A critical appraisal of "Noninvasive Treatment of Postpartum Diastasis Recti Abdominis: A Pilot Study"

By

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Abstract

The purpose of this evidence-based assignment is to appraise a research article addressing the effectiveness of transverse rectus abdominis (TRA) focused exercise program and kinesiotaping on decreasing the inter-recti distance (IRD) in postpartum women diagnosed with diastasis rectus abdominis (DRA). I selected this topic based on personal interest in diastasis rectus abdominis and selected this article using the National Library of Medicine (NCBI): PubMed. I then analyzed for strengths and weaknesses within each section of the research article. Overall, the authors provided many strengths and attempts at reducing bias to help prove the validity of this pilot study. The methods were articulated clearly and provided many strengths for replication. The results were presented in a confusing way, yet the limitations were clearly stated, and the authors humbly acknowledged the need for further research into correlating IRD with the secondary outcomes of low back pain and pelvic dysfunction. From my critical appraisal, the most significant weaknesses would be the lack of a physiological explanation of DRA, a lack of articulation on how to perform each of the exercises as well as the focus on the results that were not significant. This pilot study did conclude that evidence exists for decreasing IRD in postpartum women with a TRA exercise protocol is significantly better than taping alone or no intervention at all, thus supporting my original clinical question. This clinical appraisal assists readers in forming their own opinion on reliability and validity. With further research, I have confidence in implementing a TRA focused exercise program for women postpartum diagnosed with DRA to decrease IRD and potentially increase their quality of life.

Key words

Diastasis rectus abdominis, DRA, physical therapy, postpartum

Introduction

Diastasis recti abdominis (DRA) is a common condition in postpartum women defined as the separation or inter-recti distance (IRD) along the linea alba between the two rectus abdominis muscle bellies. Screening for DRA in prenatal and postpartum women is not routine; however, DRA is a common condition that can negatively affect women's quality of life. Many postpartum women also present with low back pain, pelvic pain, pelvic organ prolapse, and incontinence. Implementing a core strengthening exercise program focusing on the TRA to decrease the IRD reduces low back pain, pelvic pain, and incontinence. My clinical question is: In postpartum women, does core strengthening focused physical therapy decrease the severity of diastasis rectus abdominis?

Methods

I used the National Library of Medicine (NCBI): PubMed because of its comprehensive assortment of articles and high reliability due to its rigorous publication standards. The keywords I used in narrowing down my search were: diastasis recti abdominis, postpartum, physical therapy, and exercise. My search limits included female, English, free full text, humans, and randomized controlled trial. This search's inclusion criteria included female, postpartum, child-bearing age, and physical therapy as the intervention. These inclusions allowed for my search results to only include females of child-bearing age that had previously given birth with the diagnosis of diastasis rectus abdominis. My search resulted in 14 articles, at which point I began to review the articles.

This pilot study was performed by Lori J. Tuttle, PT, Ph.D., Jennifer Fasching, SPT, Allison Keller, SPT, Milan Patel, SPT, Chelsea Saville, SPT, Rose Schlaff, SPT, Alicia Walker,

SPT, Maureen Mason, PT, WCS, and Sara P. Gombatto, PT, Ph.D. All the authors aside from Lori J. Tuttle, PT, Ph.D., Maureen Mason, PT, WCS, Sara P. Gombatto, PT, Ph.D are Students of Physical Therapy at San Diego State University. This article was published in the Journal of Women's Health Physical Therapy in 2018. I choose this paper for a comprehensive critical appraisal because the authors addressed several aspects of a strong clinical research paper proving its validity and replicability. The first is the experimental design being a randomized clinical trial. Secondly, the principal investigator of the study, who conducted the ultrasound, was blinded to the groups' randomized assignment. Lastly, the investigators collected their follow-up measurements on all subjects in a time frame of 12-weeks, which eliminated a limitation that the intervention outcome was happenstance.

