

# Doctor's assessment and evaluation of the pelvic floor in antenatal and postpartum women: routine or???

#### Dr Barry O'Reilly Head of department of Urogynaecology Cork University Maternity Hospital Ireland





### BACKGROUND

 Pregnancy and childbirth are recognised as major aetiological factors in the subsequent development of Pelvic Floor Dysfunction (PFD)<sup>1,2</sup>

 However, the precise role of pre-pregnancy, antenatal and intrapartum events in the aetiology of PFD is poorly understood

•MacLennan AH et al. The prevalence of pelvic floor disorders and their relationship to gender, age, parity and mode of delivery. BJOG. 2000;107(12):1460-70.

•Casey BM et al. Obstetric antecedents for postpartum pelvic floor dysfunction. Am J Obstet Gynecol. 2005;192(5):1655-62.





### BACKGROUND

- Available evidence shows that vaginal delivery appears to be principal causative factor for pelvic floor trauma and dysfunction
- However it is unclear whether such trauma is clinically relevant, and if it has an impact on pelvic floor morbidity later in life
- Main risk factors are considered :
  - > operative vaginal delivery
  - Iong second stage
  - macrosomia





#### BACKGROUND

Considering the risk of PFD following childbirth, above mentioned symptoms are sometimes being cited as indications for elective caesarean section







## Topic 1

# Patient History The role of questionnaires (Pre-pregnancy and postnatal symptoms)





#### AIMS

• To identify the prevalence and risk factors for PFD in nullips

 To identify the group of the patients who might be at higher risk of having these complications





## **Population's demographics**

Age in years		Alcohol consumptio	n
17-24	11% <sup>1</sup>	No	19%
25-29	30%	Yes	81%
30-34	46%		
35-45	13%	Marital status	
		Partner	89%
BMI		No Partner	11%
Underweight	1%		
Normal	59%	Annual income	
Overweight	28%	<25 K	8%
Obese	12%	25-74 K	39%
		75-124 K	42%
Education		>124 K	11%
<12 years	88%		
>=12 years	12%	Mean values	
		*Age in years	30.02(4.45)
		*BMI	24.87(4.13)
Smoking			
Non smoking	73%	*Weight in kg.	67.53(12.07)
Smoking	27%		

<sup>1</sup> All values presented as number of cases and ( %) of total

\* Data presented as mean value and Standard Deviation (SD)





#### **METHODS**

- A prospective, longitudinal, cohort study (part of the SCOPE study)
- SCOPE (Screening for Pregnancy Endpoints) Ireland study is an international, multicenter study with the aim of developing predictive tests for adverse pregnancy outcome (PET, IUD, IUGR)
- 870 low risk, primiparous women recruited for the SCOPE were analyzed
- All participants completed the standardised, validated Australian Pelvic Floor Questionnaire<sup>1</sup> twice:
  - when recruited at 15 weeks' gestation
  - > one year post delivery

1. Australian pelvic floor questionnaire: a validated interviewer-administered pelvic floor questionnaire for routine clinic and research. Int Urogynecol J (2009) 20:149–158



Il these questions pertain		
	to the period BEFORE you w	vere pregnant
Bladder section Q 1-14		Score/42 =
Urinary frequency	Nocturia	Nocturnal enuresis
fow many times do you pass urine in the day? ) up to 7	How many times do you get up at night to pass urine? 0 0-1	Do you wet the bed before you wake up? 0 never
between 8-10	1 2	1 occasionally - less than 1/week
2 between 11-15	2 3 2 mm than 2 times	2 frequently -once or more/week
Urgency Do you need to msh/hurry to pass urine	Urge incontinence Does urine leak when you	Stress incontinence Do you bak with
when you get the urge?	rush/hurry to the toilet/Can you make it in time?	coughing, sneezing, laughing, exercising?
) never	0 never	0 never
2 frequently -> 1/week	2 frequently -> 1/week	2 frequently -> 1/week
3 daily	3 daily	3 daily
Weak stream	Incomplete bladder emptying	Strain to empty
) never	0 never	0 never
occasionally - < 1/week	1 occasionally - < 1/week	1 occasionally -< 1/week
2 frequently -≥ 1/week	2 frequently -≥ 1/week 3 daily	2 frequently -≥ 1/week 3 daily
Pad usage	Reduced fluid intake	Recurrent UTI
to you have to wear pads?	Do you limit your fluid intake to decrease leakage?	Do have frequent bladder infections?
as a precaution	0 never 1 before going out/socially	0 no 1 1-3/year
2 with exercise/during a cold	2 moderately	2 4-12/year
3 daily	3 daily	3 > 1/month
Dy suria Do you have pain in your bladder/urethra	Impact on social life Does urine leakage	How much of a bother is your bladder problem to you?
) never	0 not at all	0 no problem
l occasionally – < 1/week	1 slightly	1 slightly
2 frequently -> 1/week	2 moderately 3 greatly	2 moderately 3 greatly
Other symptoms (haematuria, pain etc.)	5 growiy	5 growy
Royal Section 015-26		Score / 36 =
Distance (15-20		
Iow often do you usually open your bowels?	How is the consistency of your usual steol?	Do you have to strain a lot to empty your bowels?
2 < 1/week	0 soft 0 firm	0 never
< every 3 days	1 hard / pebbles	1 occasionally $- < 1$ /week 2 frequently $> 1$ /week
) > more than 1/day	1 variable	3 daily
.axative use:	Do you feel constipated?	Flatus incontinence When you get
)o you use laxatives to empty your bowels? ) never	0 never	wind/flatus, can you control it or does wind leak? 0 never
occasionally - < 1/week	1 occasionally - < 1/week	1 occasionally -< 1/week
2 frequently $\ge 1$ /week	2 frequently $\ge 1$ /week	2 frequently $\ge$ 1/week
3 daily	3 daily	3 daily
ense of urgency to empty bowels?	Do you leak watery stool when you don't mean to?	Do you leak normal stool when you don't mean to?
) never	0 never	0 never
$\alpha$ occasionally – < 1/week	1 occasionally - < 1/week	1 occasionally $- < 1$ /week 2 frequently $> 1$ /week
2 neudentiv -> 1/week	∠ nequently -≥ n/week	∠ nequentity -> n/week





