P039 - KINEMATIC GAIT VARIATION IN INSTITUTIONALIZED ELDERLY –IMPLICATION TO PRACTICE

[1] **Jerin Mathew**, [1]Teresa Vanlalpeki and [1]Gishnu G Nair
JSS College of Physiotherapy
Rajiv Gandhi University of Health Sciences, Karnataka, India
Corresponding author email: jerinmathew65@gmail.com

INTRODUCTION

Aging is associated by marked by changes in basic kinematics in the lower limbs. The biomechanical and physiological significances of alteration in gait variability in elderly population are potential areas for research. Given the high incidence of mobility disability in older people, it is important to clearly characterize the relationship between ageing and gait variability at the earliest. Early identification of this characteristic particularly in spatiotemporal and kinematic variables can act as a precursor to implementing intervention strategies.

METHODS

This was an observational study conducted in a geriatric home, in India. All the residents of the institution were screened and forty individuals who used gait as the primary mode of ambulation with or without assistive devices were identified. Thereafter a stringent procedure of gait recording was performed.

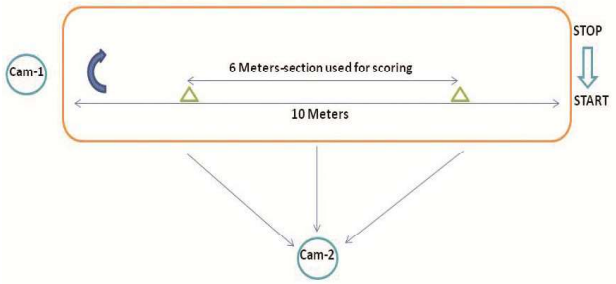

Figure 1: Diagrammatic representation of the walkway with relevant markings

The required parts of the body were exposed and markers were attached on the relevant bony landmarks. The individual was instructed to walk bare foot. A care giver accompanied the participant for safety but did not make contact with the patient. The area selected for the recording was a spacious platform of the study institution (14m×18m). Two web cameras of 'logistics 720 HD' (Patricoski & Ferguson, 2009), connected to two laptops were used for the recording. Both the cameras were mounted on stationary tripods. A tripod with camera was placed at a distance of 3m from the midportion of the walkway to record anterior and posterior views of ambulation (Gupta & Raja, 2012). The videos of each participant comprising of different views were imported to Kinovea 0.2.5 version, a motion analyzing software. Descriptive statistics of the data was done by compiling the ranges of motion at joint during the stance events of the gait cycle.

RESULTS AND DISCUSSION

We screened 20 men and 34 women. Out of this video recording of 19 men and 21 women were included for the analysis. The figures below are graphical representation of maximum angles at different events of the gait cycles.

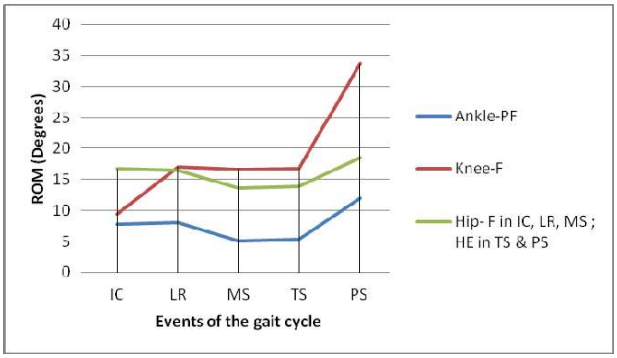

Figure 2: Range of motion in men at different events of gait cycles with the movement observed.

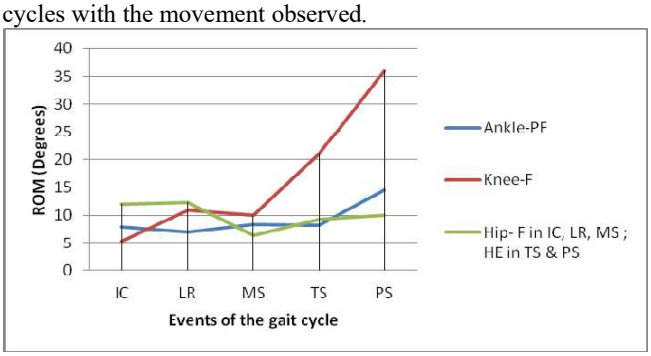

Figure 3: Range of motion in women at different events of gait cycles with the movement observed.

While looking into the spatiotemporal parameters of gait, the result demonstrates that, 36.8% men and 47.6% women have shown a reduction in step length on both the extremities. The gait velocity of all these individuals can be considered as pathological gait velocity (PGV<0.8m/s) (Montero-Odasso & Kaplan, 2016).

CONCLUSIONS

The results of this study show that there is a greater variation from typical, in the kinematic values in older adults. This is an important factor for early identification and management of gait variation in elderly to reduce the risk of fall and to improve the quality of life.

REFERENCES (1 of 10)

1. Perry, J.(1992). Gait analysis, normal and pathological function. Danvers, USA: SLACK Incorporated.
2.Patricoski, C., & Ferguson, A. S. (2009). Selecting a Digital Camera for Telemedicine. *Telemed J E Health,* 15(5), 465–475.
3.Gupta, S., & Raja, K. (2012). Responsiveness of Edinburgh Visual Gait Score to orthopedic surgical intervention of the lower limbs in children with cerebral palsy. *American Journal of Physical Medicine & Rehabilitation / Association of Academic Physiatrists*, 91(9), 761–767.
3.