

## EFFECT OF MYOFASCIAL RELEASE IN TREATMENT OF PRIMARY VAGINISMUS

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### Abstract

**Background:** Vaginismus is a condition that affects a woman's ability to engage in vaginal penetration.

**Purpose of the study:** This study was aimed to determine the effect of myofascial release in the treatment of primary vaginismus.

**Subjects and methods:** Fifty volunteer, married females having primary vaginismus were selected randomly from outpatient clinic of obstetrics and gynecology in Kasr Al Ainy Hospitals to participate in this study, their age ranged from 25 to 35 years old and their body mass index(BMI) did not exceed 30kg/m<sup>2</sup>. The patients were divided randomly into two equal groups (A&B).**Group A**received a home exercise program by kegle exercise. The exercise can be repeated for 20 times at a time. Patient can do them as many times a day for 8 weeks.**Group B**receivedmyofacial release therapy for half an hour three times per week for 8 weeks in addition to home exercise program by kegle exercise for 8 weeks. Evaluations of all patients in both groups (A&B) weredone before and after the treatment program (8 weeks).All subjects in both groups were assessed through the visual analogue scale (VAS) for pain and Pelvic floor tone assessmentby **perniometer**.**Results:**The results of the present study revealed that there was statistically significant improvement in b pain and sexual function in both groups but there was more improvement in group (B) than in group (A).**Conclusion:**It is concluded that stretching exercise and Myofacial release is effective and safe interventions for the treatment of primary vaginismus.

**Key words:** vaginismus- myofascial release- perineometer.

## **Introduction**

Vaginismus is a condition that affects a woman's ability to engage in vaginal penetration, including sexual intercourse, manual penetration, insertion of tampons and the gynecological examinations. This is the result of an involuntary vaginal muscle spasm, which makes any kind of vaginal penetration painful or impossible (Lahaie et al., 2010). Women tend to remain silent about their vaginismus, not discussing this with family or friends and often not even with their own doctor. For this reason, the true incidence of vaginismus is unknown, although it is thought to affect 5–17 % of women in a clinical setting (Pacik, 2011).

A variety of effective treatments are available to help women overcome vaginismus. These treatments include the use of dilators, physical therapy with or without biofeedback, myofascial release, sex counseling, psychotherapy, hypnotherapy, and cognitive behavioral therapy (Lahaie et al., 2010).

Kegel exercises are done by squeezing the same muscles used to stop the flow of urine when urinating. Firstly the patient squeezes the pelvic floor muscles then she hold for 2 to 10 seconds then relax the muscles. The exercise can be repeated for 20 times at a time. After a few days, the patient inserts one finger inside the vagina while doing the exercises (Lahaie et al., 2010).

Myofascial release (MFR) is an alternative medicine therapy that claims to treat skeletal muscle immobility and pain by relaxing contracted muscles, improving blood and lymphatic circulation, and stimulating the stretch reflex in muscles. Fascia supports and protects muscles. Myofascial Release is a gentle therapy, consisting of a mixture of light stretching and massage work. During a session, the therapist applies hands-on massage strokes in order to release tension from the fibrous bands of the muscle (McKenneet al., 013).

## **I-Subjects:**

Fifty volunteer, married females having primary vaginism were selected randomly from outpatient clinic of obstetrics and gynecology in Kasr Al Ainy Hospitals to participate in this study on the following criteria: Their ages range from 25 to 35 years old, their body mass index (BMI) will not exceed 30kg/m<sup>2</sup>, should be diagnosed by the gynecologist to have primary vaginism. Participants were divided randomly into 2 equal groups (A&B). **Group A** received a home exercise program by kegle exercise. The exercise can be repeated for 20 times at a time. Patient can do them as many times a day for 8 weeks in addition to the usual medical treatment. **Group B** received myofacial release therapy for half an hour three times per week for 8 weeks in addition to home exercise program by kegle exercise for 8 weeks and the usual medical treatment.

## **II-Materials**

1. **Visual analogue scale:** used to measure the level of pain for both groups A&B before and after treatment.
2. **Pelvic floor tone assessment:** by perniometer.

## **III-Methods**

All patients were given a full explanation of the protocol of the study and consent form signed for each patient before participating in the study.

