

# **The Effect of a New Compression Garment on Comfort and Prolapse in Women**

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## Introduction

Compression garments are an established adjunctive therapeutic modality used in medicine and surgery and to improve sports performance and recovery. Considerable research has demonstrated the benefits of compression garments for conditions including wound management and oedema, but little research has investigated their use in women with pelvic organ prolapse disorders.

Pelvic Organ Prolapse (POP), is a common female condition, characterized by symptomatic descent of the vaginal walls, apex, or vault from the normal anatomical position (Abrams et al 2005). Pelvic floor exercise, which improve the tone and function of the pelvic floor muscles have been typically used as an inexpensive treatment for women with POP. Individualised Pelvic Floor Muscle Training (PFMT) with prolapse is offered by many physiotherapists who specialise in women's health (Hagen et al 2004). There is evidence that PFMT is helpful in the treatment of urinary incontinence (Hay-Smith et al 2006). However, clear evidence of the clinical and cost-effectiveness of PFMT in the management of prolapse is lacking. A Cochrane systematic review (Hagen et al 2004) discovered only one sizeable trial which included women with prolapse and evaluated a physical intervention. The review established that although there is a little evidence that pelvic floor exercises may help specific types of prolapse, further evidence from randomized controlled trials of the effectiveness of PFMT for the management of prolapse is required.

As part of an ongoing research and development program, SRC Health conducted a survey of users of SRC Restore mini shorts (a new compression garment) with the aims of providing information about the comfort of this new compression garment and investigating whether the garment helps to improve prolapse and quality of life (QOL) in participants.

## Methods

### *Participants and surveys*

An online pre-qualification survey was used to select participants for the prolapse research program (Table 1). Participants were invited to complete a qualification survey via social media. 210 people applied to participate in the online qualification survey. People were included in the trial if they had Stage 1 or 2 uterine or bladder prolapse. Women with bowel prolapse symptoms were excluded for the study.

The participants were then invited to complete two other surveys: one regarding the comfort and compression adequacy of the SRC Restore mini-shorts garment (Table 2) and one to assess the POP function of participants (Table 3).

The surveys were carried out between August and November 2020. All data was de-identified.

### *Garment comfort and compression survey*

Women were asked to respond to questions about the comfort of the garment and to comment on whether the garment provided adequate compression (Table 2). The women assessed the comfort of the garment using a five-point comfort scale (not very comfortable, slightly comfortable, moderately comfortable, very comfortable and extremely comfortable).

### *Pelvis Organ Prolapse Impact Questionnaire (POPIQ)*

The Pelvic Organ Prolapse Impact Questionnaire (POPIQ-7), (Barber et al 2005) was used to assess the function of women with POP. The POPIQ consists of one scale with seven questions. The scale is scored from 0 (least impact) to 100 (greatest impact).

To determine a baseline level of prolapse impact, POPIQ scores were collected for three weeks. Data were also collected for a further six weeks when the women were wearing the compression garment. The data was averaged for the baseline and garment-wearing stages. The POPIQ comparison value (average garment phase POPIQ – average baseline POPIQ) was used to determine the POPIQ improvement after using the garment.

There were 50 responses to the survey, however, some women responded multiple times. In these cases, the responses were averaged, and this was considered a single response. In total there were 35 unique responses.

Some participants did not complete the survey for the full trial period. To compensate for these participants, only those who completed at least 2/3 of the responses in both the baseline and garment-wearing phases were included in the final analysis. The final data set included 31 participants (Table 4).

### *Statistical analysis*

A one-sided t-test was used to determine the statistical significance of data obtained when determining if there was an improvement in POPIQ score after garment use. It was also used to determine if prolapse had a lower impact on a women's life after they wore the garment.

Regression statistics and ANOVA were used to determine if there was a statistically significant improvement in prolapse with prolonged use of the garment.

## Results

### *Garment comfort and compression adequacy*

90% of women found the garment to be comfortable. 23% extremely comfortable, 50% very comfortable and 17% moderately comfortable (Figure 1). A small percentage (7%) reported that the garment was slightly comfortable, while 4% reported that the garment was not very comfortable.

