

EFFECTS OF SPLIT TUMMY EXERCISE PROGRAM WITH AND WITHOUT ABDOMINAL CORSET ON INTER RECTAL DISTANCE, LUMBOPELVIC PAIN AND DISABILITY IN DIASTASIS RECTI

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Abstract: The Diastasis of Rectus Abdominis (DRA) is characterized as a splitting or distribution of the bundles of muscles throughout the linea Alba. DRA is frequently associated with pregnancy, although it may also happen in postpartum, postmenopausal women, and males. DRA was found in sixty-six percent of women in the third trimester of being pregnant. It was randomized clinical trial and 28 participants was selected with non-probability consecutive sampling technique. The STEP module consists of three phases, facilitation, integration, and strengthening of abdominal muscles, at a minimum frequency of 3 times a week involving at least three sets at 10 repetitions each. No specific time frame or regression of exercises in case the participant was unable to perform the proposed exercises, was given. The participants were required to perform three exercises: isometric abdominal exercise, upper limb movements with isometric abdominal exercise, and 2. alternate lower limb movements. **Results:** Both the Split tummy along with abdominal corset exercise and split tummy exercises group indicated significant difference within groups ($P < 0.001$) between pre-intervention and post-intervention assessment through analysis by paired t-test. The improvements were however more marked in intervention group as compared to the control group as means differences in more in experimental group. **Conclusion:** In conclusion, recent research, such as the Split Tummy Exercise Program, has demonstrated encouraging effects in treating Diastasis Recti after childbirth. The aforementioned results emphasize the significance of focused workouts for recuperation. The effect of inter-recti distance on colorectal

functioning emphasizes the importance of

individualized rehabilitation. Although existing research gives completely understand risk variables and improve Intervention options. A comprehensive approach to postpartum treatment necessitates ongoing research to ensure different Diastasis Recti management techniques.

Keywords: Diastasis Recti, Split Tummy Exercise Program, Abdominal Corset, Lumbopelvic Pain

1. Introduction:

The Diastasis of Rectus Abdominis (DRA) is characterized as a splitting or distribution of the bundles of muscles throughout the linea Alba (1) The following can range from a modest vertical gap two to three centimeters wide and 12 cm to 15 cm long to a space Twelve cm to 20 cm wide and reaching virtually the whole length within the recti muscle. (2) DRA is frequently associated with pregnancy, although it may also happen in postpartum, postmenopausal women, and males (3) The incidence of DRA is roughly sixty-six percent to 100% throughout the third trimester of pregnancy, and almost fifty percent of the women, up to 53 percent, experience it shortly after the kid has been born because to the stress of giving birth (4). DRA was found in sixty-six percent of women in the third trimester of being pregnant, whereas Hannaford and Tozer reported a 100% frequency of DRA in pregnant women. (5)

Throughout pregnancy, hormonal fluctuations induced by relaxin, progesterone, and estrogen,

along with uterine expansion, might lead to abdominal muscular stretching, particularly affecting the rectus abdominis muscles (6) Throughout the pregnancy, anterior pelvic tilt either with or without lumbar hyper lordosis is also prevalent. These postural modifications might have an impact on the position of insertion angle of pelvic and abdominal muscles, hence altering postural biomechanics. They may additionally result in a lack of stability for the pelvic-abdominal organs.(7)

Additionally, as the process of pregnancy continues and the abdominal muscles expand, there is a reduction in the vector of force generated by these muscles, as well as a possible drop in contraction strength. Therefore, biomechanical alterations and stretching of these muscles can aid in the formation of rectus abdominis diastasis. (8) DRA complaints include lower back discomfort, incorrect posture, constipation, and bloating. A pooch or protrusion in the stomach is an especially typical sign of diastasis recti.(9) The weakening of the muscles in the abdomen and DRA limits a mother's capacity of producing force throughout everyday activities including lifting and bending(10) The trunk and pelvic area are predisposed to pressurization exercises. This eventually leads to pelvic instability and a ruptured umbilical cord. Stress and desire can originate from pelvic floor muscle instability.(11)

