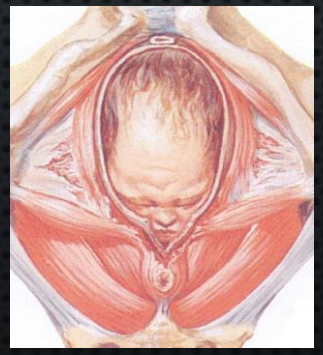
PREVENTING PELVIC FLOOR TRAUMA ?

PREVENTIVE MEASURES TESTED/EVALUATED DURING PREGNANCY

XAVIER FRITEL POITIERS - CIC 1402 - INSERM 1018

VLAD KALIS - CHARLES UNIVERSITY HOSPITAL, PILSEN



SMOKING (STOP)?

- SMOKING IS A RISK FACTOR FOR POSTNATAL UI (LE3)

➢ *NO TRIAL ABOUT THE EFFECT OF SMOKING STOP ON POSTNATAL UI PREVALENCE*

Urinary Incontinence in the 12-Month Postpartum Period

Kathryn L. Burgio, PhD, Halina Zyczynski, MD, Julie L. Locher, PhD, Holly E. Richter, PhD, MD, David T. Redden, PhD, and Kate Clark Wright

MATERNAL WEIGHT (CHANGE)?

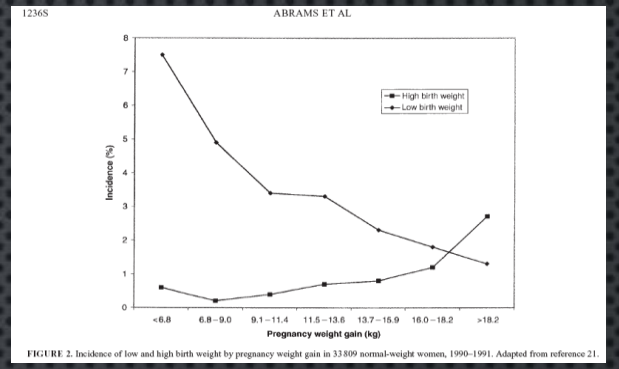
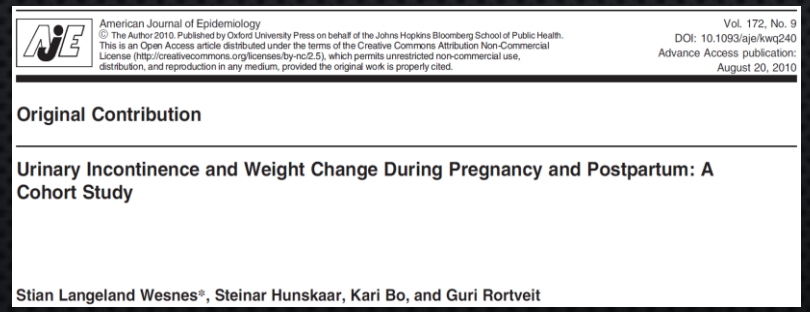


FIGURE 2. Incidence of low and high birth weight by pregnancy weight gain in 33 809 normal-weight women, 1990–1991. Adapted from reference 21.

- OVERWEIGHT IS A RISK FACTOR FOR UI (LE1) AND POP (LE3)
- OVERWEIGHT IS A RISK FACTOR FOR PREGNANCY UI (LE3)
- POSTPARTUM WEIGHT LOSS IS ASSOCIATED WITH POSTNATAL UI REMISSION (LE2)


American Journal of Epidemiology

Vol. 172, No. 9
DOI: 10.1093/aje/kwq240
Advance Access publication: August 20, 2010

Original Contribution

Urinary Incontinence and Weight Change During Pregnancy and Postpartum: A Cohort Study

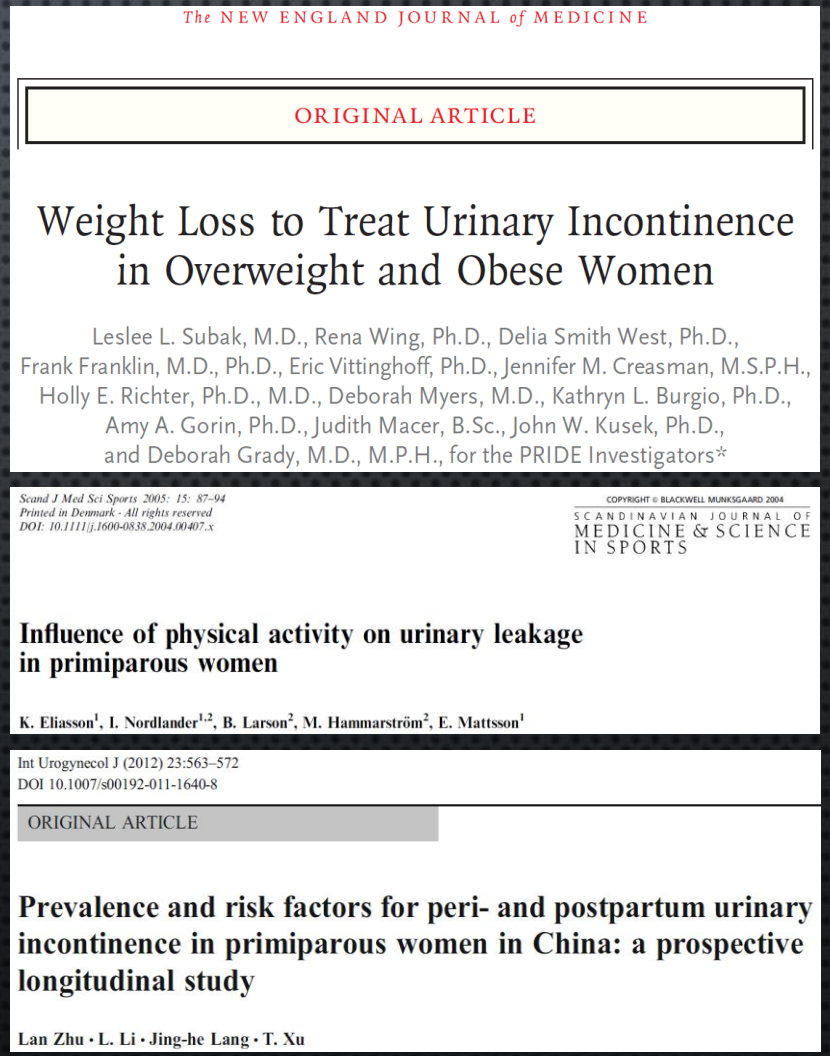
Stian Langeland Wesnes*, Steinar Hunskaar, Kari Bo, and Guri Rortveit

- MATERNAL WEIGHT GAIN DURING PREGNANCY IS CORRELATED WITH NEW-BORN WEIGHT (LE2)
- NEW-BORN MACROSOMIA IS A RISK FACTOR FOR OASIS, PUDENDAL INJURY, AND POSTNATAL AI (LE3)

➢ *THERE IS NO TRIAL ABOUT WEIGHT GAIN RESTRICTION DURING PREGNANCY AND PELVIC FLOOR DISORDERS*

PHYSICAL ACTIVITY?

- DIET & EXERCISE PROGRAM IMPROVE UI IN OVERWEIGHT WOMEN (LE1)
- HIGH IMPACT EXERCISES INCREASE UI RISK (LE3)
- EXERCISE (FREQUENT VS. OCCASIONALLY) IS A RISK FACTOR FOR POSTNATAL UI (LE3)



The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Weight Loss to Treat Urinary Incontinence in Overweight and Obese Women

Leslee L. Subak, M.D., Rena Wing, Ph.D., Delia Smith West, Ph.D., Frank Franklin, M.D., Ph.D., Eric Vittinghoff, Ph.D., Jennifer M. Creasman, M.S.P.H., Holly E. Richter, Ph.D., M.D., Deborah Myers, M.D., Kathryn L. Burgio, Ph.D., Amy A. Gorin, Ph.D., Judith Macer, B.Sc., John W. Kusek, Ph.D., and Deborah Grady, M.D., M.P.H., for the PRIDE Investigators*

Scand J Med Sci Sports 2005: 15: 87–94
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DOI: 10.1111/j.1600-0838.2004.00407.x

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SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE IN SPORTS

Influence of physical activity on urinary leakage in primiparous women

K. Eliasson[1], I. Nordlander[1,2], B. Larson[2], M. Hammarström[2], E. Mattsson[1]

Int Urogynecol J (2012) 23:563–572
DOI 10.1007/s00192-011-1640-8

ORIGINAL ARTICLE

Prevalence and risk factors for peri- and postpartum urinary incontinence in primiparous women in China: a prospective longitudinal study

Lan Zhu · L. Li · Jing-he Lang · T. Xu

PHYSICAL ACTIVITY?

