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# EFFECTS OF EQUINE THERAPY ON THE QUALITY OF LIFE OF WOMEN WITH URINARY INCONTINENCE

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**Abstract:** Urinary incontinence (UI) is a pelvic floor dysfunction, recognized by the complaint of involuntary loss of urine. It is a disabling and embarrassing condition that affects millions of people of all ages, especially women, negatively affecting the quality of their lives in social, physical, psychological and sexual aspects. Current studies demonstrate the significant influence of UI on women's sexual function. Sexual dysfunction (SD) is defined as any impairment of one of the phases of the sexual cycle. Although there are therapeutic resources used for both UI and SD aimed at the integrity of the pelvic floor muscles (PFM), as this is of great importance in controlling continence and supporting the pelvic organs, a therapy on the rise that works on pelvic dissociation, which has been little studied for UI and SD, is equine therapy. It refers to a set of therapeutic techniques that uses the horse from an interdisciplinary approach in the areas of health. One of the most important characteristics of equine therapy is what the horse's stride produces and transmits to the rider. A series of sequential and simultaneous movements, resulting in a three-dimensional movement. This gave rise to an interest in researching the effectiveness of equine therapy as a treatment for urinary incontinence and sexual dysfunction in women. This is an experimental study, carried out in partnership with the Apoiar Equine Therapy Center and the Uni-CEUB Community Care Center (CAC). The sample consisted of a 69-year-old woman diagnosed with urinary incontinence, who was sexually active and had no equinophobia. Twelve 30-minute equine therapy sessions were held. At the end of the intervention, it was possible to identify a reduction in the number of urine losses and the quantity of urine, a gain in muscle strength of the pelvic floor muscles, an improvement in body awareness of the muscles responsible for continence, physical and psychological repercussions, with a consequent improvement in quality of life and sexual function.

**Keywords**: Equine therapy; Urinary incontinence; Sexual dysfunction; Quality of life.

## INTRODUCTION

Urinary incontinence is defined by the International Continence Society (ICS) as a pelvic floor dysfunction, recognized by the complaint of involuntary loss of urine (FERNANDES, 2009). It is a disabling and embarrassing condition that affects millions of people of all ages, especially women, negatively affecting the quality of their lives in social, physical, psychological and sexual aspects (COTRIM, 2008).

It is classified as stress urinary incontinence (SUI), when involuntary loss of urine occurs when the individual coughs, sneezes, walks or does some heavy lifting; urge incontinence (UI) when the complaint of involuntary loss of urine is accompanied, or immediately preceded, by urgency without the ability to control the urination mechanism; and mixed incontinence (MUI) which is a combination of the two previous types (JUSTINA, 2013; FERNANDES, 2009).

Current studies demonstrate the significant influence of UI on women's sexual function (CARUSO et al., 2017). Sexual dysfunction (SD) is defined as any impairment of one of the phases of the sexual cycle: desire, arousal, orgasm and resolution (MAGNO et al., 2011). Women with SD have a negative impact on mental health, physical, emotional and social aspects, thus having a direct influence on the well-being of the individual, and constantly inadequate treatment due to shame and frustration, or because of the belief that dysfunction is inherent to aging (CORREIA et al., 2016). In addition to DS, episodes of UI during activities of daily living have led many women to social embarrassment and concern due to the odor of urine, shame, depression, anxiety, changes in sleep and low self-esteem (BORBA, 2008; LOPES, HIGA, 2006).

The therapeutic resources used in both UI and SD are: pelvic floor kinesiotherapy, hypopressive gymnastics, electrostimulation, biofeedback, vaginal cones, manual therapies, reducing the surgical approach, which for a long time represented the classic approach to voiding dysfunctions (MAGNO et al. 2015; ANDREAZZA, 2008). All of these resources are focused on the integrity of the pelvic floor muscles (PFM), as they play a major role in controlling continence and supporting the pelvic organs, requiring normalized muscle tone, strength and resistance (CASTRO-PARDIÑAS, 2017).

However, a therapy on the rise, which works on pelvic dissociation (PIEROBON, 2008) and which has been little studied for UI and SD, is equine therapy. It refers to a set of therapeutic techniques that uses the horse from an interdisciplinary approach in the areas of health, seeking the biopsychosocial development of people with or without disabilities or special needs (ANDE/BRASIL, 1999).

