Scholarly Article Critique

Student Name: Andrea Trebilcock

Case & Diagnosis: Case 7- Neck and Upper Back Pain due to desk sitting

Summary and Critique of Scholarly Articles

Title of Article: Central Adaptation of Pain Perception in Response to Rehabilitation of Musculoskeletal Pain: Randomized Control Trial

Add PDF link of article to website.

1. Article title information.

Andersen, L. L., Andersen, C. H., Sundstrup, E., Jakobsen, M. D., Mortensen, O. S., & Zebis, M. K. (2012). Central adaptation of pain perception in response to rehabilitation of musculoskeletal pain: randomized controlled trial. *Pain Physician*, *15*(5), 385-394.

2. Describe how this article is pertinent for your topic. Does it provide proof of a clinical concept? Does it explain a procedure that is needed for your topic? What are the implications for your topic?

This article investigate an intervention program designed to better understand the mechanisms behind musculoskeletal pain and adaptations in response to physical rehabilitation programs. This approach helps clinicians and researchers establish optimal treatment strategies to better assist client's rehabilitation when experiencing neck/shoulder pain. The article clearly outlines the procedure to be used, as well as a very detailed description of the 2 and 12 minute resistance training programs implemented during the RCT study. This procedure could then be applied to practice with clients experiencing similar pain, which is very relevant to the current case where Stephanie is experiencing neck/shoulder pain following prolonged sitting.

3. Write a precisé of the article, including:
    a. Purpose of the study
        i. The purpose of the present study was to investigate the effect of neck/shoulder resistance training on pressure pain threshold (PPT) of the painful neck/shoulder muscles and a non-painful reference muscle of the leg in adults with neck/shoulder pain.
    b. Research design of the study
        i. Examiner-blinded randomized controlled trial.
    c. Data collection and analysis
        i. 1094 screening questionnaires were used to collect a starting pool of 653 recipients. Through exclusion criteria,

258 subjects were examined to determined eligible participants for the RCT. 198 subjects were randomized into 3 groups; 2-minute group, 12-minute group, and a control group. The 2 experimental groups received either 2 or 12 minutes of specific resistance training performed 5 times a week. The control group received weekly information on general health. All groups were initiated simultaneously and lasted 10 weeks.

ii. Variables were analyzed following the intention-to-treat principle where subjects who had dropped-out were invited to the follow-up clinical examination. Authors performed a 2-way analysis of variance to model the change in PPT from baseline to follow-up. Authors accepted a 5% alpha level as statistically significant.

d. Outcomes of the study
    i. 10 weeks of neck/shoulder specific resistance training increased PPT of both the trained painful trapezius and the non-trained reference muscle of the leg when compared with the control group ($P < 0.05$). Therefore, this study provides evidence of central adaptations of pain perception in response to rehabilitation of specific musculoskeletal pain.
e. Did the author explain why the work was important to, in relation to the work of other researchers?
    i. This study was the first to investigate the effect of a minimal resistance training program on PPT of painful muscles.
    a. What are the conclusions?
        i. Following the 10-week intervention, PPT of the painful trapezius muscles increased ~11-13% in the training group when compared to the control group.
        ii. Therefore, as little as 2 minutes of resistance training a day can modulate mechanical pain perception of painful muscles. The authors implemented a realistic, digestible program that could be adapted for the majority of adults suffering from neck/shoulder pain when compared to more long-term intense programs that have been previously studied.
    b. If you found issues with the article, explain what your concerns are and how that will affect your reliance in the article as a source of good evidence for your topic.
        i. The article provided very clear and concise descriptions of the procedures and methods used to carry out the RCT. They utilized concealed randomized allocation of participants, as well as blinding of clinical examiners. Due to these factors and others described in the articles, I believe the

article is a good source of evidence to inform practice in the area of neck/shoulder pain. However, there is no discussion regarding the cause of pain which would make this article more relevant to our specific case which involves prolonged sitting as the culprit of the clients neck/shoulder pain. As well, the inability to blind participants to an experimental intervention of this nature can limit the objective nature of the results.