



**PREVALENCE OF DIASTASIS OF RECTUS ABDOMINIS MUSCLE IN IMMEDIATE
POST-PARTUM WOMEN OF URBAN AND RURAL AREAS**

Roshan Adkitte*¹, Khyati Bhatt², Ujwal Yeole³, Pravin Gawali⁴ and Gaurai Gharote⁵

¹MPT, Assistant Professor, Department of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune 411037.

²Final Year Student, Department of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune 411037.

^{3,4,5}MPT, Associate Professor, Department of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune 411037.

***Correspondence for Author: Dr. Roshan Adkitte**

MPT, Assistant Professor, Department of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune 411037.

Article Received on 07/03/2016

Article Revised on 27/03/2016

Article Accepted on 17/04/2016

ABSTRACT

Background: The diastasis of rectus abdominis muscle is defined as the separation or spread of the muscle bundles along the linea Alba. The aim of this study was to check the prevalence of diastasis of rectus abdominis muscles (DRAM) in immediate post-partum women of rural and urban areas of Pune. Effect of rural and urban lifestyle has a great impact on the presence of diastasis hence to find out the prevalence of Diastasis in urban and rural women. **Method:** It is a survey based prevalence study carried out in 100 women in rural and urban population across Pune. To measure diastasis, the women was in supine position with hips and knees flexed at 90 degrees, feet unsupported and arms extended over the body. In that position, she was told to perform forward trunk flexion until the inferior angle of the scapula was off the bed. Diastasis was measured with the Vernier calliper, 4.5cm above and below umbilicus. **Result:** Data from 100 women were analysed. There was 68% prevalence of diastasis in immediate post-partum women. Out of 68 women with diastasis, 30 were urban and 38 were rural women. Out of 68 women with diastasis, 26 women were primipara and 42 women were multipara. The mean diastasis above the umbilicus was 2.14cm (± 0.28089) and the mean diastasis below the umbilicus was 1.54cm (± 0.33636). **Conclusion:** There is significant prevalence of diastasis recti in immediate post-partum women. In which urban women have high prevalence of diastasis than rural women.

KEYWORDS: Diastasis recti, immediate post-partum, rural areas, urban areas.

INTRODUCTION

Diastasis or Divarication is a split between two Recti abdominal muscles. It is most commonly seen in any women who were at term prior to labour. This can vary between a small vertical gap 2-3cm wide and 12-15cm long, to a space measuring 12-20cm in width and extending nearly the whole length of the recti muscle.^[1] The objective of this study was to assess Diastasis of rectus abdominis muscle (DRAM) in immediate post-partum women in urban areas, to assess Diastasis recti in immediate post-partum women in rural areas and to compare prevalence of urban and rural areas. The number of finger breadths between the medial edges of the muscles is the simplest way to evaluate diastasis, but the use of specific equipment such as calipers has been recommended.^[9] The presence of diastasis recti can be palpated as a hollow or trough between the superficial rectus abdominis muscles.^[8] The existences of the separation of the abdominal muscles was documented as early as 1858, when gray described the rectus abdominis as 'diverging from one another in their ascent, becoming of considerable breadth after great distention of the abdomen after pregnancy'.^[8] Back pain, poor posture, pelvic floor problems and gastro-intestinal disturbances

like constipation and bloating are all symptoms that occur when the support system for the back and organs is the weak connective tissue instead of the muscles.^[1] It is most important for the correct mechanical function of the abdominal wall that the diastasis is eliminated. A great deal of encouragement may be necessary to stimulate women to keep exercising.^[1]

MATERIALS AND METHODS

The study was a survey based, prevalence type carried out in 100 women out of which 50 were urban women and 50 were rural women. Study setup was across different urban and rural hospitals across Pune. Inclusion criteria was immediate post-partum women of age group: 20 to 35 with normal vaginal delivery and those who are willing to participate in the study whereas exclusion criteria was women who underwent lower section caesarean section, any organic disease causing diastasis and those who are not willing to participate in the studies.

PROCEDURE

The study was approved by institutional ethical committee, Department of Physiotherapy, Tilak

Maharashtra Vidyapeeth, Pune. The women meeting with the inclusion criteria were recruited with a consent form. Written consent was taken and the participants were assured that the data collected will be purely used for research purpose. A data collection form was provided to the participant. To measure Diastasis recti, the women was in supine position with hips and knees flexed at 90 degrees, feet unsupported and arms extended over the body. In that position, they were asked to perform forward trunk flexion until the inferior angle of the scapula was off the bed. Diastasis was measured 4.5cm above and below umbilicus with Vernier calliper.

RESULTS

The data sheets of 100 women were analysed. For descriptive data analysis, central tendency (mean), dispersion (standard deviation) and percentage were calculated. Unpaired t-test was used, a significance level of $p < 0.05$ was considered in all analyses.

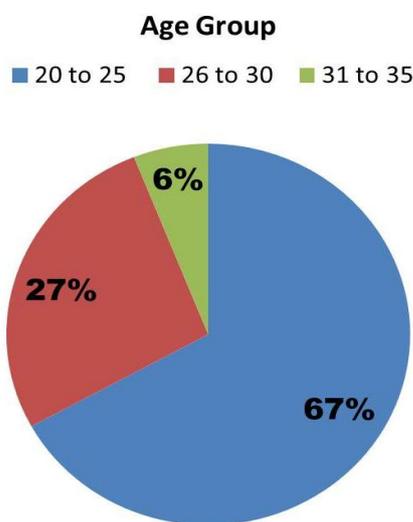


Figure 1: shows the age distribution of 100 women.

