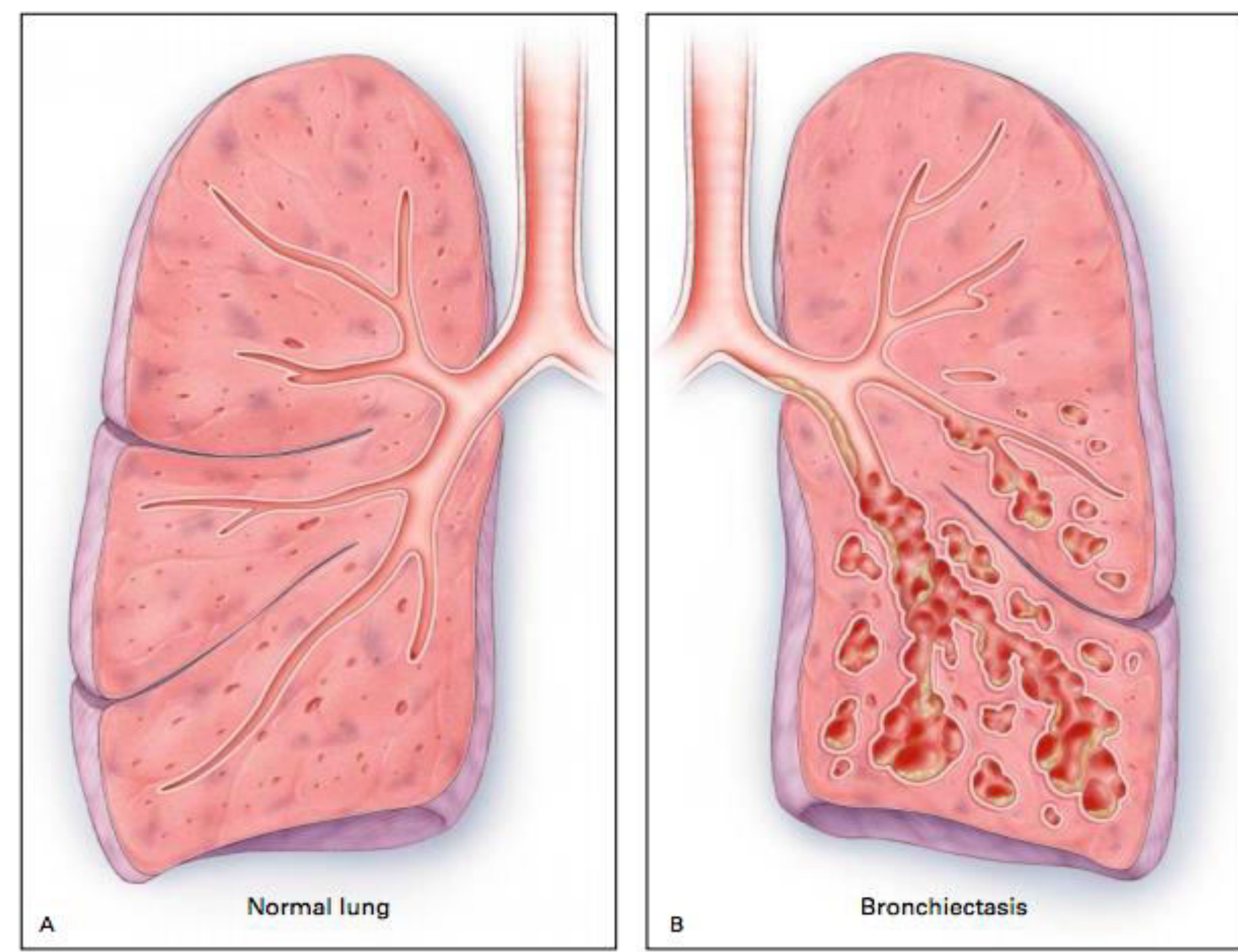


Management of a Patient with Bronchiectasis Using Pulmonary Rehabilitation and Balance Training: A Case Report

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Background

- Bronchiectasis is a chronic lung disease defined by permanent abnormal dilation of the bronchi.¹
- Bronchiectasis often includes airway infection and inflammation.¹
- Pulmonary rehabilitation including progressive gait training, stair climbing, and cycling is a standard guideline for the treatment of bronchiectasis symptoms and for symptoms of other chronic lung diseases.^{2,3}
- Little research has been conducted on the effectiveness of pulmonary rehabilitation for patients with bronchiectasis.²



<http://www.physio-pedia.com/Bronchiectasis>

Purpose

The purpose of this case report is to examine physical therapy (PT) management, utilizing pulmonary rehabilitation with incorporated balance training, for a geriatric patient with bronchiectasis.