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Study	То	Predict	Pregnancy	Complicatio	ons

SCOPE IRELAND FEMALE PELVIC FLOOR QUESTIONNAIRE

SCOPE ID Number:			Date://	
This questionnai	re pertains to the peri	ic d approximatel	y 12 month after the birth	of your baby.
Are you curren	tly pregnant? Y	ES / NO.	f YES how many w	eeks?
Bladder section	Q 1-14		Score/	42 =

Urinary frequency	Nocturia	Nocturnal enuresis
How many times do you pass urine in the day?	How many times do you get up at night to pass urine?	Do you wet the bed before you wake up?
0 up to 7	0 0-1	0 never
1 between 8-10	1 2	1 occasionally - less than 1/week
2 between 11-15	2 3	2 frequently -once or more/week
3 more than 15	3 more than 3 times	3 always – every night
Urgency Do you need to rush/huny to pass urine when you get the urge?	Urge incontinence Does urine leak when you rush/hurry to the toilet/Can you make it in time?	Stress incontinence Do you leak with coughing, sneezing, laughing, exercising?
0 never	0 never	0 never
1 occasionally - < 1/week	1 occasionally - < 1/week	1 occasionally -< 1/week
2 frequently -> 1/week	2 frequently -> 1/week	2 frequently -> 1/week
3 daily	3 daily	3 daily
Weak stream	Incomplete bladder emptying	Strain to empty
Is your urinary stream/flow weak/prolonged/slow?	Do you have a feeling of incomplete bladder emptying?	Do you need to strain to empty your bladder?
0 never	0 never	0 never
1 occasionally - < 1/week	1 occasionally - < 1/week	1 occasionally - < 1/week
2 frequently -> 1/week	2 frequently -> 1/week	2 frequently -> 1/week
3 daily	3 daily	3 daily
Pad usage	Reduced fluid intake	Recurrent UTI
Do you have to wear pads?	Do you limit your fluid intake to decrease leakage?	Do have frequent bladder infections?
0 none - never	0 never	0 no
1 as a precaution	1 before going out/socially	1 1-3/year
2 with exercise/during a cold	2 moderately	2 4-12/year
3 daily	3 daily	3 > 1/month
Dysuria Do you have pain in your bladder/urethra	Impact on social life Does unine leakage	How much of a bother
when you empty your bladder?	affect your routine activities (recreation, shopping etc.)	in your bladder problem to you?
0 never	0 not at all	no problem
1 occasionally – < 1/week	1 slightly	slightly
2 frequently -≥ 1/week	2 moderately	2 moderately
3 daily	3 greatly	greatly
Other symptoms (haematuria, pain etc.)		

#### Bowel Section Q15-26

Score \_\_\_\_/ 36 = \_\_\_\_

Defaecation frequency	Consistency of bowel motion	Defaecation straining
How often do you usually open your bowels?	How is the consistency of your usual stool?	Do you have to strain a lot to empty your bowels?
2 < 1/week	0 soft 0 firm	0 never
1 < every 3 days	1 hard / pebbles	1 occasionally -< 1/week
0 > 3/week or daily	2 watery	2 frequently -≥ 1/week
0 > more than 1/day	1 variable	3 daily
Laxative use: Do you use laxatives to empty your bowels?	Do you feel constipated?	Flatus incontinence When you get wind/flatus, can you control it or does wind leak?
0 never	0 never	0 never
1 occasionally - < 1/week	1 occasionally - < 1/week	1 occasionally -< 1/week
2 frequently -> 1/week	2 frequently -≥ 1/week	2 frequently $\ge 1$ /week
3 daily	3 daily	3 daily
Faecal urgency Do you get an overwhelming sense of urgency to empty bowels?	Faecal incontinence with diarrhoea Do you leak watery stool when you don't mean to?	Faecal inc. with normal stool Do you leak normal stool when you don't mean to?
0 never	0 never	0 never
1 occasionally - < 1/week	1 occasionally - < 1/week	1 occasionally -< 1/week
2 frequently -> 1/week	2 frequently -≥ 1/week	2 frequently -> 1/week
3 daily	3 daily	3 daily

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Women, babies and their families are the centre of our service as we strive for excellence and innovation.





