

# Functional Training to Reduce Fall Risk in a Patient Following Cancer Treatment: A Case Report



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## Background

- The National Cancer Institute reports that 39.6% of men and women will be diagnosed with some form of cancer during their lifetime.
- Studies have demonstrated that over half of cancer survivors age 55 and over have fallen in the past year, possible as a result of treatment and subsequent muscle weakness, difficulty with balance, and impaired walking.<sup>2</sup>
- Multiple studies have looked at the long term effects of cancer treatment and survivorship, but few studies look at interventions to combat decline in function.
- Purpose of this case report was to report the interventions utilized in the treatment of an individual post-cancer treatment, with the intention of decreasing future fall risk by addressing three modifiable factors: muscle weakness, balance impairment, and walking difficulty.<sup>2</sup>**

## Patient History

- A 76-year-old female referred to skilled nursing facility (SNF) with decreased functional mobility and a medical diagnosis of nausea, vomiting, and diarrhea secondary to radiation enteritis.
- One year ago, the patient was diagnosed stage II endometrioid adenocarcinoma and underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, and bilateral pelvic lymph node dissection as well as radiation for treatment.
- Past year of poor health (shingles, DVT, gastrointestinal bleeding, falls) resulting in prolonged periods of immobility.
- Participated in a total of 12 days of skilled PT services, for an hour each day, to address limitations in strength, balance, and aerobic capacity.
- Functional mobility and fall risk were assessed via six-minute walk test (6-MWT) and Berg balance scale (BBS).

## Impairments

- Cardiovascular System:** Following 30ft ambulation, HR increased to 102 bpm, pt became SOB, edema present at bilateral ankles (2+ R, 3+ L).
- Integumentary System:** bruising at R antecubital space.
- Neuromuscular System:** balance impairment.
- Musculoskeletal System:** bilateral LE gross strength impairment, gait impaired secondary to LE strength, balance and CV endurance impairments.

