Project Background

Gait refers to the manner in which a person walks.

Patients affected by gait abnormalities use the Clinical Tape Ladder at home and in the clinic to improve gait symmetry.

Examples of gait abnormalities: Parkinson’s disease, stroke, paralysis, and other neurological disorders preventing symmetric gait.

Problem Statement

Patients struggle to get down on the floor and lay out individual pieces of tape – time consuming.

Patients will have blue painters tape in many parts of the house - eyesore.

Current format does not allow change in step length once tape is laid down - not adjustable.

Solution

Device that is:

• Portable - Size of a vacuum cleaner and can be stored in a coat closet.
• Facilitates gait symmetry practice.
• Cost-effective (Below $300 customer value).
• Simple and easy to use.
• Adjustable step length (10” – 26”).
• Rungs (targets) are clearly visible with low clearance for walkers and canes.

Benefits to Sponsor and Patient

The Expandable Gait Ladder will provide the sponsor with a more efficient method to administer gait-related therapies by addressing the issues with current approach. The device can be set-up and stored with minimal effort, giving users more time to carry out their therapy. With a simple method to adjust step length, the device can adapt to each user’s rehabilitation process. The overall result allows for the sponsor to better aid the patients being treated. The team engineered the Expandable Ladder to replace the Clinical Tape Ladder in helping patients practice their stride through repeatedly executing symmetrical length steps. The Expandable Ladder has a step length range of 10-26”, can be adjusted in 1” increments and is 3’ in height. There are nine evenly-spaced rungs that can easily be deployed as markers for patients to walk across.

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