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ARE INDIVIDUAL RESPONSES TO MOBILISATION OF THE CERVICAL SPINE SPECIFIC TO THE TREATED LOCATION AND DISTINCT FROM GROUP RESPONSES?

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Purpose: To investigate whether the effect of manual therapy is specific to the treated location for individuals with non-acute neck pain.

Relevance: Common study designs compare the effectiveness of treatments across groups or subgroups, but rarely evaluate the effects of treatment for a given individual. This patient-by-treatment interaction is often assumed in clinical practice, where a patient's individual response to treatment guides ongoing management. To date the consistency of individual responses to treatment location, as distinct from group or subgroup responses have not been investigated for manual therapy.

Participants: Fifteen participants with a greater than two-week history of neck pain and limitation of movement, but who were not currently receiving treatment, were recruited from University staff and students. The mean Neck Disability Index was 26% (range 3%-48%) indicating low levels of disability. Reported maximum weekly pain ratings were 4.7/10 (range 2-5) and average ratings were 3.5/10 (range 2-7).

Methods: A repeated-measures double crossover design was employed where the same mobilisation technique was applied to each of two locations twice in an ABBA sequence. One location was selected as being likely to contribute to the patient's symptoms, and a second location was selected on the opposite side that was considered less likely to be symptomatic. Outcome measures were assessed by a therapist blinded to the intervention before and after each intervention. An electronic orientation sensor was used to measure range of movement (ROM) in neck rotation and lateral flexion to each side. Pain with each movement was evaluated on an eleven-point Likert scale.

Analysis: A multivariate analysis of variance was used, with change in ROM and pain being the dependent variables and treated location, direction of movement, and participant being fixed factors.

Results: There were no differences in either range of motion or pain for treatment locations or directions of movement. Treated location-by-direction of movement (p<0.001, F=7.459, DF=3) and participant-by-treated location-by-direction of movement (p=0.003, F=1.926, DF=42) effects were found for ROM indicating that change in individual directions of movement did vary with treatment location, and that these effects varied for individual participants.

Conclusions: For manual therapy treatment to the cervical spine, these data support the view that the effect of treatment on ROM is individual and specific to the treated location. Although based on a small group and utilising one technique in one region, the findings suggest that individual responses to treatment are consistent across repeated treatment applications and can occur independently of a significant group response. Further research is being undertaken to determine whether treatment effects vary for different techniques, and for different therapists treating the same location, and whether patient-by-treatment interactions also exist for other regions and types of treatments.

Implications: The findings support the common clinical practice of using an individual's response to treatment to guide ongoing clinical reasoning, and the view that there are individual differences in response that are independent of group responses. It is suggested that in addition to being a useful research methodology, double-crossover methods can be incorporated into day-to-day clinical practice to inform treatment decisions for individual patients.

Key-words: 1. Research Design 2. Cervical Spine 3. Individual treatment response

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Ethics approval: Ethics approval was obtained from the Griffith University Ethics Review Board and informed consent obtained from individual participants.

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