# Effect of Relaxation Training Augmented by EMG Biofeedback in Treating Vaginal Spasm

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## ABSTRACT

*This study was conducted to determine the effect of relaxation training augmented by EMG biofeedback in treating cases suffering from vaginal spasm. Twenty volunteer newly married women, diagnosed as having primary vaginismus, participated in this study. They were collected from Gynecologic outpatient clinic at Kasr EL-Aini university Hospital. Their age ranged from 25-35 years and their duration of marriage ranged from 2-7 months. Each subject was treated by relaxation training and EMG biofeedback, twice/week for three weeks, in addition to daily home routine. Assessment was done by present pain intensity (PPi) scale and TG Myo-feedback 420v, before starting the study and at the end of the 6$^{th}$ treatment session. Results showed statistical highly significant (P<0.001) decrease in both PPi scores and pubococcygeus muscle spasm after the end of the 6$^{th}$ treatment session. Accordingly, it could be concluded that relaxation training augmented by EMG biofeedback is an effective physical therapy modality in treating patients suffering from primary vaginismus.*

***Keywords:*** *Vaginal Spasm, Relaxation Training, EMG Biofeedback, Primary Vaginismus.*

## INTRODUCTION

Painful genital sexual activity in women has traditionally been diagnosed as either vaginismus and / or dyspareunia, it is neglected, and poorly understood.It entails great personal cost to patients and significant financial outlay for society[5,9,34].

However, vaginismus is recommended as the presence of "vaginal spasm", so that there is reflexive involuntary contraction of the pelvic muscles as well as, thigh adductors, abdominal muscles, muscles of the back and limbs, associated with varying degrees of fear of pain, typically but not invariably precludes full entry of a penis, tampon, speculum or finger[2].

So, vaginal spasm has rarely questioned as the defining characteristic for the diagnosis of vaginismus since Sims (1861)[30] first coined the term to describe vaginal penetration difficulties.

Gynecological examination can confirm the diagnosis of vaginismus and determine whether there is an involuntary muscle contraction when fingers are inserted into vagina and this usually produces the pain that the woman feels with intercourse[11].

The vast majority of women diagnosed with vaginismus experience pain during a gynecological examination and during attempted intercourse[18,26]. Moreover, avoidance of penetration appears to be the only factor that differentiates between vaginismus and dyspareunia[10,14,26].

Vaginismus could be physical or psychological in nature. Physical causes vary from an imperforated hymen, a dry atrophied vagina to even endometriosis. While, psychological causes may vary from the dislike of partner, rape, incest, childhood

molestation, fear of penetration and pain near the vaginal area[26].

Concepts such as penetration, intercourse and even sex can cause fear or trepidation in the mind of a young inexperienced woman who may hear stories about painful first intercourse, which then reinforce the fear of penetration. This fear can compound and create a pattern of sexual anxiety, causing the vagina to remain dry and unrelaxed before intercourse[7].

Fear of penetration and pain may develop from inadequate sex knowledge, myths and misconceptions, as well as from the stories of painful sexual intercourse experiences narrated by others. Mostly, stories of pain and bleeding, during the first attempts of penetration, horrify the one who has not yet undergone penetration[15].

Whatever is the cause, the anticipating pain during the next attempt of penetration, send signals from brain to the muscles around vagina, to tight the vaginal opening. As a result, the vagina is so tightly closed that attempted penetration becomes more difficult and more painful. Finally the whole process goes beyond the woman's conscious control[7].

Involuntary vaginal spasm caused by contraction of the pelvic floor muscles following attempts of vaginal penetration may be primary, requiring psychosexual counseling or, secondary where the underlying pathology needs to be firstly treated and then, followed by re-education of the pelvic floor muscles[33].

Hence, involuntary spasm of the pubococcygeus muscle usually occurs in anticipation of pain and if penetration is forced through the tight muscle, pain will be experienced[8,32].

Vaginal tightness, difficulty or inability to allow penetration for intercourse is the primary symptom of vaginismus. Normally, the vaginal sphincter keeps the vagina closed until the need to expand and relax. This relaxation allows intercourse, childbirth, medical examination and insertion of tampons. However, when vaginismus does occur, the sphincter goes into spasm resulting in the tightening of the vagina and with some women, vaginismus prevents all attempts of successful intercourse[2,25].

