

A 6 Week Balance and Gait Training Program Using the AlterG for a Patient With Cervical Myelopathy After Spinal Decompression Surgery: A Case Report



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Background & Purpose

- Spinal stenosis is the narrowing of the spinal canal which can cause radiculopathy or myelopathy symptoms due to compression of the spinal cord.¹
- About 80% of patients over 70 years old have some level of stenosis.¹
- There is limited research on prognosis for patients with cervical myelopathy and subsequent spinal decompression surgery.
- AlterG treadmill (AlterG Anti-Gravity Treadmill M320/F320, Fremont, CA) is an antigravity treadmill that is considered a body weight support system used in progressive gait retraining.
- The purpose of this case report is to assess the effectiveness of balance and gait training on the AlterG in a geriatric patient with severe cervical myelopathy who underwent spinal decompression surgery.

Case Description

Patient	• 83-year-old male, retired farmer and lives with his wife in a ranch style home
Aug 2015	• Left total hip replacement
Nov 2016	• Right total hip replacement
2016	• Multiple medical complications: kidney infection, Implantable cardioverter-defibrillator, blood clots, Chronic Obstructive Pulmonary Disease and progression of decreased functional mobility
Oct 2017	• Diagnosed: Cervical Stenosis with Myelopathy • Surgery: C4 corpectomy with C3-C5 anterior fusion and posterior cervical laminectomy and instrumented fusion
Feb 2018	• The patient started Physical Therapy and Occupational Therapy services
June 2018	• Patient plateaued in physical therapy
July 2018	• July 2018 patient's re-evaluation • AlterG balance and gait training program initiated

Interventions

AlterG Ambulation:
Patient ambulated in the AlterG. The Alter G has multiple settings which are adjustable to patient needs and progress.

Dual tasking:
Patient ambulated in the AlterG and reached across midline for the rings and placed them on the opposite side.

Static Perturbation:
Patient stands with feet together while a therapist is guarding and another therapist pulling on resistive band in various directions.

Dynamic Perturbation:
Patient ambulated in the parallel bars without holding on and perturbations were given with a resistive band.

Discussion & Conclusion

- The patient demonstrated improvement in balance, gait and overall functional mobility.
- The patient improved on transfers where he only required close supervision which translated to increase independence in his own home.
- He continued physical therapy after the six-week program, to continue to address gait and balance training with the use of the AlterG.
- There is limited research on the efficacy of gait and balance training with the use of the AlterG for patients with cervical myelopathy.
- Future research should consider exploring the use of AlterG and its effects on gait and balance for geriatric patients with cervical myelopathy secondary to cervical stenosis.

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References

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Outcomes

Outcome Measures	Week 1	Week 6
6 Minute Walk Test	Contact Guard Assist/Minimal Assistance with rolling walker 1 seated rest break Total distance: 185.62 meters	Contact Guard Assist with rolling walker 2 standing rest breaks Total distance: 264.26 meters
Berg Balance Test	28/56 (High fall risk)	35/56 (High fall risk)
30 Second Chair Stand Test	6 total stands	8 total stands