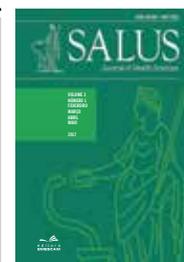




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## CASE REPORT

### **The influence of belly dancing in postpartum women with urinary incontinence**

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#### **Abstract**

Belly dancing allows different movements so that can help to prevent the occurrence of urinary problems in women who have recently given birth vaginally. Considering this fact, this study aimed to verify the influence of postpartum women with urinary incontinence problem. One of the authors, who has experience in belly dancing, observed in this dance a new potential technique for the prevention of the disease and a expressive occurrence of urinary incontinence in women who had normal birth. This happens as a result of great aggression to muscles, fascia, nerves and tendons, causing various impacts such as embarrassment, depression, social reclusion, among others. The results showed that the patient's urinary incontinence reduced the urinary incontinence in one patient and eliminated the dysfunction in another. These findings confirm the benefits of this technique in the activation of the pelvic muscles and, therefore, in the improvement or cure of urinary incontinence. Considering that the research sample was not extensive enough, it is suggested that new studies be spearheaded so that an effective proof of the technique's effectiveness.

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## INTRODUCTION

Urinary incontinence is the lack of ability to contain urine voluntarily, and can be classified as: urgency, which occurs when there is an uncontrollable urge to urinate; effort, takes place when any activity that requires physical effort is performed; and the mixed, when there is presence of the other two types. Among the risk factors for urinary incontinence is normal childbirth, which can lead to muscle, nerve and other structural damage<sup>1</sup>. Some belly-dancing movements, especially those of the pelvis, are used in kinesiotherapy, with the purpose of giving a better condition of the pelvic floor, which are the muscles that stabilize it. Considering that the puerperium is the period in which the mother's body recovers from childbirth, whose structures are returning to the place of origin, the movements of the belly dancing can help these puerperal women to avoid the occurrence of urinary incontinence.

According to some literatures, over 200 million people worldwide suffer from urinary incontinence and the majority, made up of women - approximately 59%<sup>2</sup> - do not seek help. The symptoms can be disabling, promoting obstacles in the life of a person<sup>3</sup>. One study<sup>4</sup> argues that women who had normal deliveries are more likely to have moderate or severe urinary incontinence than those who had cesarean delivery. That is, the study authors say that vaginal delivery is associated with a greater risk of any type of incontinence. The majority of normal deliveries occurred with the aid of an episiotomy - an incision made in the perineum area to prevent laceration. This practice, which has been used since the last century, continues to occur frequently in order to avoid severe perineal trauma as well as to prevent pelvic floor damage, in order to avoid future genital prolapse and UI<sup>5</sup>.

The movements executed in kinesiotherapy are equivalent to those in the Belly Dance (BD), such as: lateral pelvic tilt, forward and backward rotation, pelvic elevation and

depression, anterior and posterior (anterior and posterior pelvic) reversion among others. These movements may be carried out in isolated or associated forms<sup>6</sup>. For this reason, both features may be used to treat complications of a weak pelvic floor<sup>7</sup>.

## OBJECTIVE

The specific purpose of this study was to verify the influence of the practice of the Belly dancing (DV) in the treatment of urinary incontinence in puerperal. Its specific objectives are to characterize the profile of puerperal women, to analyze the impact of urinary incontinence through the urinary incontinence questionnaire, before and after the practice of belly dancing, and to quantify the urine loss of selected individuals before and after the dance practicing, through the test of absorbent and voiding diary.

## METHODS

The present study deals with human beings and for this reason it was submitted to the Research Ethics Committee (CEP) of the School of Higher Sciences of Santa Casa de Misericórdia de Vitória (EMESCAM) for approval, and was approved on October 17, 2015. Patients will be identified numerically by the letter M, in order to ensure the confidentiality of the information, which custody will be the responsibility of the researchers during the five-year period. The norms established in the Directives and Norms Regulating Research Involving Human Beings of Resolution CNS n° 466/12, of December 12, 2012 will be respected.