### **A) Measuring procedures:**

#### **1- Weight and height scale**

#### **2- Visual analogue scale (VAS)**

A scale used to identify the degree of pain. It is a continuous scale 10 centimeters (100mm) in length, anchored by 2 verbal descriptors, one for each symptom extreme. For pain intensity, the scale is most commonly anchored by “no pain” (score of 0) and “pain as bad as it could be” or “worst imaginable pain” (score of 100). A higher score indicates greater pain intensity(**Burckhardt and Jones., 2003**).

**3.Perineometer** is an instrument for measuring the strength of contractions of the pelvic floor muscles. Perineometry is conducted by using a vaginal balloon catheter connected to a fiber-optic microtip transducer) placed in the vagina, with the middle of the balloon located approximately 3.5 cm inside the introitus. Study participants performed three maximal pelvic floor muscle contractions and the strongest contraction (creating the highest intravaginal pressure) was used for analysis (**Isherwood and Rane, 2000**).

### **B) Therapeutic procedures:**

#### **1. Kegel exercises:**

Kegel exercises were done as a home program exercise. Exercises were done by squeezing the same muscles used to stop the flow of urine when urinating. Firstly the patient squeezes the pelvic floor muscles then she hold for 2 to 10 seconds then relax the muscles. The exercise can be repeated for 20 times at a time. Patient can do them as many times a day for 8 weeks. After a few days, the patient inserts one finger inside the vagina while doing the exercises(**Lahaie et al., 2010**).

#### **2. Myofascial release:**

**Myofascial release** (MFR) is an alternative medicine therapy that claims to treat skeletal muscle immobility and pain by relaxing contracted muscles, improving blood and lymphatic circulation, and stimulating the stretch reflex in muscles. Fascia supports and protects muscles. Myofascial Release is a gentle therapy, consisting of a mixture of light stretching and massage work. During a session, the therapist applies hands-on massage strokes in order to release tension from the fibrous bands of the muscle(**McKenneet al., 013**).

The following is a MFR technique application into simple stages:

- performs MFR skin on skin without any oil, wax or lotion.
- Place your hands gently on the patients’s body, leaning into the depth barrier of tissue resistance or tractions to meet the tissue barrier of resistance, and wait for a sensation of yielding whilst dialoguing as appropriate with the patient.
- Never force the tissue or slip or glide your hands over the skin at any time.
- Gently take up the slack as the tissue releases to the next barrier of tissue resistance.
- Wait at the barrier for further yielding and softening before taking up the slack to the next barrier.
- Apply second- and third-dimensional pressure to the tissue (a different plane of movement or direction to the one in place), which is technique dependent, whilst

maintaining the first-dimensional pressure. Wait at the tissue barrier or end-feel of all the dimensions for a release and softening to happen in any one direction.

- Dialogue with the client during the technique looking for feedback or any responses to and effects of the technique.
- Take up the slack at the point at which every barrier of tissue resistance releases and softens, and follow to the next barrier.
- Wait to feel a release of tissue and restrictions three-dimensionally
- Disengage slowly from the tissue after approximately five minutes or more.

(McKenneet al., 2013)

#### Statistical analysis:

- Results are expressed as mean  $\pm$  standard deviation. Test of normality, Kolmogorov-Smirnov test, was used to measure the distribution of data measured pre-treatment.
- Accordingly, comparison between normally distributed variables in the two groups was performed using unpaired t test.
- In not normally distributed data, comparison between variables in the two groups was performed using Mann Whitney test.
- Descriptive statistics in the form of mean, and standard deviation will be calculated for all patients in both groups of the study to determine the homogeneity and central deviation.
- Paired T–test will be conducted to compare between pre and post treatment results for all participants and unpaired T-test to compare between both groups. All statistically significant differences will be determined with confidence interval of 95% and thus at  $P < 0.05$ .
- Statistical Package for Social Sciences (SPSS) computer program (version 19 windows) was used for data analysis. P value  $\leq 0.05$  was considered significant.