On a five-point scale, the average comfort score was 3.81. On average, people found the garment to be very comfortable.

With regard to support/compression, 87% of women reported that the garment provided adequate support/compression.

### *Improvement in POPIQ scores*

The mean baseline POPIQ was 50.64, while it was 44.44 after four weeks of garment use. This result was statistically significant ( $p < 0.05$ ) improvement. The POPIQ comparison value revealed an improvement in the POPIQ score after garment use (Figure 2).

The garment had a statistically significant trend of alleviating interference and impact over time, lowering POPIQ scores by 3.85% ( $p < 0.05$ ) on average every week over the six-week trial period.

### *Improvement in quality of life (QOL)*

Participants were asked to rate the level that prolapse interfered with their QOL before and after using the garment using a scale between 0 and 100, with 100 being maximum impact on QOL (Figure 3). Prolapse had a lower impact on the lives of participants when they used the garment (mean score 49.93) compared to when they were not using the garment (mean score 65.40). The mean decrease of 15.47 was statistically significant ( $p < 0.01$ ).

## Discussion

Overall, our data showed that use of the garment improved symptoms of prolapse. The garment had a steady gradual effect on prolapse over the six-week period.

Use of the garment also helped to make the participants feel better about their condition and their everyday QOL was improved. The participants largely found the garment comfortable and reported that it provided adequate support.

Overall, the compression garment can be viewed as a complementary, non-invasive addition in the arsenal of women who are dealing with pelvic organ prolapse.

This study did not show any important correlations between improvement in prolapse and variables such as physical activity or the duration the garment is worn each day. Further research is required with a larger sample group to determine if there is a definitive improvement in prolapse, especially in the areas of physical activity and level of use.

## References

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**Table 1: Pre-qualification survey**

1. What is your contact information?
2. How old are you
3. How tall are you in centimetres?
4. What is your weight in kilograms?
5. What size pants do you normally wear (Australian Size)
6. Who diagnosed your prolapse?
7. What type of prolapse are you suffering with?
8. Have you had any treatment for your prolapse?
9. What was the treatment for your prolapse?
10. What stage best describes your prolapse?
11. How does prolapse usually affect your – ability to do household chores; ability to do physical activities; participation in entertainment activities; ability to travel by car or bus for a distance greater than 30 minutes away; participation in social activities outside your home; emotional health; level of frustration?
12. On a scale of 0–10, how much does your prolapse interfere with your everyday life (0 = not at all, 10 = a great deal)?

**Table 2: Garment comfort and compression survey.**

1. What was the amount of your physical activity\* during the week?
2. What type of physical activity did you engage in?
3. How comfortable was this garment to wear?
4. Do you feel that there is adequate support/compression in this garment?
5. How many hours per day did you wear this garment?
6. How does prolapse usually affect your – ability to do household chores; ability to do physical activities; participation in entertainment activities; ability to travel by car or bus for a distance greater than 30 minutes away; participation in social activities outside your home; emotional health; level of frustration?
7. On a scale of 0–100, how much does your prolapse interfere with your everyday life this week (0 = not at all, 100 = a great deal)?
8. Do you have any other comments, questions, or concerns?

