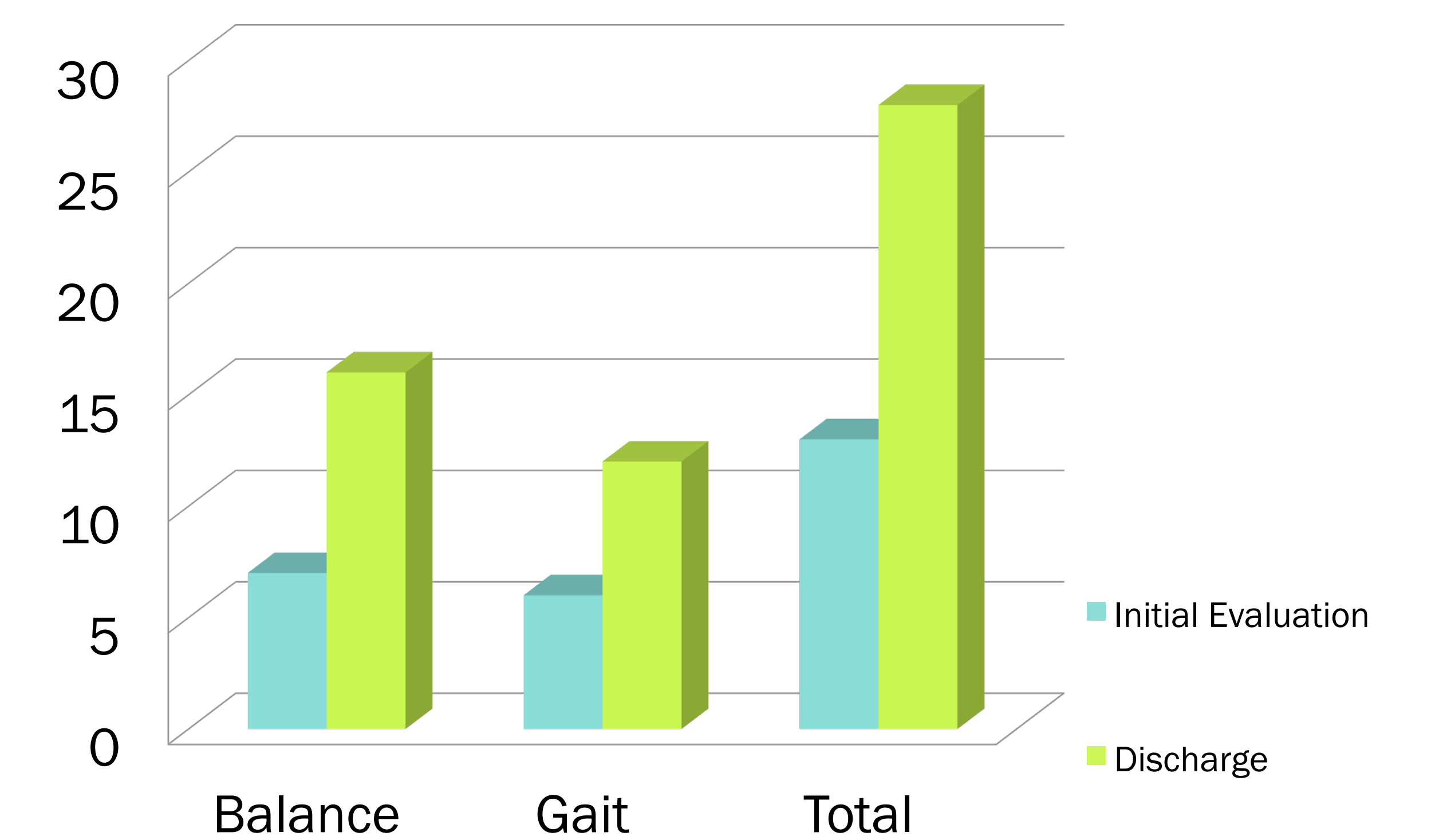


Figure B: Lumbar Self-Traction; the client created a distraction force in the spine by pulling into the head of the bed. The position was held for 30 to 60 seconds, as tolerated.
Figure C: Self Rib Glides; the client was instructed to push into her left lower ribs inferomedially in front of a mirror to retrain neutral posture.

Outcomes

Tests & Measures	Start of Care	Discharge
Resting Sagittal Posture	11° to the L	0°
Forward trunk flexion	L: 10°	L: 2°
	R: 5°	R: 2°
Numeric Ten Point Pain Scale	Best: 4/10	Best: 0/10
	Worst: 10/10	Worst: 10/10
Tinetti	Balance Score: 7/16	Balance Score: 16/16
	Gait Score: 6/12	Gait Score: 12/12
	Total Score: 13/28	Total Score: 28/28

Tinetti Scores



Discussion & Conclusions

- Findings suggest that postural reeducation and strengthening exercises may have been a viable method of treatment for this patient with non-structural scoliosis, leading to neuromuscular changes in the body and maintenance of neutral posture.
- More investigation should take place to determine if specific interventions are more effective than others.

Acknowledgements

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Reference

1. Estadt G. Chiropractic/rehabilitative management of post-surgical disc herniation: a retrospective case report. *Journal Of Chiropractic Medicine* [serial online]. September 2004;3(3):108-115. Available from: <http://www.ncbi.nlm.nih.gov/pubmed/19674632>. Accessed July 7, 2015.