

PELVIC FLOOR MUSCLE FUNCTION IN STRICTLY ASYMPTOMATIC PAROUS WOMEN AGED 45-85 YEARS AND ITS RELATION TO PELVIC ORGAN PROLAPSE.

Hypothesis / aims of study

The prevalence and distribution of pelvic floor muscle (PFM) function of asymptomatic women in a general population is largely unknown (1). The aim of this study is to describe the prevalence and distribution of the function of the PFM function in a general population of strictly asymptomatic parous women with the use of the new vaginal assessment method, according to the terminology of the Clinical Assessment Group of ICS to test PFM function and to provide normal values for this group. We included both conscious and unconscious movement of the PFM. In addition we studied the prevalence of POP and its possible relationship with PFM function. Approval was given by the Medical Ethical committee. All data were analysed with SPSS version 10.1.

Study design, materials and methods

A community-based cross-sectional research based on a survey and an additional physical examination was performed. The entire population of 2750 woman (age 45-85) of a small town was invited to fill in a questionnaire with different validated and unvalidated questionnaires on urinary incontinence (UDI, IIQ), Quality of life (Euroqol) and bowel disorders (fecal incontinence and constipation). A total of 1398 women consented (50%). 653 out of the 1398 woman were randomly selected and invited to participate in a physical examination. All subjects who answered positive on any item concerning pelvic floor dysfunction symptoms like urinary and fecal incontinence and/or prolapse complaints and nulliparous were excluded from this study. All women underwent the pelvic organ prolapse quantification system examination (POP-Q) in dorsal lithotomy position during maximal Valsalva. The examination of the PFM included a visual inspection of voluntary contraction (inward movement), counter action of the pelvic floor during coughing and the magnitude of extra PFM activity. During palpation we looked at the contraction force, the timely response of voluntary contraction, relaxation and the reflex contraction during coughing.

Results

After applying the exclusion criteria for this study the group was reduced from 653 to only 55 asymptomatic subjects (8.5%). Also the nulliparous (4) were excluded, so the asymptomatic parous group consisted of 51 females. The POPQ score in this study group was 17.6 % (9) with stage 0, 45.1 % (23) with stage 1, 25.5 % (13) with stage 2, 9.8 (5) with stage 3 or more, 1 score was incomplete. Overall during a voluntary contraction 35 % had co-contractions, 63.8 % an inward movement of the perineum, 60 % a vesical neck lift and 60 % closed the levator muscles. Table I demonstrates the coordinative (unconscious) aspects during a voluntary contraction and relaxation. Table II shows the distribution of PFM function in the different POP stages groups.

Table I. PFM coordination during voluntary contraction and voluntary relaxation and related to contraction force (data reported in %ages)

PFM function	Coordination of contraction			Coordination of relaxation			Force of Contraction		
	Firm	Gradually	Delayed	Full	Partial	Absent	Strong	Weak	Absent
	N=19	N=11	N=19	N=21	N=13	N=16	N=15	N=20	N=16
During voluntary contraction presence of									
Co-contractions	21,1	36,4	52,6	28,6	46,2	37,5	20,0	25,0	62,5
Inward movement perineum	94,4	80,0	29,4	80,0	72,7	33,3	100,0	83,3	12,5
Vesical Neck Lift	88,2	81,8	23,5	63,2	83,3	33,3	100,0	77,8	0,0
Closing Levator	88,9	72,7	25,0	65,0	75,0	35,7	100,0	72,2	12,5

During coughing									
Perineum descent	78,9	45,5	47,4	90,5	30,8	37,5	73,3	55,0	43,8
Increase of >1 stage of celes	52,6	18,2	26,3	57,1	23,1	12,5	40,0	35,0	25,0
Urine loss	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
Straining									
Caudal Movement	100,0	100,0	70,6	100,0	84,6	73,3	100,0	84,2	80,0

Table II. Distribution of PFM function in different POPQ stages in asymptomatic parous women (data reported in %ages)

PFM function	stage 0	stage 1	stage ≥ 2
	N=9	N=23	N=18
Force voluntary contraction			
Strong	33,3	47,8	5,6
Weak	55,6	26,1	44,4
Absent	11,1	26,1	50
With presence of			
Co-contractions	22,2	39,1	33,3
Inward movement of perineum	77,8	75	44,4
Vesical Neck Lift	77,8	66,7	41,2
Closing Levator	88,9	60	44,4
Voluntary Contraction Response			
Firm	37,5	47,8	29,4
Gradually	37,5	13	29,4
Delayed	25	39,1	41,2
Voluntary Relaxation Response			
Full	12,5	60,9	33,3
Partial	62,5	13	27,8
Absent	25	26,1	38,9
During coughing			
Perineum descent	11,1	69,6	61,1
Increase of >1 stage of celes	0	34,8	50
Urine loss	0	0	0
Straining			
Caudal Movement	88,9	90,5	88,2

Interpretation of results

Only 8 % of our research population was strictly asymptomatic. Even in this group 35 % had a POP stage 2 or more. It is a clear indication how widespread pelvic floor dysfunctions and pelvic organ prolapse are. We decided to report on a strictly asymptomatic group of women in order to provide "normal values" for this group. There is a difference between conscious and unconscious contractions of the PFM (2). We did not find a positive relationship between the quality of the conscious voluntary contraction and an effective unconscious reflex contraction during for instance coughing. In other words making decisions for pelvic floor treatment based on PFM contraction force alone seems not enough. Whether this dysfunction is cause or consequence for developing pelvic organ prolapse can not be answered, but will be necessary to study in future.

Concluding message

The number of strictly symptomatic women in a general population is surprisingly high. There is no significant relation between conscious and unconscious PFM contraction. During palpation it is important to look both on a voluntary contraction and relaxation as well as on coordinative aspects of the PFM function. Even in strictly asymptomatic women a POP stage 2 or 3 can be present.

References

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