One of the most important characteristics for equine therapy is the effect that the horse's gait produces and transmits to the rider. A series of sequential and simultaneous movements, resulting in a three-dimensional movement, similar to the human gait, offering movements of lateral inclinations of the trunk for weight transfer, rotations for dissociation of waists and movements of anterior and posterior bascule of the pelvis by the movement of flexion and extension of the trunk (MEDEIROS, 2008; PIEROBON, 2008).

Previous studies have found positive effects of equine therapy in strengthening the pelvic muscles and improving the overall perception of quality of life in urinary incontinence in individuals with multiple sclerosis (MUÑOZ-LASA et al., 2018; BORGES et al., 2011).

Quality of life is fundamental to women's well-being, but urinary incontinence has negative effects on various functions in life, including sexual life. Treatment for UI can be conservative or surgical, which is not only an invasive procedure, but also expensive. Thus, interest in conservative treatments has been growing, making scientific studies essential in order to promote the effectiveness of different physiotherapeutic treatment methods.

Due to this evidence, as well as the importance of benefiting women in physical, psychological, emotional and social aspects in order to promote well-being, there was an interest in researching the effectiveness of equine therapy on the quality of life and sexual function of women with urinary incontinence and sexual dysfunction.

## THEORETICAL BACKGROUND

The female pelvic floor refers to the structures that make up the pelvic cavity and is divided into three portions: anterior (bladder and urethra), middle (vagina) and posterior (rectum).

It is made up of supporting structures: pelvic fascia (pubo-vesical ligament, round of the uterus, uterosacral and transverse cervical ligament), pelvic diaphragm (levator ani muscle) and urogenital diaphragm (bulbocavernosus, superficial transverse and ischiocavernosus muscles). In terms of fiber composition, 70% are type I (slow) and 30% type II (fast). All these structures are essential in the active support and maintenance of the pelvic organs, urethral and anal sphincter action and sexual function. Lack of contraction of these muscles can lead to deficiencies in pelvic floor support and conditions such as UI and SD (ALVARENGA et. al 2011; FERNANDES, GIRELLI, 2011).

Urethral closure is aided by training the contraction of the pelvic floor muscles, as it elevates and approximates the musculature, likewise increasing the recruitment of type I and II fibers and stimulating the contraction of the pelvic diaphragm, preventing the involuntary loss of urine (FERNANDES, GIRELLI, 2011).

Groups with a lower degree of PFM contraction have a higher rate of discomfort and pain during sexual intercourse than groups with a higher degree of contraction, i.e. the greater the strength of contraction of the pelvic floor muscles, the better the rate of sexual function in women (MAGNO et al., 2011).

Equine therapy uses the horse as a kinesiotherapeutic tool in an interdisciplinary approach. This method provides physical, psychological, educational and social benefits for individuals with special needs, difficulties, physical, mental and/or psychological disabilities. It contributes to the development of strength and muscle tone, relaxation, balance, body awareness, improved motor coordination, self-confidence and self-esteem. It provides the practitioner with a global treatment approach (SOVAT, 2012).

The horse moves in three ways: at a walk, at a trot and at a canter. In the different gaits, the horse moves its limbs in different ways, the movements of the back are not the same and riders are adapted to any movement. Therefore, on its back, the horse offers the practitioner various opportunities, such as changes of pace and direction, acceleration and deceleration movements of the stride, changes in posture, lateral inclinations of the trunk for weight transfer, rotations for dissociation of waists and anterior and posterior bascule movements of the pelvis through flexion and extension of the trunk. As the horse's gait is the most important in equine therapy, the practitioner is subjected to three different forces: (vertical plane) up and down, (horizontal plane) left and right and (longitudinal plane) forward and backward, resulting in a three-dimensional movement. In this sense, adapting to the rhythm of the horse's stride requires contractions and relaxations of the agonist and antagonist muscles. The oscillation caused by the horse's three-dimensional movement can produce movements in the patient's pelvic girdle corresponding to that of the pelvis during walking, resulting in a dissociation of the pelvic girdle, sequences of loss and regaining of balance (FALEIROS, 2005).

The choice of horse is also another very important way to stimulate posture corrections and mobilization of the pelvic structures. A horse with a lower front causes the practitioner to force the pelvis into retroversion when slowing down or stopping the horse's movement, while a horse with a higher front tends to tilt the practitioner's pelvis backwards and they need to force it forward to avoid falling, which is the opposite of the muscular action at the start or acceleration of the horse's gait. Although passive , these mobilizations reduce the effects of joint stiffness and the effect of muscle accommodation in the regions involved (FALEIROS, 2005).

