Case Report ISSN 2639-9342

Gynecology & Reproductive Health

The Impact of Yoga on Stress Incontinence: A Case Study of Three Young Women

Najwa Alfarra*

Assistant Head Physical Rehabilitation, King Faisal Specialist Hospital & Research Centre, Saudi Arabia.

***Correspondence:**
Najwa Alfarra, PT, Msc. PGWHD, PhD, Assistant Head Physical Rehabilitation, King Faisal Specialist Hospital & Research Centre, Saudi Arabia.

Received: 26 Feb 2023; **Accepted:** 26 Mar 2023; **Published:** 31 Mar 2023

Citation: Alfarra N. The Impact of Yoga on Stress Incontinence: A Case Study of Three Young Women. Gynecol Reprod Health. 2023; 7(3): 1-7.

ABSTRACT

Background: *The International Incontinence Society (ICS) define the symptoms of urinary incontinence as the "complain of involuntary loss of urine" [1]. However, there is limited evidence from randomized control trials (RCT's) regarding the use of Yoga for the management of urinary incontinence in women. The aim of this study is to assess and explore the effectiveness and safety of yoga for the treatment of UI in young woman with focus on patient symptoms and quality of life.*

Case Description: *Three women were referred to Physical Rehabilitation department by the Family Medicine physician. The first participant is 34 years old of age presented with a history of two years "stress incontinence", had two children, normal delivery, second informant was a 30 years old had a history of six months stress incontinence after normal delivery of the first baby, the last participant was 50 years old with a history of four years of stress incontinence, after four normal deliveries.*

Management and outcomes: *Three participants received yoga training once per week for four weeks, followed by unsupervised Yoga home exercises program for six weeks (total of 5 sessions). After the completion of six weeks, they were seen at the clinic for reassessment and discharge. Outcomes as suggested by the International Incontinence Society (ICS), which included observation, quantification of the woman's symptoms, the clinician's observations, and the women's quality of life.*

Result: *The three participants with significant improvement reported significant effects in urinary incontinence following supported Yoga training from the baseline to week 10.*

Conclusion: *Yoga poses intended to address the pelvic floor and core muscles were found to have better outcomes in terms of improving stress incontinence.*

Introduction

The International Incontinence Society (ICS) define the symptom of urinary incontinence as "the complaint of involuntary loss of urine" [1]. Women often delay-seeking help for urinary incontinence and it is likely that this stigmatized condition is underreported [2]. In pregnant or postpartum women, estimates of the prevalence of urinary incontinence are 30% or higher [3]. Women in the general population who are middle aged or older presents with daily urinary incontinence estimated to be between 5% and 15%, while the prevalence of any incontinence is estimated to be between 30% and 60% [3]. Increasing age is the most widely accepted risk factor, although parity (particularly assisted vaginal births), obesity, and menopausal status are also often considered important risk factors [3]. Urinary incontinence in women is associated with poor quality of life, and negatively impacts social, psychological, and sexual functioning [4].

Pelvic floor muscle training (PFMT) is regularly adopted as the

first –line conservative treatment for UI. While Yoga in the recent studies is demonstrated to improve UI by increasing the strength, endurance, and coordination of the pelvic floor muscles [5].

Yoga is a very old spiritual discipline that include breathing techniques, positions, strengthening exercises, and meditation. The word Yoga has been used since ancient times in India. Yoga is a system of training the mind, body and spirit for purification of soul with the intent of reaching the union with the supreme consciousness. A few studies suggest that some yoga breathing, relaxation, and muscle control techniques may assist in the strengthening of the pelvic floor muscles [6,7]. Specific yoga poses that are believed to be helpful and have been tested include the chair pose, triangle pose, and the squat pose [8]. Yoga may help improve general body alignment, flexibility, strength, control, and awareness, all of which are thought to assist in strengthening the pelvic floor muscles [7]. Yoga may therefore serve as an alternative method of pelvic floor muscle training or a supplement to such training.

Case Description

This study is limited to three participants. The participants of this study were given a coded name, when indicating their results (see table 1).

Table 1:

Participant 1	Participant 2	Participant 3
P1	P2	P3

Patient History

P1

First participant was 34 years old who presented at the physical therapy clinic with a history of two years "stress incontinence", following normal delivery of the second child. No prior history of Physical Therapy intervention or medication. Unable to reach bathroom without leakage of urine, and during laughing, coughing and sneezing as well. This situation prevented her from aerobic exercises and some social activities such as travelling in a car, walking outside the house for more than one hour.

