Scholarly Article Critique

Student Name: Paula Tactay
Component: Strength and Endurance Training
Case #: Case of Stephanie (Number 7)
Diagnosis: Neck and Upper Back Pain

Summary and Critique of Scholarly Articles

Title of Article: Implementation of neck/shoulder exercises for pain relief among industrial workers: A randomized controlled trial

Add PDF link of article to website.

1. **Article title information.**

Zebis, M. K., Andersen, L. L., Pedersen, M. T., Mortensen, P., Andersen, C. H., Pedersen, M. M., . . . Sjøgaard, G. (2011). Implementation of neck/shoulder exercises for pain relief among industrial workers: A randomized controlled trial. *BMC Musculoskeletal Disorders, 12*, 205–213. doi:10.1186/1471-2474-12-205

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?**

My component is on strength and endurance training which involves designing an exercise program that will help Stephanie relieve her neck and upper back pain. This particular journal article is relevant to Stephanie's case and my component because it discusses 4 different high-intensity strength and endurance training exercises using dumbbells for the neck and shoulder muscles, and 1 exercise for the wrist extensor muscles with details on how many sessions per week, specific length of each session, number of repetitions and sets. The exercise regimen that the researchers used was based on previous research conducted by Andersen and coworkers (2008), and to show its effectiveness, 282 industrial workers followed the strength and endurance training program while 255 (control) received advice on staying physically active for a period of 20 weeks. Subjective neck and shoulder pain intensity rate (0-9) were measured and changes were recorded. It was found that neck pain intensity decreased significantly among participants following the training program compared with the control group, showing the effectiveness of these exercises in relieving neck pain. Although, the participants in the study are not Graduate Students, they are industrial workers whose work consist of repetitive tasks, such as pipetting, preparing vial samples, processing data on a computer, tasks which require sitting and static work postures for extended periods of time. Therefore,

the exercises in this article are useful and can be used as a resource when designing an exercise program for Stephanie.

3. Write a precisé of the article, including:

a. Purpose of the study

The purpose of the study was to investigate the effect of a strength training exercise program at the workplace among industrial workers with non-specific neck and shoulder pain.

b. Research design of the study

This study was a cluster-randomized control trial involving 537 industrial workers with high prevalence of neck and shoulder pain. Participants were randomized into the intervention group following the strength-training program (282), and into the control group (255) receiving advice on staying physically active for a period of 20 weeks. The strength-training intervention group performed 4 different dumbbell exercises for the neck and shoulder muscles (front raise, lateral raise, reverse flies, and shrugs), and wrist extension for the wrist extensor muscles. The exercise regimen occurred three sessions per week, each for a period of 20 minutes. The participants in the control group were informed to stay physically active and deliberated with them once a week during the 20-week period.

c. Data collection and analysis

Neck and shoulder pain intensity were measured subjectively on a 0–9 scale, with 0 being no pain at all and 9 being the worst possible pain. The data were analyzed in accordance with the intention to treat principle.

d. Outcomes of the study

Overall, neck pain intensity was reduced by 49% among the strength-training intervention group, and 17% in the control group. Compared to the control group, the pain intensity in the neck decreased significantly (-0.6, 95% confidence interval -1.0 to -0.1) for participants in the training group, and pain intensity in the shoulder moderately decreased (-0.2, 95% confidence interval -0.5 to 0.1).

e. Did the author explain why the work was important to, in relation to the work of other researchers?

Yes, the authors provided justification as to why the study was completed. Neck and shoulder pain is one of the most frequent health complaints among adults. While there have been studies showing the effectiveness of strengthening exercises for neck pain among office workers, there has been little evidence for other occupational groups. Such groups include industrial workers who frequently

strain their neck and shoulders because of static working postures for prolonged periods of time.

f. What are the conclusions?

The authors concluded that the high intensity strength-training program on the principles of progressive overload decreased the overall level of neck pain among industrial workers. Additionally, the findings of this study provide a promising tool for reducing shoulder pain among industrial workers.

g. 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.

One issue with this article that will affect the reliance as a good source of evidence for my topic is that the study participants are industrial workers and not Graduate Students. However, because the work of the industrial workers in this study involved repetitive tasks, such as pipetting, preparing vial samples, processing data on a computer, tasks which require sitting and static work postures for extended periods of time, the findings of this study is translational Stephanie's case as she sits for long periods of time doing repetitive tasks resulting in a high prevalence of neck and upper back pain. Secondly, even though participants were randomized into intervention and control group, random selection was not performed in the recruitment stage, which would have greater enhanced generalizability. Furthermore, the intervention only lasted for 20 weeks and although changes were detected in neck and shoulder pain, that may be insufficient time to detect true change compared to if the strength training was performed for a one-year period.