

DIASTASIS RECTI ABDOMINIS REHABILITATION IN THE POSTPARTUM PERIOD

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Diastasis recti abdominis (DRA) is a connective tissue condition characterized by separation of the two rectus abdominalis (RA) muscles along the linea alba (LA) primarily affecting women ante and post-natally. Prevalence varies between 66 and 100% in the final trimester of pregnancy. Natural resolution occurs during the first 8 weeks postpartum, but recovery might still be going in the following months. DRA is present in 36% of women at 12 months postnatally. Diagnosis and assessment are performed via inter-recti distance (IRD) measurement by palpation, calipers and most reliable by ultrasound. Currently there is no consensus about cut-off points for diagnosis (according to some researchers ultrasound measurements of 2.2-2.3 cm at the umbilicus). Clinical signs in DRA are abdominal bulging (visceral protrusion between rectus bellies) and abdominal invagination (linea alba posterior distortion). DRA can cause modification in muscle pull angles, change body mechanics and impair the ability of the abdominal muscle to generate force and the ability of the fascia to transfer loads across the midline. There is a weak evidence on the effect of DRA on trunk and pelvic dysfunctions. DRA management should be primarily conservative (recommended for at least 6 months) in which physiotherapy is the gold standard.

Surgical interventions (reduction of the IRD through plication of the linea alba and anterior rectus sheath with or without a mesh) are option for severe cases where conservative treatments fail or concomitant symptomatic hernia is present. DRA exercises focus on deep and superficial muscles, pelvic floor muscles, respiratory maneuvers, functional exercises (planks, bridges, squats), alternative interventions (yoga, suspension training, abdominal hypopressive exercise-AHE) and adjunct modalities. Abdominal muscle training utilizing exercises for RA muscles (crunches, curl-ups, sit-ups, posterior pelvic tilts) and exercises for oblique abdominals (trunk/Russian twist, twisted curl-ups), eccentric contractions (reverse sit-ups, reverse trunk-twists), exercises activating transversus abdominis (TrA) muscle (abdominal drawing-in maneuvers/static abdominal contractions). DRA reduction during curl-up in women with vaginal deliveries and in those with Cesarean sections was found to be similar. Researchers investigating TrA contractions via ultrasound, using the abdominal drawing-in maneuver (ADIM) on DRA patients, found an immediate IRD increase, attributed to the muscle's transverse fibers and pull angle and tension of the LA minimizing distortion. In a good-quality RCT TrA exercises from various positions in DRA women showed a significant IRD decrease after 12 weeks, compared with only the taping or the control group. In observational studies, IRD increased with TrA pre-activation during curl-up compared with no pre-activation. Lee and Hodges observed an IRD increase during ADIM compared with curlup and noted LA distortion (anteriorly or posteriorly) during curl-up, which was reduced with deep and superficial abdominal co-contractions. A good-quality RCT

included a modified eccentric-based sit-up from an upright seated position, which improved muscle strength and reduced abdominal bulging. Theodorsen et al. found that both TrA and pelvic floor muscle training (PFM) increased IRDs, whereas TrA and PFM co-contracting resulted in the largest IRD increases. IRD decreased significantly across groups performing functional exercises. Alternative exercises, such as electromyographic-biofeedback PFM exercises, suspension training, yoga, AHEs, and low-impact aerobic and resistance training were of a fair-quality trials and/or without significant differences. There is not enough evidence to support the use of elastic tape in DRA rehabilitation. Exercise therapy might be an effective approach for treating DRA and improving overall function. However, most studies are of low methodological quality, great heterogeneity regarding DRA severity and location, IRD measurement methods, cut-off points, sample sizes, time postpartum, exercise program duration and frequency thus providing very low quality scientific evidence to recommend specific exercise programs in the treatment of DRA postpartum.

Keywords: Diastasis recti abdominis, Rehabilitation, Postpartum

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