Results

Summary of the study

This randomized controlled trial's objective was to determine the effectiveness of selected physical therapy treatment on decreasing the IRD in postpartum women with DRA. They measured the separation of the rectus abdominis muscles by ultrasound imaging. There were four randomized groups; 10 TRA exercise participants, 8 kinesiotaping participants, 5 TRA exercise with kinesiotaping, and 7 control participants. Using questionnaires, they also looked at lumbopelvic and gynecological health problems as a secondary outcome, as DRA may be linked to these common health problems for postpartum women. The study concluded that the TRA exercise group with and without kinesiotaping saw the largest decreases in IRD. Further studies are necessary to determine the significance between TRA exercise only and TRA exercise with kinesiotaping.

Appraisal of the study introduction

The introduction is comprehensive and provides enough background information to inform the reader on DRA's definition and how it relates to the study, and the frequency of this condition affecting postpartum women. They also mention how one possible cause of DRA is a failed load transfer system in the lumbopelvic core and how this failed system could contribute to the association of other comorbidities. They also introduce past studies on how physical therapy methods targeting the TRA to treat DRA and the purpose of determining which noninvasive intervention effectively decreases IRD.

For a reader who does not have prior anatomy knowledge, especially of the abdominal muscles, more information about the structure and function of the rectus abdominis and a physiological explanation of how the linea alba stretches to create the IRD. An explanation of how TRA exercises physiological decrease IRD would also help the reader understand the pertinence of this study. I appreciated the inclusion of the appendix of the different exercise positions but would have liked to see this appendix's mention in the introduction. I also think the authors could have expanded on the instructions on each exercise so that novice exercisers can easily replicate and follow the intervention protocol.

Appraisal of the study methods

The study participants had similar sociodemographic and clinical characteristics; 6 to 12 weeks postpartum females with a palpable separation of the rectus abdominis who were 18+ years who had the ability to meet with the principal investigator for the initial and follow-up measurements. These 33 women were recruited from birth centers, new parenting groups, and by word of mouth in the San Diego Country, California. There was no difference in the groups; they

were randomly assigned based on a computer-generated randomization schedule. Each participant completed 12-weeks of their specific intervention, weekly check-ins, and a follow-up measurement. The intervention was described clearly and believe this study would be easily replicated or performed by other individuals in the future. A potential limitation in the intervention's replicability is ensuring the primary investigator receives similar training in the ultrasound measurements and kinesiotaping methods. The authors stated they lacked a formal reliability study for the primary investigator's ultrasound measures, even though ultrasound, in general, is a well-supported and reliable measure. They had attrition of three women who did not complete the study due to two women's inability to follow-up and one new pregnancy. Because this was a relatively small sample size, this attrition resulted in approximately 10% of lost data. A larger participant size would lessen attrition, but there is no way to prevent the participants from becoming pregnant during the 12 weeks. All of the participants had a newborn during the study's duration, making follow-ups difficult even if they were done in the participants' homes.

Appraisal of the study results

The results section including the tables were organized yet presented in a confusing manner. The results addressed the research question of physical therapy intervention effectiveness, emphasizing TRA exercise, and kinesiotaping for treating DRA in postpartum women. However, they focused more on what did not have significance rather than expand on their significant findings. The authors also effectively addressed the primary and secondary outcome results of IRD and self-reported low back pain and pelvic floor dysfunction.

The results of the study did contain a statistically significant difference in IRD between treatment groups based on $p > 0.05$. Based on the post hoc t-tests, both the TRA exercise with

taping and TRA exercise only groups were both significantly better at decreasing the IRD at rest and with the head lift compared to the other two groups. Neither the confidence intervals (CI) parameter or number needed to treat (NNT) were mentioned or described in the article. The authors mentioned the IRD change in the TRA protocol exceeded the MCID reported in the literature, however, did not mention the calculated value for their findings.