P2

The second participant was a 30 years old with a history of six months of stress incontinence after normal delivery of the first baby. No known medical or medication history. Otherwise, she was "tensing up with anticipation of sex" since the onset of her symptoms, because of urine leakage during intercourse. She was diagnosed in the family medicine clinic with SI and referred to the Physical Therapy clinic. Stopped aerobic classes that she used to do three times per week, due to leakage of urine during jumping activity.

P3

The last participant was 50 years old with a history of four years stress incontinence, developed after the normal delivery of the fourth child. No other medical history presented. Had chronic constipation, menopause, unable to hold urine during sneezing if the bladder is full, thereby preventing her from walking outside the house, and sometimes unable to reach the bathroom without leakage of urine.

Table 2: Characteristic of the Participants

Characteristic	P1	P2	P3
Age	34 Y/O	30 Y/O	50 Y/O
Education	Bachelor degree	Bachelor degree	Bachelor degree
Length of time with UI	2 years	6 months	4 years
Self-report severity	Moderate	Mild	Moderate
Frequency of UI in the past month	1-2 Occurrences / month	1 occurrence/ month	2-3 Occurrences/ month
Caffeine intake	One cup of coffee and one cup of tea/ day	None	Three cup of coffee and one cup of tea/day
Water intake	8 glasses of water/ day	6 glasses of water /day	4 glasses of water/ day
Constipation	None	Sometimes	Always
Menopause	No	No	yes
No. of children	2	1	4
Type of delivery	Normal	Normal	Three normal , last one C-section

The data collection for this study was conducted in January 2022, where the researcher met the participants in the physical rehabilitation department, interviewed them and explained the benefits of Yoga exercises program. Obviously, all participant's ultimate goal with PT is to get better and cured from stress incontinence. At the beginning of treatment, the authored discussed with each one of them the short-term, long-term goals and explained to them the period it will take to achieve the short-term versus long-term goals.

Assessment

Table 3: Observation / External examination

Muscle palpation: **Check the connective tissue elasticity for the following muscles:**	P1	P2	P3
1-Abdomen and suprapubic area	Minimum restriction.	Normal	Normal
2-Pelvis,Labia, Perineum area, through groin area, ischial tuberosity (IT), and anterior through suprapubic	Moderate restriction.	Normal	Moderate restriction.
3-Medial and lateral thighs	Normal	Normal	Normal
4- Buttocks	Normal	Normal	Normal
5-Upper thighs	Normal	Moderate restriction closer to IT, and tissue close to vaginal opening.	Normal
6-Lower back	Normal	Normal	Normal
External Muscular Assessment: Trigger points	Normal	Normal	Delayed and incomplete relaxation of pelvic floor muscles. Minimal to moderate difficulty bearing down
Visual inspection of Vulva/ Vestibule/Pelvic Floor Muscle:	The perineal reflex and anal wink were normal,	The perineal reflex and anal wink were normal,	The perineal reflex and anal wink were normal,
Q-Tip Test:	Normal	Normal	Normal

Internal Examination

Internal Pelvic Floor Muscle Assessment.

Tone is minimally increased globally at P3. While P2 and P1 are normal.

Connective tissue lateral to urethra and urethral sphincter were normal in all participants.

Urogenital diaphragm: bilaterally minimally decreased length at P3; normal for P1 and P2

Trigger points: No trigger points at all the participants.

Table 4: Specific measurement of the pelvic floor muscles.

Measurement	P1	P2	P3
Muscle power	3/5	3/5	2+/5
Endurance	4/10	5/10	3/10
Repetition	5/10	6/10	5/10
Fast contraction	6/10	5/10	4/10

Findings

Minimally increase tone and shortening of the pelvic floor muscles at P3. Moderate to greater decrease in Pelvic floor muscles strength, endurance, repetition and fast contraction as shown at table 4 in all participants. P1 away of some social activities, unable to attend aerobic classes, as well as P2 unable to do the aerobic exercises. P3 unable to walk outside home. All the participants had stress incontinence (SI) confirmed by patient history and urodynamic test.

Intervention

Initial Treatment Plan

PT once a week for 4 weeks: Treatment to include:

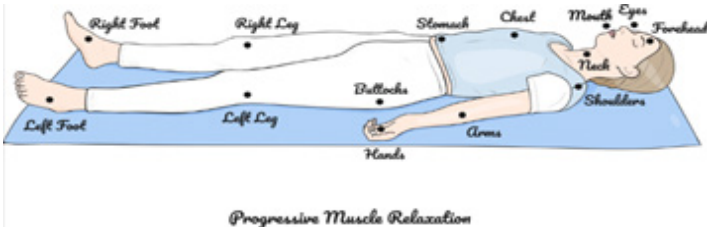
1- Pranayama (breathing exercise):

- The pranayama was done through both nostrils in a calm and regular manner breathe in and out in a slow manner with a conscious effort to use the low, mid, and upper parts of the lungs. 10 repetition once/day.

