

Tread Lightly

Stabilizing the elderly since 2010

User Population

Tread Lightly is designed for the elderly population that suffer from gait dysfunction; more specifically, wobbling and balance issues. It is designed for individuals that wish to remain physically active to reduce the risk of cognitive decline and improve psychological wellbeing. The user group may vary in age demographics but they are healthy enough for exercise and would like to stay mobile despite their balance issues.

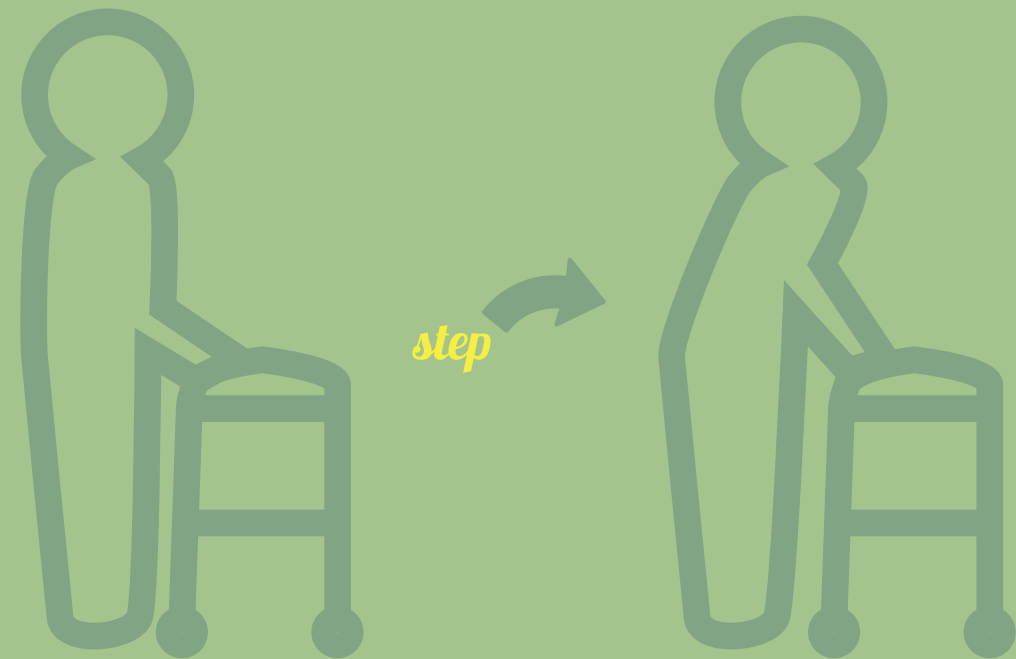
Behavioral Characteristics

The user is currently mobile with the assistance of a personal walker, but traditional walkers fail to provide enough lateral stability and support to prevent them from falling from time to time. The user suffers from wobbling and has problems during both static and dynamic balancing. When the user loses their balance, it caused by "Base of Support falls" or "Centre of Mass falls". issues.

The Problem Space

The current design of walkers for users suffering from balance related gait disorders, does not address the need for 180° support structures and creates an activity that promotes falling.

Traditional walkers use a frame that is placed in front of the user. Each time the user takes a step forward, a change in equilibrium is made due to an extension of the arms and flexion in the lumbar that can easy set the user off balance and create wobbles. This balance issue is only rectified once the user takes a second step forward to return to a normal prone position with full support of the walker under each shoulder.



The addition of wheels to the traditional walker design allowed for the user to more easily move forward with the mobility assistant but still provided little support in the case of misplaced balance. The walker will only support the user if they are to fall forward.

Rationale

The Tread Lightly walker provides the ease of motion functionality of a traditional walker using wheels with a support structure that wraps beyond 180° around the user.

The design keeps the user in an upright posture, to avoid changes in equilibrium.

It simply glides along while the user walks; regardless of their pace or gait disorder.

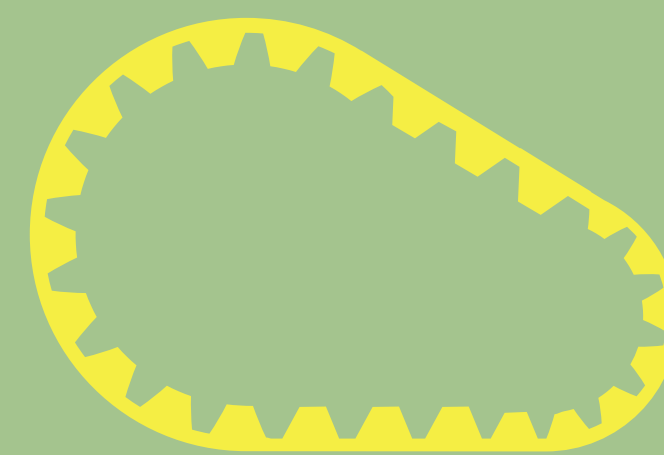
The Tread Lightly walker is made from light weight, durable, white carbon fiber with comfortable grips that give the user support in case of a forward or side to side fall.

