

# A Comparative study on Prevalence of Diastasis Recti in Primipara and Multipara Undergone Full Term Normal Delivery - A Research Protocol

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## Abstract

**Background:** Diastasis Recti is very common in women after pregnancy. Diastasis recti among women should be treated as soon as possible as it may cause various musculoskeletal dysfunctions. A digital caliper is a tool for assessing diastasis recti in postpartum women. It is a simple, fast, and reliable assessment tool for assessing diastasis recti. **Objective:** The objective of the study is to find the prevalence of Diastasis Recti in Primipara and Multipara undergone full-term normal delivery and to compare the prevalence of diastasis recti in the both of the groups **Method:** This study will be carried out in Physiotherapy OPD, Ravi Nair Physiotherapy College and AVBRH, Sawangi (Meghe), Wardha. Diastasis recti will be evaluated in full-term normal delivery females. Diastasis recti will be compared in primipara and multipara using a digital caliper. **Results:** The result of the study will be estimated by the statistical analysis of the data and will be discussed after the study is completed. **Conclusion:** After going through various studies, many studies have indicated that the prevalence of diastasis recti abdominis is commonly seen in multipara undergone cesarean section delivery. Very few studies indicate the prevalence of diastasis recti abdominis in primipara and also women underwent full-term normal delivery. Therefore, the current study is carried outreach a conclusion to find whether there is any discrepancy of the prevalence of diastasis recti abdominis between primipara and multipara in females undergone full-term normal delivery.

**Keywords:** Diastasis recti, Primipara, Multipara, Full term normal delivery (FTND)

## Introduction

Diastasis of recti is one of the commonest consequences of pregnancy. Diastasis recti is caused by the separation of the two bellies the rectus abdominis along the linea alba and widening of the linea alba. There are certain factors which cause diastasis recti which is mechanical effect of pregnancy on the abdominal musculature or hormonal factors. Weakening of the linea alba results because of the softening of the connective tissue as there is increased level of relaxin,

progesterone, and estrogen during pregnancy. Diastasis recti abdominis also causes low back pain which can be treated surgically. Exercises are recommended to the pregnant women which has many benefits which includes maintaining strength, muscle tone, and endurance. Exercises also helps to improve well-being of the patient, reduces labor pain and also low back pain. Multiparous women have an increased risk of development of diastasis recti because there is repeated and prolonged stretch on abdominal musculature. Pregnant women have weaker abdominals than non-pregnant women. Exercises are helpful in improving the strength and tone of the musculature. It helps to decrease and reduce the size of diastasis recti abdominis. There is weakening of the anterior abdominal wall because of strain placed by the enlarging uterus which results in diastasis recti. The rectus abdominis muscle becomes stretched and elongated around the enlarging uterus as the pregnancy advances. The main role of the abdominal

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musculature is trunk control. The functions which result in diminished trunk stability, abnormal posture.<sup>(1)</sup> There are various methods for the assessment of diastasis recti abdominis which include the finger-width method, ultrasonography, magnetic resonance imaging (MRI), Computed tomography (CT) scan, calipers, and tape measurement. Diastasis recti abdominis can be treated conservatively focusing on postnatal exercises which limits the progression of diastasis recti abdominis, increases well-being of the patient, promotes weight loss, and also improves the cardiovascular endurance of the patient. Surgical management is needed which is (abdominoplasty) if a woman is unable to perform optimal functions like transfer of weight through the pelvic girdle. Parity increases the prevalence of diastasis recti. Diastasis recti abdominis is found both in primipara and multipara but prevalence of diastasis recti below the umbilicus is more in multiparous women and diastasis recti abdominis at the level of umbilicus is same in primipara and multipara. Diastasis recti is found more in multipara than in primipara. There is a link of diastasis recti abdominis with other conditions like urinary incontinence, fecal incontinence, uterus prolapse, myofascial pelvic pain, rectal prolapse, bladder prolapse. Diastasis recti abdominis also has an association with lumbopelvic pain. Tape measurement and finger-width method are used to measure diastasis recti abdominis because of its cost-effectiveness and accessibility. Digital caliper is used in the assessment of diastasis recti which shows a widening of inter rectal distance more than 2.5 cm at one or more assessment points<sup>(2)</sup> Diastasis recti is seen comparatively more in multipara than in primipara<sup>(3)</sup> Diastasis recti abdominis is found more in obese, multiparous, and multiple pregnancies. Including multiparous and multiple births diastasis recti abdominis is also found in women who have narrow pelvis because in pregnancy location of the baby will be more anteriorly. Diastasis recti abdominis can be umbilicus or can be extended above and below the umbilicus or even include the linea alba<sup>(4)</sup> There is little understanding of diastasis rectus abdominis in society. Majority of women are unaware of diastasis recti abdominis and do not know if they even have this problem. These women also are not aware of the possible exercises which can be performed. The exercises focus on the abdominal muscles and the exercises could be performed during pregnancy. Pregnancy without

