International Journal of Educational Research and Studies
www.journalofeducation.net
Online ISSN: 2664-6811, Print ISSN: 2664-6803
Received: 05-07-2021, Accepted: 26-07-2021, Published: 13-08-2021
Volume 3, Issue 3, 2021, Page No. 31-34

Effectiveness of 4 weeks diastasis recti correction exercises v/s combined k-taping & diastasis recti correction exercises in postpartum women (6 months)–A pilot study

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Abstract
Purpose: The hormonal changes during pregnancy & in postpartum period has been known to cause abdominal weakness leading to diastasis recti. There have been studies which shows the effect of diastasis recti correction exercises on reduction of diastasis recti. Also there are studies on effects of Taping on diastasis recti. There are no studies on the combined effectiveness of diastasis recti correction exercises & taping on reduction of diastasis recti in postpartum females. Diastasis Recti occurs because of weakness of abdominal muscles during pregnancy. Taping along with the Diastasis Recti Correction Exercises used to reduces the separation. Therefore, this study aimed to compare the effect of Diastasis Recti correction exercises with Diastasis Recti Correction Exercises combined with K-Taping on pre-post score Digital Vernier Caliper. The score was measured and SD was reported.
Method: A comprehensive literature search was performed. The groups are divided into two A & B. Digital Vernier Caliper is used as an outcome measure to get the measurement.
Result: 18 samples met the inclusion criteria. The result showed that Diastasis Recti Correction Exercises (n=9), (SD= 0.11113). However, Diastasis Recti Correction Exercises along with K-Taping (n=9), (SD=0.11399) showed statistically significant result (p value less than 0.05) in reduction of Inter Diastasis Recti distance.
Conclusion: The most effective result was observed post Taping & Diastasis Recti Reduction Exercises compared to the result of Diastasis Recti Correction Exercises alone. This shows that K-Taping along with the Diastasis Recti Correction Exercises is more effective in the reduction of inter recti separation & activation of DRA (i.e Diastasis Recti Abdominis).

Key Words: diastasis recti, k-taping, cesarean section, diastasis recti reduction exercises

Introduction

The hormonal process that starts during pregnancy and continues in the postpartum period leads to excessively weak and hypotonic abdominal muscles, making the ligaments and connective tissue softer and more elastic [1, 2].

These changes result in anatomical, physiological and biochemical alterations.

The abdominal muscles, particularly both sides of rectus are stretched to the point of their elastic limit by the end of pregnancy, leading to greater decrease the muscle's ability to generate strong abdominal contraction [2].

The causative factor for diastasis recti during pregnancy are increased level of relaxin, progesteron & estrogen that causes softening of connective tissue & linea Alba.

Which results in reduced muscle strength & facial support of abdomen.

DRAM (Diastasis of rectus abdominis muscle) occurs due to hormonal elastic changes of the connective tissue, mechanical stresses on the abdominal wall by the growing fetus, and displacement of abdominal organs.

DRAM usually appears in the second trimester of pregnancy and is found most frequently in the third trimester. The abdominal wall has important functions in posture, trunk and pelvis stability, respiration, trunk movement and support of the abdominal viscera. An increase in the inter-recti distance puts these functions in jeopardy, and can weaken abdominal muscles and influence their functions.

The diastasis may be slight or severe, sometimes resulting in herniation of the abdominal viscera. A recent abdominal surgery and abdominal delivery increases the risk of diastasis recti abdominis (DRA) and that DRA risk significantly increases after the second cesarean section [3, 4].

Longer, wider and thinner RAM will cause reduced muscle strength and facial support therefore, it is recommended to develop effective postnatal exercise programs.

KINESIO TAPING: Kinesio taping (KT) was developed by Kenzo Kase in 1970. The use of KT gained popularity in the treatment of various musculoskeletal disorders and can be used during rehabilitation [8].

It is thinner and more elastic than rigid band. KT can stay on the skin for 3 days due to its water-resistant and air permeable structure.

Effect mechanisms of KT include facilitation of muscle activation, enhancing blood and lymph circulation and decreasing pain due to neurological suppression.