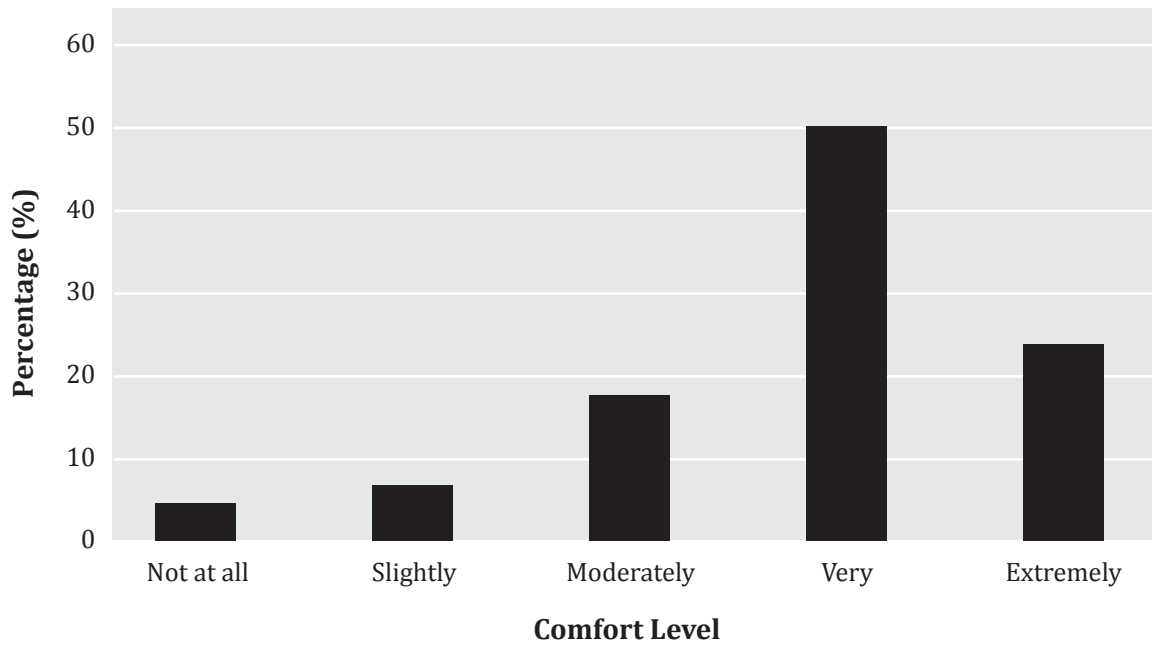
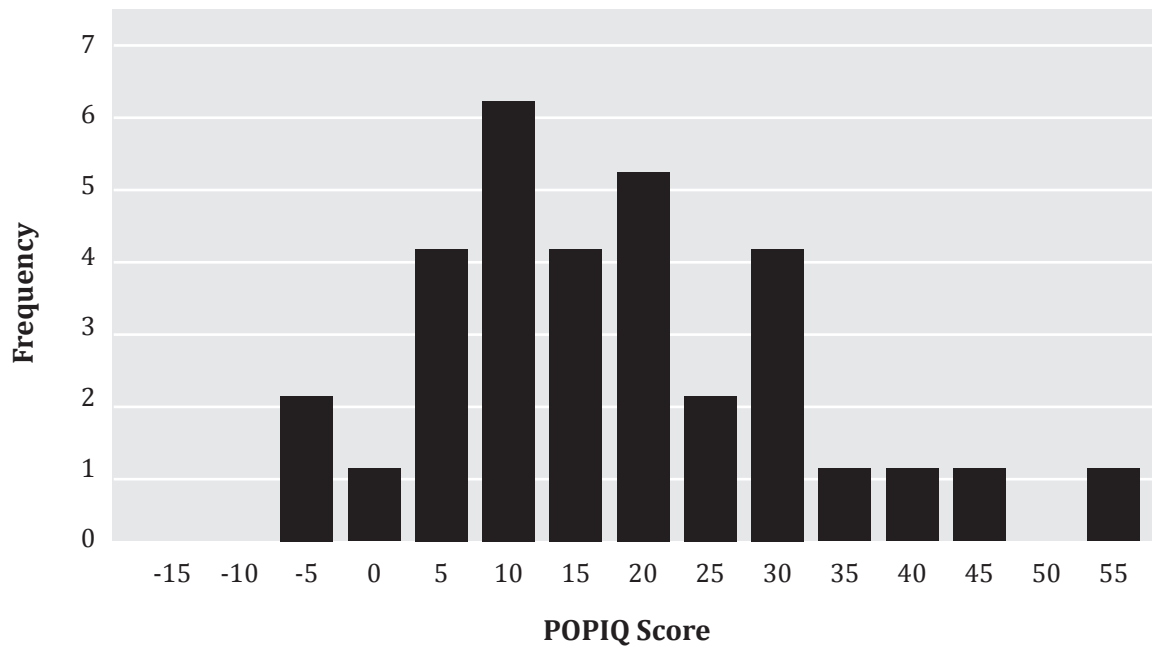
**Table 3: Pelvic Organ Prolapse Impact Questionnaire**