Case Description

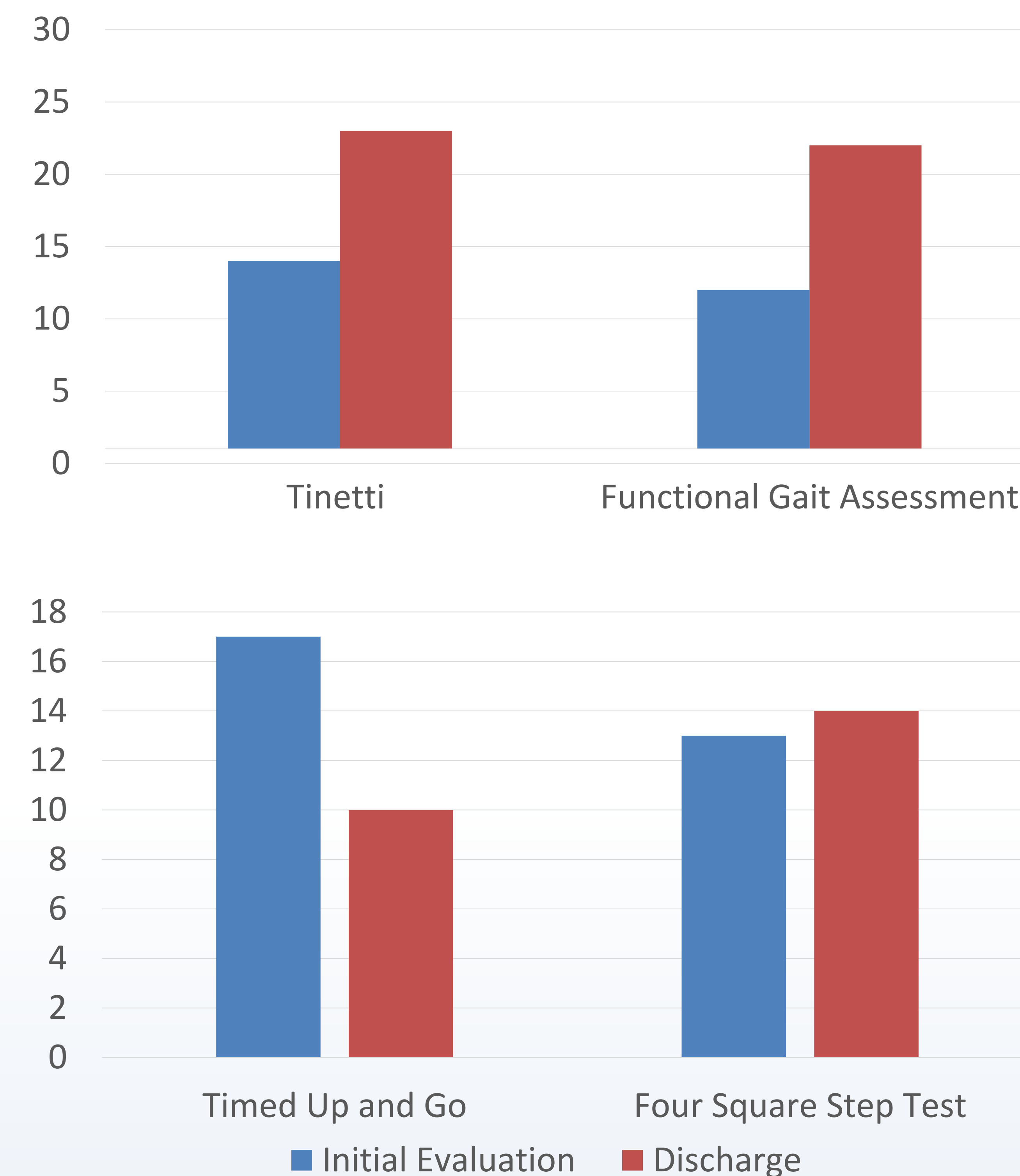
- 91-year-old female seen by home health physical therapy twice a week for 4 weeks followed by once a week for 4 weeks in her third floor apartment of an assisted living facility
- Complex medical history including chronic bronchiectasis, chronic bronchitis, chronic respiratory failure, tremor, vascular disease, vascular blockage of bilateral upper extremities, peripheral neuropathy, skin cancer, deep vein thrombosis, right femoral fracture with surgical repair, and low body mass index
- Healthy lifestyle which included daily exercise and a nutrient rich diet that excluded dairy, gluten, and added sugar
- Prescribed 2 liters/min oxygen through nasal cannula with orders to titrate as needed

