

Tai Chi for Chemotherapy-Induced Peripheral Neuropathy: Clinical Trial Design Informed by Existing Evidence from Non-Cancer Population

Mingxiao Yang ^{1,2}, Carrie Shao ³, Cassie Shao ³, Kirin Saint ⁴, Wren Burton ^{2,5}, Mofei Liu ¹, Anita Giobbie-Hurder ¹, Peter Wayne ^{2,5}, Ting Bao ^{1,2}

¹Dana-Farber Cancer Institute, Boston, MA; ²Harvard Medical School, Boston, MA; ³University of Massachusetts Chan Medical School; ⁴University of Michigan Medical School; ⁵Osher Center for Integrative Health, Brigham and Women's Hospital

Background

- Chemotherapy-induced peripheral neuropathy (CIPN) impairs balance and increases fall risks.
- Tai Chi has proven efficacy in improving balance in the non-cancer population.
- This study aimed to design a first clinical trial assessing the feasibility of Tai Chi for CIPN populations, grounded in existing evidence.

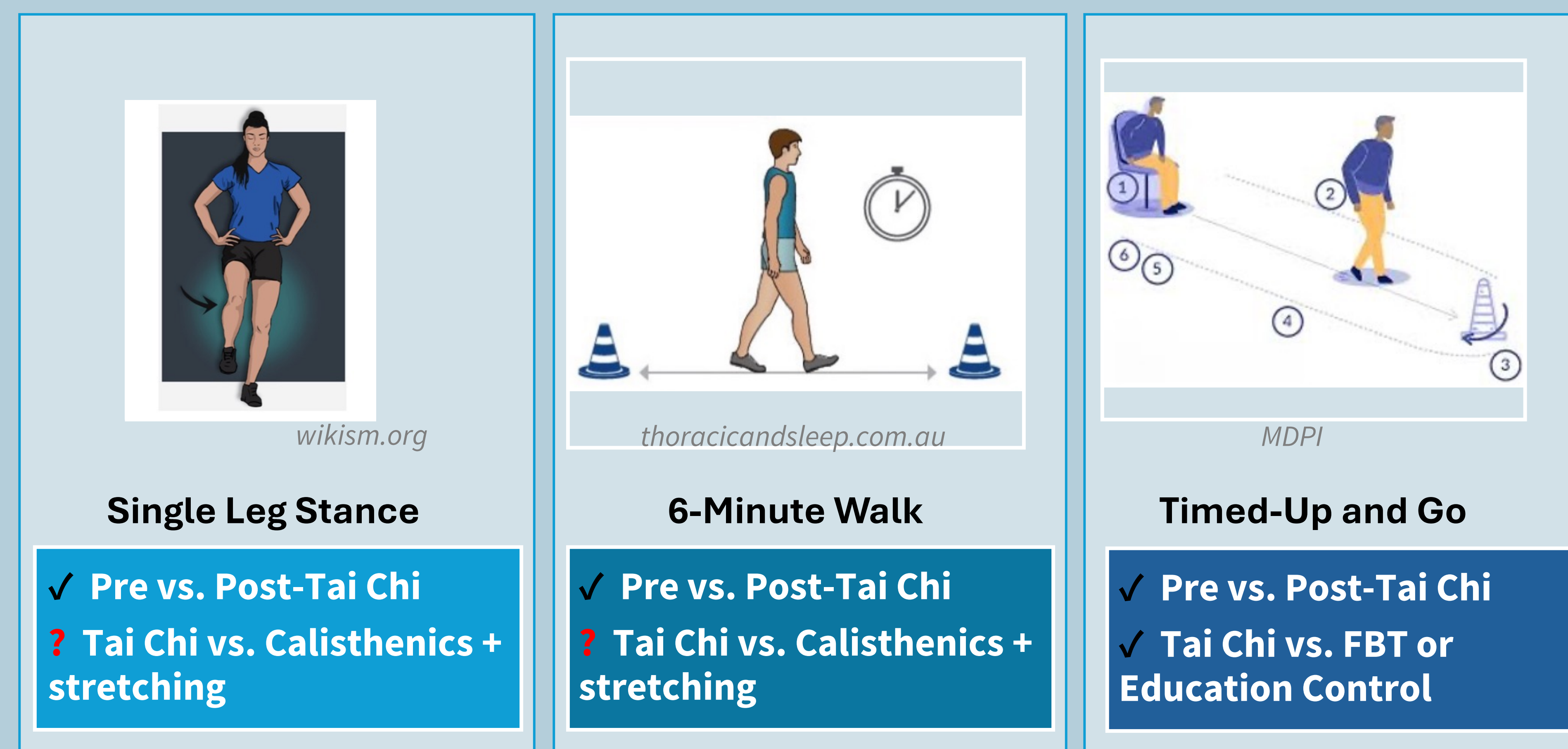


Figure 1: Clinical Effect of Tai Chi on Balance Control

Results

- The systematic review included 508 participants with PN but no CIPN from 11 trials during database inception to December 19, 2023.
- Tai Chi led to significant pre-post improvements in single leg stance, 6-minute walk, and timed-up-and-go.
- We proposed a pilot study involving randomizing cancer survivors with CIPN (2:1) to virtual biweekly Tai Chi training or a waitlist control for 12 weeks.
- We will evaluate feasibility outcomes and changes in CIPN symptom severity, sensory function, and objective gait health from baseline to week 12.

