

PREVALENCE OF URINARY INCONTINENCE IN WOMEN PRACTICING TEAM SPORTS IN THE MUNICIPALITY OF RIBEIRÃO PRETO-SP

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Abstract: Urinary incontinence (UI) affects the female population more frequently, and sports that require high impact and intense physical effort are probable risk factors for its development as they progressively overload the pelvic floor structures. Given this context, the aims of this study were to verify the prevalence of UI in women practicing team sports in the municipality of Ribeirão Preto-SP; to investigate their knowledge of the pelvic floor and its dysfunctions, especially female UI; and to correlate the length of time practicing sport and the presence of UI. In terms of methods, this is a cross-sectional observational study in which a convenience sample of 76 women practicing team sports in the city of Ribeirão Preto-SP took part. The data was collected from June 14 to August 31, 2023, through the participants self-completing an *online* questionnaire via *Google Forms*, which lasted approximately 15 minutes. The questionnaire included questions about personal data, sports training, knowledge about the pelvic floor and UI. A descriptive analysis of the data was carried out and *Spearman's* correlation test was used for correlations. As for the results, the average age of the participants was 32.03 (SD:11.51) years, most of whom were single and students. As for the sports practiced, volleyball stood out, being practiced by 56.58% (n=43) of the athletes, surpassing handball, soccer, futsal and basketball. The prevalence of UI was 35.53% (n=27) in the sample investigated, and the predominant situation of urine loss was during sports training. The majority of the athletes, 59.21% (n=45), were unaware of any type of treatment for UI. Knowledge of the pelvic floor was reported by 77.63% (n=59) of the participants, although only 3.95% (n=3) said they had received specific guidance on the pelvic floor during training. There was a correlation between time spent practicing sport and the presence of UI (CI=0.1098-

0.5317; r=0.3376; p=0.0035). The data obtained reinforces the need to implement or improve preventive and rehabilitation programs aimed at the pelvic floor among athletes practicing team sports, with a view to improving their sporting performance and quality of life.

Keywords: sport; urinary incontinence; pelvic floor; physiotherapy.

INTRODUCTION

Urinary incontinence (UI) is defined as the complaint of any involuntary loss of urine. Its pathophysiology is related to the outcome of one or more failures in the complex urinary tract control mechanism, which involves proper interaction between the nervous system and the anatomical integrity of the bladder. Nevertheless, its recognition as a disease by the World Health Organization's International Classification of Diseases (ICD/WHO) occurred in mid-1998, and prior to this it was considered only as a symptom.

According to the WHO, UI is considered a public health problem, affecting more than 200 million people worldwide. It is seen as a dysfunction with a high incidence in modern society, as around 20 to 50% of adult women may experience UI at some stage in their lives. It affects one man for every two women, and in the female population this high prevalence increases with advancing age (NORTON; BRUBAKER, 2006). In Brazil, approximately 30 to 43% of women suffer from involuntary loss of urine, but these figures may be underestimated due to the fact that UI remains underdiagnosed and undertreated (FIGUEIREDO *et al.*, 2013).

According to Abrams, Cardoso and Fall (2003), there are three most common types of UI: stress urinary incontinence (SUI), which refers to the loss of urine associated with coughing, sneezing and physical efforts that increase intra-abdominal pressure; urge urinary incontinence, characterized by the

involuntary loss of urine associated with a strong urge to urinate; and mixed urinary incontinence, when both previous types are present in the same person. The most common type of UI among women is SUI, which accounts for almost half of all cases and most often affects young women aged between 25 and 49 (MINASSIAN; DRUTZ; AL-BADR, 2003). Childbirth, pregnancy, advanced age, obesity, menopause, gynecological surgery, constipation, hereditary factors, drug use, caffeine consumption and smoking are considered risk factors, alone or together, for the development of SUI (DA ROZA *et al.*, 2015).

The embarrassment and impact on quality of life vary according to the type of incontinence and its severity (KNORST *et al.*, 2013). In this context, it is implausible to neglect the fact that UI can cause a number of problems for women who practice physical activity, since it is associated with social, emotional and physical disorders, as well as impairing performance during sport and exercise (ABRAMS; CARDOSO; FALL, 2003).