The movements performed by the horse, especially the stride, cause the practitioner to constantly contract and relax in the search for balance. This rhythmic movement improves both static and dynamic balance, and the constant contraction and relaxation strengthens the pelvic, abdominal and lumbar muscles (CASTANHARI et al., 2017).

## METHOD

This is an experimental study with therapeutic intervention in a woman with urinary incontinence, which was carried out in the Federal District in partnership with the APOIAR Equine Therapy Center. The research was carried out with a 69-year-old woman diagnosed with urinary incontinence, who was sexually active and did not have equinophobia.

Twelve 30-minute equine therapy sessions were held. At the beginning of the session, the patient emptied her bladder and was instructed to identify the pelvic floor muscles by their contraction, for example contraction A, "holding in the pee" and contraction B, "holding in the stool". The practitioner then mounted the platform and followed the session according to the protocol (APPENDIX A).

The King's Health Questionnaire validated for Portuguese (KHQ) and the Female Sexual Function Index validated for Portuguese (FSFI) were used; the Pelvic Floor Strength Assessment (PFSA) and the one-hour PAD--test were also carried out.

The KHQ consists of thirty questions divided into nine domains to assess both the presence of UI and its impact on quality of life. They report, respectively: perception of health, impact of incontinence, limitations in the performance of tasks, physical limitations, social limitations, personal relationships, emotions, sleep/energy and measures of severity. As incontinence is relevant to patients' quality of life, this measurement tool will allow us to assess the outcome of the chosen treatment. All the answers are assigned numerical values, added up and evaluated by domains. The answers were based on an increasing numerical scale and proportional to the intensity of the complaint (0=not at all/not applicable; 1=a little/sometimes; 2=more or less/often; 3=very much/always), with the exception of the general health perception domain, which has five answer options: very good, good, fair, poor, very poor. The KHQ is scored for each of its domains, so there is no overall score. The scores range from zero to 100, and the higher the score, the worse the quality of life related to that domain.

The FSFI is a brief questionnaire made up of 19 questions that assess sexual activity over the last 4 weeks. It identifies female sexual response in four domains: sexual desire, sexual arousal, vaginal lubrication, orgasm, sexual satisfaction and pain. All the answers are given a value of 0 or 1 to 5, giving a total sexual function score of 2 to 36, considering that the lower the score, the worse the sexual function.

The pad test, also known as the absorbent pad test, is an effective, simple and non-invasive method for classifying SUI as mild (between 1 and 9g), moderate (between 10 and 49g) and severe (over 50g). It is assessed based on the weight of the absorbent, which is initially identified, then the patient ingests 500mL of water and is instructed to perform a sequence of actions that simulate activities of daily living for one hour, the absorbent is then weighed again, and the loss is quantified by the difference in weight.

The assessments were carried out before and after 12 sessions of equine therapy. For data collection, interviews were conducted by the researchers themselves in order to clarify possible doubts about some of the questions. The data collected was interpreted and tabulated using SPSS software, the mean and standard deviation of the questionnaires were presented and Pearson's coefficient was used to demonstrate reproducibility, correlation between parameters and construct validity.

## RESULTS AND DISCUSSION

Urinary incontinence, regardless of its nature, negatively affects women's sexual function. However, each subgroup of UI has different physiological mechanisms and symptoms, and it is incorrect to say that they all affect sexual function in the same way. Multiple domains of sexual function are impaired, as women with urinary incontinence may have lower sexual desire, lubrication, arousal and greater pain during intercourse, as well as being unable to reach orgasm. Because of this comorbidity and others, the quality of life of women affected by UI is unsatisfactory (DURALDE; ROWEN, 2017; CARUSO et al., 2017).

The initial assessment found a grade 2 AFAP, a contraction of low intensity but sustained, and the use of accessory muscles. The one-hour DBP test showed a 6g initial weight and a 12g final weight, i.e. a 6g difference, which indicates mild SUI.

With regard to the KHQ, it was noted that in relation to the KHQ urinary symptoms scale, before and after treatment, the extent to which certain symptoms affect the patient was investigated in isolation. It can be seen that, before treatment, the most common symptoms affecting the patient "a lot" were limitations in the performance of tasks, incontinence in sexual life, urinary infections, bladder pain, UTI on exertion and feeling depressed and anxious. The least reported symptoms before treatment were nocturia and difficulty urinating. The paired t-test was used to compare the standard deviation means of all the KHQ findings, the mean of the first questionnaire and the second post-intervention was significantly different. The mean reduced from 1.80 before the intervention to 0.97 after the intervention, a statistically significant difference. The patient's quality of life thus improved.

