

## PERICOACH® SYSTEM–ASSISTED PELVIC FLOOR EXERCISES FOR A 50-YEAR-OLD WOMAN WITH STRESS URINARY INCONTINENCE

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### INTRODUCTION

Urinary incontinence, or the complaint of an involuntary loss of urine, is a common issue among women.<sup>1</sup> If the definition of at least one leakage in the past year is used, the prevalence ranges from 25% to 51% and increases with age.<sup>2-4</sup> About half of all women with urinary incontinence report symptoms of stress incontinence specifically.<sup>5</sup> Stress urinary continence generally refers to urine leakage on effort or exertion, likely during events that increase abdominal pressure, such as sneezing, coughing, and exercise.<sup>6,7</sup> Stress urinary incontinence can be extremely bothersome to patients and can pose a significant burden, often limiting activities of daily living or exercise.<sup>8</sup> Pelvic floor muscle training, which is recommended as first-line treatment, can help strengthen these muscles to decrease episodes of leakage.<sup>9</sup> This case describes a woman with stress urinary incontinence who used the PeriCoach® System (Analytica Ltd., Brisbane, Australia), a novel home training device with Smartphone app and a web portal, to assist with her pelvic muscle exercises.

use an adult diaper in order to run due to severe leakage while she exercised. She would soak through the adult diaper and tie a shirt around her waist while running so other people could not see that she was wet. She wanted to continue running, but she needed the leakage to lessen in order for that to be feasible. Her baseline Pelvic Floor Distress Inventory Short-Form 20 (PFDI) score was 44 out of 100.

Seven years ago, the woman had ovarian cysts surgically removed and had a tubal ligation. One year ago, she fell on her left hip. She also experienced lower back pain and coccygeal pain after falling down the stairs and landing on her coccyx.

Examination from a few years ago revealed normal sensation upon internal assessment of the pelvic floor muscles. At that time, manual muscle testing revealed a strength of grade 3 out of 5 with an endurance of 10 seconds repeated 10 times. Fast contractions were repeated 8 times without fatigue. Her relaxation after each contraction was good.

At that time, urine leakage occurred with sneezes and a full bladder. Her bladder habits included 3 to 4 voids a day with none during the night. She had normal urge sensation. Her fluid intake was 32 to 48 ounces per day. Her urinary stream was steady, and she reported complete bladder emptying. She had 3 to 5 bowel movements per week of normal consistency with no straining, although she reported not always having control over gas. She also had experienced uterine prolapse symptoms.

### TRAINING AND OUTCOMES

The woman joined a usability study for the PeriCoach device. As a participant in the study, she was given the PeriCoach device and access to the Smartphone app and the web portal, and she was to use it on her own with the instruction manual and no formal verbal instructions. Over a period of 3 months, the subject used the device to assist with her pelvic floor exercises twice a day, every day.

### HISTORY

A parous (G4, P3), premenopausal, 50-year-old woman has had symptoms of stress urinary incontinence upon coughing, exercise, and laughing since the birth of her third child. All of the deliveries were vaginal and did not cause any tearing, although she did report having pelvic pain after the third delivery. She experienced very little urine leakage until a few years ago, when the leakage became more severe. At times, she could not make it to the toilet without leaking suggesting urge incontinence. This woman had been losing weight gradually (35 to 40 pounds over the last year) as part of a weight loss program, and she had also been working on her fitness. Daily activities were not an issue, but she needed to

## CASE STUDY

The subject encountered only one issue with usability. She tried to calibrate the device while standing instead of while lying down, making calibration difficult for her. Upon recommendation, she performed the calibration while lying down with no further issues. Standing calibrations are part of a progression but are not recommended for the initial calibration attempt.

In those 3 months, her stress urinary incontinence improved from soaking through an adult diaper 3 times a week with running to being able to run 3 miles 3 times a week without leaking at all or wearing any pads. Her follow-up PFDI score was 38 out of 100, primarily related to her prolapse symptoms rather than urinary incontinence.

The subject still continues to use PeriCoach daily, and, since she has been improving so much, she is now using a more advanced level exercise program with the device. Using the feedback provided by the Smartphone app indicating the improvement in contraction strength, she strives to be able to generate a contraction to equal her previous attempt.

### DISCUSSION

This case study illustrates a real-world woman whose symptoms of stress urinary incontinence resolved with the PeriCoach System to assist her pelvic muscle exercises. In 3 months, she went from soaking through an adult diaper while running to being able to run 3 miles with no leaking and no pads.

The subject had 3 successful vaginal deliveries, which most likely led to some of the weakening in her pelvic floor. Despite her premenopausal status, her symptoms, which had remained very minor for years, had recently grown in severity, suggesting progressive weakness in the muscles of her pelvic floor.

This woman was not actually being treated in the clinic for her incontinence; although she had been a physical therapy patient a few years earlier, at this time, she merely entered as a participant in the PeriCoach usability study. Her participation resulted in valuable information about the usability of the device, as well as marked improvement in her clinical symptoms. Her difficulty with attempting standing calibration was relayed to the manufacturer in order to improve user instructions in the future.

It is noteworthy that this subject was able to successfully operate the device and the Smartphone app with no verbal instructions from a physical therapist. It has been shown that treatment effects are greatest when women participate in a supervised pelvic floor muscle training program for at least 3 months,<sup>10</sup> so receiving supervision and guidance from a physical therapist may have improved her outcomes even more.

Stress urinary continence can act as a barrier to women's participation in fitness activities, thereby threatening their health, self-esteem, and well-being. It is crucial for the pelvic floor to be strong enough to counteract the increases in abdominal pressure that occur during exercise.<sup>11</sup> This subject was able to continue participating in her fitness regimen due to improving the strength of her pelvic floor muscles.

Women such as this one with stress urinary incontinence who exhibit improved contractions upon receiving biofeedback information may benefit from the pelvic muscle exercises using a home training device. The information displayed on the Smartphone app of the PeriCoach System was very motivational for this patient, leading her to want to work diligently on her pelvic floor exercises, which eventually led to the disappearance of her stress urinary incontinence symptoms.

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Dawn Sandalcidi is a paid consultant for Analytica, Ltd.