

Effect of core stability exercises on diastasis recti and lumbopelvic pain in postpartum females: A descriptive case series

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Objective: To find the effects of core stability exercises on Diastasis Recti and Lumbopelvic pain in postpartum females.

Methodology: This descriptive case series study was conducted in Gynecological Department of Cantonment General Hospital, Rawalpindi from October 2019 to January 2020. A sample of 15 patients was selected using non-random convenience sampling with increased Inter-Rectus Distance and Lumbopelvic pain. The effect of Core stability exercises was observed on variables over duration of 4 weeks. The treatment outcomes were measured on the first day and

then after 4 weeks (12 sessions) from each subject. Data were analysed using SPSS 25.

Results: All fifteen women reported a reduced pain and decreased inter rectus distance over the intervention period.

Conclusion: The Core Stability Exercise program was effective in treating Lumbopelvic pain largely in relation to decreasing the distance of two recti muscle bellies in postpartum female.

Keywords: Diastasis Recti, IRD, Lumbopelvic pain, NPRS.

INTRODUCTION

Diastasis Recti Abdominis (DRA) can be described as the segregation along linea alba of two muscle bellies of rectus abdominis.^{1,2} The separation of 2 fingers apart is sensed upon palpation along the length of muscle i-e 4.5 cm above, at and below the umbilicus region.^{2,3} Diastasis Recti is common during and after pregnancy and has been suggested as a cause of lumbo-pelvic instability and pelvic floor weakness.² Pregnant female experiences increased rectus distance mostly during last trimester and postnatal period, mainly due to increased age and obesity.^{3,4}

An increased distance of approximately 2.7 or above at umbilical region is considered as true diastasis recti. Most of the women, around 70% and more, come across this pathological separation of two muscle bellies in late gestational and during postnatal period due to any stressful delivery of the child.^{4,5} Women experiences higher degree of abdominal and pelvic pain with prevailing diastasis recti.^{6,7} The angle at which abdominal and pelvis muscles are attached, are highly affected by these changes, hence altering the normal biomechanics of the body posture resulting mainly in enhanced anterior pelvic tilt.^{8,9} There are many predisposing factors that cause the problem i.e. fetal macrosomia, multiparty, obesity, polyhydramnios, flaccid abdominal muscles and multiple pregnancies.¹⁰⁻¹² DRAM is 100% prevalent during 35 week gestation period and can persist postnatal or up to 6 months postpartum duration (30%-60%).¹³⁻¹⁵

The Palpation method is used to measure the Inter-Rectus Distance where the patient is asked to lay in supine or crook lying position while the therapist places his two or more fingers (breaths $\approx$ 2 cm) in the sulcus between the medial borders of the Rectus Abdominus muscles. Then a ruler is used and placed on fingers to obtain distance in centimeters. If there is widening of > 2.7 cm at the level of the umbilicus then it is considered as diastasis of the Rectus Abdominis muscle.^{16,17}

Many conservative treatment options can be applied including a postural training methods, a manual therapy (soft tissue mobilization, myofascial release), Pilate's functional training, the Noble technique (manual approximation of rectus abdominis muscles during a partial sit-up), Tuplers technique, the tubigrip or a corset, aerobic exercises, abdominal bracing and taping.¹⁷ In Pakistan, there is no concept of antenatal classes that aims to teach the pregnant female about the consequences of pregnancy and the physiological changes occurring in the body. This study tends to encourage women regarding the importance of exercises and the positive effects on reducing back pain.

METHODOLOGY

This descriptive case series study was conducted at Gynecological department of Cantonment General Hospital from October 2019 to January 2020. Fifteen females from age range 20 to 40 years were included through Non-random convenience sampling. Women 2-

3 weeks postpartum having Diastasis Recti with an increased distance of 2 to 3 fingerbreadths (1.5 to 3 cms) and lumbopelvic pain were included in the study. The exclusion criteria were sacroiliac joint dysfunction, piriformis syndrome, disc herniation, sciatica, spondylosis, rheumatic diseases, malignancy, bone tuberculosis, spondylolisthesis and fibromyalgia.