2- Relaxation, and Muscle Control Techniques:

- Sit or lie down in a comfortable position and breathe slowly. Start with the toes and feet, and then squeeze the muscles tightly during inhale. Count to 5, then relax during exhale. Repeat two more times.
- Then do the same for all the other muscles in the body, progressing through legs, stomach, arms, shoulders, and neck.

3- Mountain Pose:



Progressive Muscle Relaxation

- Stand up; create a wide, solid base. Separate heels slightly.
- Contract quadriceps and draw them upward, causing kneecaps to rise.
- Rotate both thighs inward
- Maintain the natural curves of spine, and tone belly, drawing it in slightly.
- Take deep breath and raise your arms above the head and contract pelvic floor muscles count up to four.
- Exhale and relax pelvic floor muscles and count up to four, repeat 10 times once/day.

4- Downward Facing Dog Pose:

- Begin on hands and knees. Align on wrists directly under shoulders and knees directly under hips.
- Stretch elbows and relax upper back. Distribute weight evenly across hands.
- Gently begin to straighten the legs, but do not lock the knees.
- Bring the body into the shape of an "A." Imagine the hips and thighs being pulled backwards from the top of the thighs.
- From that position inhale and contract pelvic floor muscles, hold up to acount of four.
- To release, exhale as gently bend your knees and come back to hands and knees position, relax PFM count up to four and repeat 10 times once/day.

5- Chair Pose:

- Step 1: Stand up Inhale and raise arms above your head.
- Step 2: Exhale and bend knees, trying to take the thighs as nearly parallel to the floor as possible. Contract PFM count up to four.
- Step 3: Firm the shoulder blades against the back. Take the tailbone down toward the floor and in toward the pubis to keep the lower back long.
- Step 4: Stay for 30 seconds to a minute. To come out of this pose straighten the knees with an inhalation, relax PFM lifting strongly through the arms. Exhale and release the arms to the sides.

6- Child pose:

- Contract for account of 4 and relax for account of 4 the pelvic floor muscles from that pose, repeat 10 repetitions once/day

7- Happy baby pose:

- Step 1: Lie on back, bend knees.
- Step 2: Grip the outsides of feet with hands, Open knees slightly wide, then bring them up toward armpits.
- Step 3: Position each ankle directly over the knee.
- Step 4: from that position take a deep breath and contract the pelvic floor muscles count up to four, exhale and relax pelvic floor muscles count up to four, repeat 10 repetition, once/day

8- Butterfly poses:

- Lie on back open the knees outward.
- The feet face each other.
- Inhale and contract the PFM, count up to four
- Exhale and relax the PFM , count up to four , repeat 10 times once/day.

9- Warrior pose:

- From standing with the right knee bent, engage the legs to ground down through the feet, and raise the hands up.
- Blades shoulders towards the spine to open the chest.
- Inhale and contract the PFM count up to four
- Exhale and relax the PFM count up to four , repeat 10 times once/day

10- Triangle Yoga pose:

- Open the legs apart support your weight on one hand and the feet as shown in picture below.
- Inhale and contract the PFM and raise the opposite hand up to the ceiling count for four
- Exhale and stand up and relax the PFM count up to four.
- Repeat 10 times once/day.

11- Squat pose:

- Sit on squat position.
- Inhale and contract the PFM count up to four.
- Exhale and relax the PFM count up to four.
- Repeat 10 times once/day.

Outcomes

The author adopted the standardized committee of the International Continence Society, which include:

- The woman's observation (e.g. symptoms)
- Quantification of the woman's symptoms (e.g. urine loss)
- The clinician's observations (anatomical and functional)
- The woman's quality of life (urinary incontinence-specific and general).

Table 5: Qualification of symptoms.

Outcomes	P1 Pre	P1 Post	P2 Pre	P2 Post	P3 Pre	P3 Post
• Number of maturations/ day	12/day	10/ day	11/day	8/day	13/day	11/day
• Number of episodes of incontinence/week	1/week	None	1/week	None	2/week	Once/month
• Number of pads/day	0	0	0	0	2 Pads/day	0 pads/day

The voiding diary recorded the urinary frequency, episodes of urine leakage; number of pads per day, this diary was completed at the beginning and at the end of the treatment.

All the participants answered the Urogenital Distress Inventory (UDI-6) Arabic validated version by [10], and Patient Global Impression of Improvement (PGI-I) question before commencement and upon completion of the treatment, as well as the quality of life was calculated by measuring the emotional and social impact of the disorder on their daily life style and sexual function.

