Author's response to reviews

Title: The Effect of Chair Massage on Muscular Discomfort in Cardiac Sonographers: A Pilot Study

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Author's response to reviews: see over
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Nina Titmus
Scientific Editor
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Dear Ms. Titmus:

Please find attached a copy of our revised manuscript, “The Effect of Chair Massage on Muscular Discomfort in Cardiac Sonographers: A Pilot Study.” We appreciate the reviewers’ comments and have addressed each of them in the revised manuscript and below. We believe these changes have strengthened the manuscript and increased the clarity of several of the points we had hoped to make. Thank you for your further consideration of the revised manuscript.

Reviewer #1
Major Compulsory Revisions
1. The keywords are not MeSH terms.
This has been corrected.

2. The introduction of this manuscript includes a few vague statements without complete references.
The text has been amended and appropriate references added.

3. In the methods section of this manuscript, the authors describe the groups. One group is the stretching plus massage group. Why did this group include massage? If the stretching is considered usual and customary care by the Department of Physical Medicine, why would massage also be added?
Although sonographers are probably aware that daily stretching exercises might be helpful, they might not perform them due to time constraints. Our hypothesis was that massage plus stretching might be more helpful than either one alone.

4. There was no description of the number of massage therapists in this study or
years of experience.
This information has been included under Interventions Used: Chair Massage.

5. No baseline characteristics for subjects in the three groups were presented to determine internal validity.
The reviewer may have missed this, but these data are included under Baseline Characteristics in the Results section.

6. The results state that the baseline QuickDASH scores and work module scores were significantly lower in the control group than in the other two groups.
Why didn’t the authors control for this in the analysis?
The participants were randomly assigned to all 3 groups. We did not find any demographic factors to explain why the average scores for the QuickDASH or work module were lower in the control group at baseline.

7. No limitations are included in the discussion.
A brief discussion of limitations has been added to the Discussion section.

Minor Essential Revisions
1. In the results section of the abstract, the authors state “The separation test showed separation in favor of the intervention.” This is confusing because there are two interventions in this study. Please clarify.
This has been clarified. It is now stated as “The separation test showed separation in favor of the 2 interventions.”

Reviewer #2

1. Major COmpulsory Revisions
The articles lacks an appropriate introduction that provides the reader with a: A) rationale for investigating chair massage as viable treatment for soft tissue stress relief;
This was not included originally due to space constraints. We have now included a rationale discussion in the Introduction.

b) a purpose statement (this message is confused in the paper, there is a comparison of treatments as well as a desire to test the feasibility of these treatments in this population);
Our primary goal was to assess the feasibility of the intervention and to obtain baseline data by which we intend to power a larger study.

a clear hypothesis.
This has been added to the Introduction.

In the methods, there is no discussion of the level of pain of the individuals or whether the massage was intended as a relaxation or a therapeutic massage.
Pain levels are included in the QuickDASH test. Because of the length limit of the manuscript, we did not include another table with pain levels only. The Methods section has been expanded to indicate the role of the therapist, including diagnostic assessment and therapeutic intent.
It is not clear whether there was a single therapist or multiple therapists. In the methods it appears that there is a therapist, but later there is a discussion of therapists? Did they all deliver the same type of treatments.
The Methods section has been appropriately expanded to supply this detail.

Was there an assessment of inter-therapist results. That is, was there discussion reads more re a differnce in the DASH scores between therapists?
The Methods section now includes the method used to ensure uniformity in approach among the therapists. Since this was a small study, further analysis of the limited data according to the therapist was felt to be beyond the scope of a pilot study.

The discussion reads more like an introduction, providing the reader with the background of the sonographers injury rates and the use of massage therapy. Much of this could be moved into the introduction section. As such there is little discussion regarding the results in terms of changes to the DASH score and the role of each treatment.
A large section of background information has now been moved from the Discussion to the Introduction.

Minor Revision
Add a table of subject characteristics in the methods, including the level of disability, age, yrs as sonographer.
Space constraints would make this prohibitive. These data are summarized under Baseline Characteristics.

I would remove the figure on the subject recruitment flow as it adds nothing to the paper.
This has been removed.

Reviewer #3
Introduction
The authors mention several surveys – references required to support these Statements
The Introduction has been changed and references are included.

Given that Chair Massages was the main focus of the evaluation work the paper needs a short review of published peer reviewed work in this area. Dr Tiffany Field and others have published work on chair massage.
Selection of chair massage over table massage was based on 2 considerations: 1) ease and feasibility of use, and 2) ability to address the primary areas of musculoskeletal discomfort of the cardiac sonographer. A massage chair is easy to set up, does not need a great deal of space, can be provided in a semiprivate area, and is efficient to start and stop because the participant remains clothed. The cardiac sonographer is usually sitting and reaching forward or to the side, and the musculoskeletal imbalances show up primarily superior to the hips. We added several references regarding the value of chair massage in the Discussion. We propose that a more detailed analysis of chair vs table massage be reserved for the next manuscript.
Limitations

I think it would be useful to recognise that massage can have an effect on mood and interest in self-care - there may have been an impact of how participants adjust and manage their work to avoid/minimise strain. I think this needs to be acknowledged/discussed briefly.

We did not specifically query the participants in these regards. However, these are valid points which we plan to include in the subsequent study.

Thank you again for your consideration of our manuscript.

Sincerely,

Dietlind L. Wahner-Roedler, MD