Construction / Materials

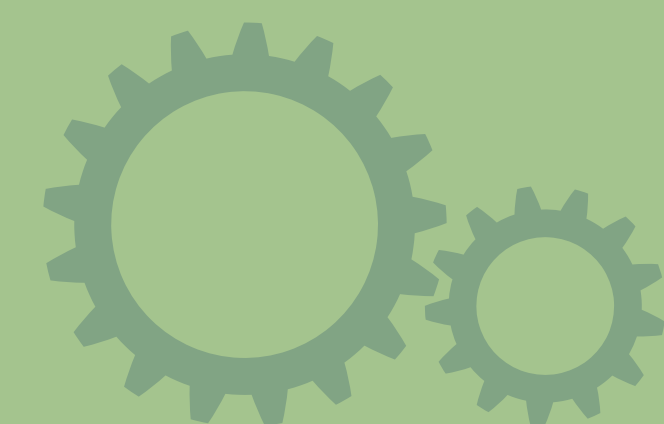


Light weight and durable carbon fiber body panels.

Large diameter padded handles for comfort and easy grip.



Strong polyurethane belt that provides great efficiency with the low tension. No motors, the belt moves as the user walks; at their pace.

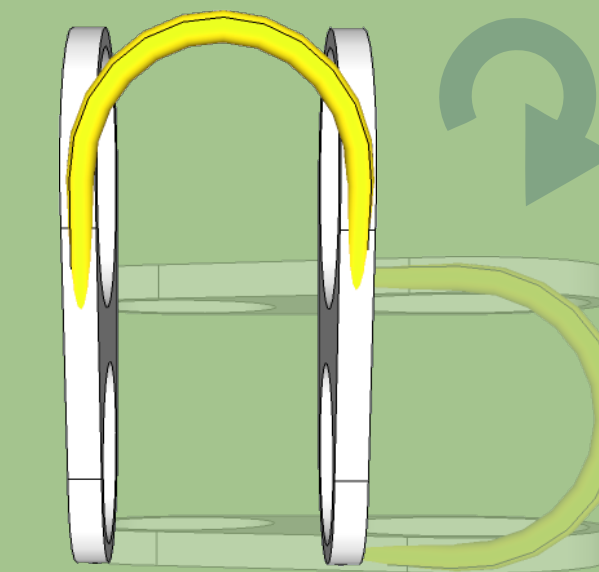
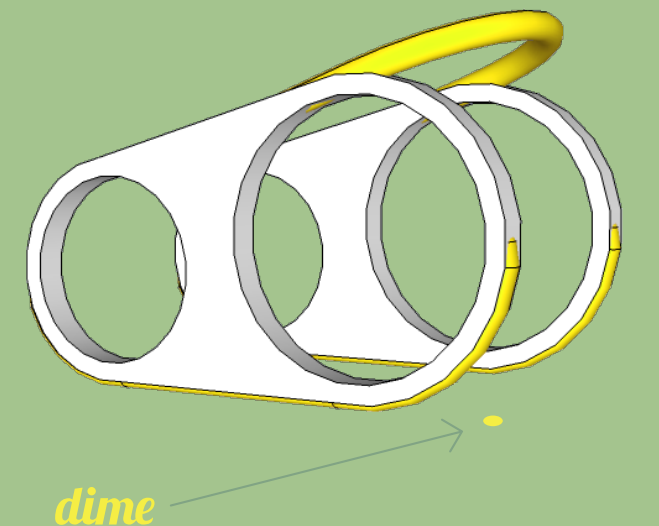


Polyurethane carbon internal gear set to keep the belt aligned and moving smoothly.

Additional Benefits

Lockable Treads

Independent tread breaks positioned on the handlebar allows the user to lock the treads in place to provide balance or stop on a dime.



Zero Degree Turn Radius

Allows the user to change directions without having to lift the walker.

Tread Surface Area

Better than four feet or small wheels, the treads offer superior traction and ease the effort of climbing stairs with a walker.