- EXERCISE (INCLUDING PFMT) DURING PREGNANCY DO NOT REDUCE PREGNANCY OR POSTNATAL UI OR AI (LE1)

Intervention

Subjects in the exercise group were asked to participate in at least two out of three possible 1-hour aerobic fitness classes per week for at least 12 weeks. In addition to the structured classes, women randomised to the exercise group were encouraged to be physically active for at least 30 minutes per day and to increase their daily activity as much as possible (walk up and down stairs, walk to the shops, etc.). The 1-hour fitness class was an aerobic dance class to music, and comprised 5 minutes of warm-up, 35 minutes of low-impact aerobics (step training or simple floor choreography without any jumping or running) including cool-down, 15 minutes of strength training including PFMT, followed by 5 minutes of light stretches, breathing and relaxation exercises. The class

ELSEVIER

Physiotherapy

Physiotherapy 97 (2011) 190–195

Is pelvic floor muscle training effective when taught in a general fitness class in pregnancy? A randomised controlled trial☆

Kari Bø*, Lene Anette Hagen Haakstad

Number of women reporting urinary, flatus and anal incontinence before the intervention, after the intervention and 6 to 8 weeks post partum in the exercise and control groups.

	Urinary incontinence		Flatus		Anal incontinence	
Before the intervention						
Exercise ($n=52$)	14	$P=0.46$	15	$P=0.47$	0	
Control ($n=53$)	11		12		0	
After the intervention						
Exercise ($n=42$)	17	$P=0.82$	11	$P=0.61$	1	
Control ($n=42$)	16		9		1	
6 to 8 weeks post partum						
Exercise ($n=43$)	12	$P=0.99$	10	$P=0.46$	1	$P=0.62$
Control ($n=47$)	13		8		3	

PHYSICAL ACTIVITY?

- *EXERCISE (INCLUDING PFMT) DURING PREGNANCY REDUCE PREGNANCY UI BUT NOT FI (LE1)*

1 30–35 minutes of low-impact aerobics (no running or jumping). Step length and body rotations were reduced to a minimum, and crossing legs and sharp and sudden changes of position were avoided. The aerobic dance programme was performed at moderate intensity, defined as 13 and 14 on Borg's rating scale of perceived exertion.[18]

2 20–25 minutes of strength exercises, using body weight as resistance, including exercises for the upper and lower limbs, back extensors, deep abdominal muscles and PFMs. Three sets of ten repetitions of each exercise were performed.

3 5–10 minutes of light stretching, body awareness, breathing and relaxation exercises.

DOI: 10.1111/j.1471-0528.2012.03426.x
www.bjog.org
Maternal medicine

Does regular exercise including pelvic floor muscle training prevent urinary and anal incontinence during pregnancy? A randomised controlled trial

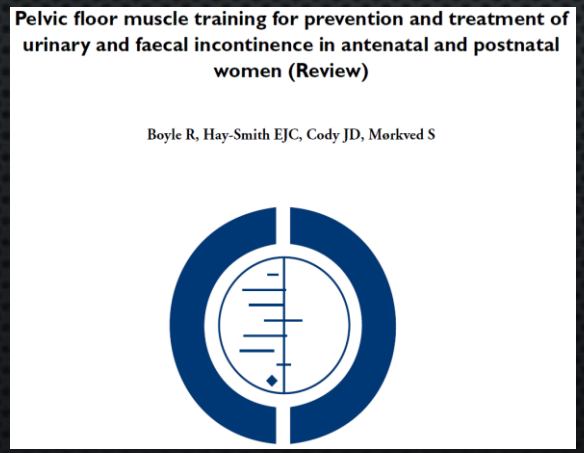
SN Stafne,[a,b] KÅ Salvesen,[c,d] PR Romundstad,[a] IH Torjusen,[e] S Mørkved,[a,b]

Table 2. Urinary incontinence (UI) at 32–36 weeks of gestation in the intervention group and control group, including women who did or did not report urinary leakage at inclusion

	Intervention group		Control group		Unadjusted for baseline			Adjusted for baseline		
	n = 397		*n* = 365							
	n	%	*n*	%	OR	95% CI	*P*-value	OR adjusted	95% CI	*P*-value
UI*	166	42	192	53	0.7	(0.5, 0.9)	0.004	0.6	(0.4, 0.9)	0.004
UI ≥ 1 time per week*	44	11	68	19	0.5	(0.4, 0.8)	0.004	0.5	(0.3, 0.8)	0.006
SUI**	102	28	128	37	0.7	(0.5,0.9)	0.01	0.7	(0.5, 0.9)	0.02
SUI ≥ 1 time per week**	25	7	45	13	0.5	(0.3, 0.8)	0.006	0.5	(0.3, 0.9)	0.03
UUI***	11	3	20	6	0.5	(0.2, 1)	0.06	0.4	(0.2, 0.9)	0.04
UUI ≥ 1 time per week***	0	0	3	1	1	(1, 1)	0.07	–	–	–
Faecal incontinence******	12	3	18	5	0.6	(0.3, 1.3)	0.18	0.6	(0.3, 1.4)	0.24
Flatal incontinence*******	136	35	124	35	1	(0.7, 1.4)	0.97	0.9	(0.7, 1.3)	0.73

PELVIC FLOOR MUSCLE TRAINING?

- ANTENATAL PFMT REDUCE POSTNATAL IU PREVALENCE BY 30% AT 3-6 MONTHS BUT NOT FURTHER (LE1)


Pelvic floor muscle training for prevention and treatment of urinary and faecal incontinence in antenatal and postnatal women (Review)

Boyle R, Hay-Smith EJC, Cody JD, Mørkved S

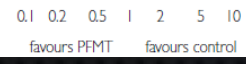
Analysis 1.3. Comparison 1 PFMT versus control for prevention of incontinence, Outcome 3 Urinary incontinence mid-postnatal period (3-6 months).

Review: Pelvic floor muscle training for prevention and treatment of urinary and faecal incontinence in antenatal and postnatal women

Comparison: 1 PFMT versus control for prevention of incontinence

Outcome: 3 Urinary incontinence mid-postnatal period (3-6 months)

Study or subgroup	PFMT n/N	Control n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Began supervised PFMT antenatally					
Gaier 2010	11/60	15/60		17.9 %	0.73 [0.37, 1.46]
M rkved 2003	9/94	13/99		15.1 %	0.73 [0.33, 1.63]
Reilly 2002	23/120	36/110		44.8 %	0.59 [0.37, 0.92]
Sampselle 1998	9/18	13/26		12.7 %	1.00 [0.55, 1.82]
Stothers 2002	7/43	8/43		9.5 %	0.88 [0.35, 2.20]
Subtotal (95% CI)	**335**	**338**		**100.0 %**	**0.71 [0.54, 0.95]**
Total events: 59 (PFMT), 85 (Control)					
Heterogeneity: Chi^2 = 2.13, df = 4 (P = 0.71); I^2 =0.0%					
Test for overall effect: Z = 2.30 (P = 0.021)					
2 Began supervised PFMT postnatally					
Subtotal (95% CI)	**0**	**0**		**0.0 %**	**0.0 [0.0, 0.0]**
Total events: 0 (PFMT), 0 (Control)					
Heterogeneity: not applicable					
Test for overall effect: not applicable					
Test for subgroup differences: Not applicable					



PELVIC FLOOR MUSCLE TRAINING?