Surrounding the entrance of the vagina, there are a very powerful pubococcygeus (PC) muscles. The PC muscle group has a key role in the function of reproductive system, urinary tract, and bowels. These muscles enable one to urinate, have intercourse, orgasm, have bowel movements, and deliver babies. Hence, they are also, sometimes referred to as love muscles, vaginal muscles, or pelvic floor muscles. These muscles encircle the urinary opening, vagina, and anus in a "figure eight" pattern. One loop of muscles surrounds the vaginal area and the other loops surround the anal area. Contractions of the pelvic floor muscles may occur as a result of local pain caused by vaginal dryness, recent childbirth, or abdominal as well as, back pain[20].

It is important to note that the PC muscles spasm is not triggered deliberately by the woman but rather it happens "unconsciously"; possibly even without her awareness. This involuntary spasm can happen for a variety of reasons as a response to a combination of physical or emotional factors and is considered the body's erroneous way of protecting itself. Not knowing why this happens, what causes it, or how to treat it, can be very frustrating and causes physical and emotional distress for both the woman and her partner. Many women feel intense shame from being unable to have intercourse and they keep their pain inside private, refusing to share their secret with anyone[5].

The main goal of physical therapy is to rehabilitate the pelvic floor by (1) increasing

awareness of the pelvic floor musculature; (2) improving muscle discrimination and muscle relaxation; (3) normalizing muscle tone; (4) increasing elasticity of the tissues at the vaginal opening, and (5) decreasing fear of vaginal penetration. These goals are achieved through education about the role of the pelvic floor musculature in the maintenance of genital pain, electromyographic (EMG) biofeedback, manual techniques (e.g. stretching) and insertion techniques[6,28].

Biofeedback is a tool to help our mind and body to communicate better with one another. Body signals that are usually below the threshold of conscious awareness can be amplified so that, the mind can "hear" them. With this awareness, the conscious mind can learn to "talk" to the body and gain the ability to control, or "self-regulate", many things that the body is doing. This is true even of many body processes that were once thought to be completely automatic and impossible to regulate through conscious control. Thus, biofeedback can be used for greater body (and self) awareness, for more optimal health and function[19,27].

The most proper treatment for vaginismus is an extensive therapy program that combines education and counseling with behavioral exercises. Exercises include pelvic floor muscle contraction and relaxation (Kegel exercise) to improve voluntary control[24].

Training the PC muscle group to respond differently to the anticipation of intercourse the key to the successful treatment of vaginismus. The process of learning to take conscious control of this muscle group will systematically change the conditioned reflex so that, spasms no longer occur[15].

Progressive muscle relaxation exercise will lower the individual's general muscle tension and anxiety. In particular, the woman will need to learn to relax muscles around the inner thigh and pelvic area. Kegel's exercises may also, assist by increasing control and voluntary relaxation. So, kegel exercise can help to gain voluntary control over pelvic muscles. The goal of kegel exercises is not to tense the muscles, but to learn to relax them[24].

Insertion of graded trainers (vaginal dilators) or fingers, after engaging in relaxation exercises. Trainers come in a number of sizes. The smallest trainer is about the size of a pencil while, the largest trainer is the size of an erect penis. The individual is taught how to painlessly insert the smallest trainer by using lubricating gel and targeted relaxation of the pelvic floor muscles[12,16,24].

As primary vaginismus is considered one of the most frequent gynecological and sexual dysfunction, which cause pain and so, develops anxiety and fear regarding coitus and penetration. This case is usually reflected on the psychological state of the woman and cause relationship problems. So, it is important to find a way to inhibit these excessive activities of the pelvic floor muscles and to relax them to allow sexual relationship to occur and so, allowing woman to live her life happily.

The purpose of the present study was to determine the effect of relaxation training augmented by EMG biofeedback in treating patients suffering from vaginal spasm.

## SUBJECTS, MATERIAL AND METHODS

### Subjects

Twenty volunteer newly married women, diagnosed as having primary vaginismus, they were collected from Gynecologic outpatient clinic at Kasr El-Aini University Hospital, to determine the effect of both relaxation training and EMG biofeedback in treating such cases.

