

One-Thing-Straight: A mobile application-based technology for improving the posture of individuals with Parkinson's Disease

Value Proposition

Parkinson's Disease (PD) affects over six hundred thousand Americans, and these individuals often have a forward flexed, or bent posture. However, patients often have the musculoskeletal ability to improve their posture but lack postural self-awareness. For many patients, a notification of this deficiency is enough for correction. While there are other applications and technologies on the market that provide posture therapy and training, these applications were not created specifically to consider the needs of individuals with PD.

Technology

Duke inventors have developed a mobile application and microcontroller-based sensor intended to be used by individuals with Parkinson's Disease to improve their posture. This mobile health solution, named "One-Thing-Straight", consists of a small device enabled with an accelerometer attached to clothing near the neckline. This device communicates with a smartphone and sends a small vibration to notify the patient when their posture control has lapsed. Small and discreet, this solution provides continuous monitoring without the obtrusive instruction of a physical therapist or a postural test that would interrupt daily life. A prototype has been developed in collaboration with the Duke Institute for Health Innovation and has performed well in test trials.

Other Applications

While this application was created for individuals with PD, clinical staff have noted that it could also be used for orthopedic or cardiac populations as well.

Advantages

- Slim design that can be hidden under a shirt collar and provides unobtrusive notification sent directly to a cell



phone

- Daily and weekly summary reports are available that can be used to track individual's progress and be shared with clinicians or caregivers for intervention and monitoring
- Can be used while sitting or standing

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Meet the Inventors

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Publication(s)

External Link(s)

- [A collaborative project from a Duke Biomedical Engineering capstone design course](#)
- [A LiveWell RERC project](#)

