

# EFFECTIVENESS OF PHYSIOTHERAPY IN THE SYMPTOMATOLOGY OF URINARY INCONTINENCE IN PREGNANT WOMEN: UNCONTROLLED CLINICAL TRIAL

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**Abstract: Introduction:** Urinary incontinence (UI) is defined as the involuntary loss of any amount of urine, and is common in pregnant women and can be treated conservatively or surgically. The first-line treatment for UI is physical therapy. **Objective:** To analyze the effectiveness of physiotherapy in the symptoms of urinary incontinence in pregnant women. **Methods:** It is an uncontrolled clinical trial study, with a quantitative approach, comprising women over eighteen years of age, pregnant from the tenth week of pregnancy. Ten sessions of cardiovascular training, global and pelvic floor strengthening and stretching were carried out. Collection was through a questionnaire with personal data, lifestyle habits, gynecological-obstetric and urinary history. To assess UI, the ICIQ-SF questionnaire was used. Data analysis was tabulated in the statistical program Epi Info version 7.2.0.1 for Windows (SPSS) version 21 and presented as absolute and relative frequency. **Results:** The sample consisted of 36 women, 27 of whom completed the sessions. The majority were in the 2nd trimester of pregnancy, married and with an average of 20 to 40 years of age. They reported improvement in symptoms when sleeping, during physical activities, when they finish urinating and are getting dressed, when they have a strong urge to urinate, during sexual intercourse and for no obvious reason. **Conclusion:** It was observed that the results were not significant, but there was an improvement in symptoms, especially when sleeping.

**Keywords:** Physiotherapy. Urinary incontinence. Gestation. Pregnant.

## INTRODUCTION

Pregnancy is a process that involves several physiological, psychological and, mainly, anatomical changes. Among these, the pelvic floor muscles (PFM) stand out, which is a muscle group responsible for urinary and fecal

continence, and for supporting the abdominal and pelvic organs and is of great importance in sexual function and childbirth. During the gestational period, this region is overloaded due to the support of the baby, which may arise and/or worsen dysfunctions, such as sexual, anorectal, prolapse of the pelvic and urinary organs <sup>1,2</sup>.

Urinary incontinence (UI) is a symptom of the lower urinary tract, defined as the complaint of involuntary loss of any amount of urine <sup>3</sup>. UI is common among women and has been studied and observed that during and after pregnancy at least 50% of pregnant women experience urine loss, and can be considered an important public health problem due to its high prevalence, which can affect women in different aspects, such as physical, psychological and social <sup>4,5</sup>.

There are two types of treatment for UI that range from conservative to surgical depending on the degree of severity of each patient, with surgical treatment being more invasive and more dependent on post-surgical care. However, since surgical treatment involves invasive procedures that can cause complications, are expensive and may be contraindicated in some women, there is currently growing interest in more conservative treatment options. Thus, depending on the type and severity of UI, physical therapy treatment has been recommended as an initial approach. <sup>6,7</sup>

According to the International Continence Society (SIC), the best treatment for UI is physiotherapy with a low risk and cost, in addition to important results, showing its effectiveness in feedback among women, being considered the gold standard for this dysfunction. <sup>8,9</sup>. However, physiotherapy is still little recognized because it is a very new profession and this specialty (urogyneco-functional) was recognized by CREFITO only in 2009, for the treatment of UI, the

most recommended is the strengthening of the pelvic floor muscles, for Therefore, the objective of this study is to observe the effectiveness of pelvic floor muscle strength training for urinary incontinence in pregnant women from the first trimester onwards.

## METHODOLOGY

This is an uncontrolled clinical trial study, with a quantitative approach, in which he was part of the Research Group on Pelvic Floor Dysfunction Studies - GPEDAP, carried out on the premises of the Physiotherapy Clinic of the institution Centro Universitário Philadelphia – UNIFIL.

The sampling was characterized as non-probabilistic of the intentional type in which it was composed of women over eighteen years of age, from the tenth week of gestation onwards. Risk pregnancies, number of absences greater than three and being unable to carry out the assessment and/or intervention were excluded from the study.

The data collection form considered the following variables: demographic (age group, marital status, color/race), health condition (physical activity, alcohol consumption, smoking) and obstetric conditions (gestational age, number of pregnancies, births).

To assess UI symptoms, the International Consultation on Incontinence Questionnaire-Urinary Incontinence - Short Form (ICIQ-SF) was used, which assesses the impact of UI on quality of life and also quantifies urinary loss. The questionnaire is easy to apply and can be self-administered. It consists of four questions, the first assesses the frequency of urine loss, the second, the quantity and the third, the interference. The score is made through the sum of these questions, and the higher the score, the greater the impact on quality of life. The last question is to assess when the loss of urine occurs <sup>10</sup>.

