

1. **Title of Research:** Comparison of gait with Ankle Foot Orthosis (AFO) and Functional Electrical Stimulation (FES) in patients following stroke.

2. **Background:** Evidence supports peroneal nerve functional electrical stimulation (FES) as an effective alternative to ankle-foot-orthosis (AFO) for treatment of foot-drop post-stroke, but no conclusive evidence to suggest that FES is superior to AFO for correction of foot drop (Hemiplegic foot).

3. **AIM:** To determine whether FES has any added benefits as compared to ankle foot orthosis (AFO) in post stroke patients, by measuring gait parameters.

4. **Objectives:** a. To compare spatiotemporal parameters between AFO and FES.
b. To evaluate ankle-foot kinematics in patient with stroke.

5. **Method:** The study was a non-randomized cross over trial. Twenty patients with history of cerebrovascular accidents, of at least 3 months duration, were enrolled. Patients were divided in two groups (group A and B) consisting of 10 patients in each group. Patients of group A were trained with Ankle-Foot-Orthosis (AFO) followed by Functional electrical stimulation (FES). Patients of group B were trained first with Functional electrical stimulation (FES) followed by Ankle-Foot-Orthosis (AFO). Primary outcomes - 10 meter walk test, 6 minute walk test, physiological cost index.

Secondary outcomes - step length, stride length, stance-swing ratio, single limb support, timed up and go test, Ankle kinematics, feedback for satisfaction level.

6. Results: Peroneal nerve functional electrical stimulation (FES) improved the walking speed (p value-0.0001) and endurance (Six minute walk test, p value-0.004) in both the groups when compared to ankle-foot-orthosis (AFO). Physiological cost index (PCI) was reduced with both AFO and FES as compared to baseline, however there was no statistical difference between AFO and FES. (p value- 0.46).

7. Conclusion: FES has positive orthotic effect on walking speed and endurance. FES was found to be effective to minimize ankle plantar-flexion during swing phase thus helps to restore normal ankle kinematics. Satisfaction level was higher with FES users.