## **RESULTS**

### **.I- General characteristics of the females in both groups (A, B):**

As illustrated in table (1) the mean values ( $\pm$  SD) of age in both groups A and B were  $29.2 \pm 3.1$  yrs and  $28.9 \pm 2.7$  yrs. respectively. There was no statistical significant difference between the two groups ( $t = 0.353$ ,  $p = 0.637$ ). The mean values ( $\pm$  SD) of weight in both groups A and B were  $70.3 \pm 5.8$  kg and  $68.1 \pm 4.4$  kg respectively. There was no statistical significant difference between the two groups ( $t = 1.511$ ,  $p = 0.929$ ). The mean values ( $\pm$  SD) of height in both groups A and B were  $161.2 \pm 5.5$  cm and  $159.1 \pm 6.2$  cm, respectively. There was no statistical significant difference between the two groups ( $t = 1.267$ ,  $p = 0.895$ ). The mean values ( $\pm$  SD) of BMI in both groups A and B were  $28.5 \pm 1.42$  kg/m<sup>2</sup> and  $27.9 \pm 1.65$  kg/m<sup>2</sup>, respectively. There was no statistical significant difference between the two groups ( $t = 1.378$ ,  $p = 0.911$ ).

**Table (1): General characteristics of the females in both groups (A, B)**

| General characteristics | Group (A)      | Group (B)      | t value | P value |
|-------------------------|----------------|----------------|---------|---------|
|                         | Mean $\pm$ SD  | Mean $\pm$ SD  |         |         |
| Age (yrs.)              | $29.2 \pm 3.1$ | $28.9 \pm 2.7$ | 0.353   | 0.637   |
| Weight (kg.)            | $70.3 \pm 5.8$ | $68.1 \pm 4.4$ | 1.511   | 0.929   |

|                                 |            |           |       |       |
|---------------------------------|------------|-----------|-------|-------|
| <b>Height</b> (cm)              | 161.2 ±5.5 | 159.1±6.2 | 1.267 | 0.895 |
| <b>BMI</b> (kg/m <sup>2</sup> ) | 28..5±1.42 | 27.9±1.65 | 1.378 | 0.911 |

## II-Visual Analogue Scale (VAS)

### Within group comparison

In group A, there was a statistical significant decrease in the median value of VAS measured at post-treatment [4] when compared with its corresponding value measured at pre-treatment [6] with p value = 0.000 (Table2).

Also in group B, there was a statistical significant decrease in the median value of VAS measured at post-treatment [3] when compared with its corresponding value measured at pre-treatment [7] with p value = 0.000 (Table2).

**Table (2): Comparing pain levels assessed by Visual analog scale (VAS) pre and post treatment in both groups.**

| Visual analog scale (VAS)   | Group (A)     |                | Group (B) |                |
|-----------------------------|---------------|----------------|-----------|----------------|
|                             | Pre treatment | Post treatment | Pre       | Post treatment |
| <b>Median</b>               | 6             | 4              | 7         | 3              |
| <b>% of improvement</b>     | 16.67 %       |                | 28.57 %   |                |
| <b>z-value</b>              | 7.67          |                | 5.34      |                |
| <b>p-value</b>              | 0.000         |                | 0.000     |                |
| <b>Level of Significant</b> | S             |                | S         |                |

**Z-value: Wilcoxon Signed Ranks test.**

### Between groups comparison (inter group comparison)

At pre-treatment, there was no statistical significant difference between the median value of VAS in group A [6] and its corresponding value in group B [7] with p value =0.304. On the other hand at post-treatment, there was a statistical significant decrease in the median value of VAS in group B [3] when compared with its corresponding value in group A [4] with p value = 0.013.