complications may be an encouragement for women who had a sedentary lifestyle before pregnancy. Women with sedentary lifestyle should be encouraged to add appropriate aerobic exercises and strengthening workout to their routine. Women who are physically active even before pregnancy should continue their lifestyle which includes working out daily, performing aerobic exercises, strengthening exercises. Exercises help in improving physical pain response, it also enhances proper body posture, if exercises are properly chosen then it also reduces pain in the lumbar spine area. This helps after delivery and also taking care of the newborn. Every other woman may have diastasis rectus abdominis after pregnancy but appropriate treatment may reduce the inter recti distance. It is necessary to raise awareness among women about the nature of diastasis rectus abdominis, its predisposing factors, its implications, and physiotherapy treatment. There are two groups of women with diastasis rectus abdominis after pregnancy. The first group in which women are able to regain proper load transfer through the abdominal wall with diastasis recti or without diastasis recti. In the second group of women diastasis, rectus abdominis is larger than the normal ones but they are unable to transfer load through the abdominal wall. In this group women are not able to perform activities like squatting, standing on one leg, changing positions for example sitting to standing, climbing stairs, walking. In this case, a woman requires abdominal surgery which is abdominoplasty which is done after delivery because there is long term damage to the abdominal muscles and the central fascia structures which means that the proper functioning cannot be obtained. Strengthening of the abdominals before pregnancy often decreases the risk of diastasis rectus abdominis, and if it happens then the size of the diastasis is small. It is also said that performing strengthening exercises of abdominals before pregnancy and continuing the exercise in the period of pregnancy can reduce the chances of having a Caesarean section delivery and also influence more effective delivery<sup>(5)</sup> Most women experience an increase in inter-recti distance in the abdominal muscle during pregnancy or after pregnancy which occurs because of stretch in the linea alba or due to thinning of the linea alba. Diastasis of the abdominal muscle is considered to be pathologically positive if there is >2.7 cm widening of diastasis recti above the umbilical level. Diastasis of rectus abdominis occurs in

the second trimester of pregnancy and most frequently diastasis is seen in the third trimester of pregnancy. Few studies have been conducted which shows that there is an increase in the inter- recti distance at the 14th week of pregnancy and it continues to increase until delivery. Recovery of the diastasis of the rectus abdominis occurs between 1 day and 8 weeks after delivery. Diastasis of the rectus abdominis ranges from 66% to 100% in the third trimester of the pregnancy and then 53% after delivery. Diastasis recti can be treated surgically which can reduce the effect of the diastasis recti such as back pain. If regular exercises are done before and during the antenatal period such as the strengthening of the core muscles, then there is a reduced risk of developing diastasis recti and also if diastasis recti occur then to reduce the size of diastasis recti. Abdominal exercises are prescribed to the women after delivery who have diastasis of rectus abdominis. Other non-surgical interventions to treat diastasis recti include back care and postural education, aerobic exercises, and external support such as corsets and Tubigrip. Tone, control, and strength of the abdominal muscle can be maintained if the exercises are done, as exercise reduces the stress on the linea alba. Women who exercise regularly in their pregnancy have a less and reduced risk of developing diastasis recti than the women who have a sedentary lifestyle and who do not exercise regularly. Exercises performed in the antenatal period have faster recovery of diastasis recti abdominis. Ultrasound and digital calipers are used to measure the diastasis recti abdominal width and these are the reliable ones. Palpation and finger-width methods are also used to measure the diastasis recti abdominal width but they are not much reliable and not considered to be valid to measure the exact inter-recti distance.<sup>(6)</sup>

#### RATIONALE:

Various studies have been carried out to find prevalence of diastasis recti in multipara but very few studies indicate the presence of diastasis recti in primipara and in females with full-term normal delivery. Therefore, current study is carried out to find the prevalence of diastasis recti in females with full-term normal delivery and also to compare it among primipara and multipara.

## Objectives

1. To Evaluate Diastasis recti in Full Term Normal Delivery Females
2. To Compare Diastasis Recti in Primipara and Multipara

## Methodology

The study will be conducted in OPD of Community Health Science in Ravi Nair Physiotherapy College, Sawangi, (Meghe) Wardha. Prerequisite permission and IEC approval will be taken subjects will be consented and selected as per the inclusion criteria those who are willing to participate will be selected as samples. Assessment of diastasis recti will be done using dial caliper. Outcome measure calibration will be done as per width of diastasis recti in inches. Reading will be spread on a master sheet. Data will be analyzed statistically.

**OUTCOME MEASURES:** Width of Diastasis Recti using a dial caliper

#### METHODS:

Study design: Observational study

Study setting: Ravi Nair Physiotherapy College and AVBRH hospital Sawangi (M), Wardha

#### PARTICIPANTS:

Inclusion criteria:

1. Primipara with FTND
2. Multipara with FTND
3. Up to 6 months postpartum
4. Age 20 to 35 years

Exclusion criteria:

1. Female undergone C – section
2. Female with a previous history of abdominal surgeries
3. Female with BMI > 40 kg/m<sup>2</sup>

#### VARIABLE:

1. Width of diastasis recti

### DATA SOURCE/MEASUREMENT:

For Diastasis recti – width of the gap between the two bellies of diastasis recti will be measured using a digital caliper

Bias: Age and other Anthropometric factors between the two groups will be matched and subjection not fulfilling the selection criteria will be excluded to prevent bias

Study size: 175

Statistical method: Simple random sampling

Result: Upon completion of the study results, statistical analysis will be estimated.

### Discussion

The current study will be carried out to compare prevalence of diastasis recti in primipara and multipara. Various studies have reported a prevalence of diastasis recti in females undergone c- section whether may be primipara or multipara due to separation of rectus abdominis muscle during surgery. However, diastasis also occur due separation of two bellies of recti muscle to accommodate the growing size of uterus but after delivery in postpartum period when the structures of abdomen and pelvic come to their normal position eventually the gap is reduced but diastasis may still persist may show different feature in a female with single delivery compared to females under multiple deliveries. Therefore, the current study aims to compare the prevalence and severity of diastasis recti in primipara and multipara with FTND

**Key results:** Diastasis recti, Pregnancy, Full term normal delivery, Primipara, Multipara, Full term normal delivery

**Limitation:** It might be difficult to convince patient for being a part of this study.

**Generalisability:** Study not done yet.

**Conflict of Interest:** There is no conflict of interest

**Source of Funding:** No funding needed

**Ethical Clearance** Being an observational study institutional ethical committee permission was taken.

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