The relationship of severity in diastasis recti abdominis and pelvic floor dysfunction: a retrospective cohort study. Fei H, Liu Y, Li M, et al. BMC Women’s Health. 2021;21:68-76. Doi:10.1186/s12905-021-01194-8.

INTRODUCTION

- **Prevalence:**
  - 27-100% in mid to late pregnancy (respectively)
  - 30-68% in postpartum period
- **Cause:** Unclear, appears to be influenced by relaxin, progesterone, and estrogen hormones
- **Risk Factors:** Obesity, multiparity, fetal macrosomia, flaccid abdominal muscles, multiple pregnancies
- **Contradictory evidence about association of DRA and pelvic floor dysfunction**
  - Literature supporting a possible relationship between occurrence of UI, POP, and fecal incontinence and women with DRA compared to those without DRA
  - Literature supporting relationship between abdominal muscle strength and pelvic floor muscle strength
  - Literature supporting patient’s with DRA may be more likely to develop pelvic floor muscle weakness
  - Some literature does not support correlation between DRA, POP, and LBP
- **Purpose of Study:** Explore the association with the severity of DRA for developing pelvic floor dysfunction among women during the first year postpartum

METHODS

- **Study Type:** Retrospective cohort study
- **Population:** 229 postpartum women (213 women met criteria), China
  - **Inclusion Criteria:** women over 18 y.o., postnatal follow up during during first year
  - **Exclusion Criteria:** undergoing a severe illness, uncompleted inter-rectus distance records, hx of abdominal or lower back surgery (except cesarean), hx of pelvic floor dysfunction
- **Variables Measured:**
  - Age, race, occupation, pre-pregnancy body mass index (BMI), predelivery BMI, postpartum BMI, height, weight gain during pregnancy, delivery times, weeks of gestation, newborn birth weight, type of delivery, academic degree
  - Inter-rectus distance (ultrasound >22 mm), waistline, POP-Q, medical history of UI (>2 times per week), strength of rectus abdominis muscle (MMT), strength of pelvic floor muscle (Oxford Scale), symptoms of lumbago or dorsalgia
- **Statistical analysis:** independent sample t-test, Chi-square test, Odds Ratio

RESULTS (PLEASE REFER TO ARTICLE FOR SPECIFIC DETAILS ON STATISTICAL VALUES):

- 213 Women total (DRA: 176 women, Non-DRA: 37 women)
Significant difference between groups in age and height → non-DRA group was slightly younger and taller

- Cesarean section and multiple parturitions greater in DRA group (39.8%, 56.3%) compared to non-DRA group (13.5%, 24.3%)
- Cesarean section and multiple parturition appear to be risk factors for developing DRA – odds ratio 3.48, 3.20 respectively
- No statistical differences between groups for POP, UI, abdominal weakness, pelvic floor weakness or lumbago

- DRA severity was broken into 3 groups: 30 mm, 40 mm, 50 mm
- No differences were found in POP or UI between groups

**DISCUSSION**

- Prevalence rates reported in this article: 82.6%. This is higher than others reported in literature: 32.6 – 60.0%
  - Likely due to use of different cut-off values and locations between linea alba
  - This article used 20mm at any point between rectus abdominis muscle to define DRA which is lower than most other studies which typically use 30 mm
- This study showed that there is no statistical difference in the relationship of DRA and PFD
  - A systematic review showed small association between DRA and POP but methods were weak
  - This study used ultrasound to measure inter-rectus distance which is more reliable and objective than finger width test
- Risk factors associated with DRA controversial in literature
  - This study showed Cesarean section and multiple parturition as risk factors while other studies reported these as not being statistically significant compared to non-DRA
  - Perhaps the sample size was too small in this study as other literature has larger sample sizes
- The hypothesis that the more severe DRA width would have greater incidence of PFD is incorrect according to the results of this study. No other literature was reported to have looked at this relationship.

**STRENGTHS**

- First study looking at the severity of DRA and its influence on occurrence of PFD
- Inter-rectus distance was measured via ultrasound – more accurate and reliable than fingerbreadth measurement
- A trained gynecologist and physiotherapist performed all measurements to decrease subjective bias

**LIMITATIONS:**

- Retrospective studies are not high on hierarchy of strength for evidence
- Sample size may have played a significant role in achieving accurate conclusions
  - Recommendations based on power calculation are 1000 for each group
- Pelvic floor muscle strength was measured via manual muscle test which is very subjective
- The data in this study were insufficient for detailed analysis on sexual function
• Relationship between DRA and PFD were only looked at in postpartum women – DRA may occur in nulliparous women and men

**CONCLUSION**

• No difference in occurrence of UI and POP between women with and without DRA
  o Even when controlled for DRA severity
• It appears there is no relationship between DRA and pelvic floor dysfunction
• Cesarean section and multiparous women appear to cause higher risk for DRA development

**IMPLICATIONS FOR PRACTICE:**

• The purpose of this study was to explore the association of severity of DRA for developing pelvic floor dysfunction among women during the first year postpartum. Although this study did not find an association between pelvic floor dysfunction and DRA, I think there are other factors we need to consider. This article only looked at incontinence, POP, and pelvic floor strength in terms of “pelvic dysfunction.” I think that the lack of variables measuring pelvic pain is a major limitation of this study. Another consideration is that Transversus Abdominus activation and strength was not considered as well as the fascial integrity and depth of the DRA. We are learning that there are many other factors to consider in addition to the inter rectus distance for patients presenting with DRA.² Lastly, I do find it interesting that the severity of DRA did not show statistical significance in the variable measured – perhaps we should be looking at other factors and not let the width of separation bias our treatment and plan of care.

**DISCUSSION QUESTIONS:**

1. In your clinical experience, have you found benefit to including pelvic floor strengthening for patients with primary complaints of DRA and abdominal weakness postpartum?
2. This article found no relationship between pelvic floor weakness specifically POP and UI and DRA, are there other pelvic floor dysfunctions that you frequently see associated with DRA postpartum? Why do you think this is?
3. What other factors besides inter-recti distance do you look at for your DRA patients?
4. Thinking back to our April discussion on hypermobility, do you screen for and/or consider hypermobility during your evaluation and treatment of patients with DRA and abdominal weakness?

¹Lee D, Hodges PW. Behavior of the Linea Alba During a Curl-up Task in Diastasis Rectus Abdominis: An Observational Study. J Orthop Sports Phys Ther. 2016 Jul;46(7):580-9. doi: 10.2519/jospt.2016.6536. PMID: 27363572.