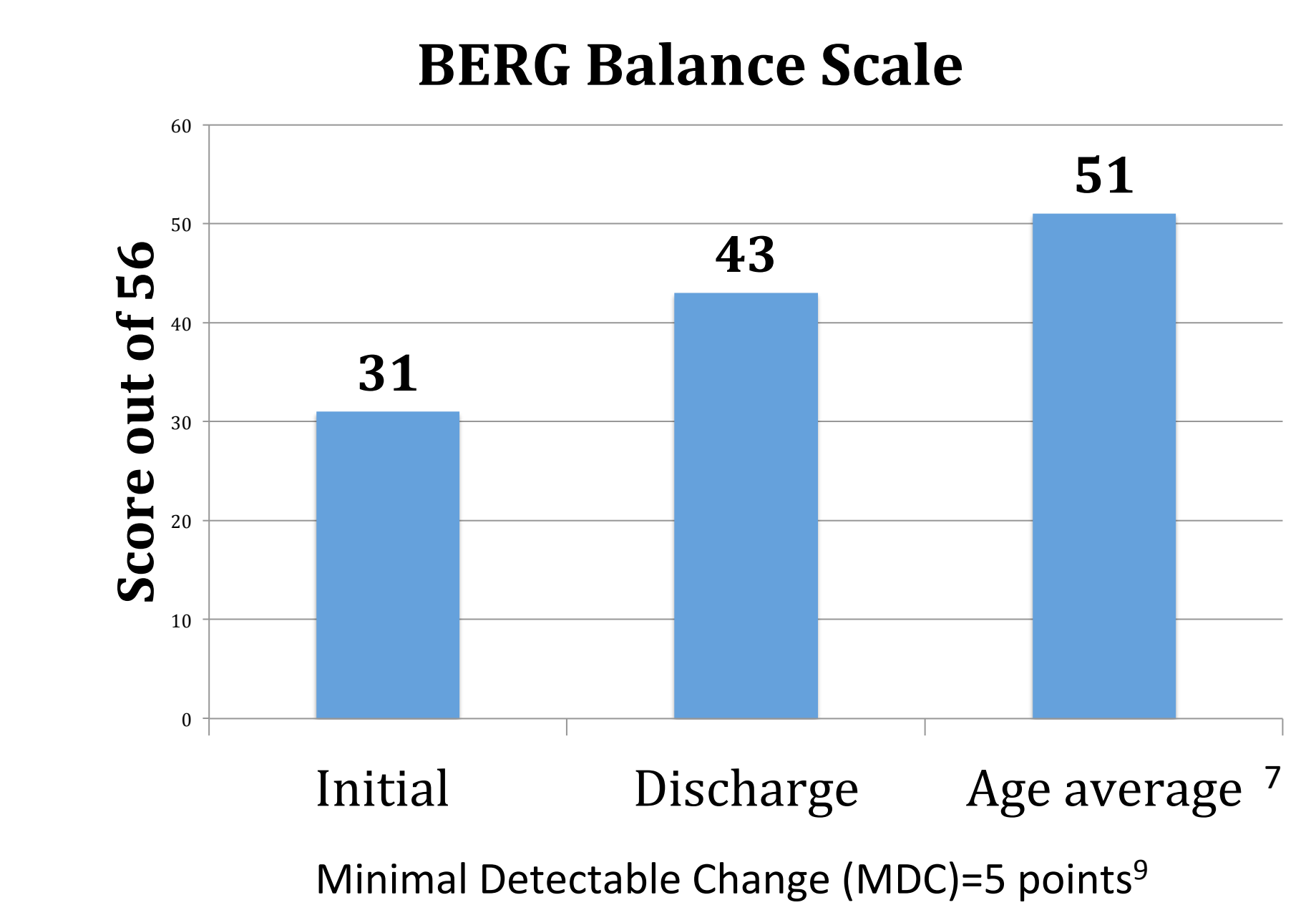
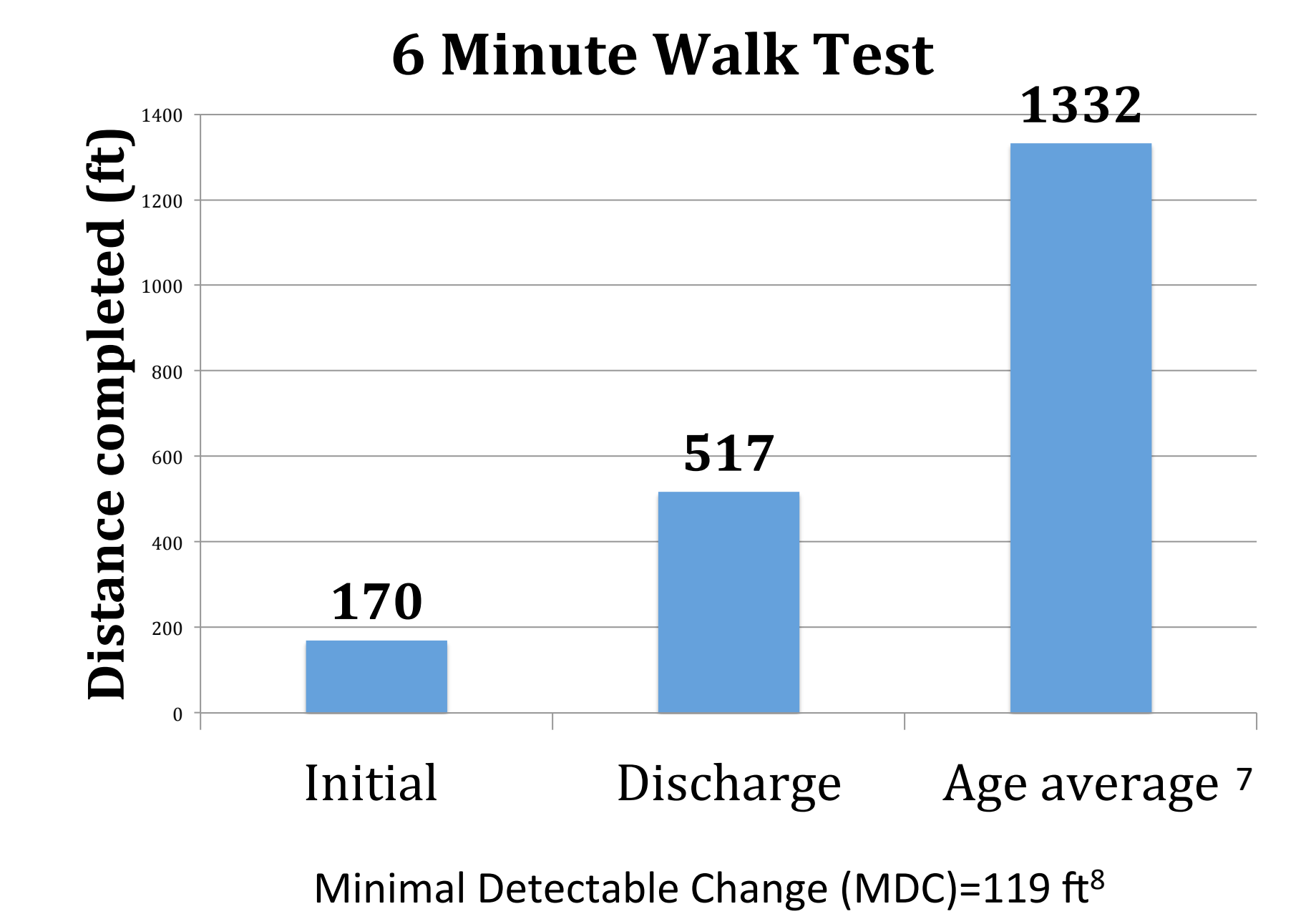
## Interventions