- ANTENATAL PFMT DO NOT REDUCE POSTNATAL PELVIC FLOOR SYMPTOMS AT 12 MONTHS (LE1)

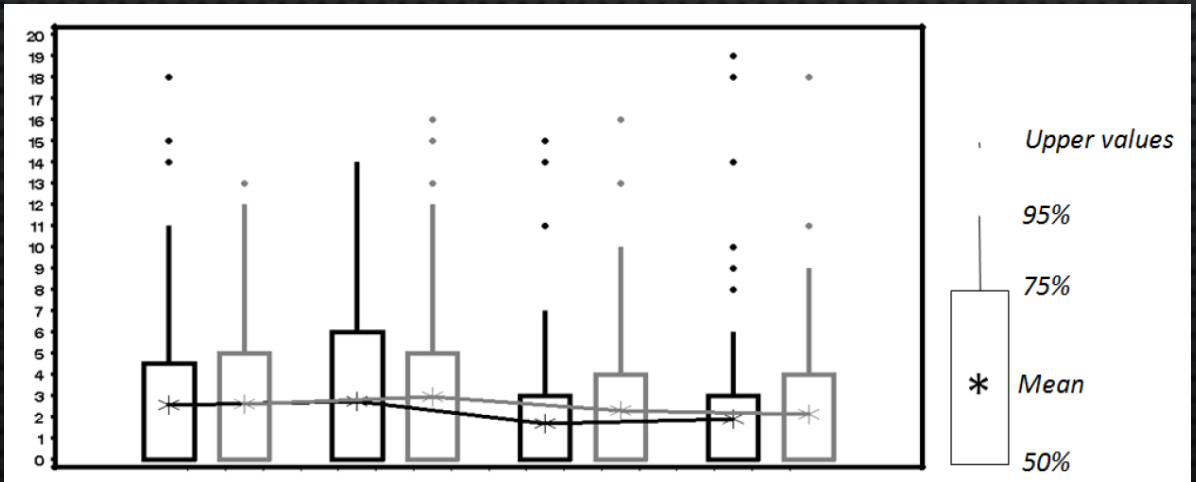


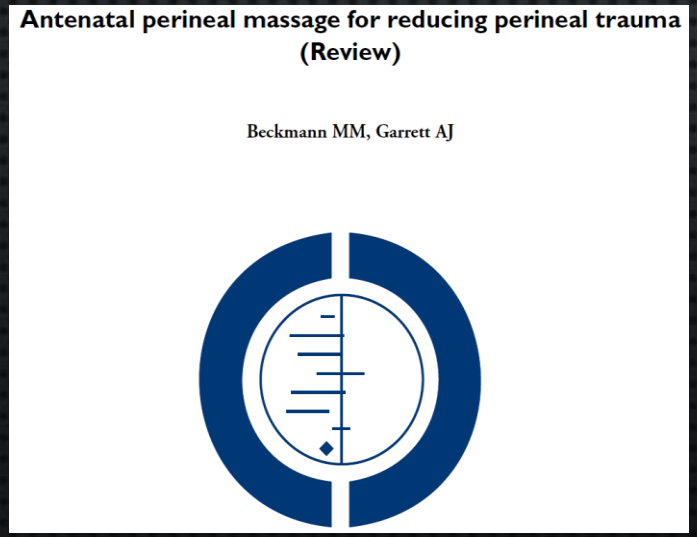
Table 2: Late pregnancy and postpartum results on urinary incontinence and quality of life. Intention to treat analysis. Chi square or Fisher exact test for qualitative variables; Wilcoxon test for continuous variables.

Randomisation groups	Physiotherapy	Control	
N	140	142	
Outcomes	% (n/N) or mean (sd; median; N)		P
	12 months postpartum		
UI (ICIQ-UI SF score>0) %	32.3 (30/93)	39.2 (38/97)	0.32
ICIQ-UI SF score	1.9 (3.7; 0; 93)	2.1 (3.3; 0; 97)	0.38
FPFQ bladder score	0.9 (1.1; 0.6; 94)	1.0 (1.1; 0.6; 97)	0.76
FPFQ bowel score	1.0 (1.0; 0.6; 94)	1.1 (1.0; 0.9; 97)	0.24
FPFQ prolapse score	0.4 (1.2; 0; 95)	0.4 (1.0; 0; 97)	0.78
Sexually active %	93.7 (89/95)	93.8 (91/97)	1.00
FPFQ sex score	2.4 (1.8; 0; 86)	2.7 (2.0; 0; 83)	0.36
Specific QoL (Contilife score)	9.5 (1.2; 9.9; 91)	9.5 (1.0; 9.9; 89)	0.07
Generic QoL (EuroQol-5D)	86.8 (13.1; 90; 94)	82.9 (14.8; 85; 97)	0.05
Additional postnatal PFMT %	54.3 (50/92)	62.9 (61/97)	0.23
Medical visits since delivery	3 (2.5; 2; 84)	3 (2.2; 2; 83)	0.48

PFMT: Pelvic Floor Muscle Training; ICIQ: International Consultation on Incontinence Questionnaire; UI: Urinary Incontinence; FPFQ : Female Pelvic floor Questionnaire; QoL: Quality of Life.

PRENATAL PERINEAL MASSAGE

- LESS EPISIOTOMY RR 0.84 (0.74-0.95)(LE1)
- NO EFFECT ON OASIS, UI, AI, AND SEXUAL SATISFACTION (LE1)



Analysis 1.3. Comparison 1 Digital perineal massage versus control: results by parity, Outcome 3 2nd degree perineal tear.

Review: Antenatal perineal massage for reducing perineal trauma

Comparison: 1 Digital perineal massage versus control: results by parity

Outcome: 3 2nd degree perineal tear

Study or subgroup	Treatment n/N	Control n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Women without previous vaginal birth					
Labrecque 1994	3/22	3/23		1.1 %	1.05 [0.24, 4.64]
Labrecque 1999	97/518	96/512		36.9 %	1.00 [0.77, 1.29]
Shimada 2005	9/30	8/33		2.9 %	1.24 [0.55, 2.79]
Shipman 1997	86/421	90/429		34.0 %	0.97 [0.75, 1.27]
Subtotal (95% CI)	**991**	**997**		**74.9 %**	**1.00 [0.84, 1.19]**
Total events: 195 (Treatment), 197 (Control)					
Heterogeneity: $Chi^2 = 0.31$, df = 3 (P = 0.96); I^2 =0.0%					
Test for overall effect: Z = 0.03 (P = 0.98)					
2 Women with previous vaginal birth					
Labrecque 1999	63/245	66/247		25.1 %	0.96 [0.72, 1.29]
Subtotal (95% CI)	**245**	**247**		**25.1 %**	**0.96 [0.72, 1.29]**
Total events: 63 (Treatment), 66 (Control)					
Heterogeneity: not applicable					
Test for overall effect: Z = 0.25 (P = 0.80)					
Total (95% CI)	**1236**	**1244**		**100.0 %**	**0.99 [0.85, 1.15]**
Total events: 258 (Treatment), 263 (Control)					
Heterogeneity: $Chi^2 = 0.35$, df = 4 (P = 0.99); I^2 =0.0%					
Test for overall effect: Z = 0.15 (P = 0.88)					

0.1 0.2 0.5 1 2 5 10

Favours treatment Favours control

PRENATAL PERINEAL MASSAGE

- NO EFFECT ON OASIS, EXTERNAL ANAL SPHINCTER DEFECT, OR LEVATOR ANI AVULSION FOR EPI-NO USE DURING PREGNANCY (LE1)

Dietz H P[1], Langer S[1], Kamisan Atan I[1], Shek K L[2], Caudwell-Hall J[1], Guzman Rojas R[3]
***1.** University of Sydney, **2.** University of Western Sydney, **3.** Clinica Alemana and Universidad del Desarrollo, Santiago*

DOES THE EPI-NO PREVENT PELVIC FLOOR TRAUMA? A MULTICENTRE RANDOMISED CONTROLLED TRIAL.