SCOPE IRELAND FEMALE PELVIC FLOOR QUESTION AIRE Incomplete bowel evacuation Do have the feeling of incomplete bowel emptying? Obstructed defecation How much of a bother is your bowel Do you use finger pressure to help empty your bowel? problem to you 0 no probler 0 never 0 never 1 occasionally - < 1/week 1 occasionally - < 1/week 1 slightly 2 frequently -> 1/week 2 frequently  $\ge 1$ /week 2 moderately 3 daily 3 daily 3 greatly Other symptoms (pain, mucous discharge, rectal prolapse etc.) **Prolapse section** Q27-31 Score \_\_\_\_/15 = \_\_\_\_\_ Prolapse sensation Do you get a sensation of tissue protrusion in your vagina/lump/bulging? Vaginal pressure or heaviness Do you experience vag. pressure/ heaviness/dragging sensation? Prolapse reduction to void Do you have to push back your prolapse in order to void? 0 never 0 never 0 never 1 occasionally - < 1/week 1 occasionally - < 1/week 1 occasionally - < 1/week 2 frequently  $\ge$  1/week 2 frequ week  $x_{1} \ge x_{2}$ ...y -≥ 3 daily 3 daily 3 dail Prolapse reduction to defaecate Do you How much of a bother is the prolapse to have to push back your prolapse to empty your bowels? you? 0 never 0 no roblem 1 occasionally - < 1/week 1 slightly 2 moderately 2 frequently -≥ 1/week 3 daily 3 greatly Other symptoms (problems sitting/walking, pain, vag. bleeding)

Sexual function Section Q 32 -

Score \_\_\_\_ / 19

Sexually active? Are you actually active? no < 1/week ≥ 1/week most days / daily	If NOT, why not: no partner partner unable vaginal dryness too painful Prolapse embarrassment Prolapse other	Sufficient lubrication Do you have sufficient habrication during intercourse? 1 no 0 yes
During intercourse vaginal sensation is: 3 none 3 painful 1 minimal 0 normal/pleasant	Vaginal laxity Doyon fed har your vagina is too loose or lax? 0 never 1 occasionally 2 frequently 3 always	Vaginal tightness/vaginismus Do you feel that your vagina is too tight? 0 never 1 occasionally 2 frequently 3 always
Dyspareunia Do yoe expeñence pain with intercourse: 0 never 1 occasionally 2 frequently 3 always How much of a bother are these sexual	Dyspareunia where Where does the pain occur no pain at the entrance of the vagina deep inside/ in the pelvis both Other symptoms (coital flatus or	Coital incontinence Do you leak unine during set? 0 never 1 occasionally 2 frequently 3 always
issues to you? Not applicable 0 no problem at all 1 slight problem 2 moderate protein 3 ereat problem	faecal incontinence, vaginismus etc.)	
TOTAL Pelvic floor Dysfunction S	CORE: Women babies and their families a we strive for excellence an	2 are the centre of our service ad innovation.



#### RESULTS

Prevalence of PFD at **Background prevalence** of PFD in Nonpregnant **1** Year postnatally **Nullips Primips** 1<sup>st</sup> Pregnancy **Persistent pre-natal De Novo onset PFD** onset PFD postnatally Postnatally (DNPFD) (PPPFD) **Total postnatal PFD** at 1 Year postnatally Ospideal Maithreachais





#### **URINARY SYMPTOMS**

	Pre-Pregnancy			Post	natally
	N	%		N	%
Urinary Frequency	192	26,5 %		147	20,2 %
Nocturia	112	15,5 %		65	8,9%
Nocturnal enuresis	2	0.3 %		4	0.5 %
Urgency	294	40,6 %		357	49,0%
Urge Incontinence	88	12.2 %	x 2.5	215	29.5 %
Stress incontinence	135	18,7%	x 2.3	321	44,0 %
Weak Stream	164	22,7%		1/1	23,5 %
Incompletre Bladder Emptying	167	23,1%		206	28,3 %
Strain to Empty	87	12,0 %		108	14,8 %
Pad Usage	46	6,4 %		102	14,0 %
Reduced Fluid Intake	33	4,6 %		44	6,0 %
Recurrent UTI	89	12,3 %		70	9,6 %
Dysuria	71	9,8%		58	8,0 %
Impact on Social Life	32	4,4	x 2	61	8,4 %
Bladder - How much of a bother	73	10,1 %	x 2	149	20,4 %





