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Conference Abstracts

Sensitivity to pressure pain threshold decreases with repeated measurements, but there are significant individual variations in response

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Background: Pressure pain threshold (PPT) is frequently used in repeated measures study designs to evaluate the effect of interventions. It is not known how the sensitivity to PPT changes with repeated measures in an asymptomatic population or whether individual patterns of response differ from group responses.

Design: Observational study.

Participants: Two inexperienced testers; thirteen asymptomatic participants. **Intervention:** Pressure pain threshold was measured by two testers using two different protocols: (1) three consecutive measurements over a single body location, repeated at four different body locations (cluster protocol) and (2) performing one measurement of pressure pain threshold over each body location (four in total), repeated three times (circuit protocol). Tester, body location, protocol, and direction of testing were randomized. A third person recorded all values obtained.

Analysis: ANOVA with PPT as the dependent variable; protocol, location, and repetition (at each location) as independent variables; and subject as a random factor. Subject-by-order interactions were used to evaluate whether individual responses were distinct from group responses.

Results: There were significant differences between protocols ($p=0.002$), locations ($p<0.001$), subjects ($p <0.001$) and repetitions ($p=0.017$) with PPT increasing with subsequent repetitions to the same location. There was a significant subject-by-repetition interaction indicating that the rate and direction of change with repetition differed between subjects.

Conclusions: Although the two protocols have previously been shown to have similar repeatability, they do result in different measurements. The general increase in PPT with repetition suggests that there was generally an accommodation to the stimulus over the four repetitions. The extent of accommodation differed between individuals with some individuals consistently becoming more rather than less

sensitive with repeated measurements. Pressure Pain Threshold is commonly used to evaluate the effect of treatments, but even in an asymptomatic population, changes occur in PPT with repeated measurements. The question of whether an increased sensitivity with repeated painful stimulus is related to the presence or persistence of pain will be the subject of future research.