	Control (N=325)	Epi-No (N=335)	P value
Delivery mode Caesarean Normal vaginal delivery Ventouse Forceps	 75 (23%) 180 (55%) 47 (14%) 19(6%)	 77 (23%) 178 (53%) 50 (15%) 24(7%)	0.37
Syntocinon use	147 (45%)	151 (45%)	0.32
Use of intrapartum epidural	135 (42%)	147 (44%)	0.71
Length of 2nd stage (median, IQR)*	49 (16-104)	44 (12.5-98)	0.31
Neonatal birth weight (gram, SD)	3464 (413)	3434 (423)	0.37
Apgar score ≥7 at 1 minute	271 (83%)	275 (82%)	0.78
Apgar score ≥7 at 5 minute	293 (90%)	301 (90%)	0.33
Episiotomy (vaginal delivery)	66/246 (27%)	68/252 (27%)	0.99
Any perineal tear (vaginal delivery)	121/244 (50%)	126/249 (51%)	0.82
Major perineal tear (vaginal delivery)	13/244 (5%)	18/249 (7%)	0.39

	Control group (N=233)	Epi-No group (N=266)	Relative risk (95% CI)	P value
Levator avulsion	33/233 (14%)	31/266 (12%)	0.80 (0.47-1.35)	0.4
Significant microtrauma	30/233 (13%)	30/256 (12%)	0.86 (0.50-1.48)	0.58
Significant EAS defect	34/230 (15%)	56/258 (22%)	1.60 (1.00-2.56)	0.05
Any trauma	83/230 (36%)	97/258 (38%)	1.07 (0.74-1.54)	0.73

CONCLUSION
DURING PREGNANCY

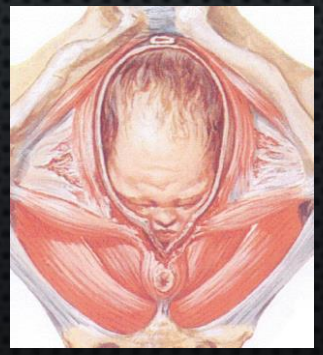
- RESULTS OF INTERVENTION DURING PREGNANCY DESIGNED TO AVOID OR REDUCE PELVIC FLOOR TRAUMA DURING DELIVERY ARE QUITE DISAPPOINTING

PREVENTING PELVIC FLOOR TRAUMA ?

PREVENTIVE MEASURES TESTED/EVALUATED DURING DELIVERY

XAVIER FRITEL POITIERS - CIC 1402 - INSERM 1018

VLAD KALIS - CHARLES UNIVERSITY HOSPITAL, PILSEN



EPISIOTOMY?

- *"WHY NOT OPEN THE GATES AND CLOSE THEM AFTER THE PROCESSION HAS PASSED?"*
  {POMEROY. SHALL WE CUT AND RECONSTRUCT THE PERINEUM FOR EVERY PRIMIPARA? AM J OBSTET DIS WOMEN CHILD 1918}

SHALL WE CUT AND RECONSTRUCT THE PERINEUM FOR EVERY PRIMIPARA?*

BY

RALPH H. POMEROY, M. D., F. A. C. S.,

Associate Professor of Obstetrics and Gynecology, Long Island College Hospital; Visiting Gynecologist and Obstetrician, Brooklyn Hospital, Brooklyn, N. Y.

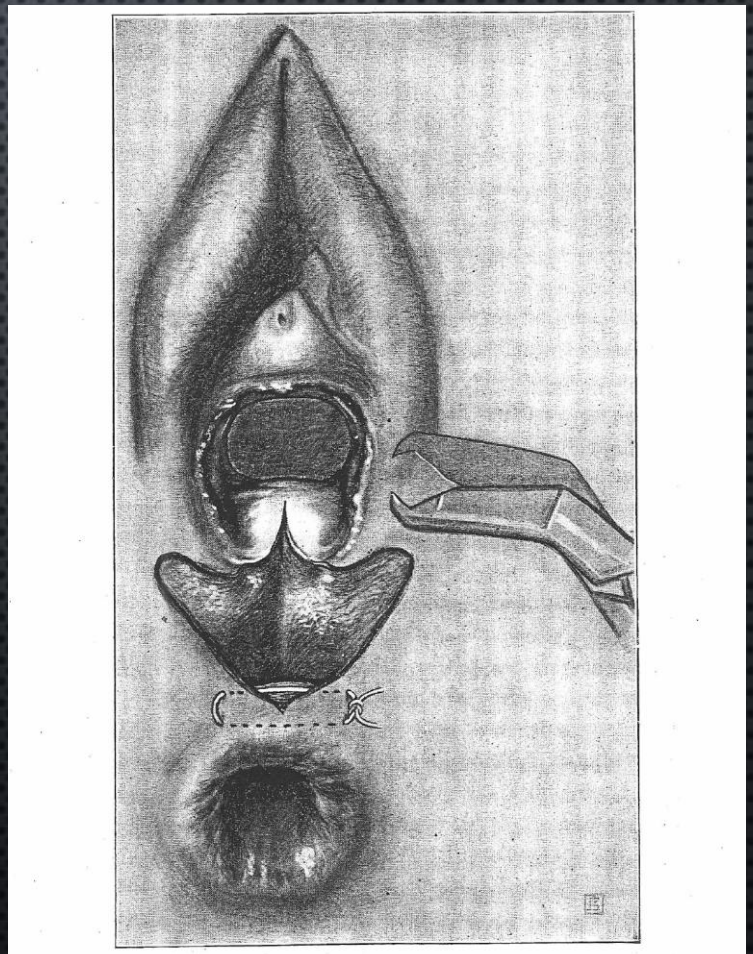


FIG. 1.—Median perinectomy; stretched sphincter; guardian mattress suture.

EPISIOTOMY?

Episiotomy for vaginal birth (Review)

Carroli G, Mignini L

THE COCHRANE COLLABORATION®

- RESTRICTIVE USE VERSUS ROUTINE
- NO MORE OASIS(LE1)
- LESS ANTERIOR TRAUMA, RR 1.84 [1.61-2.10] (LE1)

Episiotomy: a form of genital mutilation

Sir—In his 'Sketches from *The Lancet*' (April 24, p 1453)[1] Peter Kandela describes how over 130 years ago *The Lancet* played a part in turning support away from one form of female genital mutilation in the UK—clitoridectomy. Hopefully, you can play a part in turning support away from another form of female genital mutilation which is widespread in the UK today—episiotomy.

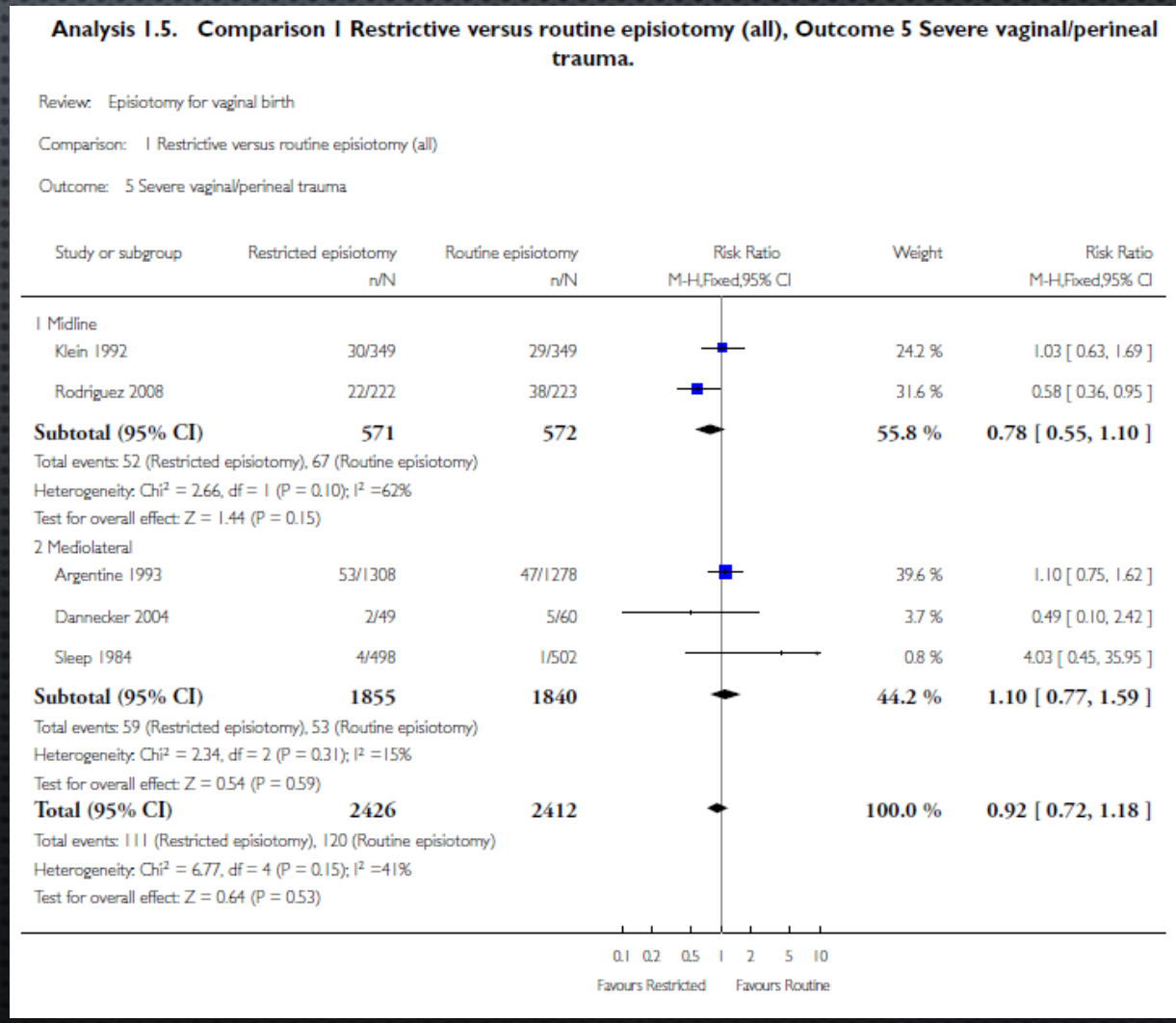
Analysis 1.5. Comparison 1 Restrictive versus routine episiotomy (all), Outcome 5 Severe vaginal/perineal trauma.