Physically active women are more likely to suffer from SUI. Although the literature is not conclusive in this regard, studies show that exercises that require high physical effort and high impact can lead to an excessive increase in intra-abdominal pressure. This frequent increase in intra-abdominal pressure can progressively overload the structures of the pelvic floor, favoring the descent of the pelvic organs and the development of dysfunctions related to the pelvic floor muscles (PFM), such as UI. Therefore, there is a probable relationship between sports practice and UI in women, representing a risk factor for its development (DALY; CLARKE; BEGLEY, 2018; OTHMAN *et al.*, 2017).

This information indicates that there are still several gaps in knowledge on the subject of UI and sports practice. The question of

whether the specific impact of the sport is a greater determinant of UI than the training load remains unanswered. From the available studies, there is possible evidence that high-impact sports associated with high training loads place a greater burden on the pelvic floor and are related to a higher prevalence of UI (MARTINS *et al.*, 2017).

In view of the above, the relevance and need to investigate the prevalence of UI in women who practice team sports is justified, seeking to add information to the current body of knowledge that could contribute to the structuring or improvement of preventive and rehabilitation programs for this dysfunction, with a consequent improvement in women's quality of life and sports performance.

OBJECTIVES

PRIMARY OBJECTIVE

To verify the prevalence of UI in women practicing team sports in the municipality of Ribeirão Preto-SP.

SECONDARY OBJECTIVES

To investigate women's knowledge of the pelvic floor and its dysfunctions, especially female UI.

To correlate the time spent practicing sport with the presence of UI.

METHODS

This cross-sectional observational study was conducted at the Physiotherapy Clinic of the Barão de Mauá University Center. The research involved *the* participants completing an *online* questionnaire via *Google Forms*, which lasted approximately 15 minutes. The questionnaire included questions about personal data, sports training, knowledge about the pelvic floor and UI.

The study was approved by the Research Ethics Committee (CEP) of the Centro Universitário Barão de Mauá, according to Opinion No. 6.114.649 and CAAE 68823123.5.0000.5378, dated June 13, 2023, and with the authorization of the managers of the academic athletics and sports centers for data collection.

A convenience sample consisted of 76 women aged 18 or over who practiced team sports in the municipality of Ribeirão Preto-SP and who agreed to take part in the study by signing an informed consent form. Women with cognitive deficits that compromised or prevented them from understanding the questionnaire were excluded.

The data was analyzed descriptively using the mean, standard deviation and percentage. *Spearman's* correlation test was used to check the correlation between time spent practicing sport and the presence of UI.

RESULTS

From June 14 to August 31, 2023, 76 women who practiced team sports, aged 18 or over, in the municipality of Ribeirão Preto-SP, were recruited and data collected.

As for the sociodemographic characteristics of the sample, the average age of the participants was 32.03 (SD: 11.51) years, with a predominance in the 18-23 age group (35.53%; n=27). The sample was mainly made up of single women (57.89%; n=44) with a level of education characterized as postgraduate (30.26%; n=23) or incomplete higher education (28.95%; n=22).

The data relating to the sociodemographic characteristics of the sample are shown in Table 1.

Sociodemographic characteristics	Participants (n=76)
Age (years)	32,03 (11,51)
18 - 55	18 - 55
18 a 23	27 (35,53%)
24 a 29	11 (14,47%)
30 a 35	8 (10,53%)
36 a 41	11 (14,47%)
42 a 47	10 (13,16%)
48 a 56	9 (11,84%)
Marital status	
Single	44 (57,89%)
Married	15 (19,74%)
Divorced	5 (6,58%)
Widowed	2 (2,63%)
Stable Union	10 (13,16%)
Level of education	
Complete High School	13 (17,10%)
Incomplete High School	4 (5,26%)
Complete Higher Education	14 (18,42%)
Incomplete Higher Education	22 (28,95%)
Postgraduate	23 (30,26%)

Table 1 - Sociodemographic characteristics of the sample.