All the subjects had the following criteria: their age ranged from 25-35 years old with a mean value of 29.55±3.14 yrs, body mass index (BMI) ranged from 23.42-29.30 kg/$m^2$ with a mean value of 25.22±1.85 kg/$m^2$, and their duration of marriage ranged from 2-7 months with a mean value of 4.35±1.53 month, they had no gynecological diseases as vulvar vestibulitis, vulvar pain, clitrodynia, vulvar dysesthesia or any pelvic inflammatory diseases, as well as no lower urinary tract infection, neurological problems, also, they had no past or present psychological disturbances, no history of participation in relaxation training within the previous 6 months and not under any medical treatment.

Each subject was suffering from pain and spasm in the vagina at any attempt of vaginal penetration.

Informed consent form had been signed from each subject before starting the study, indicating her voluntary participation in this study.

Subjects were treated by relaxation training and EMG Biofeedback, twice weekly for three weeks. And, they were evaluated subjectively by present pain intensity (PPi) scale and objectively by TG Myo-feedback 420v before starting the study and after the end of the treatment program.

**Instrmentaions**

- Recording data sheet All data and information of each patient participating in this study were recorded in a recording sheet.
- Weight - height scale was used to measure the height and weight of each subject in this study.
- Present pain intensity (PPi) scale (0-4) was scored before starting the study and after the end of the 6$^{th}$ treatment session. Pain intensity was scored as being: no pain = 0, mild pain = 1, moderate pain = 2, severe pain = 3, and unbearable pain = 4. So, the patient was asked to mark the point corresponding to her perception of pain[31].
- TG MYO - feedback 420v machine (combined apparatus for myo-feedback and electro-stimulation), it has all features of a genuine Gymna® – device: reliability, durable quality, safety and a function design. It was used for objective evaluation before starting the study and after the end of the 6$^{th}$ treatment session to assess the pubococcygeus muscle spasm for each patient in this study. Also, it was used as a treatment method (sensory and visual feedback), twice weekly for 3 weeks.

***Technical Features of TG MYO – Feedback 420v machine:***

Mains voltage of 230 vac/50 / 60 Hz; tolerated mains voltage variations of – 10% / + 6%; number of channels are 2; power consumption: in operation of max. 30 w, while in stands-by: max. 11w; main fuses of 2 × 0.5 AT; sensitivity → EMG measuring and pressure measuring of a scale ranging from 5 - 2600 μ v, and 5 – 2600 mm Hg respectively; weight of 3.5 Kg; and manufacturer of gymna®. Type of output signal of constant voltage; current form of two-phase symmetric rectangular pulse; pulse frequency from 1 to 250 Hz; pulse width from 10 to 400 μ s, and with fixed polarity + and - , or alternating polarity. Hardware current limitation of 255m A; software current limitation of 130v and measured values + accuracy of output current in milli Ampere: typical +/- 10%.

- Dilators Are stainless-steel Hegard dilators, set of 18 cylinders, with varying sizes ranging from 1 to 18.5 mm diameter (made in Pakistan). The appropriate dilators are inserted into the vagina in privacy to force the muscles around the vagina to stretch or relax and so, allow penetration.

- Condoms and Ky – gel Condoms were used for covering the vaginal probe to prevent cross infections, and Ky – gel was used for lubrication.
- Cotton and disinfectant solution to clean the vulva and perineum of the patient as well as, both the vaginal electrode and dilators.
- Pillows, cushions and sheets Pillows and cushions were used to support and accommodate the subject body curves and parts in a comfortable relaxed position, while sheets were used to cover the patients.

**Procedures**

***Evaluative procedures:*** (were done before starting the study and after the end of the $6^{th}$ treatment session).

Each patient participated in this study was instructed carefully about the evaluative as well as, treatment procedures to increase her interest and motivation, in addition to obtain her confidence and cooperation.

Each patient was asked to empty her bladder before starting either the evaluative or treatment sessions. Then, the patient in a quite room, assumed a comfortable relaxed crook lying position, with the aid of soft pillow behind her head and, small cushions under her pelvis as well as, knees and feet apart to assure optimal pelvic floor relaxation. And, the patient was asked to estimate her experienced present pain intensity on the PPi scale according to her perception of pain.