Review: Episiotomy for vaginal birth

Comparison: 1 Restrictive versus routine episiotomy (all)

Outcome: 5 Severe vaginal/perineal trauma

Study or subgroup	Restricted episiotomy n/N	Routine episiotomy n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
1 Midline					
Klein 1992	30/349	29/349		24.2 %	1.03 [0.63, 1.69]
Rodriguez 2008	22/222	38/223		31.6 %	0.58 [0.36, 0.95]
Subtotal (95% CI)	**571**	**572**		**55.8 %**	**0.78 [0.55, 1.10]**
Total events: 52 (Restricted episiotomy), 67 (Routine episiotomy)					
Heterogeneity: Chi² = 2.66, df = 1 (P = 0.10); I² =62%					
Test for overall effect: Z = 1.44 (P = 0.15)					
2 Mediolateral					
Argentine 1993	53/1308	47/1278		39.6 %	1.10 [0.75, 1.62]
Dannecker 2004	2/49	5/60		3.7 %	0.49 [0.10, 2.42]
Sleep 1984	4/498	1/502		0.8 %	4.03 [0.45, 35.95]
Subtotal (95% CI)	**1855**	**1840**		**44.2 %**	**1.10 [0.77, 1.59]**
Total events: 59 (Restricted episiotomy), 53 (Routine episiotomy)					
Heterogeneity: Chi² = 2.34, df = 2 (P = 0.31); I² =15%					
Test for overall effect: Z = 0.54 (P = 0.59)					
Total (95% CI)	**2426**	**2412**		**100.0 %**	**0.92 [0.72, 1.18]**
Total events: 111 (Restricted episiotomy), 120 (Routine episiotomy)					
Heterogeneity: Chi² = 6.77, df = 4 (P = 0.15); I² =41%					
Test for overall effect: Z = 0.64 (P = 0.53)					



EPISIOTOMY?

- A POLICY OF ROUTINE EPISIOTOMY DOES NOT PROTECT AGAINST URINARY OR ANAL INCONTINENCE 4 YEARS AFTER FIRST DELIVERY (LE2)

DOI: 10.1111/j.1471-0528.2007.01540.x
www.blackwellpublishing.com/bjog

Urogynaecology

Pelvic floor disorders 4 years after first delivery: a comparative study of restrictive versus systematic episiotomy

X Fritel,[a] JP Schaal,[b] A Fauconnier,[c] V Bertrand,[b] C Levet,[a] A Pigné[a]

Table 2. Pelvic floor disorders in 627 women 4 years after delivery according to episiotomy (bivariate analysis, chi-square test)

Pelvic floor disorders 4 years after first delivery	Maternity A, restrictive episiotomy, *n* (%)	Maternity B, routine episiotomy, *n* (%)	*P*
UI			
No	231 (74)	207 (68)	0.09
Yes	82 (26)	99 (32)	
UI type (% among women with UI)			
Stress	24 (29)	31 (31)	0.67
Urge	6 (7)	6 (6)	
Mixed	51 (62)	58 (59)	
UI severity (Sandvik score)			
Dry	231 (74)	207 (68)	0.45
Slight	48 (15)	62 (20)	
Moderate	21 (7)	21 (7)	
Severe	8 (3)	8 (3)	
UI bothersome (% among women with UI)			
Not a problem	7 (9)	17 (18)	0.33
A bit of a problem	53 (67)	54 (56)	
Quite a problem	12 (15)	15 (16)	
A serious problem	7 (9)	10 (10)	
Urgency			
Never	133 (43)	114 (38)	0.22
Occasionally	102 (33)	116 (39)	
Sometimes	54 (17)	57 (19)	
Often or all of the time	23 (7)	14 (5)	
Difficult voiding			
Never	224 (71)	217 (72)	0.32
Occasionally	44 (14)	52 (17)	
Sometimes	37 (12)	24 (8)	
Often or all of the time	9 (3)	7 (2)	
Perineal pain			
No	291 (94)	272 (92)	0.26
Yes	17 (6)	23 (8)	
Pain during intercourse			
No intercourse	7 (2)	9 (3)	0.45
No pain	247 (80)	225 (76)	
Yes	54 (18)	62 (21)	
Anal incontinence			
No	276 (89)	249 (84)	0.04
Yes	33 (11)	49 (16)	
AI bothersome (% among women with AI)			
Not a problem	0 (0)	1 (2)	0.65
A bit of a problem	14 (42)	22 (45)	
Quite a problem	7 (21)	6 (12)	
A serious problem	12 (36)	18 (37)	
AI type			
Flatus only	24 (8)	40 (13)	0.02
Stool	9 (3)	9 (3)	0.94

UI, urinary incontinence; AI, anal incontinence.

EPISIOTOMY AND FORCEPS?

DOI: 10.1111/j.1471-0528.2007.01554.x
www.blackwellpublishing.com/bjog

Mediolateral episiotomy reduces the risk for anal sphincter injury during operative vaginal delivery

JW de Leeuw,[a] C de Wit,[a] JPJA Kuijken,[a] HW Bruinse,[b]

- MEDIOLATERAL EPISIOTOMY MAY REDUCE OASIS RISK (LE3)

Table 3. Risk factors for anal sphincter lesions during forceps deliveries

Risk factor	Present	%	Relative risk	Logistic regression Adjusted OR (95% CI)
Fetal birthweight per 500 g increase				1.26 (1.11–1.40)
Duration of second stage per 15 minutes increase				NS
Parity				
Multiparity	60/1070	5.60	1	
Primiparity	288/6408	4.49	0.80	1.43 (1.05–1.96)
Fetal position				
Occipitoanterior	289/6893	4.19	1	
Occipitoposterior	38/354	10.73	2.56	3.06 (2.08–4.50)
Other positions	21/231	8.79	2.10	2.44 (1.44–4.14)
Induction of labour				
No induction	283/5914	5.06	1	
Induced labour	65/1564	4.49	0.89	NS
Episiotomy				
No episiotomy	168/739	22.73	1	
Mediolateral	173/6657	2.60	0.12	0.08 (0.07–0.11)
Midline	7/82	8.54	0.42	0.28 (0.13–0.63)

WHEN, TYPE, ANGLE, DEEP OF EPISIOTOMY?