The project was publicized on social media through a banner containing study information and a contact telephone number. When contacting us, the assessment was previously scheduled, according to the availability of the participants. The patient attended the UniFil Physiotherapy Clinic, where she answered a questionnaire with personal data, lifestyle habits, gynecological-obstetric and urinary history. Data collection time was approximately thirty minutes. The interventions lasted 10 sessions with therapies twice a week. We used 2 and 3 kg dumbbells, a stick, a mat and a 2 kg shin guard. Cardiovascular conditioning training, global strengthening training and pelvic floor strengthening training were carried out, and the muscles to be worked were also stretched. The reassessment was carried out after the therapy period, with the questionnaires and tests being administered again.

## DATA ANALYSIS

The collected data were tabulated in the statistical program Epi Info version 7.2.0.1 for Windows and were analyzed in the statistical program Statistical Package for Social for Windows (SPSS) version 21. The data were presented in absolute and relative frequencies. To analyze UI symptoms, the Kolmogorov-Smirnov normality test and the Paired T test were performed.

## RESULTS AND DISCUSSION

The present study interviewed 36 pregnant women, 9 of whom did not complete the 10 sessions. It was observed that the majority were in the 2nd trimester of pregnancy (81.5%), married (66.7%), with an average age of 29.41 years (SD=4.92), ranging from 20 to 40 years.

In Table 1, it is possible to observe the health conditions of pregnant women, of which 92.6% did not consume alcohol, and

100% did not smoke, and the majority did not perform physical activity (66.7%), while 18 (66, 7%) of the 27 pregnant women practiced some activity, with the frequency varying from one to two times a week, with the most reported activities being walking and hydrotherapy, dancing, pilates, ballet, running and weight training. The average frequency of sexual intercourse was 4.17 times per month, ranging from 1 to 16 times per month.

Among the comorbidities, urine infections (34.6%), heart disease (11.1%), lung disease and other diseases (42.3%) were reported (Table 1).

Mourão et al<sup>12</sup>, saw that among the risk factors for urinary incontinence, urinary tract infection is one of the most relevant, and of the 48 women who were evaluated, 30 reported that they had already had this disease.

It can be seen in Table 2 that reports of urinary loss totaled 48.1% (13), with 25% (7) reporting loss once a week or less.

Dinc et al<sup>11</sup>, carried out a study with 92 nulliparous and multiparous women during pregnancy, all of whom reported some type of urinary incontinence, 48.75% complained of losses in the first trimester, 32.5% began to experience it in the second trimester, and 18, 75% of pregnant women started to complain in the third trimester.

According to the study carried out by Caldeira et al, carried out with 20 pregnant women, 65% of them responded that they had difficulty urinary control, with 15% losing it when they exert themselves, 35% when coughing or sneezing and 15% without any effort<sup>13</sup>.

After the ten sessions there was no significant improvement, with 33.3% reporting leaking once a week or less, but there was a reduction in the frequency of urinary loss two or three times a week 7.4 and there was no report of urinary loss once a week. Regarding the amount of loss, there

Variables	N	%
<b>Gestational trimester</b>		
1° trimester	5	18,5
2° trimester	22	81,5
3° trimester	-	-
<b>Marital status</b>		
Married	18	66,7
Divorced	-	-
Single	9	33,3
<b>Ethnicity</b>		
White	18	66,7
Brown	9	33,3
<b>Consumption of alcoholic beverages</b>		
Yes	2	7,4
No	25	92,6
<b>Smoke</b>		
Yes	-	-
No	27	100
<b>Physical activity</b>		
Yes	9	33,3
No	18	66,7
<b>Number of pregnancies</b>		
First pregnancy	11	40,7
Multi-pregnant	16	59,3
<b>Active sexual intercourse</b>		
Yes	25	92,6
No	2	7,4
<b>Surgery</b>		
Yes	17	63,0
No	10	37,0
<b>Comorbidities</b>		
Urine infection	9	34,6
Heart disease	3	11,1
Lung disease	1	3,8
High Cholesterol	1	3,8
Diabetes	1	3,8
Other diseases	11	42,3

Table 1 – Characterization of the sample according to sociodemographic variables, health and obstetric conditions. Londrina, 2022.

was a moderate improvement as there were no reports in the reevaluation.

When analyzing Table 3, we can see that participants reported an improvement in urine loss when sleeping, during physical activities, when they finish urinating and are getting dressed, when they have a strong urge to urinate, during sexual intercourse and for no obvious reason. As for the losses in cases before reaching the bathroom and when coughing or sneezing, there was no improvement because of the adaptations that the body undergoes during pregnancy, where the bladder receives greater pressure while the uterus increases in size.

