

OC42: Early Postural Adjustments in gait Initiation in post-stroke subjects

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Introduction: The success of gait initiation depends of the ability on the central nervous system (CNS) to anticipate the perturbation related to the voluntary action through of postural adjustments: early postural adjustments (EPAs) and the anticipatory postural adjustments (APAs).

Objectives: To analyze: 1) the variation of muscular activity during the interval assigned to EPAs during gait initiation in subjects without pathology and post-stroke; 2) the differences on activation timing between groups; 3) the pattern of muscular activation observed in each group for the starting and the supporting member.

Materials and Methods: 19 post-stroke subjects (GP) and 20 subjects without neurologic pathology (GC) participated in the presented study. A force platform was used to define the initial moment (T₀) through the center of pressure (COP) displacement, and the surface electromyography was used to evaluate the bilateral muscular activity of tibialis anterior (TA), soleus (SOL) and gastrocnemius medialis (GM). Statistically, it was used a significance level of 0.05.

Results and Discussion: The EPAs were identified in GC about 401-564ms, while in GP were found between 325-668ms prior to the gait initiation. There were no significant statistical differences between timing of GC and GP. The pattern of muscle activation observed most frequently in both groups was TA activation, followed of SOL activation.

Conclusion: Both groups presented EPAs during gait initiation with similar activation timings. Comparatively to the pattern of muscular activation in APAs, it seems that can exist a different pattern of muscular activation in EPAs, TA activation prior of SOL activation.

References

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