#### **FAECAL SYMPTOMS**

	Pre-P	regnancy	Postnatally		
	N	%	N	%	
Defaecation Frequency	126	17,5 %	95	13,0 %	
Consistency of Bowel Motion	374	51,9%	369	50,6 %	$\bigcap$
Defaecation Straining	428	59,2 %	447	61,4%	J
Laxative Use	56	7,7%	53	7,3 %	
Do You Feel Constipated	378	52,4%	343	47,1 %	$\bigcap$
Flatus incontinence	276	38,3 %	330	45,3 %	
Faecal Urgency	345	47,9%	395	54,2 %	J
Faecal Incontinence wth diarrhoea	31	4,3 %	57	7,8 %	
Faecal Inconinence with normal stool	5	0.7%	12	1,6 %	
Incomplete Bowel Evacuation	308	42,6%	307	42,4 %	
Obstructed Defaecation	42	5,8%	44	6,1%	
Bowel - How much of a bother	194	26,9%	173	23,9 %	$\square$





#### **SEXUAL SYMPTOMS**

	Pre-Pre	gnancy		Posti	natally	
	N	%		N	%	
Sexually active < 1/week	218	29,9%		6	0.8%	
Sexually active >= 1/week	412	56,4%		321	44,0 %	
Sexually active most days/daily	66	9,0%		321	44,0 %	
Sexually active / No	21	2,9%		38	5,2 %	
Sufficient lubrication	127	17,7%		173	24,4%	
Abnormal vaginal sensation during intercourse	89	12,4%	x 1.7	150	21,1%	
Vaginal Laxity	35	4,9%	x 4.2	148	20,6 %	
Vaginal tightness/vaginismus	187	26,2%		209	29,1%	
Dyspareunia	230	32,1%	x 1.3	305	42,7%	
Coital Incontinence	11	1,5%		35	4,9%	
Sexual Function - How much of a bother	67	9,3%	x 2.5	168	23,5 %	





#### **PROLAPSE SYMPTOMS**

	Pre-Pregnancy		Pre-Pregnancy		Postnatally	
	N	%		N	%	
Prolapse sensation	8	1,1%	x 6	47	6,5 %	
Vaginal Pressure or heaviness	24	3,3 %	x 3.5	81	11,2 %	
Prolapse reduction to void	3	0.4%	x 4.5	13	1,8%	
Prolapse reduction to defaecate	11	1,5 %		15	2,1%	
Prolapse - How much of a bother	7	1,0 %	x 4.0	29	4,0 %	





#### Persistence of prepregnancy PFD postnatally





# Postnatal persistence of prepregnancy symptoms

	Persistence rate		Persis	tent
			worse	ned
	%	Ν	%	Ν
Frequency	44,6%	103	8,7%	9
Nocturia	32,1%	44	9,1%	4
Urgency	74,2%	256	17,6%	45
Urge Incontinence	70,1%	75	32%	24
Stress Incontinence	82,6%	133	11,3%	15
	CA 00/	242		27
Flatus incontinence	64,8%	212	17,5%	3/
Fecal Incontinence with diarrhoea	36,1%	13	15,4%	2
Fecal Incontinence with solid stool	-	-	-	-
Obstructed Defecation	48,9%	23	13%	3
Declarace Connection	22.29/	2	F.0%/	1
Verinel Pressure or beauiness	22,2%	2	50%	1
Vaginal Pressure or neaviness	34,6%	9	33,3%	3
Prolapse reduction to void	100,0%	3	-	-
Prolapse reduction to defecate	20,0%	2	-	-
Vaginal Laxity	56.1%	23	4.4%	1
Vaginal Tightness/Vaginismus	52.3%	114	16.7%	_ 19
Dysnareunia	68.0%	181	14.9%	27





#### The structure of postnatal PFD





#### Mode of delivery & Risk Factors for PFD

#### Mode of delivery

SVD	272	37,3%
Kiwi	187	25,6%
Forceps	80	11,0%
CS	189	25,9%

<b>Risk Factors</b>	OR [ CI ]
Presence of prenatal symptoms	5.1 [3,28 - 7,86]
Young maternal age	2.4 [1.33 - 4.44]
Induction of labour	2.1 [1.01 - 4.48]
Use of epidural	1.5 [1.08 - 2,17]
Forceps delivery	1.4 [0.8 - 2.7]
Caesarean Section (p < 0.05)	OR 0.1(Urinary) OR 0.3 (Prolapse) OR 0.5 (Faecal)





- This study demonstrated a high prevalence of different types of PFD before pregnancy
- Majority of postnatal PFD in primiparous women have been present prior to first pregnancy
- Persistent PFD tends to be more severe than De Novo PFD
- Caesarean Section seems to be more protective against worsened persistent PFD compared to DeNovo

Emphasizes the importance of Pre-pregnancy PFD questionnaire





# Topic 2 Examination of Patient Prolapse investigation (POP-Q)



## **Grading** (Baden Walker +/- POP-Q)

- 1. First degree descent of the prolapsing part into the vagina but not as far as the introitus
- 2. Second degree prolapsing part reaches the introitus
- 3. Third degree prolapsing part lies outside the introitus
- 4. Fourth degree total prolapse of the organ (procidentia).