The study has IRB/Ethical approval from IRB/Ethical Review Board of University of Lahore and also from Cantonment General Hospital, Rawalpindi and every subject signed an informed consent. The patients were treated with static abdominal exercises bridging exercise, straight leg raising, abdominal crunches and Kegel exercises for pelvic floor muscles in order to strengthen the core muscles and to decrease pain. The outcome variables were measured on first day and then after 4 weeks (12 sessions) of treatment administration from every subject's pain and distance through Numeric pain rating scale and Palpatory method, respectively.

Statistical Analysis: The data analysis was done using SPSS version 25.

RESULTS

Every Patient with mean age of 29 years experienced different baseline values of inter rectus distance (IRD) and lumbopelvic pain. The mean Pre-IRD was 2.48 ± 0.55 and mean Post-IRD was 2.29 ± 0 and Mean Pre-NPRS was 6.73 ± 1.09 and mean Post-NPRS was 4.27 ± 1.22 (Fig. 1).

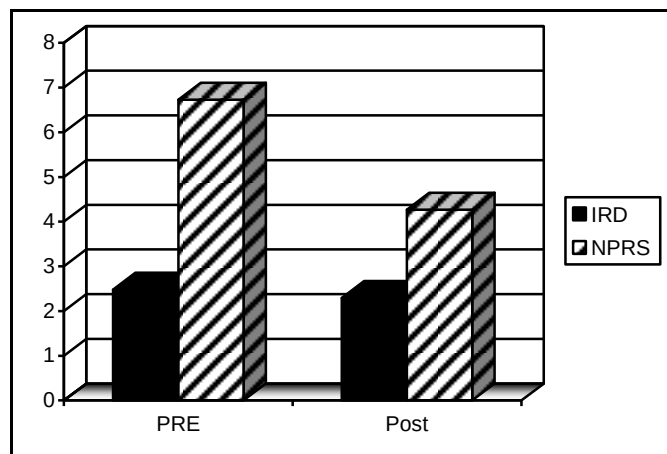


Fig. 1: Mean Pre and Post values.

Mean of difference between Pre-NPRS and Post-NPRS values was 2.47 ± 0.99 and mean of difference between Pre-IRD and Post-IRD values was 1.19 ± 0.16 , which shows significant effect of core stability exercises in reducing pain and inter rectus distance.

DISCUSSION

Many researchers had used different protocols of core exercises and the results vary but most of the results support the positive impact of conservative management on pain and inter rectus distance.¹⁸ The results of a randomized control trial showed that 60% subjects responded to core stabilization exercises, while 40% to back strengthening exercises in the management of postpartum back pain.¹⁹

A recent Randomized Controlled Trial found deep Core Stability-Strengthening program effective in reducing Inter-Recti separation when compared to traditional abdominal exercises. The limitation of study was a short duration of time, a small sample size and a single study setting. A study showed that there was positive correlation between rectus abdominis weakness and low back pain.²⁰ Our study results also showed that rectus abdominis strengthening exercises leads to decrease lumbopelvic pain.²⁰

This research emphasized on combined effect of core stability exercises and pelvic strengthening (Kegel exercise). We contributed to the exiting literature by doing vindicated research with the help of pre-existing data and by using innovative research methods.

CONCLUSION

The activation of deep abdominal muscles using different core exercises was effective in treating lumbopelvic pain significantly and to some extent decreasing diastasis recti in postpartum women. The results support the effect of core exercises can be implemented as an alternate conservative therapy in conjunction to other treatment methods.

Author Contributions:

Conception and design: Hira Naseem, Sana Javaid.
Collection and assembly of data: Hira Naseem, Sana Javaid.
Analysis and interpretation of data: Hira Naseem, Sana Javaid.
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