**Table (3): Comparing pain levels assessed by Visual analog scale (VAS)pre and post treatment between both groups**

| Visual analog scale (VAS) | Pain level (pre- treatment) |           | Pain level (post- treatment) |           |
|---------------------------|-----------------------------|-----------|------------------------------|-----------|
|                           | Group (A)                   | Group (B) | Group (A)                    | Group (B) |
| Median                    | 6                           | 7         | 4                            | 3         |
| MD                        | 1                           |           | 1                            |           |
| u-value                   | 448.5                       |           | 318                          |           |
| p-value                   | 0.304                       |           | 0.013*                       |           |

MD: Mean Difference.

u-value: Mann–Whitney U test

\* Significant

### III- Muscle tone assessment by perniometer

#### Within group comparison

In group A, there was a statistical significant decrease in the mean value of muscle tone of pelvic floor measured at post-treatment [37.4±4.9] when compared with its corresponding value measured at pre-treatment [59.9± 8.9] with p value = 0.0001. Also in group B, there was a statistical significant decrease in the mean value of muscle tone of pelvic floor measured at post-treatment [30.6 ± 9.1] when compared with its corresponding value measured at pre-treatment [60.1±8.4] with p value = 0.0001.

**Table (4): Comparing pelvic floor muscle tone assessed by perineometer pre and post treatment in both groups**

| Muscle tone assessed by perineometer | Group (A)     |                | Group (B)     |                |
|--------------------------------------|---------------|----------------|---------------|----------------|
|                                      | Pre treatment | Post treatment | Pre Treatment | Post treatment |
| Mean ± SD                            | 59.9± 8.9     | 37.4± 4.9      | 60.1± 8.4     | 30.6 ± 9.1     |
| MD                                   | 22.3          |                | 29.5          |                |
| t-value                              | 10.35         |                | 10.68         |                |
| p-value                              | 0.0001        |                | 0.0001        |                |
| Level of Significant                 | S             |                | S             |                |

#### Between groups comparison

At pre-treatment, there was no statistical significant difference between the mean value of muscle tone of pelvic floor in group A [59.9± 8.9 ] and its corresponding value in group B [60.1± 8.4 ] with and p value = 0.548 (Table7).

On the other hand at post-treatment, there was a statistical significant difference between the mean value of muscle tone of pelvic floor between group A [37.4± 4.9] when compared with its corresponding value in group B [30.6 ± 9.1] with p value = 0.001.

**Table (5): Comparing pelvic floor muscle tone assessed by perineometerpre and post treatment between both groups**

| Muscle tone assessed by perineometer | Muscle tone (pre- treatment) |                | Muscle tone (post- treatment) |                |
|--------------------------------------|------------------------------|----------------|-------------------------------|----------------|
|                                      | Group (A)                    | Group (B)      | Group (A)                     | Group (B)      |
| Mean $\pm$ SD                        | 59.9 $\pm$ 8.9               | 60.1 $\pm$ 8.4 | 37.4 $\pm$ 4.9                | 30.6 $\pm$ 9.1 |
| t-value                              | 0.123                        |                | 3.29                          |                |
| p-value                              | 0.548                        |                | 0.001                         |                |
| Level of Significant                 | NS                           |                | S                             |                |

## DISCUSSION

Successful sexual life requires the ability to touch, feel and move with comfort. Spasm of the pelvic floor muscles and hip adductors contribute to pain causing painful vaginal penetration or inability to penetrate affecting the sexual life markedly (**Rosenbaum, 2007**).

Vaginismus is often described as a muscular spasm of the outer third of the vagina, causing sex to be painful or impossible. It is a condition that affects a woman's ability to engage in vaginal penetration (**Lahaie et al., 2010**).

Primary vaginismus is when a woman is unable to have a first attempt for vaginal penetration without pain. It is commonly discovered when women first attempt to have penetrative sex. Patients who suffer from vaginismus either fear of vaginal penetration or fear of pain (**Borg et al., 2012**).

The current study was aimed to determine the effect of myofascial release in the treatment of primary vaginismus. Fifty volunteer, married females having primary vaginismus were selected randomly from outpatient clinic of obstetrics and gynecology in Kasr Al Ainy Hospitals to participate in this study, their age ranged from 25 to 35 years old and their body mass index (BMI) did not exceed 30kg/m<sup>2</sup>. The study is two groups pre testpost test design. The patients were divided randomly into two equal groups (A&B).

**Group A** consisted of twenty five patients with primary vaginismus who received a home exercise program by kegle exercise. The exercise can be repeated for 20 times at a time. Patient can do them as many times a day for 8 weeks in addition to the usual medical treatment. **Group B** included 25 patients who received myofascial release therapy for half an hour three times per week for 8 weeks in addition to home exercise program by kegle exercise for 8 weeks and the usual medical treatment. Evaluations of all patients in both groups (A&B) were done before and after the treatment program (8 weeks) through the visual analogue scale (VAS) for pain, and Pelvic floor tone assessment by **perniometer**.