Absolute numbers with percentages presented as: n (%). Averages with standard deviation presented as: mean (SD).

Source: prepared by the authors, 2023.

The profession of the study participants was quite heterogeneous, with the highest prevalence being students (30%; n=23), followed by physiotherapists (7%; n=5) and physical educators (5%; n=4).

With regard to gynecological and obstetric information, 57.89% (n=44) of the women reported menstrual irregularity; 68.42% (n=52) had never been pregnant and 71.05% (n=54) were nulliparous. The most common type of delivery was cesarean section, which accounted for 87% of all deliveries.

Data analysis showed that 75% of the women who reported UI had a history of pregnancy, 83.33% were primiparous and 75% multiparous. The episiotomy procedure was performed on 100% (n=3) of the women with UI who underwent vaginal delivery.

The data regarding the participants' gynecological and obstetric history and its association with the report of UI are shown in Table 2.

Gynecological and obstetric information	Participants (n=76)	Report of urinary incontinence
Menstrual irregularity		
Yes	44 (57,89%)	
No	32 (42,10%)	
Pregnancies		
Yes	24 (31,58%)	18 (75%)
No	52 (68,42%)	9 (17,31%)
Number of pregnancies		
Nulligesta	52 (68,42%)	9 (17,31%)
1	6 (7,89%)	4 (66,67%)
2	14 (18,42%)	11 (78,57%)
3	1 (1,31%)	1 (100%)
4	2 (2,63%)	1 (50%)
5	1 (1,31%)	1 (100%)
Classification by number		
childbirth		
Nulliparous	54 (71,05%)	10 (18,52%)
Primipara	6 (7,89%)	5 (83,33%)
Multiparous	16 (21,05%)	12 (75%)
Type of delivery		
Normal	3 (13%)	3 (100%)
Cesarean section	19 (87%)	14 (73,68%)
Episiotomy		
Yes	3 (100%)	3 (100%)
No	0 (0%)	0 (0%)

Table 2 - Participants' gynecological and obstetric information and presence of urinary incontinence.

Absolute numbers with percentages presented as: n (%).

Source: prepared by the authors, 2023.

With regard to the anthropometric characteristics of the sample, the participants had an average weight of 71.82 (SD: 11.01) kg and an average height of 1.66 (SD: 0.07) meters. The average body mass index (BMI) was 26 (SD: 4.22) kg/m², characterized as overweight; however, 48.68% (n=36) were of ideal weight.

With regard to the health status of the participants, 13.16% (n=10) said they had some illness. The majority (88.15%; n=67) denied smoking or drinking.

Information on the anthropometric characteristics, diseases and lifestyle habits of the sample is shown in Table 3.

Anthropometric characteristics, presence of diseases and lifestyle habits	Participants (n=76)
Body mass (kg)	71,82 (11,01)
45 a 55	4 (5,26%)
56 a 65	17 (22,37%)
66 a 75	30 (39,47%)
76 a 85	17 (22,37%)
86 a 95	5 (6,58%)
96 a 105	3 (3,95%)
Height (meter)	1,66 (0,07)
1.45 to 1.55	5 (6,58%)
1,56 a 1,65	32 (42,10%)
1,66 a 1,75	31 (40,79%)
1,76 a 1,85	8 (10,53%)
BMI (kg/m²)	26 (4,22)
Underweight	1 (1,31%)
Ideal weight	37 (48,68%)
Overweight	21 (27,63%)
Obesity grade I	16 (21,05%)
Obesity grade II	1 (1,31%)
Report of an illness	
Yes	10 (13,16%)
No	66 (86,84%)
Lifestyle habits	
Alcoholism	3 (3,95%)
Smoking	3 (3,95%)
Alcoholism and smoking	3 (3,95%)
Denies smoking of alcoholism	67 (88,15%)

Table 3 - Anthropometric characteristics, presence of diseases and lifestyle habits of the participants.

Absolute numbers with percentages presented as: n (%). Averages with standard deviation presented as: mean (SD).

Source: prepared by the authors, 2023.

