Determining Risk Factors for Neck Pain Development due to Smartphone Use Using the Pain Pressure Threshold Test

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BACKGROUND

• Smart phone use has become increasingly popular recently, especially in the young adult population.
• Neck flexion, the most common position when using a smartphone, has previously been linked to neck pain development.

RESEARCH QUESTION: Is thirty minutes of smartphone use linked to neck pain development?

HYPOTHESIS: Young adults who have never received treatment for neck pain will develop neck pain during smartphone use and will have different pain pressure thresholds after using a smartphone for thirty minutes.

METHODS

• 43 participants (17 males, 26 females)
• 100 mm Visual Analog Scale (VAS) used to assess participant’s current state of pain. A pain developer (PD) had an increase greater than 11 mm in their VAS during the smartphone use
• Pain Pressure Threshold (PPT) measured using digital algometer on 6 bilateral landmarks (tibialis anterior, splenius capitis, splenius cervicis, upper trapezius, levator scapulae, and sternocleidomastoid) before and after 30 minutes of smartphone use
• Two-way repeated measures ANOVA with one between factor (pain or non-pain developer) and a within factor of time (before and after smartphone use) for statistical analysis.

RESULTS

• 24 PDs and 19 NPDs
• Significant difference found between pain groups for the maximum Visual Analog Scale scores (Left) of the neck (p<.001) and thoracic (p<.001) regions
• Pain developers demonstrated higher maximum VAS scores than non-pain developers in both regions, differing by approximately 13.78 mm for the neck and 17.18 mm for the thoracic region

CONCLUSIONS

• More individuals developed pain in the neck or thoracic regions than did not develop pain, and the pain developers had a higher maximum VAS score than the non-pain developers
• Increase in PPT after 30 minutes of smartphone use could be due to a possible trigger point release in the splenius capitis
• PPT is likely not the best clinical to assess neck pain, and different clinical testing methods should be used in future neck pain studies

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