DOI: 10.1111/j.1471-0528.2011.03268.x
www.bjog.org

Review article

Classification of episiotomy: towards a standardisation of terminology

V Kalis,[a] K Laine,[b] JW de Leeuw,[c] KM Ismail,[d] DG Tincello[e]

Table 1. Types and characteristics of episiotomies

Type of episiotomy	Origin of the initial incision	Direction of the cut
Median (midline)	Within 3 mm of the midline in the posterior fourchette	Between 0° and 25° of the sagittal plane
Modified median	Within 3 mm of the midline in the posterior fourchette	Between 0° and 25° of the sagittal plane, with two transverse cuts on each side added
'J' shaped	Within 3 mm of the midline in the posterior fourchette	At first midline, then 'J' is directed towards the ischial tuberosity
Mediolateral	Within 3 mm of the midline in the posterior fourchette	Directed laterally at an angle of at least 60° from the midline towards the ischial tuberosity
Lateral	More than 10 mm from the midline in the posterior fourchette	Laterally towards the ischial tuberosity
Radical lateral (Schuchardt incision)	More than 10 mm from the midline	Laterally towards the ischial tuberosity and around the rectum
Anterior	Midline	Midline, directed towards the pubis

Figure 1. Types of episiotomy. 1: median episiotomy, 2: modified median episiotomy, 3: 'J'-shaped episiotomy, 4: mediolateral episiotomy, 5: lateral episiotomy, 6: radical lateral (Schuchardt incision), 7: anterior episiotomy (white arrow). There are currently no international standards as to whether episiotomy ought to be incised on the right or the left side (median episiotomy excluded). This picture serves for a comparison of the locations of different types of episiotomy. The right side for the 'J'-shaped, mediolateral and lateral episiotomies and the left side for radical lateral episiotomy were simply chosen at random.

WHEN, TYPE, ANGLE, DEEP OF EPISIOTOMY?

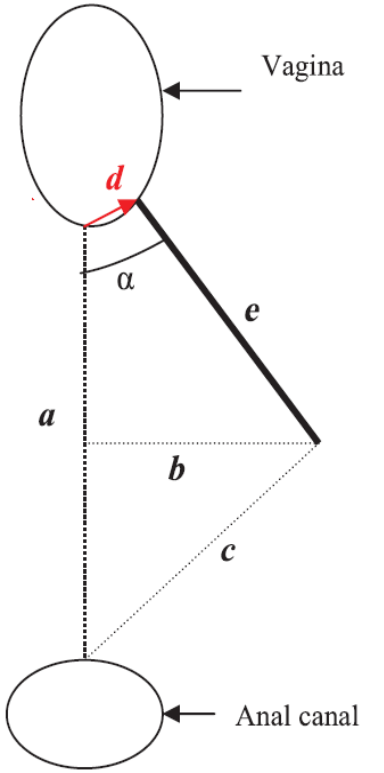


Figure 1. Adapted from Andrews et al.[17] which illustrates the measurements taken. *a* = line drawn from the posterior fourchette to the outer edge of the anal epithelium; *b* = episiotomy depth, a line from the caudal end of the episiotomy bisecting line '*a*' perpendicularly; *c* = the shortest distance from the caudal end of the episiotomy to the anterior outer edge of the anal epithelium; *d* = line from the posterior fourchette to the point of episiotomy incision and *e* = episiotomy length.

DOI: 10.1111/j.1471-0528.2012.03293.x
www.bjog.org
General obstetrics

Episiotomy characteristics and risks for obstetric anal sphincter injuries: a case-control study

M Stedenfeldt,[a,b] J Pirhonen,[a] E Blix,[c,d] T Wilsgaard,[e] B Vonen[b,f], P Øian[b,g]

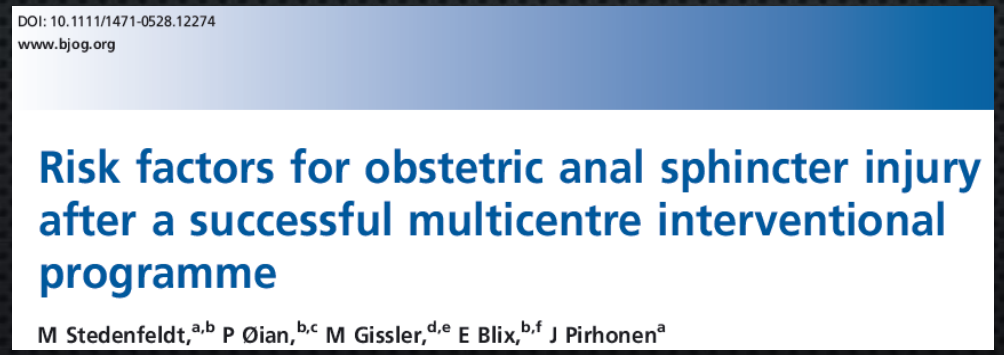
Table 2. Odds ratio of sustaining obstetric anal sphincter rupture based on the characteristics of the episiotomy*

Characteristics	Cases (*n* = 37) OASIS**	Controls (*n* = 37) No OASIS**	OR (95% CI)	OR adjusted for birthweight (95% CI)	*P* value
Distance of perineal body (*a*) (mm)***	27 (8) 21–31	24 (6) 20–26	1.36 (0.85–2.19)	1.20 (0.70–2.07)	0.51
Episiotomy depth (*b*) (mm)***	11 (5) 8–13	16 (6) 13–20	0.30 (0.14–0.66)	0.27 (0.10–0.72)	0.01
Distance from caudal end of episiotomy to anal canal (*c*) (mm)***	26 (9) 21–34	25 (9) 19–32	1.06 (0.65–1.72)	1.04 (0.58–1.86)	0.90
Distance from midpoint of posterior fourchette to incision point of episiotomy (*d*) (mm)***	6 (4) 4–9	9 (5) 6–12	0.44 (0.23–0.86)	0.43 (0.20–0.95)	0.04
Length of episiotomy (*e*) (mm)***	13 (5) 8–16	17 (6) 12–21	0.25 (0.10–0.61)	0.23 (0.08–0.66)	0.01
Angle of episiotomy***	43 (29) 25–55	43 (19) 26–51	1.00 (0.58–1.76)	1.05 (0.54–2.04)	0.90
Angle of episiotomy <15 or >60°****	14 (38%)	6 (12%)	9.00 (1.1–71.0)	9.19 (1.07–78.50)	0.04

*Conditional logistic regression; women in the case and control groups are matched for instrumental delivery.
**The values are mean (standard deviation) and interquartile range.
***Odds ratio per standard deviation of the independent variable.
****Odds ratio of OASIS for value very narrow/wide angle versus angles ranged from 15 to 60°.

SECOND PHASE TEACHING?

- TEACHING PROGRAM INCLUDING
  - MANUAL PERINEUM SUPPORT
  - MEDIOLATERAL (40-60°) EPISIOTOMY INDICATED IF RISK FACTORS


DOI: 10.1111/1471-0528.12274
www.bjog.org

Risk factors for obstetric anal sphincter injury after a successful multicentre interventional programme

M Stedenfeldt,[a,b] P Øian,[b,c] M Gissler,[d,e] E Blix,[b,f] J Pirhonen[a]

- *SHOW A 2 FOLD DECREASE IN OASIS INCIDENCE,* OR 0.41 [0.36–0.46] *(LE2)*
- *DESPITE AN INCREASED EPISIOTOMY USE (24% AFTER VS. 14% BEFORE)*

POSITION?

- IN THE UPRIGHT GROUP:
  - A SIGNIFICANT REDUCTION IN ASSISTED DELIVERIES RR 0.78 [0.68-0.90] (LE1)
  - A REDUCTION IN EPISIOTOMIES RR 0.79 [0.70-0.90] (LE1)
  - AN INCREASE IN SECOND DEGREE PERINEAL TEARS RR 1.35 [1.20-1.51] (LE1)
  - NO SIGNIFICANT EFFECT ON OASIS (LE1)
  - NO DATA ABOUT SYMPTOMS

Position in the second stage of labour for women without epidural anaesthesia (Review)

Gupta JK, Hofmeyr GJ, Shehmar M

Analysis 1.7. Comparison 1 Any upright versus supine position, Outcome 7 Third/fourth degree tears.