The vaginal electrode of TG Myo-feedback 420v was cleaned, covered by condom and lubricated by Ky-gel, after that introduced gradually and gently inside the vagina, while the patient performing panting breathing. Hence, the patient was asked to relax, through keeping her eyes as well as, mouth closed, and keeping all her body parts well supported, then she observed as well as, listened to her own regular breathing in order to achieve mental relaxation. The TG Myo-feedback 420v machine was switched on following zero program (relaxation mode), and one of the two channels was selected, after that the wire of the vaginal electrode connected to the socket of the selected channel (A). Accordingly, light signal was reflected on the bar-graph of the channel (A). This light signals, were reflected the pre treatment data (μv) of the muscle activity (spasm) of the pubococcygeus muscle. Then, at the end of the evaluative procedure, the TG Myo-feedback 420v machine was switched off and the vaginal electrode withdrawed from the vagina and cleaned after removing the condom. And, 5 mins of circulatory ex's (for both upper and lower extremities), connected with breathing ex's were performed by the patient before getting up for circulatory adjustment. This evaluative procedure was repeated again, after the end of the $6^{th}$ treatment session to record the post treatment data of pubococcygeus muscle activity.

***Treatment procedures***

The first treatment session was started with careful explanation of the nature of the problem, followed by education for each patient in the study, including information about sexual anatomy and physiology, sexual response cycle as well as, common myths about sex to gain their confidence and cooperation.

After that, the patient placed in a privacy quiet room (where she felt safe and comfortable), in which there were no optic, tactile or auditory stimuli, also there should be no restrictive clothes, and the patient assuming a comfortable relaxed crook lying position, soft pillows and cushions were used to support and accommodate the patients' body curves. The patient was asked to close her eyes as well

as, mouth gently, and perform deep breathing as a key for mental relaxation, for 5 mins.

Then, the patient was asked to perform relaxation training in form of tens-relax technique as the patient was asked to flex her fingers, felt the tension and its site and relax as well as, felt the absence of tension. This procedure was then, repeated with breathing control, for all movements of both upper and lower extremities, in addition to facial, abdominal, gluteal, pubococygeus and adductor muscles for 10 mins.

After that, a suitable lubricated dilator inserted gradually and gently into the vagina to allow the transvaginal muscle to slightly stretched and relaxed, for 5 mins.

After that, the patient was educated and instructed carefully about kegel ex's (How to contract as well as, relax the pubococcygeus muscle, and feel the difference between them), for 10 mins.

Then, the vaginal electrode of TG Myo-feedback 420v was covered by condom and lubricated by Ky-gel, after that introduced gradually and gently inside the vagina, while the patient was completely relaxed (mental & physical).

The TG Myo-feedback 420v machine was switched on following zero program (relaxation mode), this procedure was performed the same as in the evaluative procedure.

During EMG biofeedback, the patient could see and recognize the effect of her involuntary pelvic floor muscle contractions as a light signal, that was reflected on the bargraph of channel (A), which in turn prevent penetration. So that, the patient learned how to contract and relax on volition her pelvic floor muscles, and this was initiated by moving the vaginal electrode in an in-and-out motion. Accordingly, visual feedback from the bargarph, sensory feedback from the vaginal electrode and verbal feedback from the therapist, all complement one another to teach and educate the patient about pelvic floor muscle awareness. The duration of EMG biofeedback was 10 mins.

And, after the end of the treatment session, circulatory adjustment was done for 5 mins, before the patient getting up.

This treatment procedures were repeated twice/week, for 3 weeks (6 treatment sessions), with instructions to avoid any stress and practicing carefully the daily home routine.

***Daily home routine:***

1- The patient was encouraged and instructed to practice general body relaxation (both mental and physical) for 20 mins.
2- And, then the patient perform kegel ex's, 10 times and increase number of repetitions 5 times daily.
3- Then, insert and withdraw the dilator (gradually increase the size of the dilator), in privacy, on her own bed, twice daily (at afternoon and at evening) for 3 weeks. After that, the patient was encouraged to enjoy her sexuality.
4- Before the end of the treatment program (2 sessions) each patient was informed and instructed to train herself to be completely relaxed (mental and physical), prior to the received sexual excitation.

**Statistical Analysis**

The collected data were fed into computer for statistical analysis, using SPSS software and the statistical significance at a confidence of 95% (level of significance 0.05).

## RESULTS

In the present study the effect of relaxation training augmented by EMG biofeedback on treating and alleviating pain as

well as, spasm in cases suffering from primary vaginismus were studied.