The split tummy exercise, also known to be the Split Tummy Exercise Program (STEP), is intended to treat diastasis recti, a medical disorder in which the abdominal muscles separate.(12) This workout regimen aims to promote the closure of the rectus abdominis muscle separation that develops throughout pregnancy.(5) It consists of particular motions that target the muscles of the core in order to increase their power as well as stability (13)

Diastasis recti is a common problem in postpartum females, producing functional and physical problems. This study looks at the benefits of tummy split exercises with or without corset abdominal workouts on postpartum ladies with diastasis recti. The study aims to contribute to the creation of tailored and evidence-based rehabilitation programmes to promote the functional recovery and quality of life of postpartum women with diastasis recti by investigating the effectiveness of these specific exercises.

II. Methods

It was a randomized Controlled trial. Prior to being included in the trial, all patients signed an informed consent agreement. Non-probability convenient sampling approach was accustomed to recruit the individuals for the study and after that randomization process was done by sealed envelope to divide the subjects into Group-A and Group-B. According to the inclusion requirements, the research was performed in Haleema Memorial Polyclinic, Sialkot. Sample size was 30 calculated through epitool from previous study.(14) Data was collected from Islam Center hospital, Sialkot, and assessment was recorded at baseline, and by sixth week. By using SPSS version 25, data was analyzed in the form of frequencies and percentage for qualitative and mean and standard deviation for quantitative data. Evaluation on inter rectal distance, lumbo pelvic pain and disability in diastasis recti was done with Digital nylon calipers(15), Oswestry disability index (16) and NPRS(17) respectively. GROUP A performed the Split tummy exercises program + corset abdominal exercises. GROUP B performed the corset exercises alone. Each phase should be performed at least three times a week, with three sets of 10 repetitions each. The study was single blinded. The assessor was aware of treatment given to either group. Data was calculated at baseline and at 6th week of treatment. INCLUSION CRITERIA were females with presence of DRA with more than 2 cm distance or with both vaginal or c-section(10) Primigravida or multigravida and Age of 22-35 years.(14), BMI under or equal to 29kg/m²(18). Abdominal hernia.(14) and History of pelvic and abdominal surgeries were excluded. Group A: There were 14 participants in Group A received (Split tummy exercises program + corset abdominal exercises): Exercises upper limb movements with isometric abdominal exercise, upper limb movements with isometric abdominal exercise, and alternating lower limb movements were need of the participants.. Participants in isometric abdominal exercises were told to breathe normally after contracting their abdominal muscles slowly and holding them for three seconds. Similar to Exercise 1, participants had to tense their core muscles while moving both hands upward for the second exercise. One such activity is the static abdominal exercise, in which the patient lies supine and crosses her arms over her diastasis for

support. Additionally, the individual must drag or pull their abdomen inside in order to cause an isometric contraction of their abdominal muscles. Head lift with bracing: The patient was instructed to exhale and raise simply her head off the ground, or until the point right before a bulge occurs. The individual was positioned in a hooklying position with her hands crossed over her midline at the lowest point of the diastasis for support. At that time, subjects hands were gently approximate the rectus muscles toward midline and lower her head slowly and relax or use of a sheet or a towel wrapped around the trunk at the level of the separation can also been another alternative to provide support and approximation. Pelvic clock exercise: The client was requested to imagine the face of a clock on her lower abdomen while she was hooked up to a machine. For two weeks, all of these exercises were to be performed twice a day, with a repeat count of five to seven times.(14)**Group B** with 14 participants performed split tummy exercises: The three stages of the STEP module are abdominal muscle facilitation, integration, and strengthening. Each phase should be performed at least three times a week, with three sets of 10 repetitions each. There was no set time limit or workout regression provided in the event that the person could not complete the suggested exercises. Exercises (1) upper limb movements with isometric abdominal exercise, (2) upper limb movements with isometric abdominal exercise, and (3) alternating lower limb movements were needed of the participants.(12)

Participants in isometric abdominal exercises were told to breathe normally after contracting their abdominal muscles slowly and holding them for three seconds.

