The PeopleProp brace project spun out as a company, Abililife, which further developed the prototype and manufactured the brace for commercial use. Additional information about purchasing the brace can be found by visiting [http://www.abililife.com](http://www.abililife.com).

**people prop**

**a back brace for camptocormia**

Chava Angell1, Felix Chi14, Keith Joseph15, Liana Kong15, Victoria Patino12, Kenny Varner1, Courtney Williamson6, Wayne Chung5 and Conrad Zapanta1

1Department of Biomedical Engineering, 2Department of Chemical Engineering, 3Department of Materials Science and Engineering, 4Department of Mechanical Engineering, 5School of Design, 6Tepper School of Business, Carnegie Mellon University

**introduction**

People Prop is a custom-designed back brace that addresses the symptom of postural instability in Parkinsonian patients known as camptocormia.

Data was gathered from local support units such as the Parkinson’s Support Group in order to inform the design.

**background**

**General**

More than 1.5 million Americans live with Parkinson’s; 7-10 million worldwide.

No current cure for Parkinson’s itself.

Main courses of action – alleviate negative symptoms

**Camptocormia**

Postural instability characterized by forward and/or lateral flexion depending on the individual person.

Found in patients with Parkinson’s and similar neuromuscular diseases.

Asymmetric patients lack physical ability to self-correct posture.

Leads to other symptoms such as difficulty in breathing and fatigue.

**Neuromuscular Disease**

Any disease/aliment which impairs motor function.

Symptoms include “decrease in spontaneous movements, gait difficulty, postural instability”

**Proposed solution**

Back brace

Maintains proper posture

Can be worn in public

Compatible with daily activities

Provides a level of comfort which alleviates related symptoms of Parkinson’s

**market**

Sources of inspiration come from braces on the market including the Thoraco Lumbar Sacral Orthosis for post-spinal-injury, sports braces such as the Mueller Adjustable Lumbar Brace, and the Activaided Orthotics brace.

None of these, however, are designed specifically with the Parkinson’s community in mind.

**proposed solutions**

**Prototype 1**

Front closure made of nylon

Two-directional spandex on the sides

Elbow gusset gives nice support, but the length was too stretchy for the weight of the torso.

The elastic straps were shortened to increase the amount of stretch, but they were too stretchy for the straps to loop through.

**Prototype 2**

Front closure made of nylon

Two-directional spandex

Bungee cables incorporate a tensioning system

Incorporated a tensioning system to the brace.

The central aluminum panel now has a dual function: (1) it keeps the spine propped upright and (2) it keeps the brace from riding up when the bottom of the ‘y’ is pulled taught.

**Prototype 3**

Front closure made of nylon

Two in velcro straps for adjustable sizes in the front.

Tensioned straps keep shoulder pulled back, while the aluminum panel props the spine upward to achieve and maintain a straight and healthy posture.

**Prototype 4**

Front closure made of nylon

Two-directional spandex

Bungee cables incorporate a tensioning system

Incorporated a tensioning system to the brace.

The central aluminum panel now has a dual function: (1) it keeps the spine propped upright and (2) it keeps the brace from riding up when the bottom of the ‘y’ is pulled taught.

The metal closure was added to the top to keep the aluminum from popping out as a safety precaution.

**production costs**

<table>
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<th>Material</th>
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<tr>
<td>w/ 20% mark up</td>
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</tr>
</tbody>
</table>

**future intents**

Propose integration of brace with a harness that fits over the back of a chair to provide better stability to patients when sitting.

Add component to the brace to improve pelvic alignment/stability

Modify design to fit different body shapes/sizes

Address anatomical differences between male and female body types

Perform controlled, IRB-approved user-testing

Seek funding from technological incubators such as AlphaLab Gear

**special thanks**

We would like to thank Dr. Conrad Zapanta and Kenny Varner from the guidance and expertise with this portion of the project. As you know, the former university president William Green for his support and help. Additionally, we would like to thank Dr. Scott Beatty, Parkinson’s Foundation.

**references**


Statistics on Parkinson’s. (n.d.). Parkinson’s Disease Foundation (PDF).

Parkinson’s Disease. (n.d.). Cleveland Clinic.

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