Research presented by Sacomori et al <sup>14</sup>, with 242 postpartum women, reveals that the prevalence of UI is 59.5% in pregnant women in the third trimester of pregnancy, with the majority of pregnant women experiencing loss once a week or less (21.5%) in small quantities (46, 0%), with coughing or sneezing being the most common situation (40.5%), followed by loss before reaching the bathroom (25.6%).

The loss situations found in the present study coincide with the literature <sup>12</sup>, in which pregnant women report that the occurrence occurs during coughing (74%), sneezing (71%) and laughing (61%).

Regarding how much urine loss interferes with the participants' lives, being 0 (does not interfere) and 10 (interferes a lot), it was observed that the average in the evaluation was 3.15 (SD  $\pm$ 2.54) and in the reevaluation was 2.75 (SD  $\pm$ 2.83). Although pregnant women did not feel that their quality of life was compromised due to urine loss, there was an improvement in this perception upon reevaluation.

Regarding the average ICIQ Score, it was observed that in the evaluation it was 8.20 ( $\pm$ 2.86) and after the 10 sessions it was 7.80 ( $\pm$ 3.52). It can be seen that the results were not significant, but there was an improvement in

symptoms (Table 4). The possible explanation for this result is due to the mechanical changes that occur in the third trimester of pregnancy, the high prevalence of UI due to the effect of pressure from the pregnant uterus on the bladder, associated with an increase in its sensitivity and a significant decrease in bladder capacity.

In a study carried out by Surita, et al<sup>15</sup>, it was found that participation in the program encouraged pregnant women to exercise more during pregnancy, but the results on urinary incontinence were not relevant.

## CONCLUSION

In the present study, 36 women in the gestational period were interviewed, of which only 27 completed the treatment that consisted of 10 sessions, in which the majority were in the second trimester, married, with an average age ranging from 20 to 40 years, presenting urine infection as the greatest comorbidity.

Pregnancy is a risk factor for UI, which is a condition that can be treated and significantly affects quality of life, as it is a factor that causes embarrassment. Physiotherapy, as it is the first line of treatment, has been increasingly adopted to improve symptoms.

The results obtained in the present study showed that most pregnant women experience episodes of urinary loss, which is prevalent in the second trimester and more uncomfortable in the third. It affects multiple pregnancies more because the overload on the pelvic floor and childbirth are one of the factors that trigger UI.

After the intervention, it can be seen that the results were not significant, but there was an improvement in symptoms in relation to a decrease in urinary frequency and the amount of urine loss when sleeping, during physical activity, when you finish urinating and are resting. dressing. However, there is still a need to carry out new studies, with a larger sample

Variables	Before sessions		After 10 sessions	
	N	%	N	%
<b>Frequency</b>				
Never	14	51,9	15	55,6
Once a week or less	7	25,9	9	33,3
Twice a week	3	11,1	2	7,4
Once a week	2	7,4	0	-
Many times per day	1	3,7	1	3,7
<b>Quantity of loss</b>				
No one	-	-	-	-
Small quantity	12	92,3	12	100,0
Moderate quantity	1	7,7	-	-
Big quantity	0	-	0	-

Table 2 – Distribution of reports regarding urinary incontinence. Londrina, 2022.

Variables	Before sessions		After 10 sessions	
	N	%	N	%
<b>Situation of loss</b>				
<b>Before reaching the bathroom</b>				
A little	4	80,0	6	100,0
More or less	1	20,0	-	-
A lot	-	-	-	-
<b>When you cough or sneeze</b>				
A little	7	87,5	9	100,0
More or less	1	12,5	-	-
A lot	-	-	-	-
<b>When you're sleeping</b>				
A little	3	100,0	-	-
More or less	-	-	-	-
A lot	-	-	-	-
<b>During physical activities</b>				
A little	4	100,0	2	100,0
More or less	-	-	-	-
A lot	-	-	-	-
<b>When you finish urinating and are getting dressed</b>				
A little	4	80,0	3	100,0
More or less	1	20,0	-	-
A lot	-	-	-	-
<b>When you have a strong urge to urinate</b>				
A little	5	100,0	3	100,0
More or less	-	-	-	-
A lot	-	-	-	-
<b>During sexual intercourse</b>				
A little	2	100,0	-	-
More or less	-	-	-	-
A lot	-	-	-	-

Without obvious reason				
A little	3	100,0	2	100,0
More or less	-	-	-	-
A lot	-	-	-	-

Table 3- Distribution of urine loss status. Londrina, 2022.

Score ICIQ	Average (dp)	p-value
Initial	8,20 ( $\pm$ 2,86)	0,696
After 10 sessions	7,80 ( $\pm$ 3,52)	

Table 4- Result of analysis of the data obtained. Londrina, 2022.



size and number of sessions of participants, since the sample number and sessions in this study were small, making it difficult to prove the effectiveness of physiotherapy in urinary incontinence during pregnancy.

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