Review: Position in the second stage of labour for women without epidural anaesthesia

Comparison: 1 Any upright versus supine position

Outcome: 7 Third/fourth degree tears

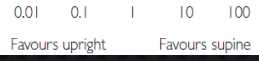
Study or subgroup	Upright n/N	Supine n/N	Risk Ratio M-H,Fixed,95% CI	Weight	Risk Ratio M-H,Fixed,95% CI
Allahbadia 1992	3/100	1/100		8.8 %	3.00 [0.32, 28.35]
Bhardwaj 1994	2/294	2/323		16.8 %	1.10 [0.16, 7.75]
de Jong 1997	0/257	1/260		13.2 %	0.34 [0.01, 8.24]
Gardosi 1989b	0/73	2/78		21.4 %	0.21 [0.01, 4.37]
Nasir 2007	0/100	4/100		39.8 %	0.11 [0.01, 2.04]
Total (95% CI)	**824**	**861**		**100.0 %**	**0.58 [0.22, 1.52]**

Total events: 5 (Upright), 10 (Supine)

Heterogeneity: Chi?? = 4.23, df = 4 (P = 0.38); I?? =5%

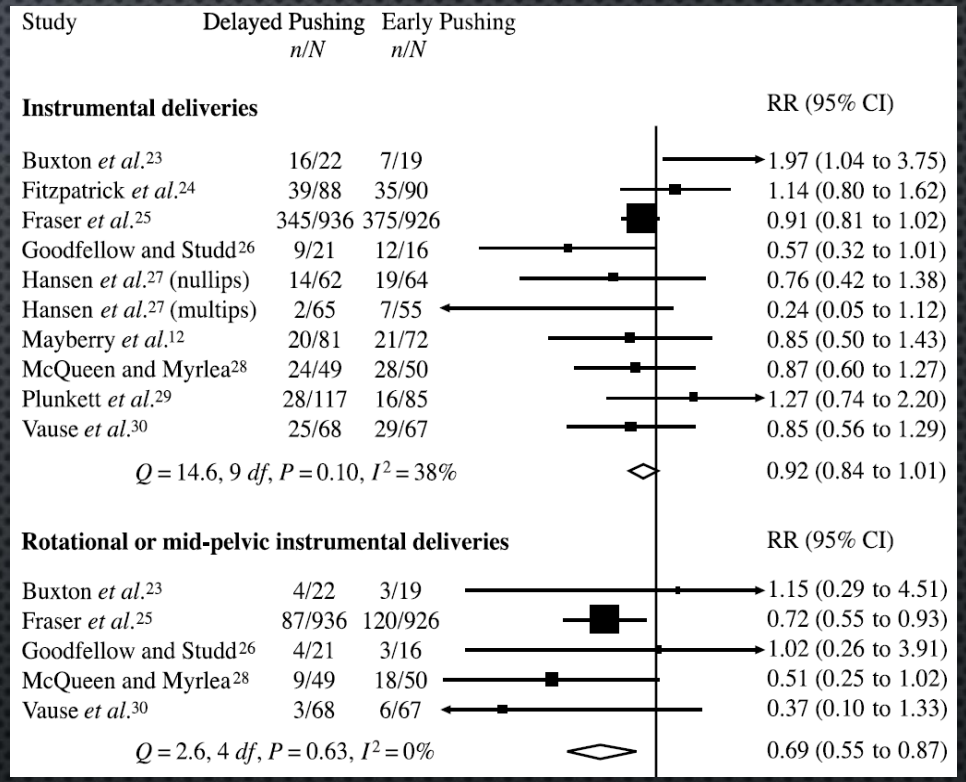
Test for overall effect: Z = 1.10 (P = 0.27)

Test for subgroup differences: Not applicable



WAIT OR PUSH?

- DELAYED VERSUS EARLY PUSHING
  - ➢ LESS ROTATIONAL OR MID-PELVIC INSTRUMENTAL DELIVERIES (LE1)
  - ➢ NO SIGNIFICANT EFFECT ON FI (LE1)



BJOG: an International Journal of Obstetrics and Gynaecology
December 2004, Vol. 111, pp. 1333–1340
DOI: 10.1111/j.1471-0528.2004.00282.x

REVIEW

Delayed *versus* early pushing in women with epidural analgesia: a systematic review and meta-analysis

Outcome	Studies*	No. of subjects	Statistical measure (model type†)	Effect size (95% CI)
Maternal and delivery outcomes				
Duration of second stage (minutes)	12,23,27	446	WMD (Random)	58.2 (21.51 to 94.84)
Duration of pushing (minutes)	23,27	293	WMD (Random)	1.11 (−20.19 to 22.40)
Episiotomy	23–25,30	2209	RR (Fixed)	0.97 (0.88 to 1.06)
Perineal laceration	12,24,25,29,30	2530	RR (Fixed)	0.90 (0.70 to 1.17)
Postpartum haemorrhage	25,29,30	2199	RR (Fixed)	1.04 (0.86 to 1.26)
Intrapartum maternal fever	25,29	2064	RR (Random)	1.36 (0.68 to 2.73)
Postpartum maternal fever	25	1862	RR (Fixed)	0.91 (0.33 to 1.96)
Dyspareunia at 3 months postpartum	24	162	RR (Fixed)	1.15 (0.63 to 2.10)
Faecal incontinence at 3 months postpartum	24	178	RR (Fixed)	1.47 (0.94 to 2.29)
Maternal satisfaction with labour care	24	178	RR (Fixed)	0.97 (0.82 to 1.13)

PRENATAL LEARNING ABOUT PUSHING?

- PRENATAL TRAINING OF SPONTANEOUS PUSHING HAVE NO EFFECTS ON POSTNATAL UI (LE1)

1. Directed pushing, or coached pushing using a closed glottis Valsalva maneuver, which was routine care provided at the recruitment hospital.
2. Spontaneous pushing, with instruction provided prenatally via a standardized training video. This method included instructing the woman to follow her bodily sensations and push as she felt the urge.
3. Prenatal perineal massage initiated in the third trimester with a standardized training regarding its use and then directed pushing during second-stage labor.
4. Combination of group 2 and 3 treatment, with spontaneous pushing plus perineal massage.

Int Urogynecol J (2013) 24:453–460
DOI 10.1007/s00192-012-1884-y

ORIGINAL ARTICLE

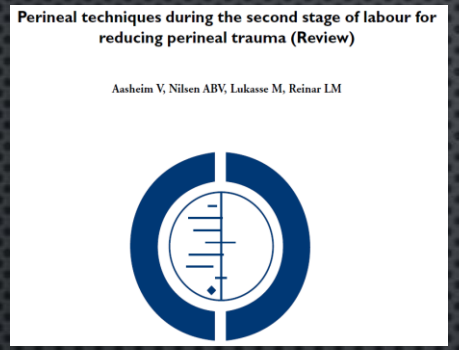
Spontaneous pushing to prevent postpartum urinary incontinence: a randomized, controlled trial

Lisa Kane Low · Janis M. Miller · Ying Guo · James A. Ashton-Miller · John O. L. DeLancey · Carolyn M. Sampselle

Table 3 Comparison of change in urine leakage between baseline and 12 months postpartum in patients randomized to the four treatment groups (N=145)

	Assigned treatment condition				
	Directed pushing (N=39)	Perineal massage (N=32)	Spontaneous pushing (N=34)	Spontaneous pushing and perineal massage (N=40)	P value
Leakage Index					
Baseline	1.27±1.87	0.97±1.85	0.88±1.25	1.15±1.61	
12 months	2.17±2.5	0.97±1.65	1.20±1.76	1.41±2.01	
Change (final, baseline)	0.84±1.94	0	0.35±1.95	0.13±1.55	0.57

PERPARTUM PERINEAL MASSAGE?



- ↓ Less OASIS RR 0.52 [0,29-0,94] (LE1)
- No effect on UI, AI, pain, or dyspareunia (LE1)

Analysis 3.1. Comparison 3 Massage versus control (hands off or care as usual), Outcome 1 3^{rd} or 4^{th} degree tears.