## Pelvic Organ Prolapse Quantification: POP-Q assessment



The pelvic organ prolapse quantification (POP-Q) exam is used to quantify, describe, and stage pelvic support.

- There are 6 points measured at the vagina with respect to the hymen.
- Points above the hymen are negative numbers; points below the hymen are positive numbers.
- All measurements except tvl are measured at maximum valsalva.

POP-Q Stagi	POP-Q Staging Criteria		
Stage 0	Aa, Ap, Ba, Bp = -3 cm and C or D $\leq$ - (tvl - 2) cm		
Stage I	Stage 0 criteria not met and leading edge $< -1$ cm		
Stage II	Leading edge $\ge$ -1 cm but $\le$ +1 cm		
Stage III	Leading edge $> +1$ cm but $< +$ (tvl $-2$ ) cm		
Stage IV	Leading edge $\ge$ + (tvl - 2) cm		

- Abdominal exam
- Genital examinat
  - 1. Examination in maneuvre)
    - Inspection of
      - An obviou
      - Stress inc
      - Signs of a
  - 1. Examination in
  - 2. Vaginal examir
  - 3. POPQ assesem



(Valsalva





#### Prolapse symptoms postnatally POP-Q + Scan confirmed

#### **POP-Q Staging**











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#### EDITORIAL

#### Steven Swift

#### Pelvic organ prolapse: is it time to define it?

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Pelvic organ prolapse is a disease that currently lacks a clinically relevant definition. Despite this, we spend over US \$1 billion annually in the United States treating it and it is the third most common indication listed for hysterectomy and the most common indication for hysterectomies in menopausal women [1]. For most practitioners, pelvic organ prolapse is something which they recognize when they see it and conversely recognize its absence, but they cannot define the point when a patient goes from normal support to pelvic organ prolapse. Despite this, researchers in the field of urogynecology (myself included) continue to report on surgical cure rates and epidemiologic risk factors for pelvic organ prolapse despite having no clear cut uniformly recognized definition for the disease. Could you imagine the state of affairs in cardiovascular research if hypertension was a vaguely defined entity whose definition was left up to the individual investigator (Fig. 1).

This is not to say that we have not tried to define the disease of pelvic organ prolapse, but the proposed definitions, to date, are either too vague or too specific and may not be clinically relevant. In 2001 the National Institutes of Health (NIH) convened a consensus conference on terminology for pelvic floor researchers and proposed a definition for pelvic organ prolapse. They defined prolapse as the leading edge of any vaginal segment being >/= -1 cm above the hymenal remnants (POPO stage II or greater) [2]. In 2002 the International Continence Society defined pelvic organ prolapse as the descent of one or more vaginal segments: the anterior, the posterior, and the apex of the vagina (cervix/uterus) or vault (cuff) after hysterectomy. Absence of prolapse is POPO stage 0 support and prolapse can be staged from stage I to stage IV using the POPO system [3]. Hence we have two definitions from two very august bodies of researchers on pelvic organ support defects, but neither is either correct or clinically relevant.

A definition for pelvic organ prolapse that, while not very specific, most clinicians could agree on, is an abnormal or disease state of the position of the vaginal walls and/or cervix. This definition, while accurate, is too vague, unless we can define abnormal and disease state. According to Dorland's Medical dictionary abnormal is: not normal; contrary to the usual structure, position, behavior or rule [4]. In addition, Dorland's defines disease as: any deviation from or interruption of the normal structure or function of any part, organ, or system of the body that is manifested by a characteristic set of signs and symptoms. So the question becomes do we have enough data to make statements as to what is normal pelvic organ support versus abnormal pelvic organ support and at what level of support do patients begin to experience the characteristics signs and symptoms of pelvic organ prolapse?

Currently there is a burgeoning body of literature regarding the distribution of pelvic organ support in various populations such that we can make some statements as to what is normal and therefore what is outside of normal [5, 6, 7, 8, 9]. These studies report that roughly 0.2-11% of patients have vaginal support at or beyond the hymenal remnants. In addition, several of these studies show a bell-shaped distribution of support with approximately 80-90% of women having stage I or II POPQ exams. In the three studies that employed the POPQ exam technique, over 35% of patients had POPQ stage II pelvic organ support (Fig. 1). Therefore, it can be said with some degree of confidence that only a small percent of the female population have the leading edge of their vaginal wall extending beyond the hymenal remnants, which therefore could be considered not normal from a strictly anatomic perspective.

The literature regarding symptoms of pelvic organ prolapse and how it correlates to pelvic organ support is somewhat confusing. About 10–15 years ago it was common knowledge that pelvic organ prolapse was



S. Swift

Department of Obstetrics and Gynecology, Medical University of South Carolina, 96 Jonathon Lucas St, Suite 634, Charleston, SC 29425, USA E-mail: swifts@musc.edu



## Topic 2

## Prolapse investigation (Collagen studies)





## **Collagen Quantification**







## **Beighton Hypermobility Score**

#### The Beighton score is calculated as follows:



Score one point if you can bend and place you hands flat on the floor without bending you knees.