Methods

- We conducted a systematic review of current trials on the effect of Tai Chi in people with peripheral neuropathy (PN);
- Our multidisciplinary team, with expertise in Tai Chi, medical oncology, and biostatistics, designed a clinical trial to determine the feasibility of Tai Chi in patients with CIPN and balance difficulties.

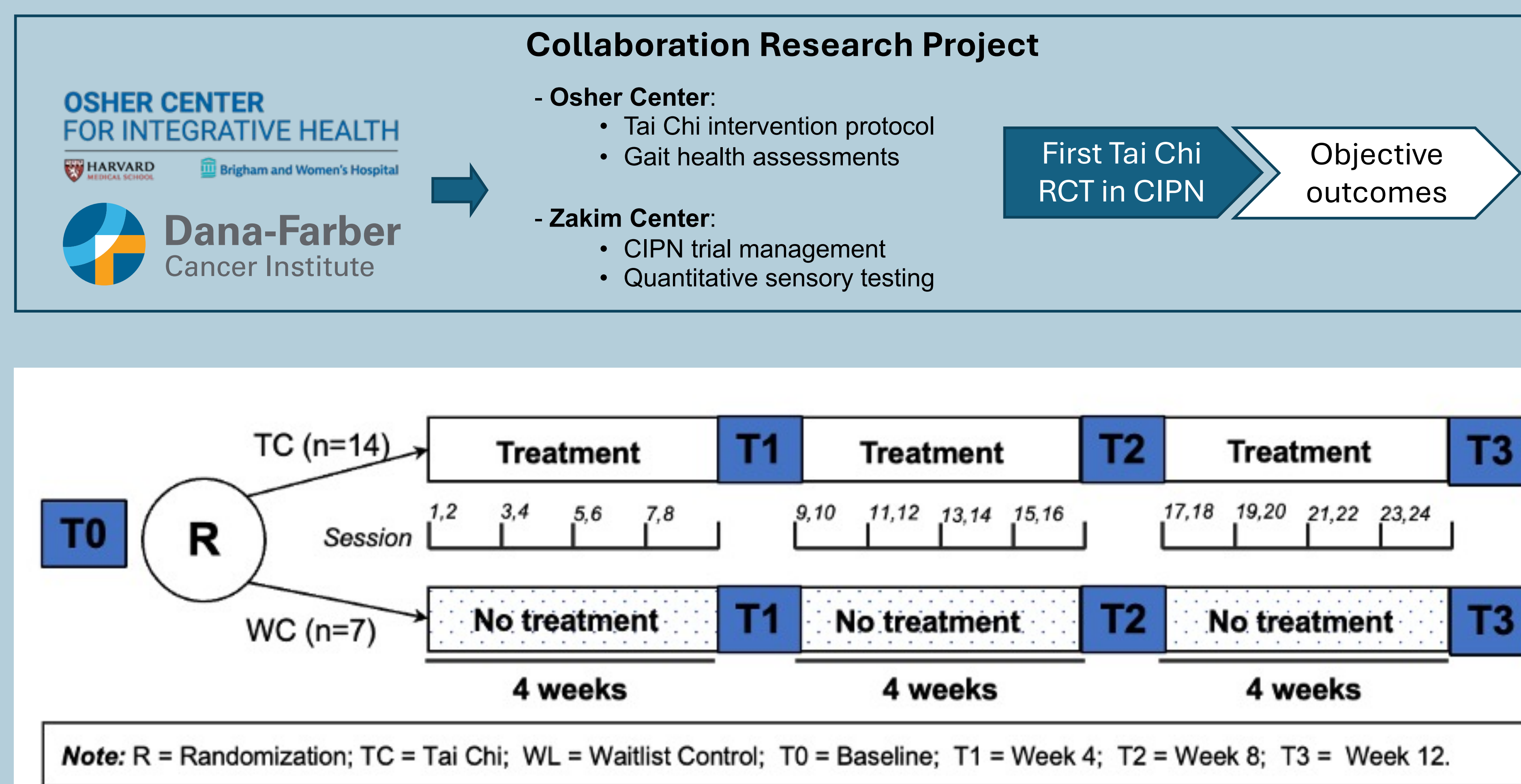


Figure 2: Study schema, with randomization, participant flow, and assessment

Conclusion

- Current evidence indicates that Tai Chi may enhance balance in people with PN, leading us to design a randomized trial examining its feasibility in cancer survivors with CIPN.

Acknowledgment: The Tai Chi for CIPN trial is supported by the Osher Pilot Research Grant (Discretionary Award) in 2024.