At first, a bibliographic review was carried out from articles in the following databases: Scielo, Lilacs and Pubmed for the search period between 2003 and 2015, with the following keywords: belly dancing; pelvicfloor; urinary incontinence; dancing. Articles in Portuguese and English were

considered. Books on belly dancing and its modalities were also utilized. After that, a case study with prospective collection was performed at the Gynecology and Obstetrics Service of the Santa Casa de Misericórdia Hospital in Vitória, with a convenience sample considered in eight patients. Of the eight patients, only two met the inclusion criteria.

It were included in this study 2 women aged 20-35 years who underwent normal delivery, with episiotomy, puerperium time of up to three months, with a confirmed diagnosis of urinary incontinence and who accepted to participate in the study, by signing the Free and Clarified Consent Form.

Women who presented any complication during pregnancy or childbirth, multiple pregnancy cases, suspected or diagnosed of herniated disc as well as the diabetic ones were excluded from the study.

The selected patients were endured to an interview through the data collection form elaborated by the researchers, which included name, age, occupation, place of residence, level of education, marital status, GPA, number of antenatal consultations, BMI, weight of the heaviest newborn and the impact of urinary incontinence in daily life as well as in sexual life.

Furthermore, the women completed a voiding diary (with duration of 24 hours), developed by researchers as well, in order to estimate the amount of urine lost in a day.

The patients responded to the *International Consultation on Incontinence Questionnaire - Short Form* (ICIQ-SF), which is validated in Brazil. It is a self-administered questionnaire that assesses the impact of UI on life quality as well as on urinary loss qualification of the patients analyzed. ICIQ-

SF is composed of four questions which assess the frequency, severity and impact of UI, as well as a set of eight self-diagnostic items related to the causes or situations of UI experienced by patients<sup>8</sup>.

The patients were also submitted to the absorbent test, in order to quantify the loss of urine. They drank 500 ml of water after emptying the bladder. Immediately afterwards an absorbent was placed in the perineal region, with a previously measured weight, and the following activities were requested, repeating ten times each: coughing, jumping, crouching and contracting the abdominal muscles (Valsalva), up and down five stair steps ten consecutive times, wash hands for one minute and walk for 15 minutes. Then, the weight of the absorbent was re-measured. If there is a difference greater than 2 g, the test is considered positive.

Soon after the evaluation, the patients had belly dancing classes twice a week, one hour long. In these classes, given by the researchers, the beginner and basic movements of the belly dancing were used, all of which required pelvic fitting and contraction of the pelvic floor muscles. After a period of four months of classes, the researchers reevaluated the patients in the same parameters of the initial evaluation, in order to compare the results.

## RESULTS

The sample consisted of 100% female individuals, mean age 25.5 years with PD  $\pm$  2.47 years. There was a puerperal period of up to three months, with the mean weight of the largest newborn being 3525g. Table 1 shows the data of the identification form answered by the patients.

Table 1 – Data of Identification Card Patients M1 M2

Patients	M1	M2
Age	22	29
BMI	22,49	27,27
Weight of the heaviest New Born	3450 g	3600 g
Steps	20	8
Marital status	Single	Married
School Completion	College (Incomplete)	High School
G.P.A	2 1 1	2 2 0
Pre-natal appointments	2	7
Profession	Housewife	Housewife
Type of Home	Apartament	House
Do you have incontinence?	Yes	Yes
Daytime urinary frequency	8 x	9 x
Nighttime urinary frequency	4 x	3-4x
Frequency of sexual intercourse	Few	Few

Tables 2 and 3 presents the data of the voided urinary volume filled in by the patients, lasting 24 hours, containing the volume ingested (ml), the urine volume, the need to urinate, being quantified in mild (+), moderate (++) and severe (+++), the time of loss, the amount of urine loss, being classified in drops (+), spoons (++) and cups (+++), as well as a description of how the loss occurred (Coughed, crouched ...).

