

## DIGITAL ASSESSMENT OF THE PELVIC FLOOR MUSCLE FUNCTION AND DYSFUNCTION: THE INTER- AND INTRA-OBSERVER RELIABILITY OF THE STANDARDIZATION OF TERMINOLOGY OF THE INTERNATIONAL CONTINENCE SOCIETY.

### Hypothesis / aims of study

Reliable assessment of pelvic floor muscle function (PFMF) is of great importance for both clinical and scientific purposes. Although many researchers do not consider vaginal palpation a sufficiently sensitive, reproducible and valid method for measuring PFM strength, this method is the most commonly used instrument that is used by doctors as well as physiotherapists (1). For measuring function, no reliable methods are available at the moment. The Pelvic Floor Clinical Assessment Group of the International Continence Society (ICS) produced new terminology on PFMF (2). Until now, this terminology was not tested and for that reason can not be used for research. Therefore, the aim of this study was to evaluate the inter- and intra-observer reproducibility of the digital assessment of PFM function, using the new standardisation of terminology of the ICS.

### Materials and methods and study design.

During a two months period, 23 patients and 18 healthy volunteers were invited to participate in this study. All participants received basic information on pelvic floor muscle function and an extensive explanation of the examination procedure. Patients and volunteers were eligible for participation if they met the following criteria: aged between 18 and 85 years, no degenerative neurological diseases and ability to co-operate (no dementia, sufficient knowledge of the Dutch language). Patients and volunteers were included in the study after completion the informed consent procedure. Two registered pelvic physiotherapists and one pelvic physiotherapy student, were trained in a new digital assessment protocol based on the standardisation of terminology of the PFMF of the ICS (2). A consensus on the new protocol including all standardized terminology of the ICS with a final conclusion was reached using the Delphi Technique in several rounds. Each patient or volunteer was examined four times in a random sequence. All examiners performed an assessment and after the third session the first examiner repeated the session. All investigators were blinded for the results. All findings were separately documented for each subject and each investigator. Agreement between examiners and between physical findings is reported using overall findings and agreements corrected for chance (Weighted Kappa). The statistical package of SPSS 11.0 was used.

### Results

In total of 41 women were examined. The median age was 43 years with a range from 22 to 63 years: 14 women were nulliparous (34.1%), 6 monoparous (14.6%) and 21 multiparous (43.9%). 23 women were symptomatic (56.1%). From this group 88.9 % was stress urinary incontinent, 27.8 % faecal incontinent and 50 % had urogenital prolapse complaints. In table I the overall findings of agreement and the Weighted Kappa are presented of the average of both inter and intra observer reliability of all three examiners. No significant differences were found between the PFMF assessment scores between the symptomatic and asymptomatic group.

Table I. Overall findings of agreement (Agr.%) and weighted Kappa's (Kw). \*) the Weighted Kappa measure (Kw) could not be calculated because to few differences were observed and scoring results were dichotomized.

	inter observer reliability			intra observer reliability		
	agr %	Kw	95 %CI	agr %	Kw	95 % CI
<b>Inspection</b>						
inward movement	100	*)	*)	100	*)	0
co-contraction visible	61	.52	0.34 - 0.69	73.2	.47	0.20 - 0.68
relaxation	97.6	.75	0.62 - 0.85	97.6	*)	0
perineal movement during coughing	44	.33	0.13 - 0.53	70.7	.54	0.28 - 0.72
perineal movement during straining	82.9	.013	0.14 - 0.22	90.2	.33	0.03 - 0.57
<b>Palpation</b>						
Pain	89.5	.85	0.76 - 0.91	85.4	.76	0.60 - 0.87
urethral lift	82.9	.08	*)	95.1	*)	0
levator closure	95.1	.77	0.61 - 0.87	92.7	.39	0.10 - 0.62

symmetry left right	62.5	.16	0.26 - 0.63	87.8	.64	0.42 - 0.79
symmetry anterior posterior	46.2	.10	*)	80.5	.68	0.46 - 0.82
voluntary contraction	56.1	.64	0.48 - 0.77	75.6	.67	0.46 - 0.81
endurance	36.6	.37	0.17 - 0.56	78	.76	0.59 - 0.86
fast twitch	39	.47	0.29 - 0.65	61	.60	0.36 - 0.76
voluntary relaxation	39	.17	*)	87.8	.76	0.59 - 0.86
<b>During coughing</b>						
involuntary contraction	46.3	.33	0.14 - 0.53	82.9	.65	0.48 - 0.80
movement perineum	76.9	.03	*)	95.1	.77	0.61 - 0.87
Incontinence	97.6	.75	0.62 - 0.85	97.6	*)	0
<b>During straining</b>						
relaxation	61	.15	*)	78	.60	0.35 - 0.76

#### Interpretation of results

Palpation of pain, voluntary contraction showed a reasonable Kw on both inter- and intra-observer reliability. Symmetry left/right, posterior/anterior, voluntary contraction, relaxation and movement of the perineum scored reasonable/high on intra-observer reliability but low on inter-observer reliability. This can be explained by the lack of significant differences in PFMF in the symptomatic and asymptomatic group.

#### Concluding message

The intra-observer reliability of the new introduced ICS standardisation of terminology on PFMF is high. The inter-observer reliability showed a high overall agreement but contrasting Kw. The non-significant differences in PFMF between the symptomatic and asymptomatic group could have influenced the results. A more specific definition of all scores is needed to implement this terminology.

#### References

1	Neurourology and Urodynamics 23:190-197 (2004)
2	Neurourology and Urodynamics 24: 374-380 (2005)

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**HUMAN SUBJECTS:** This study was approved by the Medical Ethical Committee Erasmus MC Rotterdam and followed the Declaration of Helsinki Informed consent was obtained from the patients.