



Strengthening S/P Lumbar Fusion to Return to Independent Ambulation Complicated with Gait Abnormalities: A Case Report



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Background

- ❖ **Lumbar fusions** are one of the most commonly performed orthopedic procedures and is currently in an upward trend.
- ❖ **Typical S/S before fusion:** numbness and tingling down the legs, ↑ pain, flexion preference, and ↓ strength in LE
- ❖ Post-surgically, patients often present with ↓ strength, aerobic capacity, tissue extensibility, muscle length, and gait dysfunction.
- ❖ Patients' s/p lumbar fusion, may also present w/ comorbidities such as residual stroke which presents with ↓ strength, ↓ balance, ↓ coordination, & ↑ spasticity.
- ❖ Gait deviation can cause significant complications biomechanically from added stress to the joints and ligaments within the effected extremity and can ultimately increase the patient's risk of falling.

L4/5 FUSION

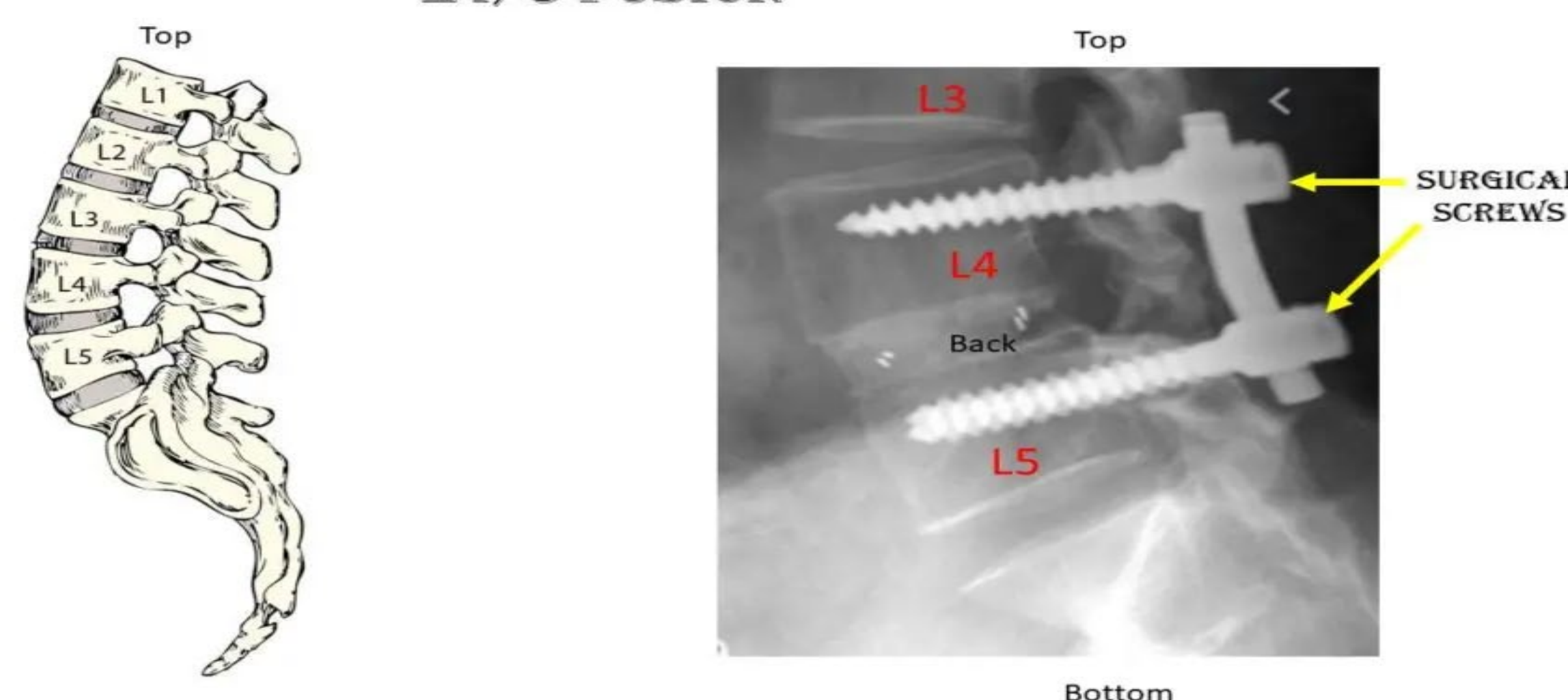


Figure 1: Oblique view of L4/L5 Fusion
<https://centenoschultz.com/treatment/l-4-5-fusion-surgery/>

Purpose

- ❖ To describe the use of strengthening exercises status post lumbar fusion to facilitate return to independent ambulation for a patient with residual gait abnormalities due to a history of a cerebral vascular accident.

