



Effects of weight shifting and heel lift on gait, posture, and balance in an elderly female with backward disequilibrium: a case report

Gilissa T. Schjang, SPT and Evan Pucillo, PT, DPT

BACKGROUND AND PURPOSE:

Backward Disequilibrium (BD) contribute to falls in older adults. More than 1 out of 4 older adults over 65 will fall.¹ BD is described as a posterior position of the center of mass over the base of support.² BD can present very similarly to the pushing behavior of those with hemiplegia.³

The purpose of this case report is to investigate how weight shifts and a heel lift affects a patient's center of mass in respect to their base of support to improve posture, balance, and gait which will aid in decreasing falls.

CASE DESCRIPTION:

The patient is an 88-year-old female who presented to the emergency department (ED) with altered mental status (AMS).

The patient required max assistance with all transfers, bed mobility, sitting and standing balance and gait.

Primary Therapy Goal

Patient will require minimum assistance for all transfers to decrease physical demand on caregiver.

Personal Factors

Mild dementia
Frequent UTI's
Pulmonary fibrosis
Dysphagia
Hyponatremia
Rheumatic fever

INTERVENTIONS:



Anterior weight shift
Forward reaching



Forward reaching



Alternate toe tapping



Heel lift placed in patients shoes throughout treatment sessions.

Interventions Progression

Intervention	Initial Evaluation	Visits 2-4	Visits 5-7	Final Visit
Therapeutic Exercise	N/A	Anterior weight shift x 30 seconds	Anterior weight shift x 30 seconds, alternate foot tapping in seated position, forward reaching in sitting x 10 bilaterally	Anterior weight shift x 30 seconds, alternate foot tapping in seated position, forward reaching in sitting and standing x 10 bilaterally
Therapeutic Activity	Sit to stand, supine to sit, stand to sit, sitting edge of bed	Sitting edge of bed x 2 minutes, sit to stand x 3, stand to sit x3	Sit to stand x 5, stand to sit x 5, static sitting edge of bed x 4 minutes	Sitting edge of bed x 5 min, sit to stand x 7, stand to sit x 7
Gait	deferred	5 steps forward x 5, 5 steps backward x5	15 feet	30 feet
Equipment	Rolling walker	Rolling walker, heel lift	Rolling walker, heel lift	Rolling walker, heel lift
Assistance level	Maximum assistance	Maximum assistance	Moderate assistance	Minimal assistance gait, moderate assistance walker management

RESULTS:

Examination Outcome Measures		
Outcome Measure	Initial	Final (Visit 8)
Muscle Strength	3+/5 Globally	4/5 Globally
Backward Disequilibrium Scale (BDS)	13/15	9/15
Function in Sitting Test (FIST)	13/56	24/56*
Gait	Unable	30 ft with Min Assist
Static Sitting Balance	Max Assist	5 min with Stand By Assist
Static Standing Balance	Max Assist	2 min with Contact Guard Assist
Sit to Stand	Max Assist	Min Assist

FIST MCID: >6.5⁴. Significant improvement achieved.

CLINICAL RELEVANCE:

The patient demonstrated functional improvements by reducing the amount of assistance required from a caregiver for transfers and gait. Improvements in balance will allow the patient to sit on the toilet and edge of bed for toileting and dressing more independently.

Older adults with BD or other similar balance disorders are at risk for increased falls.⁵ This case report shows the benefits of incorporating anterior weight shifts and a heel lift into physical therapy interventions to improve gait, balance, and posture, ultimately decreasing falls.

REFERENCES:



View PDF