| Intervention                  | Purpose   |
|-------------------------------|---|
| Gait training                 | Promote improvements in gait parameters, muscle strength, and postural stability. <sup>3,4</sup>  |
| Lower Extremity Strengthening | Increase lower extremity strength for functional tasks, promote improvements in gait parameters, muscle strength, and postural stability. <sup>3,4</sup>                                |
| Transfer Training             | Promote safe independence during transfers from varying surfaces to promote carryover to home.  |
| Activity Tolerance Training   | Increase patient's activity tolerance to allow ambulation without shortness of breath. Promote improvements in gait parameters, muscle strength, and postural stability. <sup>3,4</sup> |
| Standing Tolerance Training   | Promote safe, independent, and good static standing balance to aid patient in completion of ADLs and aid in balance training.   |
| Balance Training              | To promote improvements in balance to decrease future fall risk, and to challenge postural sway to promote compensation mechanisms. <sup>5</sup>  |
| Stair Training                | To promote safe discharge home, and decrease resting and exercising heart rates, rate of perceived exertion, and increase dynamic standing balance. <sup>6</sup>                        |

| Intervention      | Rx Week One    | Rx Week Two   |
|-------------------|----------------|---|
| Gait Training     | RW and CGA     | 4WW and distant supervision   |
| Transfer Training | Min assist x 1 | Distant supervision   |
| Stair Training    | Not addressed  | B/L UE support, CGA   U/L UE support, CGA   U/L UE support, distant S |

Key: RW= rolling walker; CGA= contact guard assist; 4WW= four wheeled walker, rollator; B/L= bilateral, U/L= unilateral

## Outcomes



## Discussion

Multiple studies have been completed that demonstrate the long lasting effects of cancer treatment on functional mobility, especially fall risk, but few demonstrate ways to mitigate the decline. According to a study by Huang et al<sup>2</sup>, muscle weakness and difficulty with balance and walking have been linked to increased falls in cancer survivors. **With the interventions provided, the patient showed improvements in functional mobility, balance and lower extremity strength, as well as improved cardiovascular endurance and fall risk as assessed by the 6-MWT and BBS respectively .**

## Resources and Acknowledgments

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