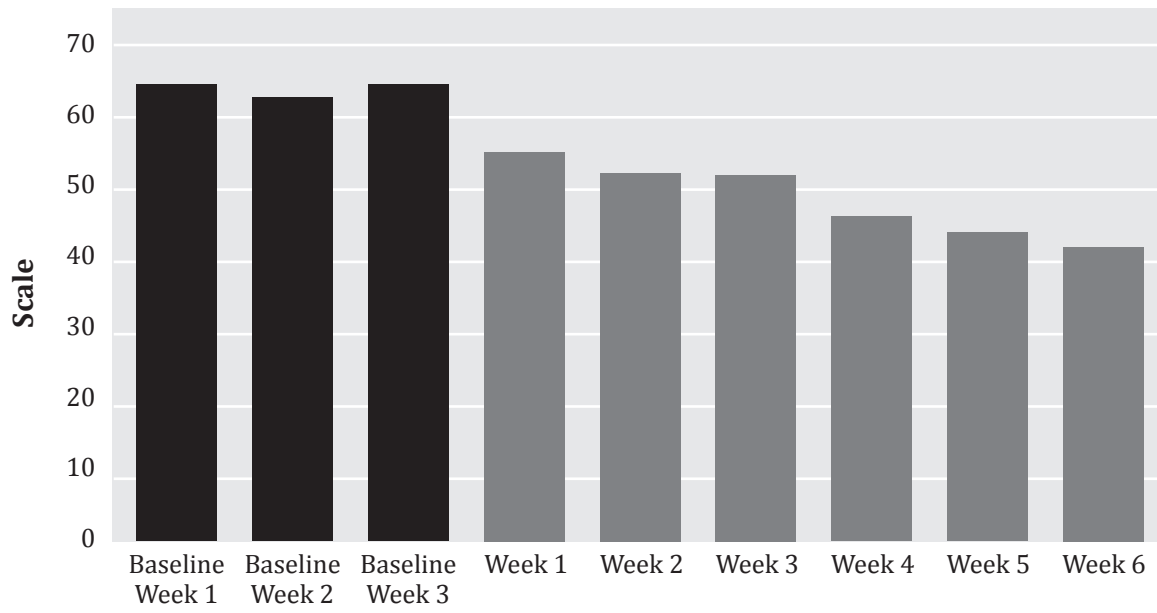
1. How does prolapse usually affect your ability to do household chores (cooking, laundry, housecleaning) [not at all; somewhat; moderately; quite a bit]?
2. How does prolapse usually affect your ability to do physical activities such as walking, swimming, or other exercise [scale: not at all; somewhat; moderately; quite a bit]?
3. How does prolapse usually affect your entertainment activities such as going to a movie or a concert [scale: not at all; somewhat; moderately; quite a bit]?
4. How does prolapse usually affect your ability to travel by car or bus for a distance greater than 30 minutes away [scale: not at all; somewhat; moderately; quite a bit]?
5. How does prolapse usually affect your participation in social activities outside your home [scale: not at all; somewhat; moderately; quite a bit]?
6. How does prolapse usually affect your emotional health (nervousness, depression etc) [scale: not at all; somewhat; moderately; quite a bit]?
7. How does prolapse usually affect your level of frustration [scale: not at all; somewhat; moderately; quite a bit]?

**Table 4: Participant characteristics**

Characteristics	n
<b>Age (years)</b>	
25-34	10
35-44	17
45-54	4
<b>Previous treatment</b>	
Yes	19
No	12
<b>Geographic location</b>	
New South Wales	10
Victoria	13
Queensland	2
South Australia	1
Western Australia	4
Tasmania	0
Northern Territory	1

Characteristics	n
<b>Prolapse type</b>	
Uterine only	3
Bladder only	13
Uterine and bladder	14
Other	1

**Figure 1: Comfort level of the compression garment****Figure 2: Improvements in POPIQ scores after garment use**

**Figure 3: Effect of prolapse on quality of life (QOL)**

Note: Participants were asked to provide a score on a scale range of between 0 and 100.

