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ADL (Activities of Daily Living) Differences Amongst Healthy Older and Younger Individuals, Parkinson’s, and Stroke Populations

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Abstract

● Goal: compare the movements of varying populations using inertial sensors during ADL and sleep

● Hypothesis: We expect that the healthy individuals will have better transitions than the Parkinson’s and Stroke populations

Intro

● ADL is an important factor because:
  + It shows the health impact the illnesses have
  + Can be used as a predictor of the pathology of these illnesses

● Transitions will be measured by monitoring the L5/S1 vertebrae

● The sleep transitions of Parkinson’s and Stroke patients have not been previously studied before this study

● Currently no way to analyze this transition data

Materials and Methods

● The Dynaport (Motion Monitor+McRoberts BV, The Hague)

● Sensor is worn like a belt on the participants lower back, above the posterior iliac spine at the L5/S1 vertebrae since it is optimal positioning for measuring gait related movements

● The participants included in this study were ten healthy older individuals above the age of sixty-five and ten young adults (20 participants total)

● The sensors used were the same ones utilized by every participant

Results

The number of transitions in sleep phase 1 were significantly higher (p=0.01) than sleep phase 4 among all 4 groups (Healthy, young, old, PD and Stroke).

We found Healthy young and older adults had similar trends, however PD group had lower transition duration compared to other groups. Stroke individuals produced significantly higher transition durations during phase 4 of sleep (p=0.017).

We found participants of PD group produced maximum transitions of lower magnitude compared to other three groups (p<0.01). The transition range for PD group was significantly lower than Healthy young group (p<0.01).

Discussion

● In daily living activity, Stroke individuals had the lowest activity magnitude

● There was a trend that showed that healthy old and young people would perform better than Parkinson’s and stroke patients

● Parkinson’s patients were better at performing activities that had a low activity level

● These results will be able to help predict an individual’s health status in the future

References

Soangra, R. (2019, October 22).