In the initial FSFI questionnaire, the practitioner obtained a total score of 16 points, revealing disturbances in all domains, with pain and lubrication being the most altered.

The answers indicate that pain is classified as high whenever or almost whenever sexual intercourse takes place, and that satisfaction with their sex life is equally satisfied and dissatisfied.

After the 12 sessions, the final assessment found a grade 3 AFAP, characterized as a moderate contraction, felt as an increase in intravaginal pressure in which the patient did not use accessory muscles. When the PAD-test was re-evaluated, 6g of initial weight and 7g of final weight were identified, i.e. a difference of 1g, which is considered a loss of sweat and insignificant for SUI.

At the end of the treatment, the KQH showed that the patient no longer had any symptoms in relation to limiting task performance. With regard to incontinence in her sex life, controlling urine, the patient reported that it still affected her "more or less", and urinary infections, bladder pain, UTI on exertion and feeling depressed and anxious, the patient reported that it still affected her "a little". The other symptoms investigated were also reported less frequently and with less intensity. There was a significant decrease in the mean and median scores of the domains assessed by the KHQ, in relation to perception of health, impact of incontinence and limitations of daily activities.

No statistically significant results were observed for the final FSFI, with a score of 21.9. There was an improvement in the arousal, lubrication, orgasm and pain domains. Although her score remained the same, she was moderately satisfied with her sex life. Pain was classified as moderate and was only experienced a few times during vaginal penetration. As for the difficulty of reaching orgasm, the practitioner reported greater ease and lubrication was maintained until the end of sexual activity, making it easier to lubricate. However, she expressed a reduction in the frequency of desires and classified her interest in sex as low. The paired T-test showed that there was a difference between pre- and post-intervention in the KHQ variable ($p < 0.001$). The other variables showed no significant difference.

Using the horse as a kinesiotherapeutic tool offers physical and psychological benefits to the practitioner, providing a global treatment approach. The horse's movements cause the rider to constantly contract and relax, strengthening the pelvic, abdominal and lumbar muscles (FRANCESCHINI et al., 2017). This fact justifies the results obtained in the AFAP of this study.

A similar result was found in a study carried out in 2018, which looked at the effects of equine therapy on urinary incontinence in individuals with multiple sclerosis. The project identified a significant improvement in the global perception of the quality of life of urinary incontinence, after 6 months of equestrian therapy, with one approach per week (MUÑOZ-LASA, 2018).

This study identified a reduction in the number of urine losses and the quantity of urine, gains in muscle strength of the pelvic floor muscles, improved body awareness of the muscles responsible for continence, physical and psychological repercussions, with a consequent improvement in the quality of life, improved sexual function, promoting improvements in the social well-being of women affected by urinary incontinence.

## FINAL CONSIDERATIONS

Quality of life is essential for women's well-being, but urinary incontinence has negative effects on various functions in life, including sexual life. An up-and-coming therapy that works on understudied pelvic dissociation for UI and SD is equine therapy. It refers to a set of therapeutic techniques that uses the horse from an interdisciplinary approach in the areas of health, seeking the biopsychosocial development of people with or without disabilities or special needs. One of the most important characteristics of equine therapy is what the horse's stride produces and transmits to the rider. A series of sequential and simultaneous movements that result in a three-dimensional movement, similar to human walking, this rhythmic movement improves both static and dynamic balance, and the constant contraction and relaxation promotes strengthening of the pelvic, abdominal and lumbar muscles. With the importance of benefiting women physically, psychologically, emotionally and socially in order to promote well-being in mind, the aim of this study was to demonstrate the effectiveness of equine therapy on the quality of life and sexual function of women with urinary incontinence and sexual dysfunction. Since the benefits of equine therapy have been described through questionnaires and tests, we know that strengthening the pelvic muscles is essential for urinary continence and sexual function. Equine therapy has therefore proved to be an effective therapeutic resource for improving pelvic floor strength, as well as being a safe therapy. Other benefits such as improved quality of life, improved sexual function, body awareness of the muscles responsible for continence, improved motor coordination and self-confidence were also noted. However, studies with statistical analysis are needed to confirm this effect. It is therefore suggested that further studies be carried out with a larger number of patients, so that it is easier to compare the data acquired in this study.