Although its effect mechanism is not fully understood, it is reported that KT may regulate muscle and fascia tension. One of the theories of regarding the muscle activity is the stimulation of mechanoreceptors by its application on the skin. Activation of skin mechanoreceptors causes local depolarization and the transmission of nerve impulses to the central nervous system by afferent fibers. Another theory is that muscle tension may be indirectly influenced by fascia. It is indicated that fascia, which is responsible for the transmission of forces, regulation of the movements and protection of the correct body biomechanics, is in a relationship with contracting muscle therefore, it may affect the musculoskeletal system dynamics.

Need of Study

The hormonal changes during pregnancy & in postpartum period has been known to cause abdominal weakness leading to diastasis recti. There have been studies which shows the effect of diastasis recti correction exercises on reduction of diastasis recti. Also there are studies on effects of Taping on diastasis recti.

There are no studies on the combined effectiveness of diastasis recti correction exercises & taping on reduction of diastasis recti in postpartum females

Incluision Criteria

Age between 25-30 yrs

Diastasis recti positive with seperation 2-3 fingers width. (Level-Umbilicus)

Multiparous women

BMI less than or equal to 29kg/m^

Excluision Criteria

Females underwent any abdominal surgery before except cesarean.

Females who had abdominal hernia.

Allergic for kinesio tape.

Materials

- Personal diary
- Consent form
- Kinesio tape
- Digital vernier caliper
- Talcum powder/calamine solution

Method

Various clinics, hospitals & gynaec OPDs were visited in and around city.

Participants were selected on the basis of inclusion & exclusion criteria.

The participants were explained about the study and consent form was taken from them.

The inter recti separation was measured using Digital Vernier Caliper.

Participants were divided into two groups using chit method.

One group was given Diastasis Recti correction exercises and other was given combined K-Taping along with Diastasis recti correction exercises.

Pre and Post inter recti separation was assessed with Digital Vernier Caliper of each group after the 4 week protocol and data analysis was done.

Conventional Diastasis recti correction exercises for Group A3 times a week while, for the Group B with Diastasis recti correction exercises for 3 times a week with Taping twice week for 4 weeks.

Protocol

Group–1

Diastasis Recti Correction Exercises

Static abdominal exercise

Head lift with posterior pelvic tilt exercise

Plank exercise Trunk twist exercise

20 reps of each exercise, holding a contraction for 5 sec followed by 10 sec of relaxation.

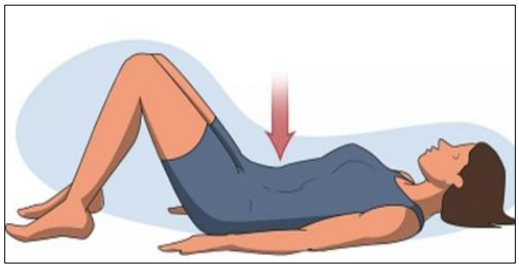

Fig 1

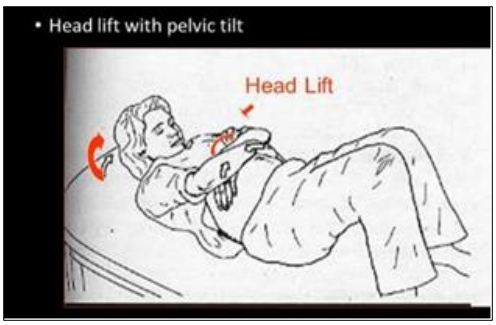

Fig 2

Fig 3

Fig 4

Fig 5

Fig 6

Group – 2

Diastasis recti correction EXS+kinesio taping

Exercises for 4 days a week along with kinesio taping twice a week for 4 weeks.

Fig 7

Data Analysis and Intervention

The statistical analysis for this study was done using the Microsoft excel sheet.

Statistical test used was paired t test in pre post exercises and kinesio taping.

The table below shows the data analysis and their interpretation.

