

## ALTERNATIVE SLOW AND MODERATE EXERCISES FOR MANAGEMENT OF PELVIC FLOOR MUSCLES DYSFUNCTION

### Hypothesis / aims of study

In this randomized controlled study, a novel intervention adapted from Salat (1), an act of prayer for Muslims, has been developed in order to help increase the strength of the pelvic floor muscles (PFM). Salat is a series of repetitive physical movement equivalent to a form of slow moderate exercise which is normally performed five times a day. Based on research conducted for male erectile dysfunction, Salat was shown to activate pelvic floor muscles while increasing the blood flow toward these muscles (2). This study aims to investigate the effect of Salat exercise on female urinary stress incontinence when performed in combination with conventional pelvic floor exercise (PFE) and to compare with that of conventional pelvic floor exercise alone.

### Study design, materials and methods

Once written consent was obtained, a preliminary intervention study was conducted on 30 female subjects randomised into a control group (n=15) and intervention group (n=15). The control group performed pelvic floor exercises alone while the intervention group performed slow moderate exercise adapted from Salat as well as pelvic floor exercises. All exercises were standardized and taught by two physiotherapists. All subjects were asked to complete validated self-rated Australian Pelvic Floor Questionnaires (APFQ) and EMG measurements of the PFM were taken from all women at recruitment (first visit), one (second visit) and two months (third visit) after study commencement.

### Results

A total of 31 patients were recruited into this study, however one patient from PFE and Salat group was pregnant after the 2nd visit, thus was not included in the analysis. Mean age was 50.0 years with 90% were parous.

There was a significant difference when comparing the score in bladder section for the first and the second visit in the PFE group ( $p=0.046$ ) and PFE plus Salat exercises ( $p=0.007$ ). Scores for bowel, prolapse and sexual function did not reveal any significant difference ( $p>0.05$ ) in the first and the second visit. This score improvement in bladder section continued to be demonstrated between first and third visit in the PFE only ( $p=0.003$ ) and PFE plus Salat exercises ( $p=0.001$ ).

At one month, only 20% (3/15) demonstrated improvement in EMG measurements in the PFE only group as compared to 60% (9/15) in PFE plus Salat group. At two months, 40% (6/15) in PFE group and 67% (10/15) in PFE plus Salat group showed improvement.

### Interpretation of results

There were significant progressive subjective and objective improvements for urinary symptoms as reflected by questionnaire scores and EMG measurements ( $p<0.05$ ) in both groups when comparing data obtained at baseline, one and two months. However, addition of Salat exercises to conventional pelvic floor exercises showed a more significant improvement for urinary symptoms.

### Concluding message

In summary, this preliminary study demonstrate a benefit in adding the slow moderate exercise adapted from Salat to the standard pelvic floor exercises for management of female urinary stress incontinence. Further work with a larger cohort and longer follow up period will need to be conducted to validate this assumption.

**Figure 1: Comparison of the total score value between visit 1 and visit 2 by group**

	Bladder section	Bowel section	Prolapse section	Sexual function section
	Visit1-Visit2	Visit1-Visit2	Visit1-Visit2	Visit1-Visit2
<b>PFE ONLY GROUP</b>				
Z	-1.998 <sup>b</sup>	-.378 <sup>b</sup>	.000 <sup>c</sup>	-1.000 <sup>b</sup>
Asymp. Sig. (2-tailed)	<b>.046</b>	.705	1.000	.317
<b>PFE &amp; SALAT GROUP</b>				
Z	-2.714 <sup>b</sup>	-.962 <sup>b</sup>	-1.342 <sup>b</sup>	.000 <sup>c</sup>
Asymp. Sig. (2-tailed)	<b>.007</b>	.336	.180	1.000

**Figure 2: Comparison of the total score value between visit 1 and visit 3 by group**

	<b>Bladder section</b>	<b>Bowel section</b>	<b>Prolapse section</b>	<b>Sexual function section</b>
	Visit1-Visit3	Visit1-Visit3	Visit1-Visit3	Visit1-Visit3
<b>PFE ONLY GROUP</b>				
Z	-2.956 <sup>b</sup>	-1.511 <sup>b</sup>	.000 <sup>c</sup>	-1.732 <sup>b</sup>
Asymp. Sig. (2-tailed)	<b>.003</b>	.131	1.000	.083
<b>PFE &amp; SALAT GROUP</b>				
Z	-3.188 <sup>b</sup>	-1.667 <sup>b</sup>	-1.633 <sup>b</sup>	-1.000 <sup>c</sup>
Asymp. Sig. (2-tailed)	<b>.001</b>	.096	.102	.317
a. Wilcoxon Signed Ranks Test				
b. Based on positive ranks.				
c. The sum of negative ranks equals the sum of positive ranks.				

#### References

1. Ibrahim, F. A. et al (2009). Science Salat: The benefit from science perspective. Kuala Lumpur: University of Malaya.
2. Fatimah Ibrahim, Tee Chee Sian, Kuppusamy Shanggar, Azad Hassan Razack. Muslim Prayer Movements as an Alternative Therapy in the Treatment of Erectile Dysfunction: a Preliminary Study Journal of Physical Therapy Science 2013;25(9):1087-91

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**Subjects:** HUMAN **Ethics Committee:** University Malaya Ethics Committee **Helsinki:** Yes **Informed Consent:** Yes