Figure 1: Urinary Distress Inventory, (UDI-6) Pre-intervention.

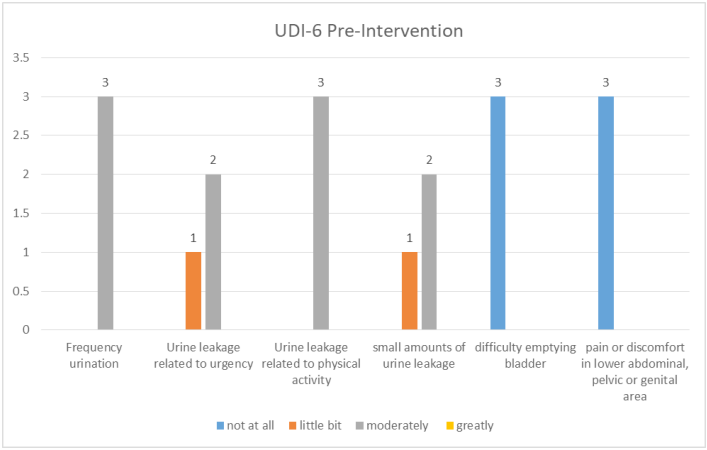


Figure 2: UDI-6 Post-intervention.

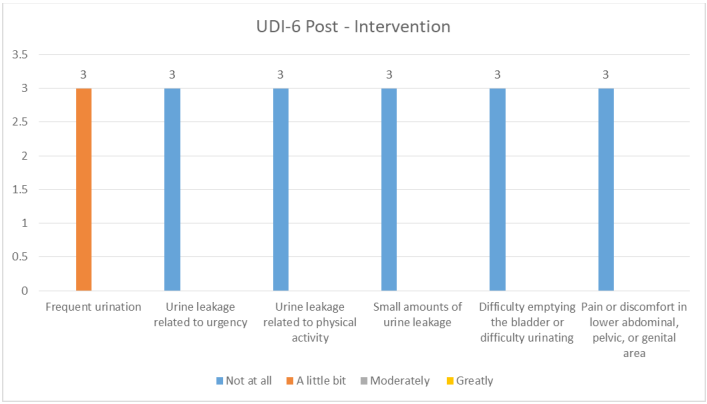


Table 6: Patient Global Impression of Improvement (PGI-I).

Describe the urinary symptoms that you have now, compared with how they were before you began Yoga in this study?	P1 pre	P1 post	P2 pre	P2 post	P3 pre	P3 post
Very much better				1		
Much better		1				1
A little better						
No change						
A little worse	1		1		1	
Much worse						
Very much worse						

After four visits, the author assessed the following changes:
P1 was able to perform aerobic exercises twice per week, partially engage in social activities, and able to reach bathroom with minor urine leakage, with the bladder full. P2 was able to return to normal sexual activity, and started aerobic classes twice/week. P3 was able to relax the pelvic floor muscles normally, and able to hold urine leakage during sneezing if the bladder was full.

New Plan of Care

Continue unsupervised Yoga home exercises program for six weeks, with a 5th. Session follow-up for re- assessment and discharge.

After 10 weeks, the participants were able to go back to their social life, perform aerobic exercises safely, and resume normal sexual activity. Stress incontinence frequency decreased by an average of 85% in all the participants, with significant differences in reduction in frequency of urge incontinence, total daytime or nighttime incontinence, or daytime or night-time voids in the toilet were detected ($P<0.05$ for all). In the close-out PGI-I questionnaire, all three participants who completed the study reported being at least "Much" better with the change in their urine leakage.

Discussion

In this case study -based yoga therapy intervention, the author found that recruiting middle-aged women with frequent urinary incontinence was feasible, teaching women to practice yoga to improve their incontinence was achievable and safe. Adherence to home yoga practice was high, and all women were at least moderately successful in learning to practice program-specific yoga postures and techniques after 10 weeks. Furthermore, the participants demonstrated over 85% ($P>0.05$) improvement in stress-type incontinence, as well as significant improvement in the bothersomeness of their symptoms. These results provide promising preliminary evidence to support Yoga as a potentially effective and well-tolerated complementary treatment strategy for managing and treating urinary incontinence in ambulatory middle-aged women.