Score one point for each elbow that will bend backwards.



Score one point for each thumb that will bend backwards to touch the forearm.



Score one point for each hand when you can bend the little finger back beyond 90°.

If you are able to perform all of above manouevres then you have a maximum score of 9 points.





## ELISA Collagen type III RESULTS



\* Mean value (Standard Deviation) for uterine prolapse only

### Difference 32 ηg/ml p = 0.013





### **Risk factors**

- Family history of uterine prolapse and cystocele
- Family history of varicose veins
- Personal history of varicose veins
- Personal history of Asthma
- Personal history of vertebral disk dislodgement





- This study demonstrated a high prevalence of different types of POP after one year post partum
- The majority of participants with prolapse were asymptomatic
- There is a link between the presence of uterine prolapse and collagen type 3 concentration
- Serum ELISA test can be a simple and acceptable test for collagen quantification





## Topic 2

## Prolapse investigation (2D – Transperineal scan)



#### **Transperineal scan technique**





### Prolapse quantification POP-Q vs. Ultrasound Scan

TablePrevalence of various types of POP on POPQ and 3D transperineal US assessment					(Nº 202)		
Prolapse	Cystocele		Re	ectocele	Uterine prolapse		
Presence	POP-Q*	3D-TpUS <sup>+</sup>	POP-Q*	3D-TpUS <sup>+</sup>	POP-Q <sup>‡</sup>	3D-TpUS <sup>+</sup>	
No	118(58.4%)	174(86.1%)	155(76.7%)	153(75.7%)	75(37%)	-	
Yes	84(41.6%)	28(13.9%)	47(23.3%)	49(24.3%)	127(63%)	-	
* Prolapse grade 2 only according to POPQ shown as prolapse present <sup>†</sup> Significant only prolapse according to Dietz et al. shown as prolapse present (Dietz et al <sup>17</sup> )							

<sup>‡</sup> Prolapse grade 1-2 according to POPQ shown as prolapse present (according Dietz et al <sup>14</sup>)





## Topic 3

## Pelvic muscles trauma investigation (3D – Transperineal scan)





## Transperineal scan: Biometry of pelvic hiatus







#### Results

- Levator Ani Muscle trauma present in 29% of participants
- Levator Hiatal Ballooning present in 32% of participants
- Clinically significant POP present in 62% of participants







Table : Correlation between ultrasound diagnosed LAM avulsion and various antenatal / intrapartum factors (n= 202)

Factors	Univariate analysis			Multivariate analysis		
	OR	CI (95%)	p=	OR	CI (95%)	p=
Use of Oxytocin in labour	1.8	(0.97-3.45)	0.063	0.7	(0-1.63)	0.435
Duration of 2nd stage of labour	1.01	(1.00-1.01)	0.003	1.01	(1.00-1.02)	0.019
Forceps delivery	4.5	(1.99-10.22)	<0.0001	4.9	(1.44-16.97)	0.011
Emergency CS	0.6	(0.47-1.63)	0.352			
Elective CS	0.7	(0.25-1.98)	0.507	0.4	(0.04-4.08)	0.450





• More than half of relatively young premenopausal primiparous women were shown to have some form of clinically significant POP at 1-4 years after their first delivery.

 One third showed some degree of LAM trauma, which is associated with the presence of POP and symptoms related to it in later life.





- Congenital factors seem to play little role in the aetiology of levator muscle trauma, whereas the main risk factor seems to be forceps delivery.
- Caesarean Section was demonstrated to be protective for presence of some symptoms.
- Avoidance of difficult vaginal deliveries may prevent severe pelvic floor trauma and associated symptoms.





## **Topic 4**

## **Identify Risk factors**





### **PFD in nullips: risk factors**

Table: Risk factors associated with various types of PFD in nulliparous women

Dick factors	Multivariate analysis			
RISK TACLOTS -	OR	[95% CI]	P=	
Urinary	dysfuncti	on		
Stress Urinary Incontinence				
Recurrent UTI	1.6	(1.09-2.31)	0.017	
Increased waist circumference	862.8	(99.61-7473.21)	<0.001	
Frequent moderate exercising	1.8	(1.3-2.39)	<0.001	
Diagnosed depression	2.1	(1.37-3.36)	0.001	
Urge Urinary Incontinence				
Higher family income	0.7	(0.5-0.98)	0.036	
Participant's birthweight <1500gm	15.9	(1.64-154.83)	0.017	
No current alcohol user	0.5	(0.27-0.96)	0.037	
Increased waist circumference	67	(5.14-873.9)	0.001	
Diagnosed depression	1.9	(1.11-3.16)	0.02	
Urinary Urgency				
Education < 12 years	1.5	(1.11-2.05)	0.009	
Recurrent UTI	1.5	(1.1-2.08)	0.01	
Current smoker	2.1	(1.37-3.07)	0.001	
Vigorous exercising	1.3	(1.06-1.67)	0.014	
Diagnosed depression	1.6	(1.1-2.45)	0.016	
Urinary dysfunction combined				
Married	0.7	(0.6-0.91)	0.005	
Education < 12 years	1.5	(1.17-2.03)	0.002	
Trade workers	1.3	(1.03-1.67)	0.03	
Recurrent UTI	2.5	(1.92-3.36)	<0.001	
Recent smoker (1-5 cigs.)	1.3	(1.02-1.78)	0.039	
Diagnosed depression	1.9	(1.28-2.68)	0.001	





