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Title: Assessment of the Effects of Maladaptive Neck Posturing in Reconstructive Microsurgeons Using Real-time Ergonomic Monitoring: A heads up.

Body: Background: This study explores the prevalence of neck pain among head and neck reconstructive microsurgeons, quantifies time spent in maladaptive neck postures (>30° flexion) during free flap procedures, and identifies factors associated with symptomatic neck pain.

Methods: Microsurgeons from the Department of Plastic & Reconstructive Surgery, Beaumont Hospital, were prospectively recruited. The lead surgeon wore an Upright Go2 device to measure neck flexion >30° during (a)free flap raise and (b)micro-anastomosis. Surgeon characteristics, procedural factors, their impact on function and resilience were collated using the Extended Nordic Musculoskeletal Questionnaire (NMQ-E), the Neck Disability Index (NDI) and the Brief Resilience Scale (BRS).

Results: Five microsurgeons performed eight head and neck free flap procedures. Time spent in >30° neck flexion was 80.6% (SD ± 9.03%) of total procedural time during flap raise (mean time =1.69hours) compared to 7.8% (SD ± 13.14%) during micro-anastomosis (mean time =1.52 hours) ($p<0.0017$, Mann-Whitney U test). All participants acknowledged the role of biofeedback posture devices in surgical training, two surgeons expressed reluctance to use them intraoperatively.

Conclusion: Ergonomic maladaptive posturing was significant during free flap raise and poses significant concerns as an occupational hazard. Exploration of interventions is urgently required to mitigate long term musculoskeletal dysfunction in microsurgeons.

Authors: C. Canavan1,2, K. O'Reilly1,2, E. Phoenix1,2, B. Griffin2, L. Kelly2, S. Ibrahim1,2, J. Martin Smith1,2, B. O'Sullivan1,2, R. Dolan1,2.

Affiliations: 1. Department of Plastic & Reconstructive Surgery, Beaumont Hospital, Dublin. 2. University of Medicine & Health Sciences (RCSI), Dublin.