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Associations between neck kinematics and pain in individuals with chronic idiopathic neck pain

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Aim: To determine associations between kinematics and chronic idiopathic neck pain intensity.

Design: It is longitudinal cohort study.

Method: Three-dimensional motion capture quantified kinematics in 10 individuals with chronic idiopathic neck pain performing overhead reach to the right and putting on a seatbelt at baseline, 6 weeks and 6 months. Kinematic variables included maximum joint angle (°), time to maximum (% movement phase), total range of motion (°) and velocity (m/s) for head segment relative to neck (HN) and Head/Neck segment relative to Thoracic (HNT). Visual analogue scale quantified pain at each time point. Mixed regression models determined associations between pain and kinematic variables both over time and cross-sectionally at each time point.

Results: Higher pain associated with less maximum HN rotation at baseline (β=-0.32°, 95% CI -0.13 to -0.52, p=0.003; seatbelt: β=-0.52°, 95% CI -0.30 to -0.72, p<0.001), and less HN total rotation range of motion at baseline (seatbelt: β=-0.29°, 95% CI 0.10 to -0.49, p=0.006) and 6 months (reach: β= -0.19°, 95% CI -0.38 to -0.002, p=0.048). Higher pain associated with delayed timing to reach maximum HNT rotation over time (: β=0.46%, 95% CI 0.099 to 0.82, p=0.015). Pain not associated with other kinematic variables.

Conclusion: Higher neck pain associated with lower maximum and total rotation during functional tasks requiring cervical rotation. It supports clinical observation of altered movement strategies in individuals with chronic idiopathic neck pain.

Biography

Sarah Blyton has completed her Bachelor of Physiotherapy degree at the University of Newcastle, Australia. She currently works in private practice treating primarily musculoskeletal conditions and on weekends' works as a Physiotherapist for a local netball association.

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