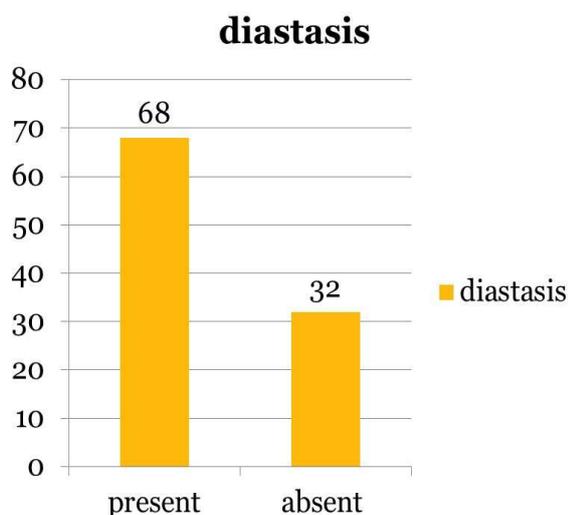


Figure 2: shows the prevalence of diastasis in 100 immediate post-partum women.

Table 1: shows the comparison between prevalence of diastasis among urban and rural women.

	Diastasis present	Diastasis absent
Urban	30	20
Rural	38	12

Out of 68 women with diastasis, 26 women were primipara and 42 women were multipara.

The mean DRAM above the umbilicus was 2.14cm(± 0.28089) and the mean DRAM below the umbilicus was 1.54cm(± 0.33636).

DISCUSSION

The occurrence of DRAM in immediate Puerperium found in the present study is in agreement with the literature^[2, 3, 4, 5] which reports a higher prevalence in the third trimester of pregnancy and immediately postpartum. Considering a minimum separation of 2 cm above the umbilicus, Chiarello et al^[7] found a prevalence of 12.5% to 90% in a sample of pregnant women who underwent an exercise protocol and pregnant sedentary women, respectively. Rural women were continuously engaged in regular physical activities whereas urban women lead a sedentary lifestyle.

Boissonnault and Blaschak^[5] classified a relevant DRAM as a separation of more than two finger breadths (approximately 3 cm) and reported a prevalence of 36% above the umbilicus and 11% below the umbilicus. It should be noted that DRAM may be lower below the umbilicus because of the anatomical difference between the arrangements of the fasciae that cover the rectus abdominis. The formation of the rectus sheath varies according to the level of the abdomen wall. The area of change is located approximately midway between the umbilicus and the pubic symphysis and is typically marked by the arcuate line. Above the arcuate line, the sheath has an anterior layer (formed by the external oblique aponeurosis and the anterior lamina of internal oblique aponeurosis) and a posterior lamina (formed by the posterior lamina of the internal oblique aponeurosis and the transverse abdominal aponeurosis). Below the arcuate line there is only the anterior layer, formed by the respective aponeurosis of each of the three muscles.^[6] Thus, in the final portion of these muscles, the positions of the fasciae are different and prevent separation.

Prevalence of diastasis in multipara was higher than that of primipara. This may be due to abdominal muscle weakness resulting from the last pregnancy in both groups.

CONCLUSION

It can be concluded that there was high prevalence of diastasis recti in immediate post-partum women; urban women had greater prevalence than rural women; multipara had greater prevalence than primipara and mean diastasis above umbilicus was more than below umbilicus.

ACKNOWLEDGEMENT

We extend our gratitude towards participants for their consent and co-operation for the study.

Finding

This study is not funded or sponsored by any financial resources.

Conflict of interest

Nil.

Source of report

None.

REFERENCES

1. Margaret Polden and Jill Mantle; *Physiotherapy in obstetrics and gynaecology*, 2007; 223,272.
2. Spitznagle TM, Leong FC, Van Dillen LR. Prevalence of diastasis recti abdominis in aurogynecological patient population. *IntUrogynecol J Pelvic Floor Dysfunct.*, 2007; 18(3): 321-8.
3. Bursch SG. Interrater reliability of diastasis recti abdominis measurement. *Phys Ther.*, 1987; 67(7): 1077-9.
4. Mesquita LA, Machado AV, Andrade AV. Fisioterapiapararedução da diástase dos músculosretosabdominais no pós-parto. *Rev Bras Ginecol Obstet.*, 1999; 21(5): 267-72.
5. Boissonnault JS, Blaschak MJ. Incidence of diastasis recti abdominis during the childbearing year. *Phys Ther.*, 1988; 68(7): 1082-6.
6. Moore KL. O abdome. In: Moore KL, editor. *Anatomiaorientadapara a clínica*. 3a ed. Rio de Janeiro: Guanabara Koogan, 1994; 117-23.
7. Chiarello CM, Falzone LA, McCaslin KE, Patel MN, Ulery KR. The effects of as exercise program on diastasis recti abdominis in pregnant women. *Journal of Women's Health Physical Therapy.*, 2005; 29(1): 11-6.
8. Rett MT_{1,2}, Braga MD₂, Bernardes NO_{1,2}, Andrade SC₂. Prevalence of diastasis of the rectus abdominis muscle in immediate post-partum: comparison between primipara and multipara. *Rev Bras Fisioter*, São Carlos, v. 13, n. 4, p. 275-80, July/Aug. 2009.
9. Mesquita LA, Machado AV, Andrade AV. Fisioterapiapararedução da diástase dos músculosretosabdominais no pós-parto. *Rev Bras Ginecol Obstet.*, 1999; 21(5): 267-72.