Appraisal of the study discussion

The authors tied their findings from the study into existing literature from primary sources of credible journals. They found that their reductions in IRD at rest were larger than the mean minimal clinically important difference of 0.41cm reported from existing literature. Also, their findings at rest of the mean IRD and with a head lift are consistent with other studies. Lastly, after the 12-weeks of intervention, the average IRD at rest and with head lift for both exercise groups were similarly reported in other studies. The conclusions are reflective of the results, and they humbly state that exercise targeting the TRA may be an effective treatment option for decreasing IRD in postpartum women with DRA but did not state it as an absolute based on their results. They also mention that they did not find any correlation between IRD and the participant's self-reported low back pain or pelvic floor dysfunction. They state again that further studies should be done with a larger sample size, broader population age range, and particularly patients with confirmed low back pain and pelvic floor dysfunction.

The study's limitations were recognized as a small sample size, lack of a priori power analysis, and a formal reliability study for the investigator's ultrasound measures. Another limitation was that the subjects completed the protocols at home, limiting the researcher's ability to ensure accurate taping or correct exercise performance and adherence. Subjects were also

allowed to supplement their intervention assignment with exercise. Participants tracked the type of exercise in an activity log, but not the duration or muscles targeted in the exercises. The supplemental exercises could have potentially influenced the effectiveness of the intervention group. The authors also mentioned that they did not include ethnicity or a measure of tissue laxity in the analysis, which could also interfere with the results.

Discussion

This study's clinical significance is to identify the most effective intervention for postpartum women to decrease IRD, potentially increasing their quality of life. DRA commonly presents with pelvic floor dysfunction, low back pain, pelvic pain, and urinary incontinence. It is also significant to know the prevalence of this condition and how it is still not a routine screening. Evidence exists for decreasing IRD in postpartum women with DRA with a TRA exercise protocol is significantly better than taping alone or no intervention at all. It is also clinically significant to know that the TRA protocol's IRD change exceeded the minimal clinically important difference reported in the literature. This pilot study was very relevant to my clinical question of whether core strengthening physical therapy decreases the IRD in postpartum women.

Despite not having clinically significant results, a core strengthening focused physical therapy exercise program targeting TRA would benefit postpartum women in IRD reduction. There is evidence for decreasing IRD with a TRA exercise protocol is significantly better than taping alone or no intervention at all. The authors suggest that further research should be conducted and should include a larger sample size and a comparison of TRA exercise with rectus abdominis exercise to decrease the IRD. They also suggest that subjects recruited to participate

should have confirmed low back pain or pelvic floor dysfunction to validate any findings of correlation.

I have confidence in this paper's research validity and would consider using the evidence of TRA focused exercises on decreasing IRD with my future patients. There is evidence that these exercises will decrease the IRD. Even though it was not proven clinically significant in this study that a decrease in IRD decreases low back pain, incontinence, or pelvic dysfunction, core strengthening is very important for everyone. If further research is conducted focusing on the secondary outcomes of pelvic dysfunction and low back pain, there would be a significant correlation in the decrease in low back pain and pelvic dysfunction and a decrease in IRD. I firmly believe that I could safely and appropriately implement the intervention in a clinical setting. The intervention of TRA focused exercises used in this study does not require any equipment and can be done in the comfort of the patient's homes. Educating patients and participants on the correct form for each exercise would be most important in implementing this intervention.

In conclusion, there is evidence that core strengthening focused physical therapy with TRA exercises can decrease the severity of the IRD in postpartum women diagnosed with DRA. This pilot study was relevant to my clinical question on whether physical therapy could decrease the severity of IRD. Tuttle's article is significant in starting the research to understand further how DRA affects a woman's quality of life, but further research needs to be conducted to ascertain the correlation between DRA and IRD with other conditions like pelvic dysfunction and low back pain commonly presented with DRA. With further research, I feel confident in the evidence presented to implement a TRA and core strengthening exercise program for my future patients who present to physical therapy with diastasis rectus abdominis.