Table 2 – M1 participant voiding diary data

	M1									
Time	07:00	08:30	10:40	12:00	15:00	15:30	17:00	20:00	22:00	
Volume of ingested liquid (ml)	200	100		300	150		200			
Urine volume (ml)			200			300		250	150	
Need to urinate		Moderate		Mild		Moderate			Moderate	
Time of the loss		08:40		12:05			17:15			
Amount of urine loss		Spoons		Drops			Drops			
How did the loss occur		Crouched down		Sat down			Walked			

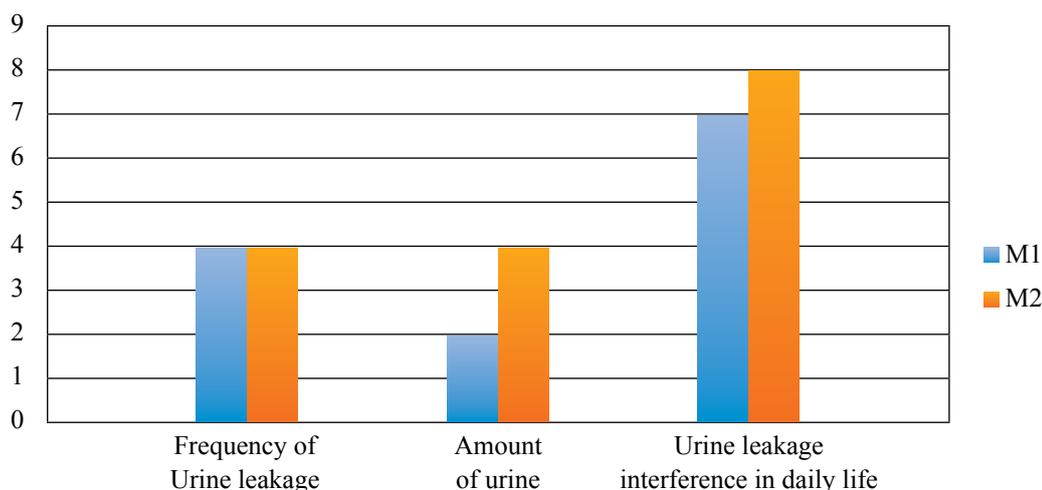
Table 3 – M2 participant voiding diary data

	M2								
Time	06:30	08:20	10:00	12:00	15:15	16:30	18:00	20:30	
Volume of ingested liquid (ml)	250	300	100	300	150		200	100	
Urine volume (ml)	200			250		200		250	
Need to urinate	Severe			Moderate		Severe	Mild	Moderate	
Time of the loss	07:00		10:30			16:30			
Amount of urine loss	Drops		Drops			Spoons			
How did the loss occur	Ran		Sneezed			Crouched down			

The results of the *International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF)* answered by the patients are displayed in Graph 1, where the answers on the frequency of the loss could be 0 - never, 1 - once a week or less, 2 - Twice a week, 3 - once a day, 4 - several times a day

and 5 - all the time. For the amount of urine lost could be 0 - none, 2 - a small amount, 4 - a moderate amount and 6 - a large amount. Concerning the interference of urine loss in daily life, they were asked to choose a number from 0 to 10 where 0 - does not interfere and 10 - greatly interferes.

Graph 1 – Data from the International Consultation on Incontinence Questionnaire - Short Form (ICIQ-SF) answered by the patients.



The patients mentioned that with the belly dancing classes they felt more feminine, were more confident to leave home, had less shame and had an improvement in sexuality, to the point of being praised by their partners. The absorbent used for the absorbent test, already described in the methods, weighed 7.2g prior to performance. After the test, the weight of the absorbent was again measured and the value of 10.26g for M1 and 14.71g for M2 was found, with a mean weight of 12.48g. Based on the test, if the difference

between the previous and the previous weight is greater than 2g, the test is positive for urinary incontinence. It may be noticed that the values found in the research indicate positivity in the test.

Subsequently the administration of the belly dancing classes, the patients were re-evaluated using the voiding diary and the absorbent test again. Tables 4 and 5 show the results of the voiding diary of the patients after the intervention.