Case Description

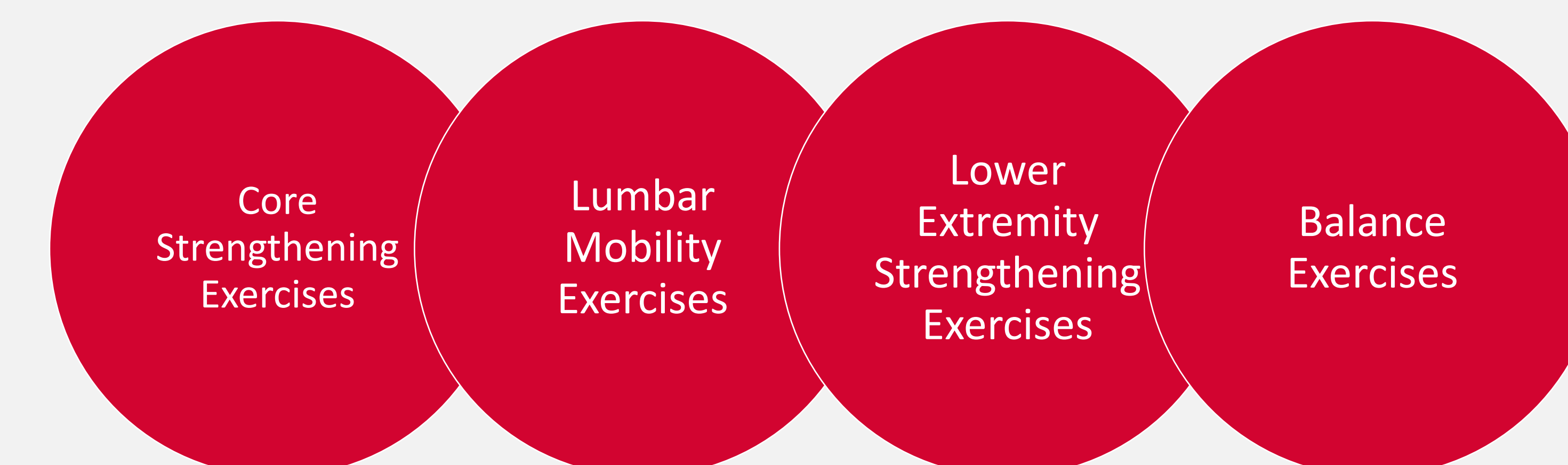
- ❖ A 45-year-old white female status post L4-L5 lumbar fusion with right sacral iliac joint inflammation, abductor tendinitis, and bursitis in bilateral hips.
- ❖ Ambulated with single point cane with difficulties navigating stairs and ambulating long distances.
- ❖ Hx of stroke, ventriculoperitoneal shunt, hydrocephalus, allergies, asthma, back pain, incontinence, prior surgeries, smoking, anxiety, depression, and sleep dysfunctions.
- ❖ Hx of falls when transferring out of car, walking and when turning.
- ❖ Participated in outpatient physical therapy 2-3x/wk for 10 wks for this episode of care.

Outcomes

- ❖ Pretreatment measures, post measures unavailable.

Manual Muscle Tests	R	L	Outcome Measures	Results
Side Bending	3+	3+	TUG	15s, unsteady gait, CGA
Hip Flexion	4+	3+	5xSTS	13s pt demoed no ecc control, RUE MA, BL valgus collapse
Quad	4+	3+	Romberg	30 s sig sway & arm swing
Hamstring	4+	3+	Half Tandem	30 s sig arm swing
Ankle DF (L4)	4+	1	Tandem	14 s max compensation, L foot in back, L foot in front 2 s
Ankle PF (S1)	4	1	Sitting Reach	Good balance
Toe 1 Ext (L5)	4+	1		
Hip Abd	4	3+		

Interventions



Discussion

- ❖ Exercises used for treatment were done in various positions and planes of motion to ensure variability.
- ❖ A multimodal approach, such as use of therapeutic activities, therapeutic exercises, and neuromuscular re-education was used to achieve the patient's goals.
- ❖ This patient was highly motivated and committed to improving her overall condition, which made her goals more achievable in nature, CBT not needed.
- ❖ CBT is a tool in which other clinicians may be able to use to help their patients process their emotions and other personal factors that play a role in the patient's level of motivation.
- ❖ This patient may have benefitted from incorporation of more standing core strengthening exercises and dynamic lower extremity strengthening exercises to help improve standing and walking tolerance.
- ❖ Pt made improvements in lower extremity and core strength, however, made limited improvements with single legged balance, possibly due to residual deficits from previous Hx.

References

