Western HealthSciences

Nervous System - Parkinson's Disease

The Unstable Tray Challenge

Parkinson's disease is an incurable, chronic, and slowly progressing neurodegenerative disorder. It is one of the most common neurodegenerative diseases in older adults, affecting approximately 10 million people worldwide. While the exact cause is unknown, Parkinson's disease has been linked to a deficiency of dopamine caused by the degeneration of dopamine-producing neurons in the substantia nigra region of the midbrain. The key physical symptoms include pronounced tremors (shaking), muscle rigidity, and bradykinesia (slowness of movement). Each of these symptoms contributes to the impairment of muscle coordination, body movements, and balance in individuals with Parkinson's disease. As the disease advances, health declines, increasing fall risk and later leading to cognitive decline, mood disorders, and dementia. Parkinson's disease significantly impacts daily activities, reduces one's independence, and lowers quality of life. This simulation provides volunteers with meaningful insights into the daily challenges faced by individuals living with Parkinson's by mimicking the hallmark symptoms – tremors, rigidity, and postural instability. This simulation aims to allow participants to understand both the physical and emotional strain experienced by those diagnosed, ultimately fostering greater empathy.

Materials

- Timer (stopwatch, phone, digital clock)
- Backpack (wrist weights, bean bags tied around the forearms)
- Tray (book, cutting board, any hand-held flat surface)
- Ball (any round object, smaller one for more sensitivity; larger one for less sensitivity)

Procedure

1. Ensure the backpack weight is challenging for the volunteer so they feel resistance.
2. Adjust the straps of the backpack so that it hangs on the volunteer's forearms.
3. Hold the tray in front and place the ball at the centre of the tray.
4. Set a timer of 2-3 minutes.
5. Walk straight slowly, trying to keep the ball in the centre of the tray.
6. Note any tremors, balance or muscle control difficulty.
7. Log the volunteer's performance

Reflection Questions

1. In what ways did the simulation impact your walking speed, posture, and overall coordination? How did this compare to when you were not experiencing impairments?
2. How did this experience change your understanding of the physical and mental effort required for individuals with Parkinson's disease to complete daily tasks?
3. How do you think these mobility impairments would affect an older adult's ability to complete daily activities? What challenges might they face, and what support could help them?