In the sample investigated, a wide variety of illnesses reported by the participants were identified, the most prevalent being depression (10%, n=2), anxiety (10%, n=2) and hypothyroidism (10%, n=2).

As for the sports they practiced, volleyball stood out, being practiced by 56.58% (n=43) of the athletes. The frequency of training most often reported was twice a week (39.47%; n=30). The average time spent practicing the sport was 12.23 (SD: 10.86) years, and 34.21% (n=26) started practicing it in the last five years. In the correlation, significant values were obtained for the correlation between time spent practicing sport and UI (0.3376) with a confidence interval (0.1098-0.5317).

With regard to sports training, the average duration of individual workouts was 1.81 (SD: 0.58) hours, with a predominance of two hours (71.05%; n=54). Strengthening activities and associated muscular endurance were the most frequently reported. Most of the sample (80.26%; n=61) reported practicing another physical activity in addition to their sport, of which weight training (47.37%; n=36) was the most frequently mentioned.

The data on sports and physical activities practiced is shown in Table 4.

Physical training and sports	Participants (n=76)
Sports	
Volleyball	43 (56,58%)
Handball	7 (9,21%)
Soccer	5 (6,58%)
Futsal	1 (1,31%)
Basketball	1 (1,31%)
Frequency of training	
Less than once a week	1 (1,31%)
Once a week	9 (11,84%)
2 times a week	30 (39,47%)
3 times a week	25 (32,89%)
4 times a week	9 (11,84%)
5 times a week or more	2 (2,63%)
Time spent practicing the sport (years)	12,23 (10,86)
1 to 5	26 (34,21%)
6 a 10	16 (21,05%)
11 a 15	12 (15,79%)
16 a 20	11 (14,47%)
21 a 25	3 (3,95%)

26 a 30	3 (3,95%)
31 a 35	0 (0%)
36 a 40	3 (3,95%)
41 a 45	2 (2,63%)
Approximate duration of individual training sessions	1,81 (0,58)
Less than 1 hour	2 (2,63%)
1 hour	17 (22,37%)
2 hours	54 (71,05%)
3 hours	1 (1,31%)
4 hours or more	2 (2,63%)
Predominant training activity	
Muscle strengthening	15 (19,74%)
Muscle endurance	10 (13,16%)
Both	51 (67,10%)
Doing another type of physical activity	
Yes	61 (80,26%)
No	15 (19,74%)
Physical activity beyond sports	36 (47,37%)
Bodybuilding	2 (2,63%)
Wrestling	3 (3,95%)
CrossFit®	2 (2,63%)
Functional Pilates	1 (1,31%)
More than one activity	17 (22,37%)
Denies practicing any other physical activity	15 (19,74%)

Table 4 - Data on physical training and sports practiced. Absolute numbers with percentages presented as: n (%). Averages with standard deviation presented as: mean (SD).

Source: prepared by the authors, 2023.

With regard to pelvic floor dysfunctions, 3.95% (n=3) reported a feeling of heaviness in the vagina, which is a characteristic symptom of pelvic organ prolapse. UI was present in 35.53% (n=27) of the sample, and the predominant situation of urine loss was during sports training. Most of the women (88.16%; n=67) denied losing urine during other physical activities (88.16%; n=67) and before going to the toilet (84.21%; n=64).

Information on pelvic floor dysfunctions is described in the Table 5.

Pelvic floor dysfunction	Participants (n=76)
Feeling of heaviness in the vagina	
Yes	3 (3,95%)
No	73 (96,05%)
Urinary incontinence	
Yes	27 (35,53%)
No	49 (64,47%)
Situations of urine loss	n=27
After training	3 (11,11%)
During training	12 (44,44%)
In everyday situations where you need to make an effort	8 (29,63%)
During training and in everyday situations where you need to make an effort	4 (14,81%)
Loss of urine during other physical activities	
Yes	9 (11,84%)
No	67 (88,16%)
Loss of urine before reaching the toilet	
Yes	12 (15,79%)
No	64 (84,21%)

Table 5 - Data on pelvic floor dysfunctions.