Similar to Exercise 1, participants had to tense their core muscles while moving both hands upward for the second exercise. Lastly, much like in Exercise 1, participants were instructed to alternately straighten their legs while tensing their abdominal muscles. Every exercise was done while lying down with both of legs bent.(12)

III. RESULTS

Two groups have been compared in this randomized clinical research assessing the impact of a split tummy exercise program either with or without an abdominal corset on inter-rectal distance, lumbopelvic discomfort, and impairment in diastasis recti. Group A, made up of 14 people, did split tummy exercises

whereas wearing an abdominal corset, whereas Group B did split tummy exercises only. The mean age of participants in Group A was 29.07 4.02, which was somewhat higher than the mean age of participants in Group B, which was 28.90 3.85. Furthermore, Group A had a mean weight of 78.70 ±5.83 kg and a height of 163.60± 8.79 cm, whereas Group B had a mean weight of 77.96± 6.77 kg and a height of 162.80 ±8.11 cm. Postpartum lengths varied, with the majority occurring between 1-3 months for both groups, while the proportion of primigravida and multigravida participants ranged among Group A (30% primigravida, 70% multigravida) and Group B (60% primigravida, 40% multigravida). Outcome measures included digital nylon caliber for intra-recti distance (IRD), Oswestry Disability Index (ODI), and Numeric Pain Rating Scale (NPRS). The results of the independent sample t-test revealed significant differences between the two groups post-intervention for intra-recti distance ($p = 0.00$), ODI ($p = 0.00$), and NPRS ($p = 0.00$). Paired sample t-tests conducted within each group showed significant changes pre- to post-intervention for intra-recti distance, ODI, and NPRS (all $p < 0.001$). Both groups had positive results, however the inclusion of an abdominal corset in the A group might have resulted to more significant decreases in intra-recti distance, lumbopelvic discomfort, and disability compared to Group B. Additional investigation and awareness of the research's limitations is required to inform clinical practice and future research in the treatment of diastasis recti

Table 1:

Variables	Paired difference		P-value
	Group A	GROUP B	
ODI	32.23± 5.38	4.60± 6.27	< 0.001*
NPRS	2.96 ± 1.03	0.26± 1.50	< 0.001*
IRD	1.81± 0.49	1.33± 0.42	< 0.001*

SD = Standard Deviation,

*Significant difference within groups, $P < 0.05$.
The variation between pre-intervention and

post- intervention assessment was determined using paired sample t test. Both the Split tummy along with abdominal corset exercise and split tummy exercises group indicated significant difference within groups ($P < 0.001$) between pre- intervention and post- intervention assessment through analysis by paired t-test. The improvements were however more marked in intervention group as compared to the control group as means differences in more in experimental group.

rehabilitation. Although existing research gives useful insights, further study is needed to completely understand risk variables and improve intervention options. A comprehensive approach to postpartum treatment necessitates ongoing research to ensure different Diastasis Recti management technique

Figure 1:

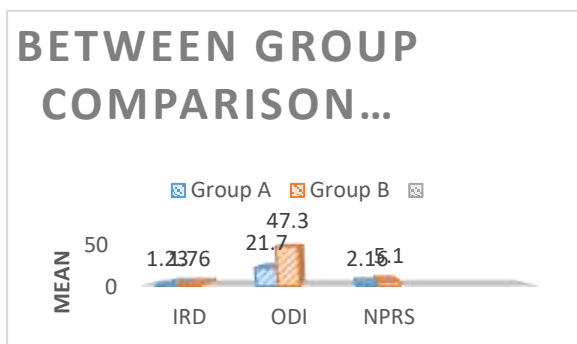


Figure 1: Between Group comparison

This figure showed the between group comparison Group A showed the marked improvements in Inter-rectal distance (IRD) which was decreased Disability and pain also showed marked decrease

