Movement analysis

Oral communications

CO056

Observational study of 180° turn using Inertial Measurement Units in post-stroke ambulatory patients
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and LP, but not between RP and LP. The spontaneous side of 180° external steps and mean angular velocity between HC and RP, HC Results data representation allowed to observe turning parameters. In recent post-stroke patients (< 6 months), none of the RP had a risk 4/4 versus 83% of the LP.

Discussion–conclusion This original study permitted us to observe spontaneous and constraint 180° turn in post-stroke patients using a synthetic representation with IMUs. Thanks to sensors, the foot on which the 180° turn was initiated could be determined and showed differences between RP and LP. Those results are consistent with fall epidemiology.

Keywords 180° turn; Fall; Stroke; Inertial measurement unit

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CO057

Kinematic analysis of the scapula after total anatomic and reverse shoulder arthroplasty
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Objective Scapular motion is essential for full, functional mobility of the arm. Many shoulder pathologies are associated with alterations of scapular kinematics which have been only little studied in total shoulder arthroplasties. The aim of this study was to compare the 3D scapula kinematics in two groups of patients with total shoulder anatomic (aTSA) or reverse (rTSA) arthroplasties to asymptomatic controls of comparable age during two arm elevation tasks (abduction and flexion) and two simulations of activity of daily living (“hair combing” and “back washing”).

Material/patients and methods Scapular kinematics was assessed using a Polhemus Fasttrak electromagnetic device in 14 patients with aTSA (and 14 controls) and 9 patients with rTSA (and 9 controls). The 3D rotations and the 3D displacements of the barycenter of the scapula were measured at 30°, 60° and 90° of humero-thoracic (HT) elevation. Patient groups were compared with each other by Mann–Whitney U test and with their respective controls by Wilcoxon test.

Results Scapulohumeral rhythm was reduced in both patient groups as compared with controls. Patients with aTSA showed more lateral rotation and more linear displacements of the scapula compared to rTSA and control groups. Nevertheless, the global kinematics pattern remained unchanged in both groups of patients.

Discussion–conclusion Patients showed a greater participation of the scapula in HT elevation movements and kinematic