Examination

Tests and Measures	Initial Evaluation Results	Discharge Evaluation Results
Light Touch Sensation	Normal, unimpaired	Normal, unimpaired
Vibratory Sensation	Absent vibratory sensation in bilateral distal L3, L5, and S1 dermatomes. Absent in left L4 dermatome and diminished in right L4 dermatome.	Absent vibratory sensation in bilateral distal L3, L5, and S1 dermatomes. Absent in left L4 dermatome and diminished in right L4 dermatome.
Tinetti	14/28, high fall risk	23/28, moderate fall risk
TUG	17.33 seconds, high fall risk	10.26 seconds, not a fall risk
FSST	13.3 seconds with contact guard assist, not a fall risk	14.0 seconds with supervision, not a fall risk
FGA	12/30, fall risk	22/30, fall risk

TUG=Timed Up and Go, FSST= Four Square Step Test, FGA=Functional Gait Assessment

Outcomes



Interventions

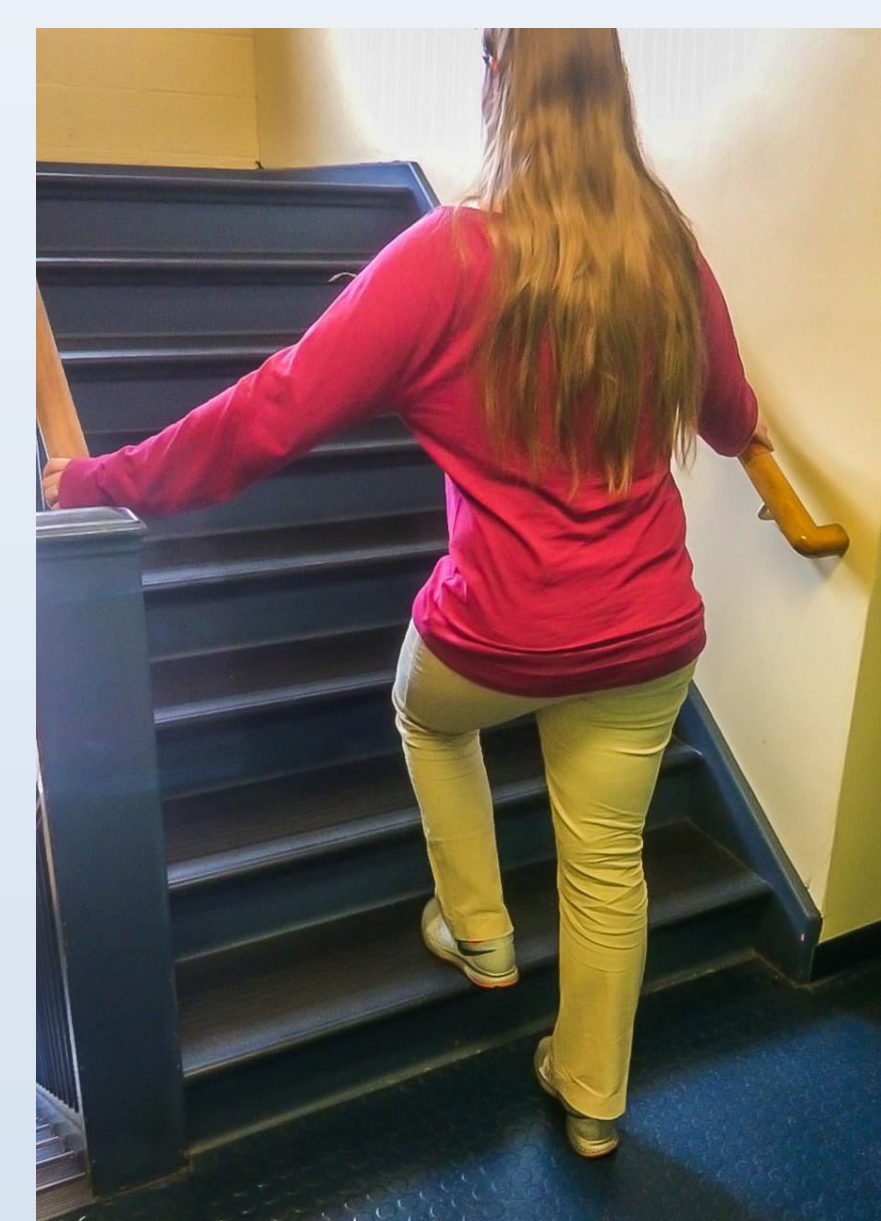


Figure 1: Stair training

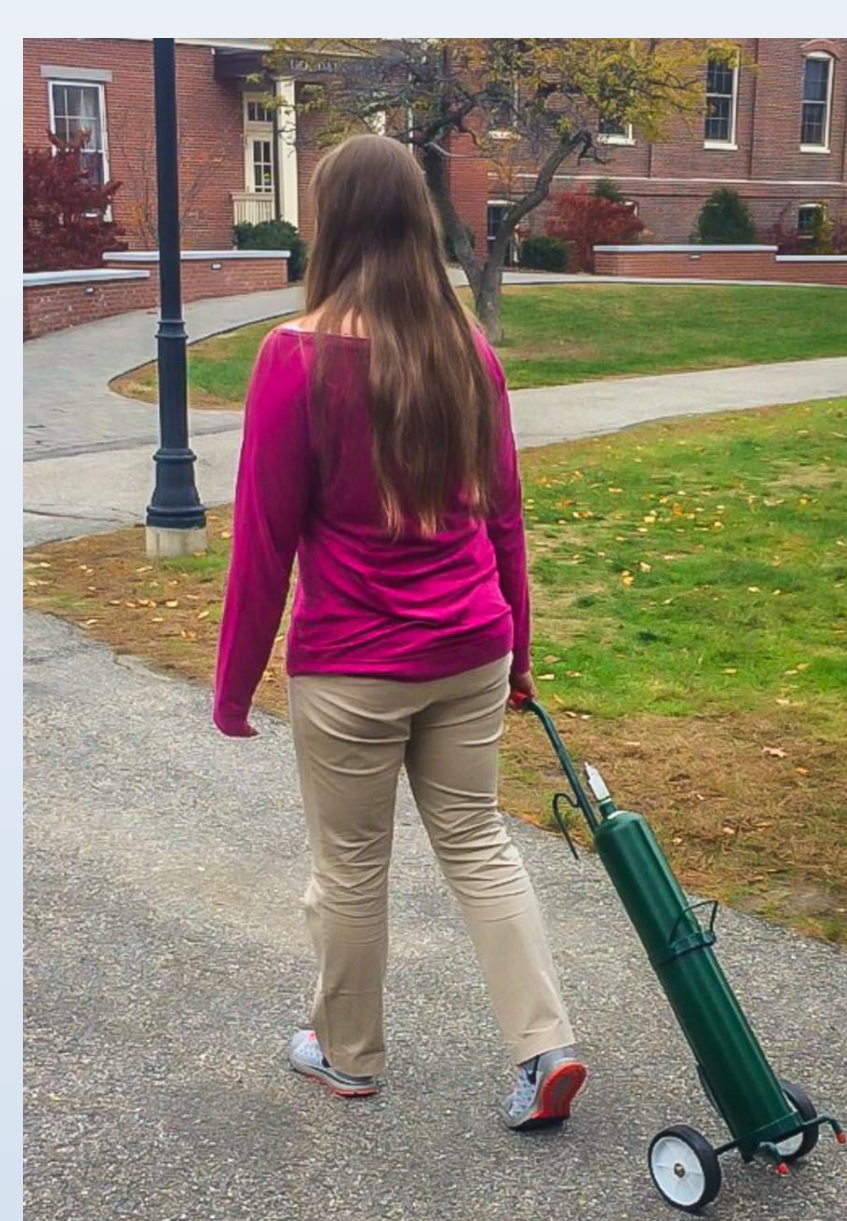


Figure 2: Gait Training

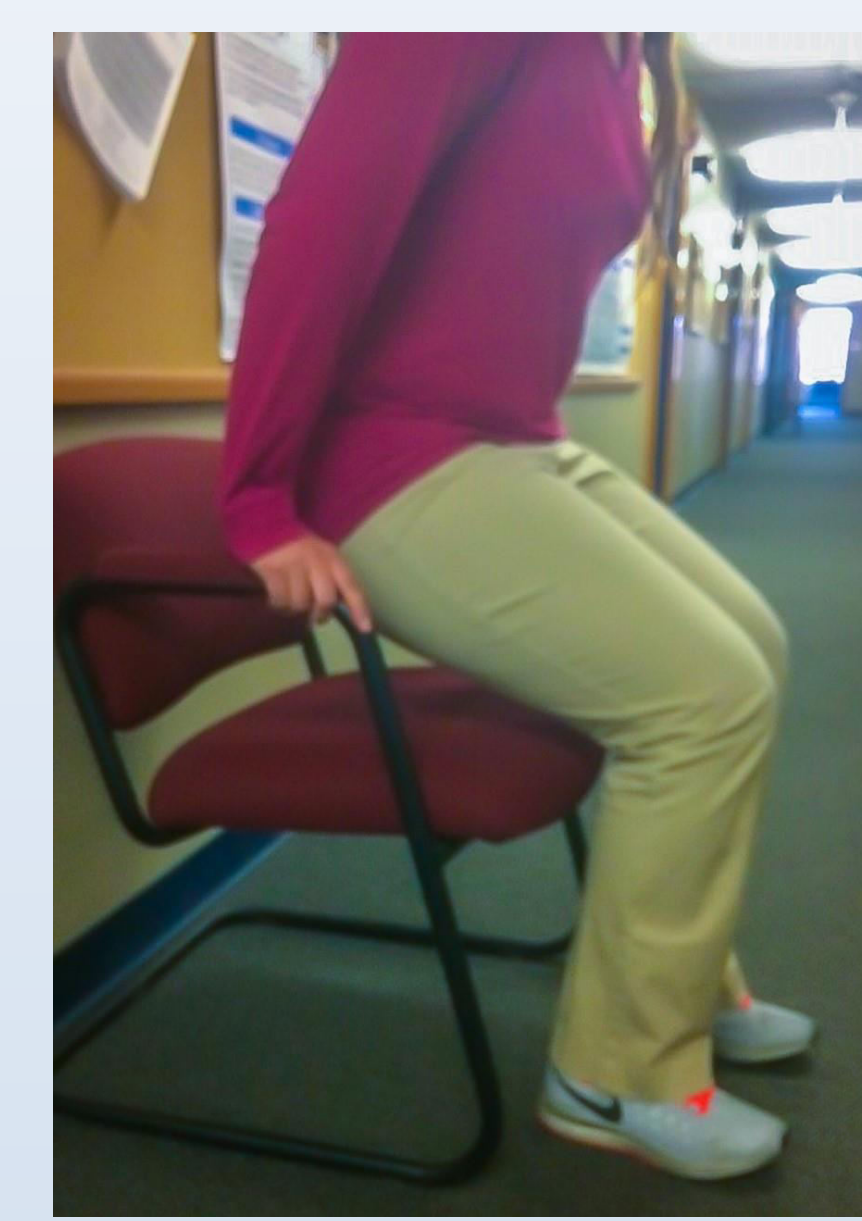


Figure 3: Half way sit to stand

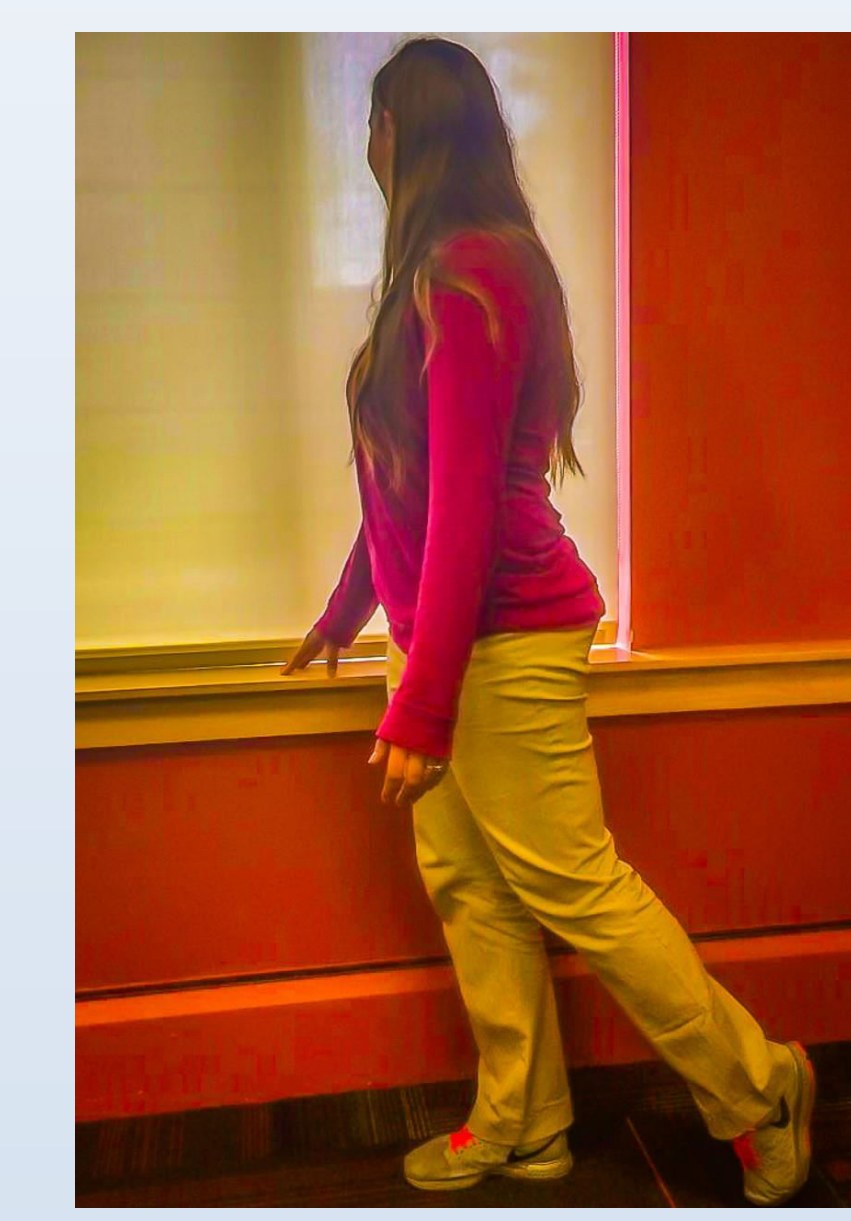


Figure 4: Walking with head turns

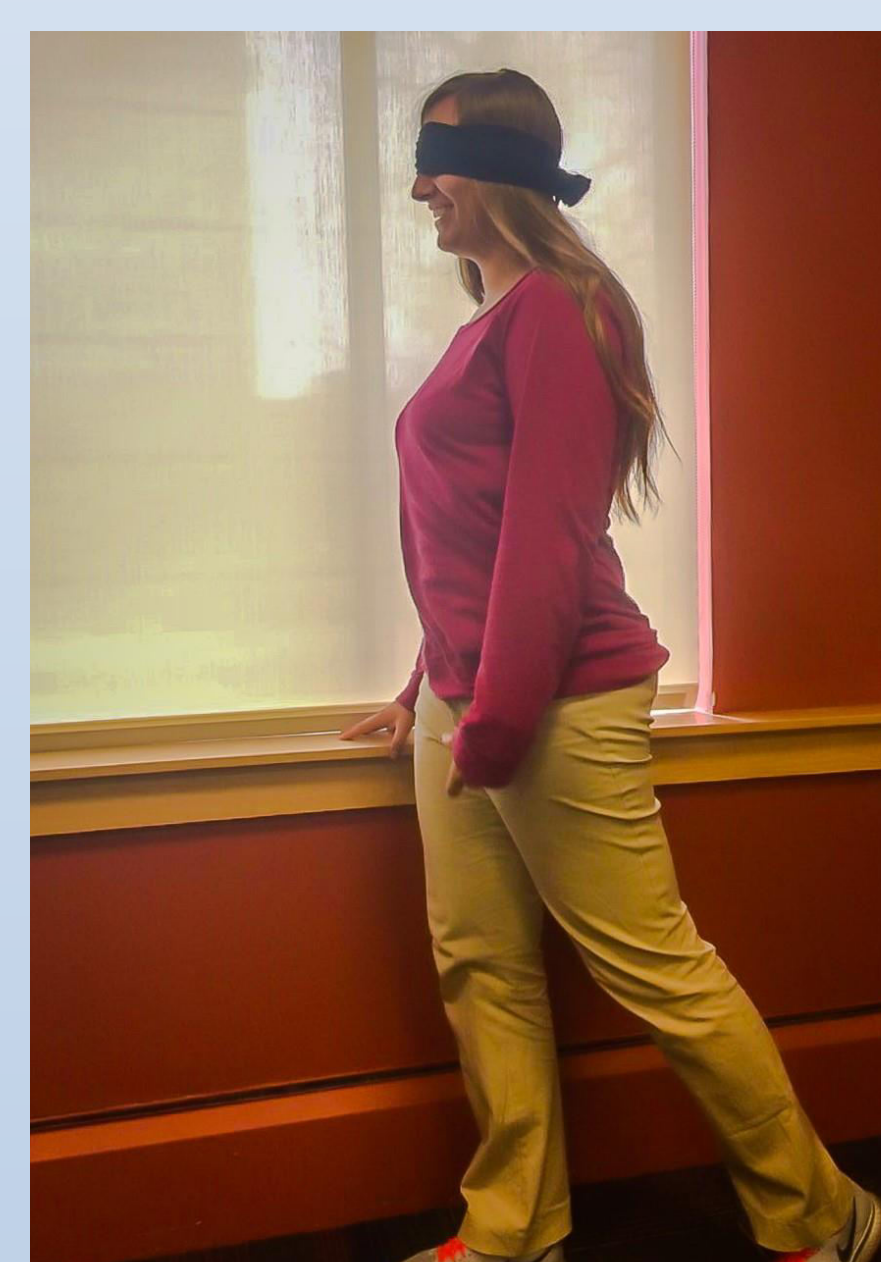


