

Alexander Technique Classes Reduce Neck Pain and Alter Muscle Activation

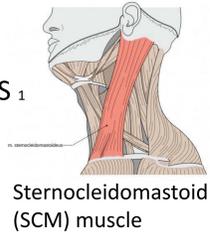
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Background:

- Neck pain is 4th leading cause of disability in US ¹
- Contributing factors include:
 - Sedentary work²
 - Overuse of superficial neck muscles³
 - Forward head posture⁴



Intervention:

- Alexander technique (AT) is a non-exercise approach to reducing musculoskeletal pain by improving awareness and decreasing excessive muscle co-contraction during everyday life activities.⁵



Shawn Copeland leads participants in Alexander technique class

Purpose:

- To determine whether group AT classes would decrease superficial neck muscle activation, improve posture, and decrease neck pain.

Acknowledgements:

- Funding was provided by the University of Idaho Office of Undergraduate Research.
- Brittane West, Makayla Sundquist, Jason Baer, and Daniel Kral helped with data collection.

Methods:

Design

- Single group
- 5 weeks of AT classes twice a week
- multiple baselines + retention
 - 5 weeks between each testing session

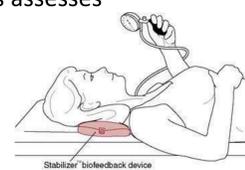
Participants

- 8 women, 2 men; highly educated
- Neck Disability Index > 16%
- At least 6 months of pain
- Not receiving treatment

Measures

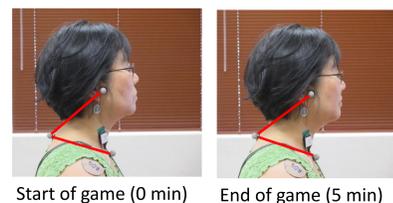
Electromyography (EMG):

- Record SCM muscle activity during:
 - Accepted Voluntary Contraction (AVC)
 - Craniocervical Flexion Test (CCFT):
 - Amplitude assesses overuse of superficial neck muscles
 - Frequency analysis assesses muscle fatigue



Forward Head Posture (FHP):

- Angles were recorded as participants play a 5-minute computer game

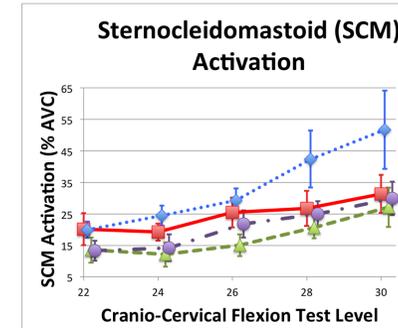


"Diner Dash" computer game

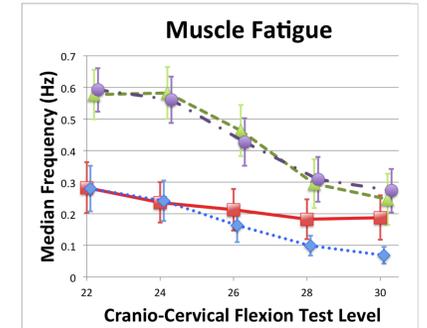
Questionnaires:

- Northwick Park Questionnaire (NPQ)
- Pain Self-Efficacy Questionnaire (PSEQ)

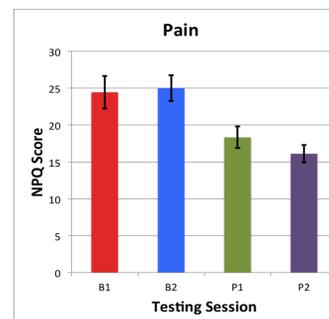
Analysis & Results:



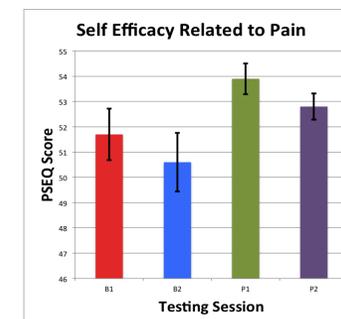
Surface neck muscle activation was greater at higher levels of neck flexion ($p < .001$) and lower after the intervention ($p < .006$).



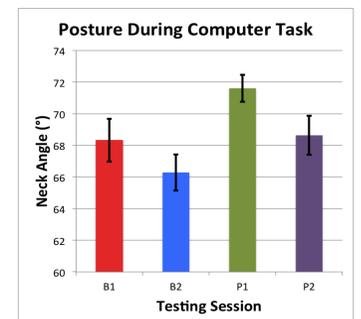
Neck muscle fatigue was greater at higher levels of neck flexion ($p < .001$) and lower after the intervention ($p < .001$).



Self-reported pain was lower after the intervention ($p = .02$).



Self-efficacy was higher directly after the intervention ($p = .02$).



Posture was more upright directly after the intervention ($p < .005$).

Mechanism: Decrease in pain was correlated with increase self-efficacy ($r=.45$), more upright posture ($r=.30$, NS) and reduced neck muscle fatigue ($r=.39$).

Feasibility: All participants who completed baseline testing also completed both post-tests. Subjects attended 85% of classes and reported that they learned useful skills and enjoyed the classes (average of 9.4 on 10 point scale).

Conclusions & Next Steps:

- AT class led to:
 - Reduced activation of surface neck muscles
 - Reduced neck muscle fatigue
 - Reduced pain
 - More upright posture
- Absence of improvement between baselines suggests that the effects were due to the intervention.
- Reduction in pain and fatigue were retained better than posture.
- We plan to seek funding for a larger study with a control group.

References:

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