

# Effects of Kinesiology Taping on Postpartum Muscle Release: Cases of Lithuanian Women's

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#### Abstract

Rectus abdominis muscle rupture is a fairly common problem among pregnant women, with a prevalence of 30-60%. Diastasis recti is considered a risk factor for abdominal muscle dysfunction and leads to reduced quality of life after delivery. The aim of the paper is to evaluate the effect of kinesiological taping on the size of abdominal muscle diastasis. This study seeks to uncover the importance of the application of kinesiological taping of abdominal muscles for the correction of diastasis in the postpartum period in midwifery and physiotherapy in Lithuania. Research shows that kinesiological taping applied for 8 weeks to reduce the release of rectus abdominis muscles significantly reduces the release of diastasis. It is very important to seek results from all countries to understand that midwifery can work with kinesitherapy at the same time, to prevent most of postpartum period women health issues or physical changes in their bodies.

Keywords: Kinesiology; Kinesiology taping; Maternity services; Midwifery; Postpartum; Muscle release

#### Introduction

Diastasis recti is a common postpartum condition, affecting up to 60% of pregnant women and persisting in up to 45% of postpartum women [1]. Diastases of the rectus abdominis are defined as a separation of the rectus abdominis muscles, which can cause the abdomen to bulge and weaken the abdominal muscles [2]. This condition is caused by stretching and thinning of the linear alba during pregnancy, resulting in a loss of support for the abdominal muscles. Women who have had multiple pregnancies, delivered large babies, or gained too much weight during pregnancy are more likely to develop diastasis recti [3]. Diastasis recti can have a significant impact on the physical and psychological health of postpartum women. In addition to cosmetic problems such as a distended abdomen, diastases can cause pain, discomfort and poor posture [2]. It can also lead to functional limitations in activities of daily living, such as lifting and carrying, and affect women's ability to return to their pre-pregnancy lifestyle [4]. In addition, the condition can have a negative impact on women's body image and self-esteem [5]. Physical therapy is the first-line treatment for postpartum diastasis recti. A systematic review by Michalska found that physical therapy interventions, including exercise programs and manual therapy, can improve abdominal muscle strength, reduce the size of the separation and improve symptoms associated with diastasis. Exercise programs targeting the transversus abdominis muscles, which are important for abdominal tension and stability, have been shown to be effective in reducing diastasis recti [4]. In addition, manual therapy such as myofascial release and soft tissue immobilization can improve muscle function and reduce pain associated with diastasis [2].



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Preventive measures can also be taken during pregnancy to reduce the risk of developing diastasis. Prenatal education and exercise programs targeting the abdominal muscles and pelvic floor may help prevent diastasis recti [6]. Exercises that focus on maintaining proper posture, engaging the pelvic floor muscles, and avoiding risky activities such as heavy lifting have been shown to be effective in reducing the risk of diastasis recti [6]. Kinesiology taping is a relatively new technique in rehabilitation programs. It is increasingly becoming an adjunct to other musculoskeletal treatments, correcting muscle function, strengthening weakened muscles, and improving blood and lymph circulation by removing tissue fluids from the skin by moving muscles, reducing pain through inhibition of neurological plexuses and repositioning, reducing abnormal muscle tension, helping to restore fascia and muscle function. There are a total of five different corrective programs using the taping method, which include: mechanical correction, fascia correction; spatial correction; correction of ligaments/ tendons; functional correction, it provides several potential effects of taping, depending on which technique is used and the degree of tape tension, providing sensory stimulation, aligning fascial tissue, reducing pain/inflammation, helping to reduce edema, due to inhibited muscle function [7]. In the postpartum period, taping is usually used to activate the abdominal muscles. With the help of taping, it is possible to activate and relax the tone of the straight and diagonal abdominal muscles; strengthen postural muscles, improve lymph flow, reduce pain, increase ligament stability [7,8].

During taping, it is very important not to forget the contraindications: allergy to the glue in the tape, wounds, unhealed scars, rashes, exacerbation of certain skin diseases [8]. Considering the relevance and importance of this topic in obstetrics and physiotherapy, it was important to evaluate the effect of kinesiological taping on the size of abdominal muscle diastasis.

## Methodology

A quantitative, cross-sectional study, conducted using a questionnaire survey, was made. A research instrument (questionnaire) consisting of 15 questions was created in order to determine the current situation of the women, what kind of childbirth experience they had and assign them the most suitable method of assistance. The questionnaire consisted of a sociodemographic question, 2 closed type questions and 13 open type questions. The questionnaire survey method was chosen in order to objectively evaluate women and divide them into three groups of subjects. Women who have given birth 2-4 weeks after giving birth and feel discomfort due to abdominal muscle diastasis were invited to participate in the study. The research is carried out using social networks, thus finding women who meet the selection criteria.