Absolute numbers with percentages presented as: n (%).

Source: prepared by the authors, 2023.

Continuing with the information related to UI, most reported losing a small amount of urine (28.95%; n=22). As for the impact on daily life, 68.42% (n=52) denied interference and 9.21% (n=7) classified it as level 7 discomfort. There was a prevalence of women (59.21%; n=45) who did not know about treatment for this dysfunction.

The data regarding the perception, impact and treatment of UI is presented in Table 6.

Issues relating to the perception, impact and treatment of urinary incontinence	Participants (n=76)
What is the estimated amount of urine loss?	
Small	22 (28,95%)
Moderate	6 (7,89%)
Large	2 (2,63%)
Denies loss of urine	46 (60,53%)
How much does urine leakage interfere with your life (from 0 to 10)?	
0	52 (68,42%)
1	5 (6,58%)
2	4 (5,26%)
3	1 (1,31%)
5	3 (3,95%)
6	2 (2,63%)
7	7 (9,21%)
8	1 (1,31%)
10	1 (1,31%)
Are you aware of any treatments for urinary incontinence?	
Yes	31 (40,79%)
No	45 (59,21%)

Table 6 - Data on the perception, impact and treatment of urinary incontinence.

Absolute numbers with percentages presented as: n (%).

Source: prepared by the authors, 2023.

The data on the pelvic floor indicates that 77.63% (n=59) were aware of the subject; 77.63% (n=59) believed they knew how to contract the PFM and 19.74% (n=15) were unsure. Only 3.95% (n=3) said they had received guidance on the pelvic floor during training.

Table 7 shows the information regarding the participants' knowledge of the pelvic floor.

Questions about pelvic floor knowledge	Participants (n=76)
Do you know what the pelvic floor is?	
Yes	59 (77,63%)
No	17 (22,37%)
Do you know how to contract your pelvic floor muscles?	
Yes	59 (77,63%)
I don't know, I'm not sure	15 (19,74%)
I can	2 (2,63%)
Did you receive advice on the pelvic floor during your training sessions?	
Yes	3 (3,95%)
No	73 (96,05%)

Table 7 - Data regarding knowledge of the pelvic floor.

Absolute numbers with percentages presented as: n (%).

Source: Prepared by the authors, 2023.

There was a correlation between time spent practicing sports and the presence of UI (CI=0.1098-0.5317; r=0.3376; p=0.0035).

DISCUSSION

This study investigated the prevalence of UI in women practicing team sports in the municipality of Ribeirão Preto-SP. A total of 76 athletes took part in the study, 35.53% of whom had UI.

Considering that team sports such as basketball, soccer, futsal, handball and volleyball involve high-impact activities such as jumping and landing, they can be considered risk factors for the development of UI, especially SUI. This aspect may be enhanced by the association with the high training load, where in most exercises involving increased intra-abdominal pressure there is no voluntary contraction of the PFM, which would justify the reports of involuntary urine loss (MARTINS *et al.*, 2017). This may explain the 35.53% prevalence of athletes who reported involuntary urine loss, especially during sports training. In addition, practicing

more than one team sport, as is the case with 25% of the study participants, may be associated with greater muscle demand and progressive overload of the pelvic floor structures.

Corroborating the results found, a cross-sectional study carried out with 41 women, with an average age of 31.5 years, who practiced *CrossFit*[®], found a prevalence of 20% of SUI (BOGÉA *et al.*, 2018). Another cross-sectional study with a sample of 108 athletes aged between 18 and 30 found that 42.5% of them had involuntary urine loss (PATRIZZI *et al.*, 2014).

With regard to age, there was a correlation with significant values between age and UI (0.5618) with a confidence interval (0.3794-0.7022), it is possible to observe a wide variation among the participants, but there is a higher prevalence of UI in women over 40 years old, who represent 59% (n=16) of the total participants with involuntary loss of urine (n=27). According to Masenga *et al.* (2019), the peak occurrence of SUI is in the 45 to 54 age group. The authors also state that women are more likely to develop mixed UI after the menopause, due to hormonal factors and reduced physical activity.