The current study revealed that both groups were matched regarding age, weight, height, and BMI. As illustrated in table (1) the mean values ( $\pm$  SD) of age in both groups A and B were 29.2 $\pm$ 3.1yrs and 28.9 $\pm$ 2.7 yrs respectively with no statistical significant difference between the two groups (p= 0.637). There was no statistical significant difference between the two groups regarding weight (p= 0.929), height (p= 0.895) and BMI (p= 0.911).

The present study showed that in group A, there was a statistical significant decrease in the median value of VAS measured at post-treatment when compared with its corresponding value measured at pre-treatment with p value = 0.000 and the same in group B, (p value = 0.000). When comparing pre-treatment results, there was no statistical significant difference between the median value of VAS in group A and its corresponding

value in group B with p value =0.304 while post-treatment, there was a statistical significant difference with p value = 0.013.

Pelvic floor muscle tone measured by perniometer, there was a statistical significant improvement in both groups A and B. When comparing pre-treatment results, there was no statistical significant difference between the mean value of group A and its corresponding value in group B with and p value = 0.548 but at post-treatment, there was a statistical significant difference between both groups with p value = 0.001.

The results of this study are consistent with the study of **Ressing et al., (2004)** who reported that muscle stretching in women suffering from dysparuenia leads to decrease in pain and subsequent improvement in sexual function.

Also these results were confirmed by the study of **Fakhry, (2008)**who concluded That pelvic floor muscle exercise is a successful option in treating vaginismus. The study of **Rosenbaum (2005)** who studied the effect of surface electromyographic biofeedback on pelvic floor muscles in treating vaginismus supported the involvement of physical therapy in the team approach to treat women with sexual pain disorders.

Also **Fitz et al., (2012)** and **Rosenbaum and Owens (2008)**also reported that learning the patient to control pelvic muscle contractions results in reducing hypertonicity with no side effects and promising outcome.

The study of **Yalinen et al., (2007)** reported that stretching exercise decreases pain and improve control of muscle contractions.

The results of the current study also agreed with the study of **Bay et al., (2013)** who studied the effect of Psycho-physiological therapy (streaching therapy and breathing exercise) which showed increased sexual satisfaction after intervention.

## **CONCLUSION**

Accordingly it can be concluded that stretching exercise and Myofacial release is effective and safe interventions for the treatment of primary vaginismus.

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## الملخص العربي

أجريت هذه الدراسة بهدف معرفة تأثير الأفرج الليفي العضلي على علاج التشنجات المهبلية الأولية. وقد شارك في هذه الدراسة تطوعا خمسون مريضا من الإناث المتزوجات اللاتي يعانين من التشنجات المهبلية الأولية تتراوح أعمارهم ما بين الخمسة والعشرين و الخمسة و الثلاثين عاما و معدل كتلة الجسم لا يتعدى الثلاثين كجم/م<sup>2</sup>. و قد تم اختيارهم عشوائيا من العيادات الخارجية بقسم النساء و التوليد بمستشفيات القصر العيني.

وقد تم تقسيمهم عشوائيا إلى مجموعتين متساويتين في العدد. المجموعة الأولى وتتكون من خمسة وعشرين مريضا ممن تلقوا تمارينات كيجل بالإضافة الى المعتاد أما المجموعة الثانية فقد تلقت تمارينات كيجل بالإضافة الى الأفرج الليفي العضلي.

و قد تم تقييم الحالات بقياس شدة الألم و قياس انقباض عضلات الحوض قبل و بعد التدخل و البرنامج العلاجي في كلتا المجموعتين.

وقد أظهرت النتائج تحسنا ملحوظا وذو دلالة إحصائية في المجموعة الأولى و المجموعة الثانية و ان كان التحسن حدث في المجموعة الثانية بشكل أفضل.

**الكلمات الدالة:** التشنجات المهبلية – الأفرج الليفي العضلي -جهاز قياس عضلات منطقة العجان.