Despite efforts to improve rates of diagnosis and treatment for incontinence in the community, studies show that many women with incontinence fail to obtain treatment from a health care provider, either because they are not asked about it, or do not report their symptoms, do not have access to a healthcare provider who is willing and able to treat incontinence, or are unwilling or unable to use conventional medical or surgical treatments. Yoga may offer a useful alternative treatment strategy for women who do not have access to incontinence specialists or Pelvic Floor Physical therapists, elect not to use standard behavioral, pharmacologic, or surgical therapies for incontinence, or cannot tolerate these therapies. Yoga may also provide a way for women to supplement or enhance clinical treatment through home practice sessions based outside of the clinical setting. Since Yoga can be taught and practiced at home without continuous or ongoing supervision by healthcare providers, it offers a potentially cost-effective, community-based management strategy for incontinence, if taught in a standardized way and with appropriate attention to patients' clinical and safety needs [8].

In a study of an integrated Yoga program in 11 patients with multiple sclerosis resulting in neurogenic bladder, participants reported pre-post improvements in the bothersomeness and impact of their urinary tract symptoms as measured by scores on the UDI-6 and the IIQ-7 questionnaires after 3 weeks of treatment [11]. Limitations of this case study is the small sample size. The author did not assess whether treatment benefits persisted after the end of the program. Finally, this study was limited to ambulatory middle-aged women without complex urologic histories, and the efficacy and safety of Yoga therapy may differ for more frail elderly women, women with more complicated incontinence, or those with more severe co-morbidities.

Overall, the findings provide preliminary evidence to support the feasibility, efficacy, and safety of a home-based Yoga therapy intervention to improve urinary incontinence in ambulatory middle-aged women without complicated urologic histories. Future studies involving larger numbers of participants and comparing this yoga therapy intervention to a time-and-attention control intervention are indicated to confirm and extend these findings, assess for differential treatment effects by incontinence type, and evaluate for persistence of treatment effects, as well as examine mechanisms that may mediate the effects of yoga on incontinence.

Conclusion

Preliminary results show evidence of positive changes in UI following Yoga intervention. The results demonstrated that Yoga is effective in terms of improving continence measured with UDI-6, PGI-I, muscle power of pelvic floor muscles and quality of life. The current study provides preliminary evidence to support the feasibility and effectiveness of Yoga for improving UI in community –dwelling young women. The effectiveness of interventions will be studied further in the future, preferably with larger sample size.

References

1. Haylen BT, de Ridder D, Freeman RM, et al. An International Urogynecological Association (IUGA)/International Continence Society (ICS) joint report on the terminology for female pelvic floor dysfunction. International Urogynecology Journal. 2010; 21: 5-26.
2. Wójtowicz Urszula, Lucyna Płaszewska-Żywko, Klaudia Stangel-Wójcikiewicz. Barriers in entering treatment among women with urinary incontinence. Via Medica Journal. 2014; 85.
3. Milsom I, Altman D, Cartwright R, et al. Epidemiology of urinary incontinence (UI) and other lower urinary tract symptoms (LUTS), pelvic organ pro-lapse (POP) and anal incontinence (AI). Incontinence: 5th International Consultation on Incontinence. 2013; 27-43.

4. Sinclair AJ, Ramsay IN. The psychosocial impact of urinary incontinence in women. Obstetrician & Gynaecologist. 2011; 13: 143-148.
5. Priya Kannan, Wai Hin, Wai Tung Suen, et al. Yoga and Pilates compared to pelvic floor muscle training for urinary incontinence in elderly women: A randomized controlled pilot trial. Complement Ther Clin Pract. 2022; 46.
6. Bø K, Herbert RD. There is not yet strong evidence that exercise regimens other than pelvic floor muscle training can reduce stress urinary incontinence in women: a systematic review. Journal of Physiotherapy. 2013; 59: 159-168.
7. Tenfelde S, Logan R, Abernethy M. Yoga from the pelvic floor. Beginnings (American Holistic Nurses' Association). 2014; 34: 24-26.
8. Huang AJ, Jenny HE, Chesney MA, et al. A group based yoga therapy intervention for urinary incontinence in women: Pilot randomised trial. Female pelvic medicine and Reconstructive Surgery. 2014; 20: 147-154.
9. Alison J Huang, Hillary E Jenny, Margaret A Chesney, et al. A Group-Based Yoga Therapy Intervention for Urinary Incontinence in Women: A Pilot Randomized Trial. Female Pelvic Med Reconstr Surg. 2015; 20: 147-154.
10. Altaweel W, Seyam R, Mokhtar A, et al. Arabic version of the short form of Urogeital Distress Inventory (UDI-6) Questionnaier. Neurol Urodyn. 2009; 28: 330-334.
11. Patil NJ, Nagaratna R, Garner C, et al. Effect of integrated Yoga on neurogenic bladder dysfunction in patients with multiple sclerosis-A prospective observational case series. Complementary therapies in medicine. 2012; 20: 424-430.