



## An Overview of Diastasis Recti Abdominis Research in Postpartum Women

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### Description

Local and systemic changes that occur during pregnancy and child birth return to pre-pregnancy state during the postpartum period which is marked by musculoskeletal issues due to hormonal influence. This in turn adversely affects the rectus abdominis muscle causing Diastasis Recti Abdominis (DRA).

To analyze the prevalence, commonly used assessment techniques, treatment options, and research output of DRA in postpartum women.

The trend in research in the field of DRA and postpartum has increased drastically in recent years. Ultrasound imaging was found to be the most reliable tool of assessment in DRA although palpation is clinically accepted as a reliable method. There is evidence from the literature supporting the high prevalence of DRA which needs to be addressed. International guidelines for the cut-off value for IRD to determine the DRA along the linea alba is lacking. Efforts are necessary to determine better strategies to prevent DRA and IRD, thereby reduce the incidence of secondary hernia and its complications. The awareness about the antenatal and postnatal care is equally important which requires contribution from clinicians across the health care profession.

Abdominal wall is essential for the optimum functioning of the lumbo-pelvic region through multiple mechanisms which include the transfer of force through fascia by tensing it. Pregnancy affects the rectus abdominis muscle which alters its attachment due to the growing belly. Stretching and thinning of the Linea Alba (LA) increases the Inter Rectus Distance (IRD) and separates linea alba. The alteration in the spatial relationship of muscle angle and attachment may alter the line of action of the muscle and thus their ability to produce torque. Diastasis Recti Abdominis (DRA) may be defined as "an impairment characterized by the separation of the two rectus abdominis muscles along the line alba". Immediate postpartum, the prevalence of DRA above the umbilicus is 68% and that below the umbilicus is 32%. DRA may result in herniation of abdominal viscera and a considerably large DRA may hamper the posture and interfere with trunk flexion, rotations, ventilation, and trunk stability. This may cause compromised support for the organs in the abdominal and pelvic region. A larger percentage of patients with DRA were diagnosed with urinary incontinence, fecal incontinence, pelvic organ prolapse and myofascial pelvic pain. Long term manifestations of DRA are back pain, poor posture, pelvic floor problems and gastrointestinal disturbance.

Various methods are in practice to assess DRA, such as finger width method, ultrasonography, calipers, tape measurement, Magnetic Resonance Imaging (MRI), Computerized Tomography (CT) scans and Biodex system-4. Conservative management of DRA focuses on postnatal exercise which alleviates postnatal depression, limits the DRA progression, increases the general well-being of the women, improves the cardiovascular endurance and stimulates the weight loss. Surgical management (Abdominoplasty) is indicated if a woman has failed to restore her optimal functions like transfer of load through pelvic girdle, resolve pain or pelvic floor problems and restore gastrointestinal disturbance after an optimal rehabilitation at the end of one year postpartum or if the IRD is very severe and the abdominal content can be palpated or if there is a hernia and if there is unlocking of sacroiliac joint or pubic symphysis during single leg raise.

"Bibliometrics is a systemic method for evaluation of research output that can help map changes in the interest of scientific community over time and can provide insights into both quantitative and qualitative research trends on specific topic". To the best of our knowledge, there is no bibliometric analysis done specifically in this area. Hence, this study is being considered to provide an accurate survey of the published research work and examine the trends within this research discipline and also, to attempt establish the lacunae in this field of research so as to give a direction to the future research work in DRA and postpartum.

Ultrasound Imaging which is widely accepted as a reliable tool to measure DRA, was used in 22 studies. Finger width method was found to be the second most commonly used outcome measure to assess DRA and was used in 14 studies, followed by calipers, which were used in 9 studies.

Visual analog scales (Cronbach's-alpha of 0.9117), pelvic floor distress inventory (Cronbach's alpha 0.71-0.84), pelvic floor impact questionnaire (Cronbach's alpha 0.88- 0.94) and modified Oswestry low back pain disability questionnaire (Cronbach's alpha 0.8107) were used in the studies to rate pain, quality of life and activity of daily living outcomes. Pelvic floor distress inventory (Cronbach's alpha 0.71- 0.84) and the pelvic floor impact questionnaire (Cronbach's alpha 0.88-0.94), were used to assess low back pain and pelvic floor problems secondary to DRA.

Abdominal exercises were found to be widely used to reduce the DRA in postpartum women and were noted to yield positive results. Transverse Abdominis activation was found to be helpful along with adjuncts like Kinesio Taping and abdominal Corsets. Plastic and Reconstructive Surgery Journal had a maximum number of citations from 2001-2013

### Analysis

Our analysis reveals the prevalence of DRA to be 100% at gestational week and naturally fades off to around 35% at 6 months postpartum. The findings of our study are consistent with previously published prevalence studies. Furthermore the prevalence of DRA increases with parity and surgeries of the abdomen. The prevalence of DRA was similar among multipara and primipara at umbilicus but below the umbilicus, multipara had more. DRA is usually linked to many other conditions like myofascial pelvic pain 33%, urinary incontinence 48%, fecal incontinence 7%, uterus prolapse 52%, bladder prolapse 57% and rectal prolapse 43%. Studies have shown an

association of DRA with conditions like low back pain and lumbopelvic pain.

According to 'Noble Criteria', DRA is said to be positive if a gap of 2 finger width is present at the umbilicus, above the umbilicus or below. One of the studies that was published in the year 1987 states that the anterior aspect of the rectus sheath is presumed to be stronger below the umbilicus as all the four muscles of anterior abdominal wall cross below the umbilicus, thus the additional reinforcement prevent the separation of Rectus Abdominis below umbilicus. The two heads of the rectus abdominis muscle resemble "V" as they originate at the pubis. The criteria of more than two finger widths, therefore, may not be appropriate below the umbilicus. A separation of greater than one

finger width might be indicative of significant DRA below the umbilicus. A cadaver study carried out in 1996 concludes that IRD more than 10 mm above the umbilicus, 27 mm at the level of the umbilicus and 9 mm below the umbilicus could be pathological DRA. Another study published in 2005 proclaims DRA as a widening of the IRD more than 2.5 cm at one or more assessment points using digital calipers. A study published in 2009 suggests that in nulliparous women, the linea Alba should be considered normal when the IRD width is less than 15 mm, at the xiphoid level, 22 mm at 3 cm above the umbilicus and 16 mm at a level 2 cm below the umbilicus. Hence, standardization in this regard needs to be established.