As shown in Table (1), the percentage of present pain intensity scores which experienced by the patients before starting the study were 80% of cases experienced unbearable pain and the rest of cases 20% experienced severe pain. While, after the end of the 6th treatment session, the majority 70% of cases experienced complete relief of pain (no pain), some 25% of cases experienced mild pain, and few 5% of cases experienced moderate pain. Comparing the results by using chi-square the difference was found to be statistically highly significant ($P < 0.001$) decrease in the experienced pain after the end of the 6th treatment session.

***Table (1): The percentage of PPi scores before starting the study and after the end of the treatment.***

| | Before starting the study | | After the end of the study | |
|---|---|---|---|---|
| | No. | % | No. | % |
| Unbearable Pain | 16 | 80% | -- | -- |
| Severe Pain | 4 | 20% | -- | -- |
| Moderate Pain | -- | -- | 1 | 5% |
| Mild Pain | -- | -- | 5 | 25% |
| No Pain | -- | -- | 14 | 70% |
| Chi-Square | 4.09 | | | |
| P. Value | P < 0.001 | | | |

Also, Table (2) and Fig. (1), represents the present pain intensity scores which experienced by the patient before starting the treatment, in which it ranged between 3 and 4 with a mean value of 3.80±0.41, while the experienced pain after the end of the 6th treatment session was ranged between 2 and 0, with a mean value of 0.35±0.58. Comparing between the mean values of pre and post treatment program, the difference was found to be statistically highly significant ($P < 0.001$) decrease of the experienced pain after the end of the treatment.

***Table (2): The Mean Values of PPi scores before starting the study and after the end of the treatment.***

| | Before Treatment | After Treatment |
|---|---|---|
| Mean | 3.80 | 0.35 |
| S.D. | ± 0.41 | ± 0.58 |
| Mean Difference | 3.45 | |
| t – Value | 17.39 | |
| P – Value | P < 0.001 | |

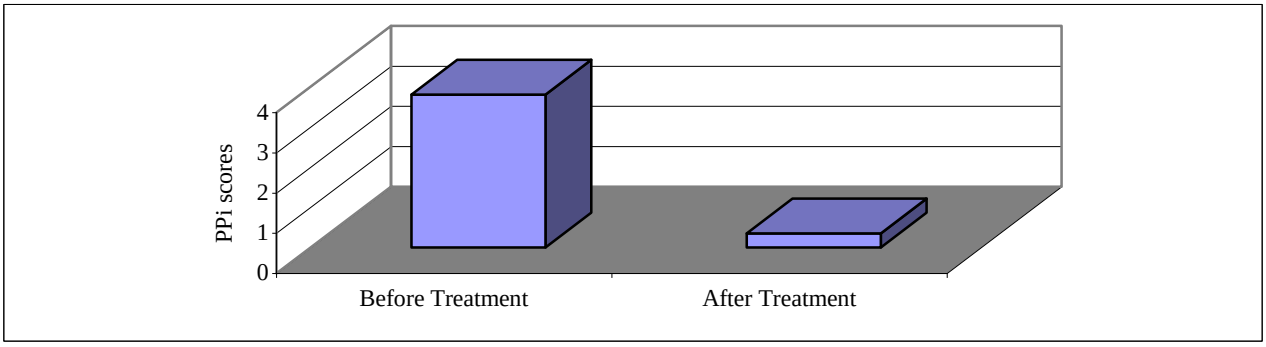


***Fig. (1): The Mean Values of PPi scores before starting the study and after the end of the treatment.***

And, as shown in Table (3) as well as, Fig. (2), the pubococcygeus muscle spasm, which measured objectively by TG Myo-feedback 420v, before starting the study, was ranged from 51 to 96 µv, with a mean value of 80.45±13.48 µv, while it was ranged from 5 to 25 µv with a mean value of 15.50±6.76 µv after the end of the 6th treatment session. Comparing between the mean values of pre and post treatment, the difference was found to be statistically highly significant ($P < 0.001$) decrease in the pubococcygeus muscle spasm after the end of the treatment.