This study showed a probable relationship between the presence of UI and previous pregnancy, childbirth and episiotomy among the athletes investigated. Despite the low number of participants undergoing episiotomy, all of them reported UI, indicating a relationship between the two issues. In this sense, Thomé *et al.* (2021) associated multiparity with the development of UI, especially in cases of normal childbirth, by presenting in their study 146 participants who underwent the episiotomy procedure and reported involuntary loss of urine.

The study found that 77.63% of the sample knew or had heard about the pelvic floor, and the same percentage said they were able

to contract the PFM based on their own perceptions. However, only 3.95% receive or have received guidance on the PFM and its contraction during sports training. These aspects were also noticeable in the analysis of participants with UI, as 70% reported knowing what the pelvic floor is, but only 59% reported knowing how to contract the PFM and only 4% had received guidance on PFM contraction during training.

There is a consensus that involuntary loss of urine can negatively affect the quality of life of affected individuals. However, in this study, it was possible to see that, although some of the participants reported having UI, this dysfunction did not significantly interfere with their daily activities. This finding can be explained by the inclusion of responses from participants who do not experience urine loss in the analysis. On the other hand, 18.42% of the women rated the level of interference of UI in their lives as five or more.

This study has weaknesses, such as its relatively small sample size, which requires further research to substantiate the results obtained so far. However, it is possible to list its strengths, such as adding relevant information to the current body of scientific knowledge on the subject, as well as reflecting on the possibilities of new studies, such as randomized clinical trials. In addition, the findings presented point to the validity of an individualized assessment of athletes

practicing different sports, especially those that require high impact and frequent increases in intra-abdominal pressure.

These aspects reinforce the importance of raising awareness among the team responsible for training the athletes so that they are questioned and advised about the pelvic floor, PFM contraction and the particularities of urinary incontinence. If appropriate, they can be referred to health professionals with *expertise* in treating pelvic floor dysfunctions, such as physiotherapists.

CONCLUSION

The prevalence of UI was 35.53% in the sample investigated, and the predominant situation of urine loss was during sports training. The majority of the athletes (59.21%) were unaware of any kind of treatment for UI.

Knowledge of the pelvic floor was reported by 77.63% of the participants, although only 3.95% received specific guidance on pelvic floor contraction during training.

There was a correlation between time spent practicing sports and the presence of UI (CI=0.1098-0.5317; $r=0.3376$; $p=0.0035$).

The data obtained reinforces the need to implement or improve preventive and rehabilitation programs aimed at the pelvic floor among athletes practicing team sports, with a view to improving their sporting performance and quality of life.

