Mobility Aid Sensors

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Technology description

The CDC estimates that 6.5 million people use some sort of mobility aid, such as canes, walkers, rollators or crutches. Mobility aids can be of great assistance for elderly and disabled patients. However, patients often use their mobility aids incorrectly because they cannot tell how much weight they are putting onto them and lean on them too much. This is especially true for patients with postural instability, which is common in Parkinson’ s disease. Putting too much weight on a mobility aid leads to further postural instability and can cause harm and discomfort to the patient.
Researchers at Arizona State University and Dignity Health have developed a novel attachable system, which detects the amount of weight placed on a mobility aid, and helps with patient kinematic-awareness. This is particularly useful in patients with long-term loss of movement or those having a high susceptibility to falling. This device utilizes an alert, typically a vibratory alert, if too much force is applied to the mobility aid. The alert stops once the force is returned to a normal range. This inexpensive and portable device can easily attach to any mobility aid including walkers, rollators, canes and crutches. Additional signals, such as auditory or visual alerts, can notify physicians or caregivers of the excessive force as well.
This inexpensive system is designed to be attached to any mobility aid and provides immediate feedback to patients when excessive force is sensed. This system could improve posture and help prevent falls and discomfort to patients.

Application area

Attachable force sensing system for mobility aids
Walker
Rollator
Cane
Crutches

Advantages

• Helps improve posture in patients with long-term mobility loss
• Helps improve posture in patients with a high susceptibility to falling
• Modular – can be attached and detached from any mobility aid
• The alert can be vibratory for patients with hearing difficulties
• Relatively small and inexpensive
• Physicians or users can input threshold body weights
• Visual or auditory alert for physicians or caregivers

Institution

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