Data analysis method, descriptive statistics calculations (frequencies, averages). Assessment of rectus abdominis diastasis. The patient should lie on her back with her legs bent, her head bent. The examiner performs testing with the fingers of one hand 2cm

above the navel, 2cm below the navel (2cm and less is considered normal). The study was conducted from 2022 December 1 until 2023 April 1. Subjects were randomly divided into 3 groups of 10 women each. One group received kinesiology taping, the second group received an exercise program, and the third group received a corset (performed, worn twice daily for 8 weeks). The selected correction method was applied for 8 weeks. Abdominal muscle diastasis was assessed twice: before the start of the selected corrective method and then 8 weeks after the selected diastasis correction method was applied. The results were choosing just those who are explain kinesiological taping affect for musculus diastasis in women after childbirth. The subject contingent consisted of 30 women. All women gave birth vaginally, abdominal muscle diastasis more than 2cm (2 fingers), 2-4 weeks after delivery.

Exclusion criteria: previous abdominal wall surgeries, severe torso-pelvic pain, other clinical conditions that prevent the application of abdominal muscle activation exercises. SPSS program was used for statistical data analysis. According to Shapiro-Wilkson criteria, the distributions of the results are normally distributed, therefore, the parametric criterion of dependent samples was used for data analysis. Data were considered statistically reliable when p<0.05. The effectiveness of the correction methods was assessed by calculating the effect size, using the effect size online formula "Cohen's d Calculator".

#### Ethics

Subjects were informed about the study, its stages, opportunities to participate in the study and the possibility to refuse to participate in the study at any time. All the subjects' questions were answered. If the subjects did not object to participating in the study, they filled out the questionnaire. In the preamble of the questionnaire, it is mentioned that by filling out the questionnaire, they agree to participate in the study and their anonymous data may be used for research purposes. Prior to conducting the study, the approval of the Bioethics Commission of the Department of Rehabilitation of the Faculty of Medicine of Kaunas kolegija Higher Education Institution was obtained for the conduct of the study.

#### Results

The assessment of diastasis of the rectus abdominis muscles was carried out using the previously described methodology, when the patient should lie on her back with bent legs, bend her head and the researcher performs testing with the fingers of one hand 2cm above the navel. The average of the abdominal muscle release of all women in this group (n=10) who were 2-4 weeks. postpartum, equal to  $3.01\pm0.68$ cm, and 8 weeks after the first testing, the mean discharge decreased to  $2.44\pm0.6$ cm. The overall change in discharge for all women in this group after 8 weeks of kinesiology taping was 19 percent. This means that the amount of release after kinesiological taping is statistically significant (p<0.05). The significance of muscle release can also be seen in Figure 1 & Figure 2.



Figure 1: Release of the rectus abdominis muscles before the application of kinesiology taping.



Figure 2: Release of rectus abdominis 8 weeks after application of kinesiology taping.

### Discussion

In the analyzed literature sources, there were only a few foreign studies similar to ours. In the most recent study found by Jill Depldge [9], subjects who met the selection criteria (exclusion criteria, as in our study-abdominal wall surgery, abdominal pain, pelvic pain or other dangerous medical conditions that would prevent participation in the study) were examined by ultrasound-a visual measurement of the rectus abdominis muscles is performed at rest. Repeated ultrasound measurements before and after the study were compared. The aim of the analyzed study was to determine the effect of four abdominal exercises, taping together with exercises and a corset in reducing abdominal muscle diastasis. Subjects had to be exactly 3 weeks postpartum (21 days).

Results: At rest, the mean distance between the rectus abdominis above and below the umbilicus was 3.5cm (SD: 1.1) and 2.6cm (SD: 1.2), respectively. A significant reduction (19%, p<0.05) was observed at both measurement points during the leanback exercise. No other exercise produced a significant difference compared to rest. There were no changes in the distance between the rectus abdominis muscles when wearing kinesiology tape during exercise (p>0.05).

Conclusion: No other exercises were found to have an effect on the increase in diastasis and are therefore not considered potentially harmful. Kinesiological taping do not increase the effect of exercise [9,10]. In our research, we did not test individual exercises, but the entire exercise program, because according to the analyzed literature, after childbirth, it is important not only to reduce the release of the rectus muscles, but also to strengthen the abdominal corset in general. We also tested only taping and wearing at rest and during daily activities (no additional special sports). This method was the most successful in our study-the results showed a significant exposure effect, and the total mean reduction in discharge was 0.57±0.27cm (p<0.05). During the corrective exercise program, the release of rectus abdominis muscles decreased by 0.44±0.22 cm (p<0.05), a small effect size was determined. We believe that this may have happened because the corrective exercise program was designed to be performed at home, which required additional time and motivation, which the mothers who had recently given birth likely lacked.

## Conclusion

A. The effect of kinesiological taping is great. When it is used at proper time after childbirth. It should be no more than 4 weeks after childbirth to reach maximum effect of kinesiological taping for muscle release effect.

B. It was established that after 2-4 weeks after childbirth, kinesiological taping applied for 8 weeks to reduce the release of rectus abdominis muscles significantly reduces the release of diastasis (p<0.05).

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