REFERENCES

- ABRAMS, P.; CARDOSO, L.; FALL, M. The standardization of terminology in lower urinary tract function: report from the standardization sub-committee of The International Continence Society. **Urology**, New York, v. 61, n. 1, p. 37-49, 2003. Disponível em: <https://www.sciencedirect.com/science/article/pii/S0090429502022434?via%3Dihub>. Acesso em: 10 abr. 2023.
- BOGÉA, M. *et al.* Incontinência urinária de esforço em mulheres praticantes de crossfit®: um estudo transversal de prevalência. **International Journal of Development Research**, [s.l.], v. 8, n. 7, p. 21642-21645, 2018. Disponível em: <https://www.journalijdr.com/sites/default/files/issue-pdf/13629.pdf>. Acesso em: 23 set. 2023.
- DALY, D.; CLARKE, M., BEGLEY, C. Urinary incontinence in nulliparous women before and during pregnancy: prevalence, incidence, type, and risk factors. **International Urogynecology Journal**, London, v. 229, n. 3, p. 353-362, 2018. Disponível em: <https://link.springer.com/article/10.1007/s00192-018-3554-1>. Acesso em: 10 abr. 2023.
- DA ROZA, T. *et al.* Volume of training and the ranking level are associated with the leakage of urine in young female trampolinists. **Clinical Journal of Sport Medicine**, New York, v. 25, n. 3, p. 270-275, 2015. Disponível em: https://journals.lww.com/cjsportsmed/Fulltext/2015/05000/Volume_of_Training_and_the_Ranking_Level_Are.8.aspx. Acesso em: 10 abr. 2023.
- FIGUEIREDO, E. M. *et al.* Sociodemographic and clinical profile of female users of public Urogynecological Physical Therapy Services. **Revista Brasileira de Fisioterapia**, São Carlos, v. 12, n. 2, p. 136-142, 2008. Disponível em: <https://www.scielo.br/j/rbfis/a/Cg5ks7Tvcrycmz46bYWGPNg/?lang=en&format=pdf>. Acesso em 10 abr. 2023.
- KNORST, M. R. *et al.* Avaliação da qualidade de vida antes e depois de tratamento fisioterapêutico para incontinência urinária. **Fisioterapia e Pesquisa**, São Paulo, v. 20, n. 3, p. 204-209, 2013. Disponível em: <https://www.scielo.br/j/fp/a/vfcgPqb8cZLqKmtyp4wy9v/?format=pdf&lang=pt>. Acesso em: 10 abr. 2023.
- MARTINS, L. A. *et al.* A perda de urina é influenciada pela modalidade esportiva ou pela carga de treino? Uma revisão sistemática. **Revista Brasileira de Medicina do Esporte**, São Paulo, v. 23, n. 1, p. 73-77, 2017. Disponível em: <https://www.scielo.br/j/rbme/a/PQ6LfrHMTZHYkbWBpk8Qygb/?lang=pt>. Acesso em: 10 abr. 2023.
- MASENGA, G. G. *et al.* Urinary incontinence and its relation to delivery circumstances: a population-based study from rural kilimanjaro, tanzania. **Plos One**, [s.l.], v. 14, n. 1, p. 1-12, 2019. Disponível em: <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0208733>. Acesso em: 10 abr. 2023.
- MINASSIAN, V. A.; DRUTZ, H. P.; AL-BADR, A. Urinary incontinence as a worldwide problem. **International Journal of Gynaecology and Obstetrics**, New York, v. 82, n. 3, p. 327-338, 2003. Disponível em: <https://obgyn.onlinelibrary.wiley.com/doi/full/10.1016/S0020-7292%2803%2900220-0?sid=nlm%3Apubmed>. Acesso em: 10 abr. 2023.
- NORTON, P.; BRUBAKER, L. Urinary incontinence in women. **Lancet**, London, v. 367, n. 9504, p. 57-67, 2006. Disponível em: <https://www.sciencedirect.com/science/article/pii/S0140673606679257?via%3Dihub>. Acesso em: 10 abr. 2023.
- OTHMAN, J. A. *et al.* Urinary incontinence in nulliparous women aged 25-64 years: a national survey. **The American Journal of Obstetrics and Gynecology**, St. Louis, v. 216, n. 2, p. 1- 11, 2017. Disponível em: <https://www.sciencedirect.com/science/article/pii/S0002937816308626?via%3Dihub>. Acesso em: 10 abr. 2023.
- PATRIZZI, L. J. *et al.* Incontinência urinária em mulheres jovens praticantes de exercício físico. **Revista Brasileira Ciência e Movimento**, São Paulo, v. 22, n. 3, p. 105-110, 2014. Disponível em: <https://pesquisa.bvsalud.org/portal/resource/pt/lil-733966>. Acesso em: 20 set. 2023.
- SOUZA, G. A. N. *et al.* Impacto da atividade física sobre a incontinência urinária - Revisão sistemática. **Revista Kinesis**, Santa Maria, v. 39, p.01-10, 2021. Disponível em: <https://periodicos.ufsm.br/kinesis/article/view/40375/pdf> . Acesso em: 23 set. 2023.
- THOMÉ, B. I. *et al.* Histórico gestacional de mulheres com incontinência urinária. **Cogitare Enfermagem**, Curitiba, v. 26, p. 1-13, 2021. Disponível em: <https://revistas.ufpr.br/cogitare/article/view/75803>. Acesso em: 20 set. 2023.