REPRODUCIBILITY OF THE 3D TEMPORO-MANDIBULAR JOINT KINEMATICS

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SUMMARY

Clinical evaluation of temporomandibular joint (TMJ) kinematics requests repeatable and reproducible kinematic analysis. A novel method for the calibration of anatomical landmarks (ALs) using the finger pulp was previously developed to study the 3D joint kinematics of shoulder or foot with a motion capture system. To estimate the TMJ interexaminer precision, four observer have repeated twice on 2 subjects the palpation of 12 ALs located on the skull and mandible to build anatomical frames required for joint kinematic analysis. Precision was: - mean interexaminer error = 8.1 mm; - mean intraexaminer error = 3.8 mm (see figure). Between-days reliability of palpation was estimated by a same examiner who digitized the same 12 ALs twice on each subject the same session day and repeated the session one week later at the same day and hour. The mean intra session (day1 and day2) was 3.6 mm (SD 1.9mm) ; the mean intersession (between day1 and day2) was 3.5 mm (SD 2.0mm). The precision and the between-day reproducibility of the new method were satisfactory due to the use of a rigorous method with recommendations, guidelines and expertise. Propagation analysis of palpation error on slow and fast mandibular movement representation was also processed.