***Table (3): The Mean Values of pubococcygeus muscle spasm before starting the study and after the end to the treatment.***

| | Before Treatment | After Treatment |
|---|---|---|
| Mean | 80.45 | 15.50 |
| S.D. | 13.48 | 6.76 |
| Mean Difference | 64.95 | |
| t – Value | 32.55 | |
| P – Value | P < 0.001 | |

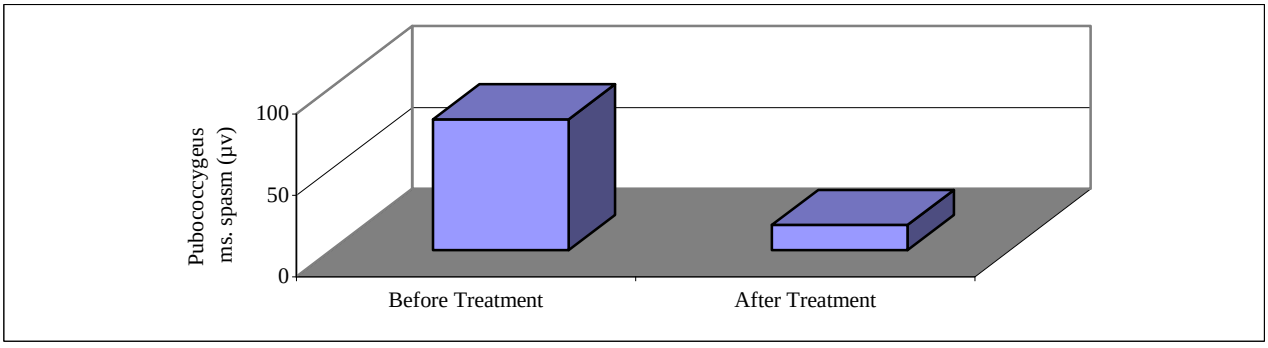


***Fig. (2): The Mean Values of pubococcygeus muscle spasm before starting the study and after the end of the treatment.***

## DISCUSSION

Results of the present study showed evidence of greater improvement of the treated cases, in which pain as well as, spasm which were experienced by the patients who suffering from primary vaginismus. So, the results revealed that there were statistically highly significant (P<0.001) reduction of both pain and pubococcygeal spasm after the end of the treatment program.

Concerning the present pain intensity which experienced by the patients, the results showed a statistical highly significant (P<0.001) reduction of pain perception after the end of the 6th treatment session, this result is agree and confirmed with that of Paul et al.,[22] who reported a significant reduction of RR in healthy subjects after practicing biofeedback relaxation technique. This reduction could be attributed to the effect of relaxation in promoting parasympathetic activity[3] and so, alleviating and controlling the vaginismic pain which experienced by the patients.

Also, Paul et al.,[22] mentioned that biofeedback relaxation training, modulate the traffic over vagal pathways, which is attributed to the fact that breathing is considered as a key for relaxation, and so, it is associated with increased parasympathetic activity as well as, reduction in sympathetic activity[23].

Accordingly, relaxation training as well as, EMG biofeedback reduces anxiety, irritability and stresses, which could be attributed to the decrease in neuromuscular activity during relaxation that leading to decreased proprioceptive input to the hypothalamus, which decrease the activity of sympathetic nervous system and so, decrease the state of cerebral cortex excitability[17].

The results of this study were confirmed with that of Barnes et al.,[1] who concluded that EMG biofeedback is an effective method for learning muscle relaxation, which is acceptable to the patients, and increased the success rate by minimizing P.C. muscle spasm in cases suffering from vaginismus. And they stressed at the end of their study on the importance of follow-up of the treated patients.

Regarding to the pubococcygeus muscle spasm, the results of the present study, showed a highly significant (P<0.001) decrease in the pubococcygeus muscle activity after the end of the treatment program, compared of the initial values before starting the treatment. This result agree and confirmed with that of Glazer[12], who concluded that the application of EMG biofeedback focus on increasing contractile amplitude (strengthening) and reducing resting amplitude (relaxation). He added that previous applications of EMG biofeedback for treating pelvic floor muscles related disorders viewed a direct consequence of pelvic floor muscle dysfunction, weakness or hypertonicity. And, he recommend that all women should have a pelvic floor assessment annually for early detection and prevention of pelvic floor dysfunction either due to weakness or hypertonicity.

Also, Bergeron et al.,[4] proved that EMG biofeedback has been used as a part of behavioral treatment program, with the assumption that the ability to reduce muscle tension in cases complaining from vaginismus.