Figure 5: Walking with eyes closed

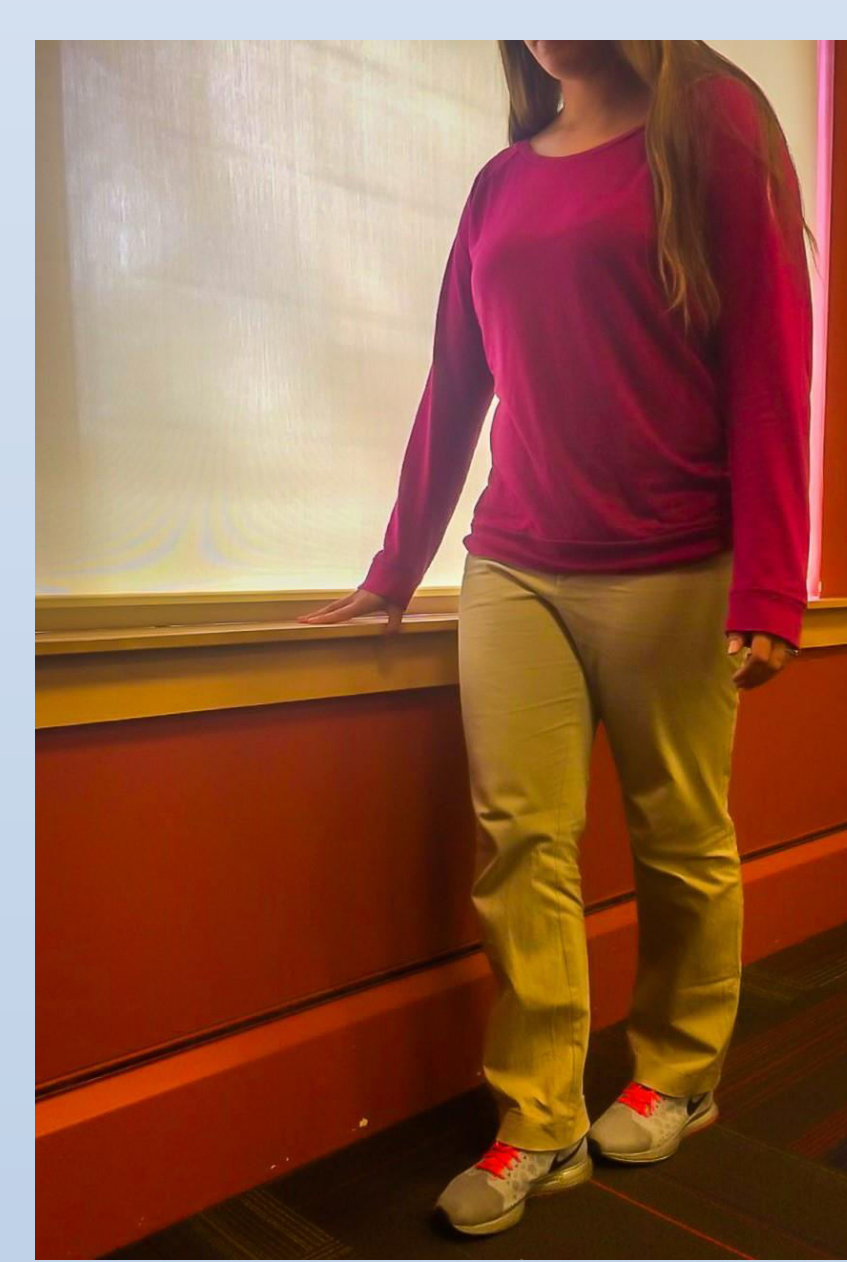


Figure 6: Tandem walking forward and backward



Figure 7: Single leg stance

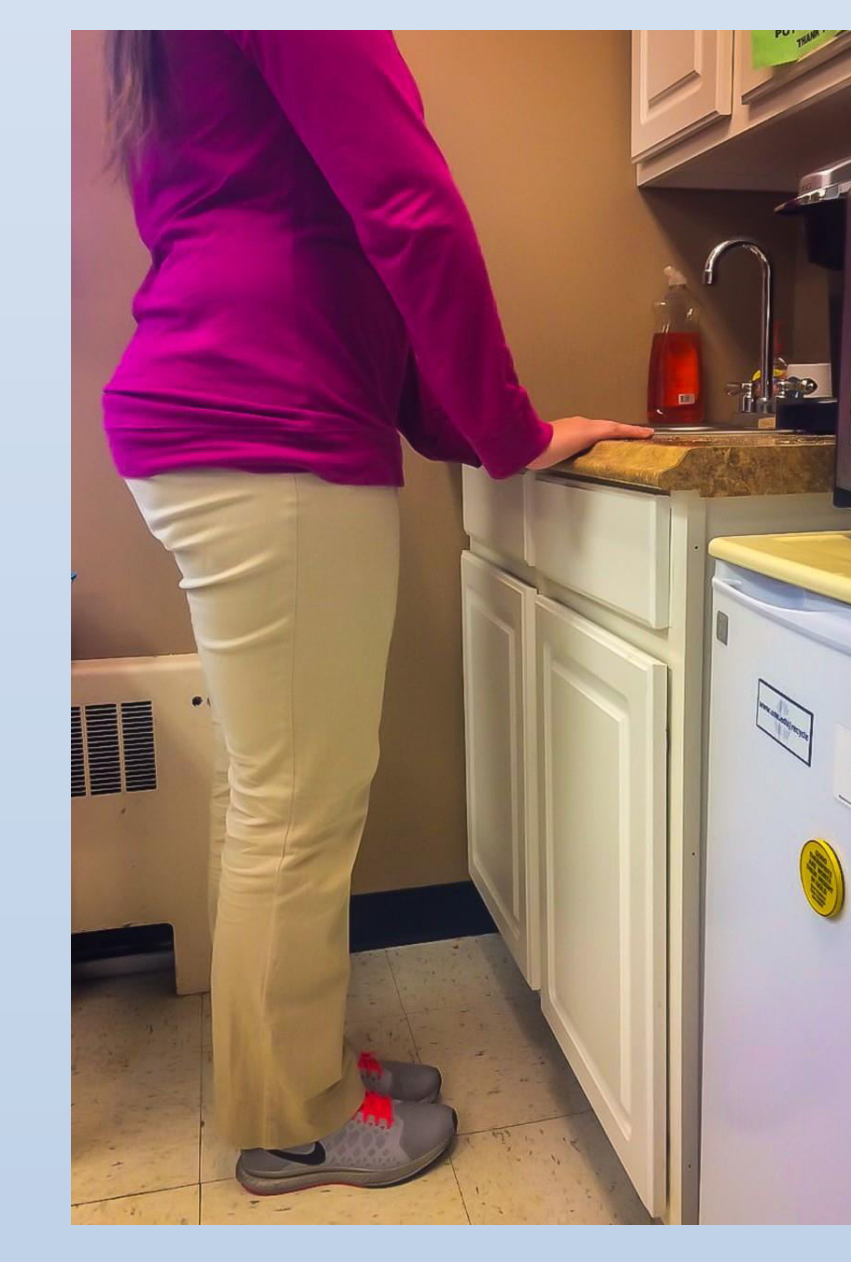


Figure 8: Narrow base stance

Discussion

- Patient reported increased ability to participate in community, family, and exercise activities with less feeling of fatigue
- Upon discharge, patient was able to take long outdoor walks, on the sidewalk, with use of rolling oxygen cart and descend and ascend two flights of stairs with minimal use of bilateral hand rails
 - Patient remained dependent on supplemental oxygen, limiting her ability to fully meet goals of walking to the river and taking stairs to the first floor for meals
 - Back pack oxygen concentrator was being ordered to allow patient more independence

Conclusion

This case report suggests that pulmonary rehabilitation with incorporated balance training is beneficial for patients with bronchiectasis. Future research is needed to investigate the benefits of pulmonary rehabilitation in a larger population of patients with bronchiectasis.

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