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## APPENDIX A. URINARY INCONTINENCE PROTOCOL

**Urinary Incontinence Protocol - Equine Therapy**

**Saddling the horse: English saddle with stirrups**
**Horse gait: stride**
**Mandatory use of helmets**

**RIDING**

Easy level - with the aid of the platform
Medium level - without platform
Advanced level - with floor assistance
Difficult level - without ground support

1. empty the bladder before the session.
2. Identifying the floor muscles:
A - Urine-holding contraction
B - Contraction to hold stool

**ADAPTATION AND INITIAL STRETCHING**

Perform ship, airplane and rocket poses

- Easy level - touching the horse's neck
- Medium level - touching the horse's ears
- Advanced level - hugging the horse's neck with both hands

- Easy level - touching the horse's croup with one hand at a time
- Medium level - touching the horse's croup with both hands
- Advanced level - supporting the horse's croup with both hands

**SPORTS POSITION VARIATION EXERCISES:**

**1. trunk flexion exercise:**

MAP contractions with relaxation intervals.

- Easy level - slight trunk flexion and return to starting position
- Medium level - maximum trunk flexion and return to starting position
- Advanced level - slight flexion of the trunk and shoulder (using a stick) and return to the starting position
- Difficult level - maximum trunk and shoulder flexion (using a stick) and return to the starting position

**2. Trunk extension exercise:**

MAP contractions with relaxation intervals.

- Easy level - slight trunk extension and return to starting position
- Medium level - maximum trunk extension and return to starting position
- Advanced level - slight trunk and shoulder extension (using a stick) and return to the starting position
- Difficult level - maximum trunk and shoulder extension (using a stick) and return to the starting position

**3. Rise and sit in the saddle - full range exercise:**

MAP contractions (5 seconds contracting and 2 relaxing)

- Easy level - standing and sitting with constant support
- Medium level - standing and sitting with intermittent support
- Advanced level - standing up and sitting down without support (with a stick)
- Difficult level - stand up and sit down without support, holding 2 sec in each position (with stick)

**4. Lifting and standing on the stirrups - full range exercise:**

MAP contractions (5 seconds contracting and 2 relaxing)

- Easy level - standing up with constant support
- Medium level - standing up with intermittent support
- Advanced level - standing up without support
- Difficult level - standing up and sitting down without support, holding for more than 5 sec.

**"CHANGING HANDS"**

**5. Rise and sit in the saddle - partial range exercise (move from half range of motion to full range and back - NO SITTING):**

MAP contractions (5 sec. contracting and 2 relaxing)

- Easy level - standing and sitting with constant support
- Medium level - standing and sitting with intermittent support
- Advanced level - standing and sitting without support
- Difficult level - stand up and sit down without support, holding 2 sec in each position (with stick)

**6. Adduction exercises with a rubber ball in a straight line:**

MAP contractions (5 sec. contracting and 2 relaxing)

- Easy level - keep the ball between your knees
- Medium level - intermittently squeezing the ball between the knees
- Advanced level - squeeze and hold for 2 seconds and relax without dropping the ball
- Difficult level - squeeze and hold for more than 5 seconds and relax without dropping the ball.

**7. Leg lift exercises:**

MAP contractions (5 sec. contracting and 2 relaxing)

- Easy level - lifting one leg while the horse is standing still
- Medium level - lifting one leg with support on a moving horse
- Advanced level - lifting one leg without support on a moving horse
- Difficult level - lifting one leg with horse in motion (with stick)

**8. Exercises to change the amplitude of the horse's stride in a straight line without the feet in the stirrups:**

No contractions, on the way up and down, with variations in sport position

- Easy level - Increasing the amplitude of the horse's stride with support
- Medium level - Increasing the amplitude of the horse's stride without support
- Advanced level - Varying the amplitude of the horse's stride with stop and go .
- Difficult level - Varying the amplitude of the horse's stride without support with stops and goes (stop and go)

**9. Uphill and downhill exercises with feet in stirrups:**

MAP contractions with relaxation intervals

- Easy level - with support
- Middle level - no support
- Advanced level - with support and performing sport position
- Difficult level - without support and performing sport position

**10. Exercises to change the amplitude of the horse's stride in a straight line without the feet in the stirrups:**

No contractions, on the way to the arena.

- Easy level - Increasing the amplitude of the horse's stride with support
- Medium level - Increasing the amplitude of the horse's stride without support
- Advanced level - Varying the amplitude of the horse's stride with stop and go support.
- Difficult level - Varying the amplitude of the horse's stride without support with stops and goes (stop and go)