Table 4 – M1 patient’s voiding diary data after the intervention

	M1								
Time	07:00	09:00	11:15	12:10	14:40	16:30	18:00	20:30	22:20
Volume of ingested liquid (ml)	250	100	150	300	150	200	250	100	150
Urine volume (ml)	100		250		300		200		250
Need to urinate	Moderate		Mild	Moderate		Moderate			Severe
Loss Time									
Amount of urine loss									
How did the loss occur									

Table 5 – Data of the voiding diary of the M2 patient after the intervention

	M2									
Time	06:30	08:00	10:20	12:00	15:40	17:10	19:30	21:00	23:15	
Volume of ingested liquid (ml)	250		200	350	100	200	300	150	100	
Urine volume (ml)	100		150		200			250		
Need to urinate	Light		Moderate		Light		Light	Moderate		
Time of loss		08:00								
Amount of urine loss		Drops								
How did the Loss Occurred		Crouching down								

The test of the absorber was conducted again and weighed after the execution of the requested maneuvers. The weight of the absorber from M1 was 7.6 g and that from M2 was 9.1, averaging 8.15 g. As observed, patient M1 no longer exhibited urinary incontinence, since the difference was less than 2g. Patient M2 still had a difference greater than 2g, but, compared to the initial evaluation, presented a decrease in the volume lost. As observed, patient M1 did not present urine loss in her voiding diary, the absorbent weight initially was 10.26 g, and after the intervention, it passed to 7.6 g, proving that there was elimination of the dysfunction according to the absorbent test. Patient M2 showed a decrease in loss episodes during the day, and the absorbent weight after the belly dance classes was 9.1 g, that when compared to the initial evaluation, which was 14.71 g, shows a decrease in dysfunction in this participant.

**DISCUSSION**

The demand for urinary incontinence treatments is on the rise, considering that this dysfunction is increasingly affecting the society as a whole, particularly women. According to Volkmer et al (2007)<sup>9</sup>, the women affected by this dysfunction present social seclusion, preferring to face the consequences alone. Hay-Smith (2011)<sup>10</sup> argues that one of the most common forms of treatment of urinary incontinence

is pelvic floor musculature training, as previously stated. So therefore, even with a small sample, this study proved that this strengthening can be easily implemented in a program of treatment through belly dancing. This is due to the fact that dance makes use of movements of kinesiology, applied to physiotherapy. It was found that, in a puerperal period of up to 3 months, the patients present a real chance of recovering the pelvic muscles, reducing the UI impacts, as Morkoved (2003) said.

Even so, the largest and most shocking urine losses occur in the puerperal period. This is because the woman still presents in her organism substances that facilitate tissue laxity. However, Barbosa et al (2013)<sup>11</sup> affirm that after two years of puerperium patients may still present UI symptoms even if the delivery was cesarean section, which does not guarantee an absence of dysfunction. In this case we noticed that there is no difference between the primiparous and the secondary, but there is a relation between the BMI in the gestations. Research participants reported that during the first pregnancy they had a lower birth weight than before the second pregnancy, further substantiating the appearance of such a fact. In order to add values to our study, the absorbent test was positive, as well as in other studies that use this same test, proving to be effective in the form of evaluation and guaranteeing the researchers and participants a way to measure this loss

Urinary tract infection. Albuquerque et al (2011)<sup>12</sup> reported the patients' complaints with UI and the absorbent test, considering that it is an inexpensive and highly sensitive test. The results of this study concluded that the test has high significance, giving positive to those with high UI complaint. It was observed that the positive results of the research influenced directly the personal life of the patients, since they reported an improvement in the side effects secondary to the condition, following the study of Abram and Pedrão (2005)<sup>13</sup>, in which they attest that the Participants had improved body knowledge and improved secondary UI symptoms. Luccas and Nohel (2010) noted that belly dancing provided an improvement in the maintenance of pelvic floor contraction, even when participants did not present urinary incontinence. It was observed in this study that the women had an improvement of the contraction thus presenting a reduction of the urinary dysfunction.

## CONCLUSION

The results of this study observed that Belly Dancing proved to be effective for the treatment of urinary incontinence, since it reduced values in the absorbent and impact test of UI, promoted an improvement in femininity as well as social interaction and body acceptance by patients. This dysfunction is a social problem and, therefore, further studies should be carried out in order to encourage the search for treatment through health professionals. For that, we suggest that a campaign be made on social networks in order to encourage people to seek out a well qualified professional who can help them.

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