The result of this study is in agreement also, with that of Sea et al.,[29] who proved that biofeedback is an effective aid, to learn muscle control (relaxation) for patients suffering from vaginismus.

Bergeron and Josée Lord,[5] attributed this improvement to visual feedback from the computer screen, verbal feedback from the therapist and sensory feedback from the vaginal probe or therapist's fingers in the

vagina, and so, all complement one another to aware as well as, teach women about their pelvic floor musculature. However, they added that the combination of biofeedback and manual techniques helps women to learn how to contract and relax their pelvic floor muscles adequately. Accordinglly, they stressed that when patients trained to learn both proper muscle contraction and complete voluntary relaxation, skills that they could then, carry over into sexual intercourse. And, they mentioned also, all physical therapy techniques are performed first in the office by the therapist and then, taught to the patient and her partner as part of a home exercise program.

Also, the results of this study supported and agreed with that of Mac kay et al.,[21] who proved that EMG biofeedback of pelvic floor musculature is an effective approach to vulvar vestibulitis and vaginismus. And they, added that EMG biofeedback for pelvic floor muscles is important for decreasing pain and muscle spasm in cases suffering from hypertonicity of the pelvic floor musculature.

And, the results of this study confirmed with that of Wells,[35] who proved that physiotherapy treatment can help to relax the pelvic floor muscles, which resulting in a decrease of pain. And so, comfortable sexual intimacy becomes possible.

In dealing with patients number 10 and number 15, they have been married from 7 and 6 months ago respectively and they tried all kinds of psychotherapy, medical therapy and sexual therapy. So, it was very difficult to convince them to start the treatment sessions but once, they instructed as well as, performed relaxation training, and the lubricated vaginal electrode was introduced gradually and gently inside their vagina, they got the confidence as well as, went through the treatment program and, they had successful painfree with complete sexual intercourse, and one of them got pregnant.

Finally, this study confirms and adds strong evidence that relaxation training augmented by EMG biofeedback, is an excellent additional physical therapy method for treating pain as well as, spasm in patients suffering from primary vaginismus.

## Conclusion

The results of this study objectively demonstrates the potential of relaxation training augmented by EMG biofeedback as an effective non-pharmacological method for treating patients suffering from vaginal spasm.

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**الملخص العربي**

## تأثير تمارين الاسترخاء المدعمة بالتغذية الحيوية الإسترجاعية في علاج التشنج المهبلي

تهدف هذه الدراسة إلى معرفة تأثير تمارين الإسترخاء المدعمة بالتغذية الحيوية الإسترجاعية فـي علاج التشنج المهبلي . وقد أجريت هذه الدراسة على عشرين سيدة متطوعة من حديثات الزواج ( 2-7 شهور) ، من العيادة الخارجية لأمراض النساء بمستشفى القصر العين ي الجامعي ، بعد أن تم تشخيصهن بأنهن تعانين من التشنج المهبلي الأولى ، وكانت أعمارهن تتراوح ما بين 25-35 عاماً. تم علاجهن بتمارين الإسترخاء المدعمة بالتغذية الحيوية الإسترجاعية ، بواقع جلستين أسبوعياً لمدة ثلاثة أسابيع، بالإضافة إلى برنامج منزل ي يوم ي . وقد تضمنت القياسات قياس شدة الألم الحالية، وقد تم قياسه بالمقياس المدرج لقياس شدة الألم الحالية ومقدار التشنج في عضلات الحوض الرافعة والتي تم قياسها بجهاز التغذية الحيوية الإسترجاعية وذلك قبل بداية الدراسة وأيضاً بعد الانتهاء من الجلسة العلاجية السادسة . وقد أوضحت النتائج عن انخفاض ذو دلالة معنوية عالية ف ي شدة الألم الحالية وأيضاً مقدار التشنج ف ي عضلات الحوض الرافعة ، وعليه يمكن أن نستخلص أن تمارين الإسترخاء المدعمة بالتغذية الحيوية الإسترجاعية تعد أحدى وسائل العلاج الطبيعي الفعالة في علاج المريضات اللاتي تعانين من التشنج المهبلي .

**الكلمات الدالة :** التشنج المهبلي ، تمارين الإسترخاء ، التغذية الحيوية الإسترجاعية ، التشنج المهبلي الأولى .