## **PFD in nullips: risk factors**

Pick factors	Multivariate analysis			
	OR	[95% CI]	P=	
Fecal dys	function			
Flatus incontinence				
Student	2.3	(1.01-5.13)	0.046	
Fecal dysfunction combined				
Higher family income	1.2	(1.03-1.5)	0.022	
Diagnosed depression	2.1	(1.43-2.95)	<0.001	
Sexual dys	function			
Vaginal tightness				
Homekeeper	0.2	(0.05-0.96)	0.044	
Associate professional/technical	1.4	(1.08-1.93)	0.014	
Reduced sexual activity recently	1.5	(1.16-1.88)	0.001	
Poor social support	1.8	(1.2-2.8)	0.005	
Dyspareunia				
Immigrant 1st generation	1.7	(1.3-2.29)	<0.001	
Recurrent UTI	1.5	(1.08-2.12)	0.016	
Low BMI	2.7	(1.05-6.82)	0.039	
Vigorous exercising	2.2	(1.09-4.32)	0.028	
Diagnosed depression	1.6	(1.07-2.51)	0.024	
Poor social support	2.1	(1.24-3.61)	0.006	
Sexual dysfunction combined				
Education < 12 years	1.7	(1.3-2.29)	<0.001	
Homekeeper	0.3	(0.09-0.68)	0.006	
Low BMI	1.5	(1.2-1.77)	<0.001	
Working paid employment 10 hours	3.2	(1.06-9.63)	0.038	
Working paid employment 25 hours	4.2	(1.86-9.53)	0.001	
Working paid employment 80 hours	89.4	(5.08-1573.68)	0.002	
Vigorous exercising	2.1	(1.12-3.91)	0.02	
Poor social support	2.2	(1.3-3.72)	0.003	





## **PFD in primips: risk factors**

#### Table: Risk factors for various PFD symptoms in primiparas

Pick factors	N	Multivariate analysis			
	OR	CI (95%)	p=		
Urinary dysfunction					
Stress urinary incontinence					
Manual workers	24	(1.35-415.26)	0.03		
Office workers	5	(1.26-19.91)	0.022		
Recurrent UTIs	2	(1.28-3.1)	0.002		
Poor social support	1.6	(1.1-2.32)	0.015		
Stress urinary incontinence pre-pregn.	17	(6.21-46.99)	< 0.001		
Elective Caesarean Section	0.5	(0.24-0.94)	0.033		
Emergency Caesarean Section	0.3	(0.15-0.57)	< 0.001		
Induction of labour	1.7	(1.1-2.51)	0.016		
Urgency urinary incontinence					
Recurrent UTIs	1.9	(1.12-3.35)	0.019		
Smoking	1.8	(1.02-3.33)	0.042		
Urgency urinary incontinence pre-pregn.	17	(4.61-63.41)	< 0.001		
Fetal head circumference	1.3	(1.07-1.57)	0.008		
Vacuum delivery	0.5	(0.33-0.88)	0.013		
Urinary urgency					
History of miscarriage	2.8	(1.14-7.08)	0.025		
Urinary urgency pre-pregn.	27	(13.79-51.18)	< 0.001		
Induction of labour	1.6	(1.08-2.47)	0.021		
Bladder dysfunction combined					
High hip circumference	3	(1.16-7.7)	0.024		
Poor social support	3.3	(1.01-10.52)	0.049		
Bladder section score pre-pregn.	8.2	(5.47-12.28)	< 0.001		
Elective Caesarean Section	0.5	(0.29-0.89)	0.017		
Emergency Caesarean Section	0.4	(0.24-0.66)	<0.001		
Induction of labour	3.3	(1.01-10.98)	0.049		





## **PFD in primips: risk factors**

Table: Risk factors associated with various PFD symptoms					
Disk fastars	N	Multivariate analysis			
RISK TACLOFS	OR	CI (95%)	p=		
Fecal dys	function				
Flatus incontinence					
High hip circumference	1.6	(1.06-2.33)	0.024		
Flatus incontinence pre-pregn.	7.3	(3.69-14.28)	<0.001		
Induction of labour	2.7	(1.13-6.61)	0.026		
Fecal urgency					
Smoker (former) (1-5 a day)	0.2	(0.07-0.71)	0.011		
Faecal urgency pre-pregn.	43	(20.75-89.77)	<0.001		
Vacuum delivery	0.7	(0.48-0.99)	0.044		
Elective Caesarean Section	0.5	(0.28-0.73)	0.001		
Fecal dysfunction combined					
Bowel section score pre-pregn.	1.6	(1.39-1.76)	<0.001		
Diagnosed depression	2.4	(1.01-5.58)	0.046		





