E-Poster

EP-769

Predicting Falls in Older Adults Through Trunk Dissociation Measurement With IMUs (EPAD-C2 Study)

Topic: Specific Target Groups (Children, Women, Elderly, Athletes, Musicians, Refugees, Ethnic Groups, Workers, and Others)

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BACKGROUND

Falls are frequent in older adults and can lead to serious consequences. Current fall risk assessments often detect gait disturbances late. Loss of trunk dissociation is linked to fall mechanisms and may appear earlier. The EPAD-C2 study aims to compare trunk dissociation during gait in fallers and non-fallers, using IMUs to capture subtle differences.

METHODS

This monocentric, case-control study recruits participants from the gerontology department of CHU St Etienne, the PROOF cohort, and OSPA members. Cases are individuals over 75 with ≥ 1 fall in the past year; controls are age-matched, non-fallers. Trunk dissociation, the angle between pelvic and scapular girdles, is measured using two IMU BNO055 sensors during a 10-meter walk. Secondary outcomes include frailty (Fried score), acceleration variations between C7 and L5, and gait parameters (GAITRite). Statistical analysis involves t-tests/Mann-Whitney U tests and Pearson/Spearman correlations. The study aims to include 105 subjects (25 fallers, 80 non-fallers), though a data loss led to a count of 112 subjects (91 non-chuters) in the end.

RESULTS

Data collection is ongoing. Preliminary results, including IMU-derived trunk dissociation measures and their correlation with fall status, are expected for presentation in November.

CONCLUSION

EPAD-C2 investigates trunk dissociation, assessed via IMUs, as a potential early predictor of falls in older adults. Preliminary findings expected in November may highlight the utility of IMU-based assessment for targeted fall prevention strategies.

Statement of Disclosures

None

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