The current study was carried out to explore the clinically applicable low cost assessment tools of gait analysis and then to compare different treatment approaches for the correction of the alterations found in the hemiparetic gait pattern.

The study comprised of two phases- Phase I and Phase II. In the first phase, thirty post stroke hemiparetic patients, aged 40-70 yrs were assessed for the gait parameters namely affected and unaffected step length, stride length, cadence, gait velocity, WGS scores and dynamic plantar pressure distribution using Harris mat. These gait parameters were compared with thirty asymptomatic subjects. In the second phase, eighty post stroke hemiparetic patients were included in the study.

The subjects were divided into four groups, A, B, C and D, with 20 patients in each group. Group A was given NDT based gait training along with conventional physiotherapy, group B was given lower limb strengthening along with conventional physiotherapy, group C was given static cycling along with conventional physiotherapy and group D was given conventional physiotherapy alone. The total treatment duration was of 8 weeks, with a frequency of 5 treatment sessions per week.

The results of the present study indicated that post stroke hemiparetic patients have decreased affected step length (t=15.19), unaffected step length (t=19.24), stride length (t=18.66), cadence (t=17.14) and gait velocity (t=21.26) and dynamic plantar pressure distribution (%) in the upper part of foot (t=4.57) in comparison to the control group of asymptomatic normal individuals.

Further analysis revealed that there was a marked difference in the level of improvement of affected step length (F=3.164), unaffected step length (F=3.65), stride length (F=4.0), cadence (F=5.408), gait velocity (F=5.272), WGS scores (F=10.277), voluntary control (F=5.572) and spasticity of lower limbs (Knee extensors, F = 9.638; Ankle plantar flexors, F=13.449) between the four different interventional groups. Overall, NDT based gait training along with conventional physiotherapy was more effective than other gait correction techniques.

In conclusion, the gait pattern of post stroke hemiparetic patients was substantially altered in comparison to age-matched healthy asymptomatic individuals. All the four interventional programs namely, NDT based gait training, lower limb strengthening, static cycling and conventional physiotherapy are effective in improving gait pattern of post stroke hemiparetic patients in terms of quantity and quality of gait. It is reasonable to conclude that amongst the four kinds of interventions studied in the current investigation, NDT based gait training has an edge over other three interventions studied in the current investigation. It is imperative to understand the gait deficiencies for devising the appropriate therapeutic interventions in normalising the gait pattern of post stroke hemiparetic patients.