## **PFD in primips: risk factors**

Pick factors	Ν	Multivariate analysis				
	OR	CI (95%)	p=			
Sexual dysfunction						
Vaginal laxity						
Participant born preterm	3.4	(1.26-9.3)	0.016			
Diagnosed depression	0.2	(0.04-0.76)	0.02			
Poor social support	5.9	(2.21-15.83)	<0.001			
Vaginal laxity pre-pregn.	4.9	(2.27-10.5)	<0.001			
Emergency Caesarean Section	0.2	(0.07-0.46)	<0.001			
Vaginal tightness / vaginismus						
Higher sitting height	0.9	(0.85-0.97)	0.002			
Vigorous exercising	3.7	(1.34-10.28)	0.012			
Dyspareunia						
Smoking	3.9	(1.15-13.32)	0.029			
Higher gestation age at delivery	0.8	(0.74-0.97)	0.014			
Dyspareunia pre-pregn.	15	(5.17-41.3)	<0.001			
Sexual dysfunction combined						
Sexual section score pre-pregn.	9.1	(4.87-17.12)	<0.001			
Induction of labour	0.1	(0.05-0.47)	0.001			
Perineal tear grade 3	2.8	(1.15-7.03)	0.024			
Prolapse dysfu	nction					
Vaginal pressure or heaviness						
Forceps delivery	1.8	(0.96-3.25)	0.069			
Elective Caesarean Section	0.3	(0.12-0.83)	0.019			
Emergency Caesarean Section	0.2	(0.09-0.63)	0.004			
Episiotomy	2	(1.29-3.05)	0.002			
Prolapse section score postnatally						
Forceps delivery	8.3	(1.24-55.47)	0.029			





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CLINICAL OPINION

UR-CHOICE: can we provide mothers-to-be with information about the risk of future pelvic floor dysfunction?

Don Wilson • James Dornan • Ian Milsom • Robert Freeman

- U UI before pregnancy
- R Race/ethnicity
- C Child bearing started at what age?
- H Height (mother's height)
- O Overweight (weight of mother, BMI)
- I Inheritance (family history)
- C Children (number of children desired)
- E Estimated fetal weight

#### D. Wilson

Department of Obstetrics and Gynecology, Dunedin School of Medicine, University of Otago, Dunedin, New Zealand

#### J. Doman

Fetal Medicine, Queens University, Belfast, Northern Ireland, UK

#### L Milsom

Department of Obstetrios and Gynecology, Sahlgrenska Academy at Gothenburg University, Gothenburg, Sweden

#### R. Freeman (🖂)

Department of Obstetrics & Gynecology, Plymouth Hospitals NHS Trust, PL6 8AL Plymouth, UK e-mail: robert.freeman@nhs.net

#### R. Freeman

Urogynaecology, Plymouth University Peninsula Medical School, Plymouth, UK process itself. Even if the majority of women do not experience significant long-term pelvic floor dysfunction (PFD), we suggest that by trying to identify those mothers least susceptible to birth injury, we cannot only reassure the majority of mothers who are unlikely to encounter problems but also inform many mothers who are considering elective Caesarean delivery for no obvious obstetric cause that they are highly unlikely to come to any physical harm if they proceed to a natural birth.

Vaginal childbirth is probably the most important factor in the actiology of PFD [1] and results in the combination of some or all of the following conditions: urinary (UI) and faecal (FI) incontinence and pelvic organ prolapse (POP). PFD is very common, with >46 % [2] of women acknowledging having some form. Lifetime risk of such problems is even higher and reaches almost"epidemic proportions in later life" and is a common indication for surgery [2].



# The major risk factors for prepregnancy PFD are:

- 1. depression,
- 2. poor social support,
- 3. high BMI,
- 4. strenuous physical activity
- 5. recurrent UTI.

For postnatal PFD most significant risk factors are:

- 1. presence of similar symptoms pre-pregnancy
- 2. Induction of labour
- 3. 3<sup>rd</sup> degree perineal tear
- 4. high hip circumference
- 5. poor social support





- Apart from prolapse , SVD does not seem to increase the risk of PFD, where as CS is protective against majority PFD symptoms.
- Postnatal PFD in the majority of cases was associated with multiple prepregnancy symptoms, which confirms its multicompartment involvement and need for multilateral clinical investigations.





- An individual approach in selection of the mode of delivery is required in the group of patients with multiple risk factors prepregnancy.
- Further research is required to confirm how efficient avoidance of vaginal delivery is in the highlighted group, to prevent severe PFD.





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**Research Centre** 



Median Score (Interquartile Range)



#### Definition

#### **Pelvic Organ Prolapse (POP)**

Descent of a pelvic organ or structure into and sometimes outside the vagina