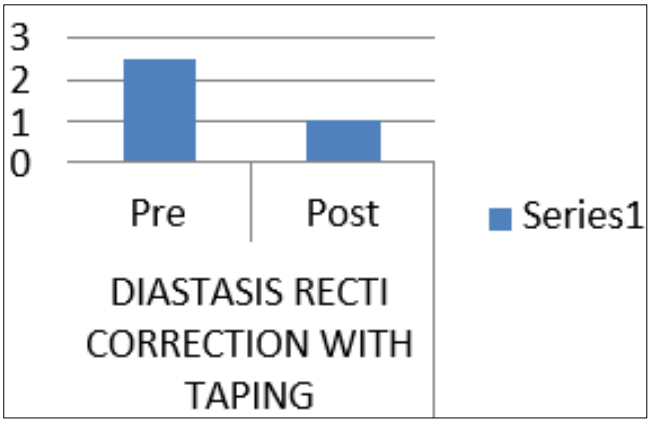

Fig 8

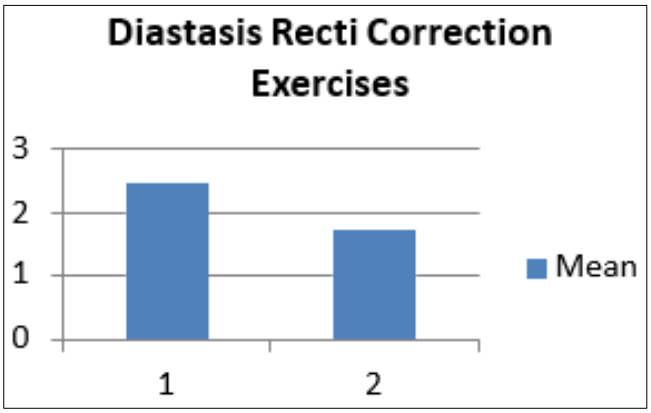

Fig 9

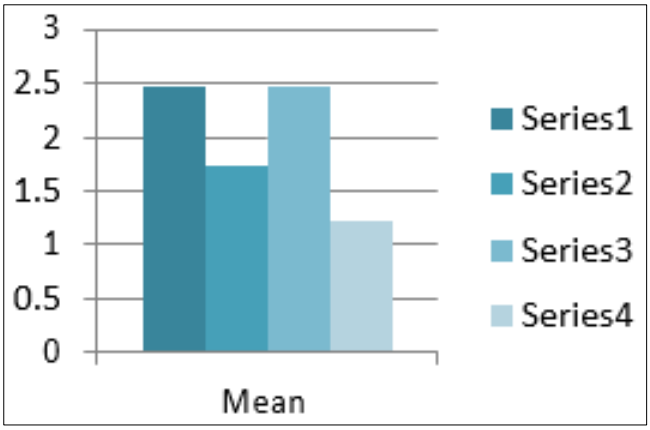

Fig 10

Discussion

Current study was conducted to find out effectiveness of Diastasis Recti Correction Exercises v/s Kinesis Taping along with Diastasis Recti Correction Exercises in postpartum women. A total 18 individuals with Diastasis recti positive participated in study. The result of study showed that the kinesio taping along with diastasis recti correction exercises is more effective than diastasis recti correction exercises alone.

Mean value of pre value of diastasis recti correction exercises is 2.47, post value is 1.73 and pre value of kinesio taping with diastasis recti correction exercises is 2.48,post value is 1.22 and

shows P value of 0.0120 which is considered to be extremely significant.

A recent study by da Mota and colleagues (2015) which studied 84 first-time pregnant women, found that 100% of these women had DRA by gestational week 35 when using a diagnostic criterion of 1.6cm at 2cm below the umbilicus. The prevalence decreased to 52.4% at 4-6 weeks postpartum and continued to decrease to 39% at 6 months.

A study by Coldron and colleagues (2008) found that healing reached a plateau at 8 weeks postpartum and that IRD and rectus abdominis thickness and width did not return to the control values one year later.

Effect mechanisms of KT include facilitation of muscle activation, enhancing blood and lymph circulation and decreasing pain due to neurological suppression. Although its effect mechanism is not fully understood, it is reported that KT may regulate muscle and fascia tension.

Activation of skin mechanoreceptors causes local depolarization and the transmission of nerve impulses to the central nervous system by afferent fibers.

Another theory is that muscle tension may be indirectly influenced by fascia. It is indicated that fascia, which is responsible for the transmission of forces, regulation of the movements and protection of the correct body biomechanics

Conclusion

The present study concluded that, Diastasis Recti Correction Exercises along with Kinesio Taping is more effective than the Diastasis recti correction exercises alone in postpartum women.

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