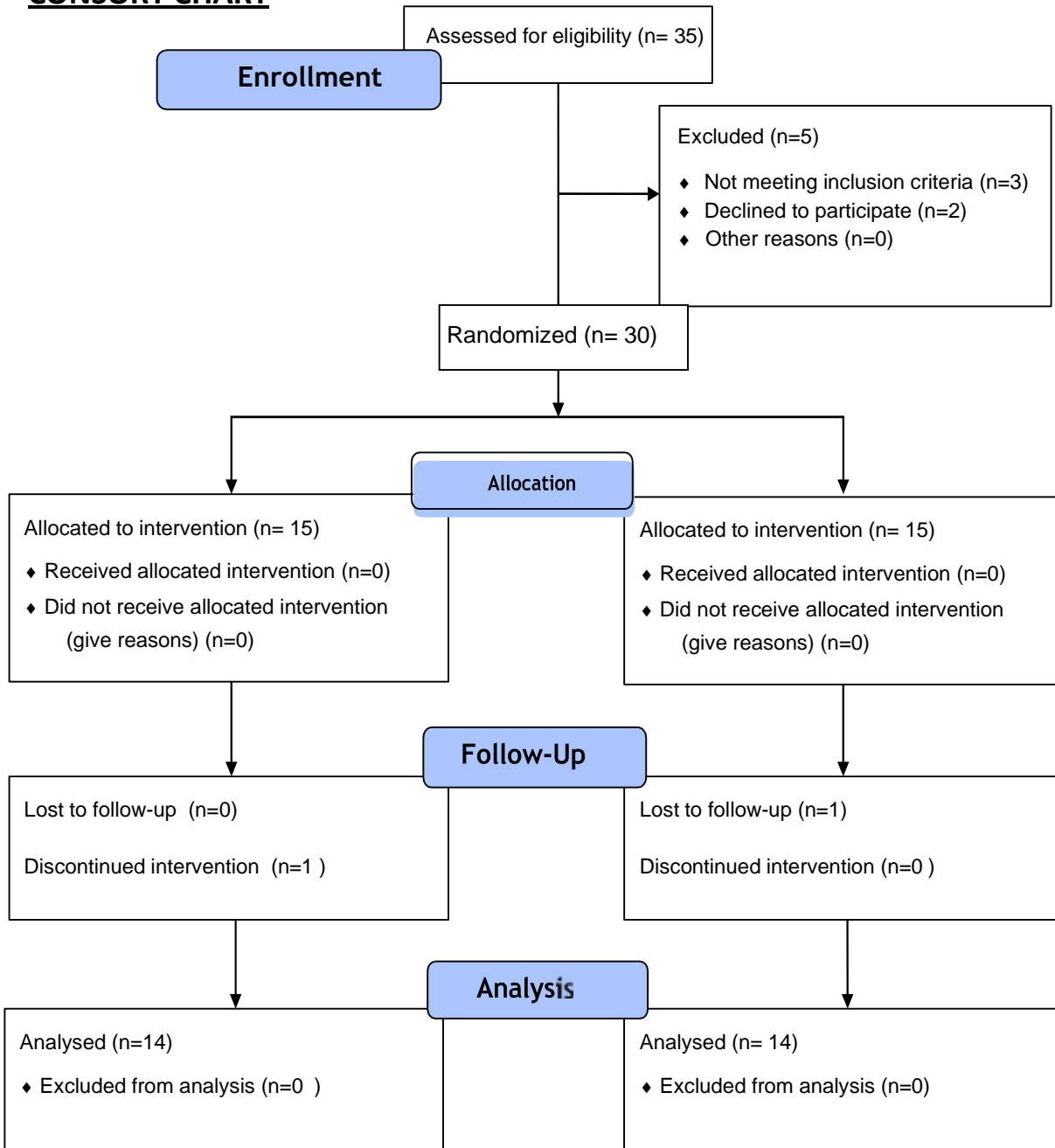
IV. DISCUSSION

It was a randomized clinical trial investigating the effects of a split tummy exercise program with and without an abdominal corset on inter-rectal distance, lumbopelvic pain, and disability in diastasis recti, two groups were compared. These data indicate that both of the groups had excellent outcomes; however, the inclusion of an abdominal corset in the group A might have resulted to greater substantial improvements in intra-recti distance, lumbopelvic discomfort, and disability when compared with those in Group B.

V. CONCLUSION

In conclusion, Recent research, such as the Split Tummy Exercise Program, has demonstrated encouraging effects in treating Diastasis Recti after childbirth. The aforementioned results emphasize the significance of focused workouts for recuperation. The effect of inter-recti distance on colorectal functioning emphasizes the importance of individualized

CONSORT CHART



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