Review: Perineal techniques during the second stage of labour for reducing perineal trauma

Comparison: 3 Massage versus control (hands off or care as usual)

Outcome: 1 3^{rd} or 4^{th} degree tears

Study or subgroup	Massage n/N	Control n/N	Risk Ratio M-H,Random,95% CI	Weight	Risk Ratio M-H,Random,95% CI
Albers 2005	5/403	6/404		25.2 %	0.84 [0.26, 2.72]
Stamp 2001	12/708	24/632		74.8 %	0.45 [0.23, 0.89]
Total (95% CI)	**1111**	**1036**		**100.0 %**	**0.52 [0.29, 0.94]**

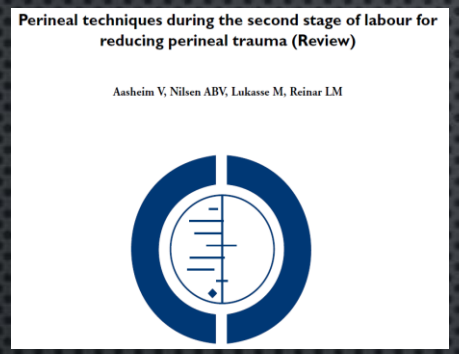
Total events: 17 (Massage), 30 (Control)

Heterogeneity: Tau?? = 0.0; Chi?? = 0.81, df = 1 (P = 0.37); I?? =0.0%

Test for overall effect: Z = 2.15 (P = 0.032)

Test for subgroup differences: Not applicable

PERPARTUM PERINEAL WARM PACKS?



- ↓ LESS OASIS RR 0.48 [0,28-0,84] (LE1)
- LESS POSTNATAL UI (LE1) {DAHLEN BIRTH 2007}

Analysis 2.1. Comparison 2 Warm compresses versus control (hands off or no warm compress), Outcome 1 3^{rd} or 4^{th} degree tears.

Review: Perineal techniques during the second stage of labour for reducing perineal trauma

Comparison: 2 Warm compresses versus control (hands off or no warm compress)

Outcome: 1 3^{rd} or 4^{th} degree tears

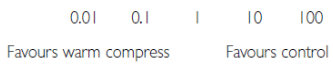
Study or subgroup	Warm compress n/N	Control n/N	Risk Ratio M-H,Random,95% CI	Weight	Risk Ratio M-H,Random,95% CI
Albers 2005	3/404	6/404		15.9 %	0.50 [0.13, 1.99]
Dahlen 2007	15/360	31/357		84.1 %	0.48 [0.26, 0.87]
Total (95% CI)	**764**	**761**		**100.0 %**	**0.48 [0.28, 0.84]**

Total events: 18 (Warm compress), 37 (Control)

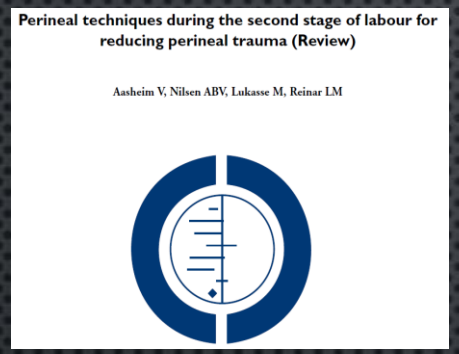
Heterogeneity: Tau?? = 0.0; Chi?? = 0.00, df = 1 (P = 0.96); I?? =0.0%

Test for overall effect: Z = 2.60 (P = 0.0094)

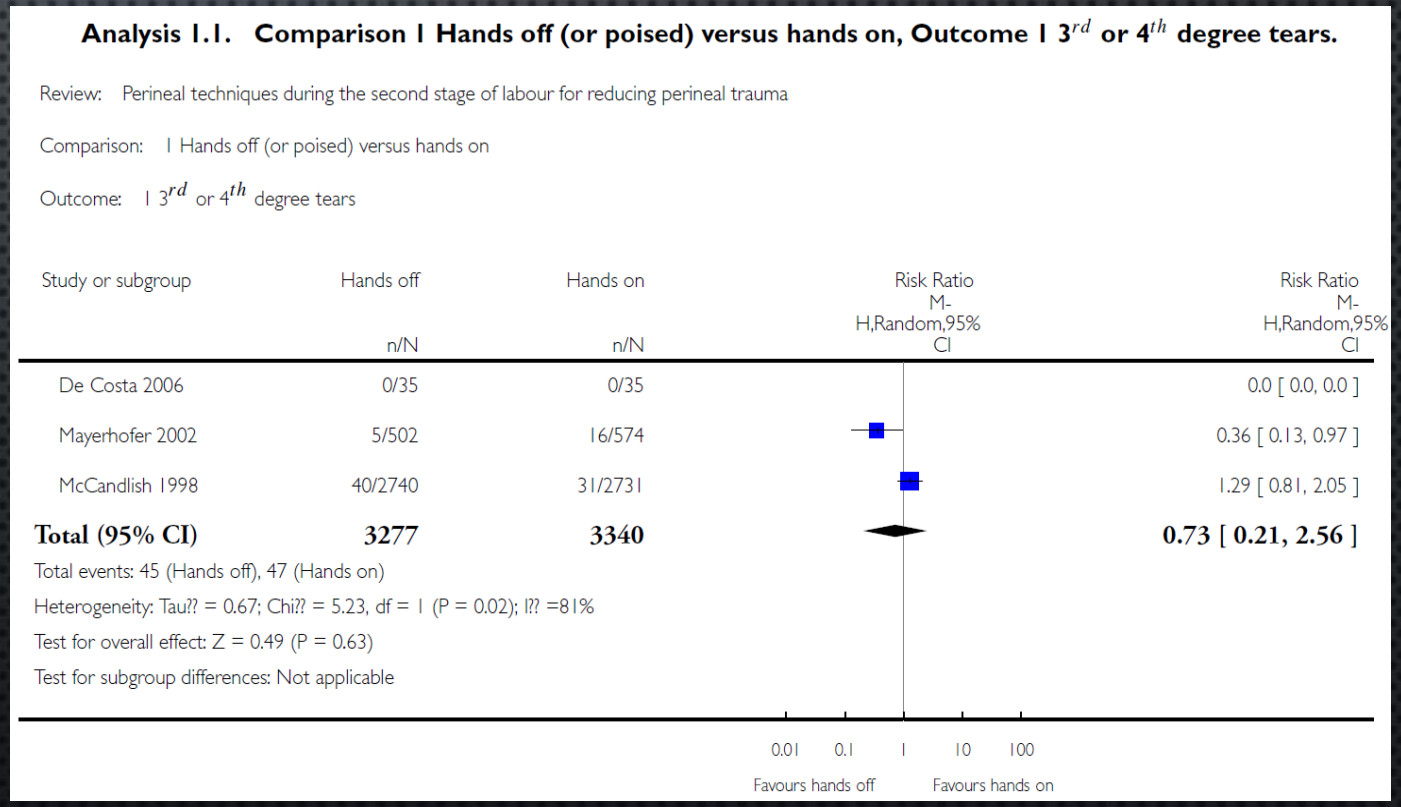
Test for subgroup differences: Not applicable



HANDS ON THE PERINEUM?



- HANDS OFF VERSUS ON:
  - LESS EPISIOTOMY RR 0.69 [0.50-0.96] (LE1)
  - NO EFFECT ON OASIS (LE1)
  - NO EFFECT ON UI, AI, OR DYSPAREUNIA (LE1)



RITGEN'S MANOEUVRE?

Modified Ritgen's Maneuver for Anal Sphincter Injury at Delivery

A Randomized Controlled Trial

Eva Rubin Jönsson, Ibtesam Elfaghi, MD, Håkan Rydhström, MD, PhD, and Andreas Herbst, MD, PhD

- ONE RCT DIDN'T FIND ANY EFFECT ON OASIS (LE1)
- ONE LEARNING PROGRAM FOUND A 2 FOLD DECREASE (LE2)

BMJ open accessible medical research

Incidence of obstetric anal sphincter injuries after training to protect the perineum: cohort study

Katariina Laine,[1,2] Finn Egil Skjeldestad,[3] Leiv Sandvik,[4] Anne Cathrine Staff[5]

Fig. 1. The hands-on technique to control delivery of the head used in the study.

Laine. Anal Sphincter Rupture. Obstet Gynecol 2008.

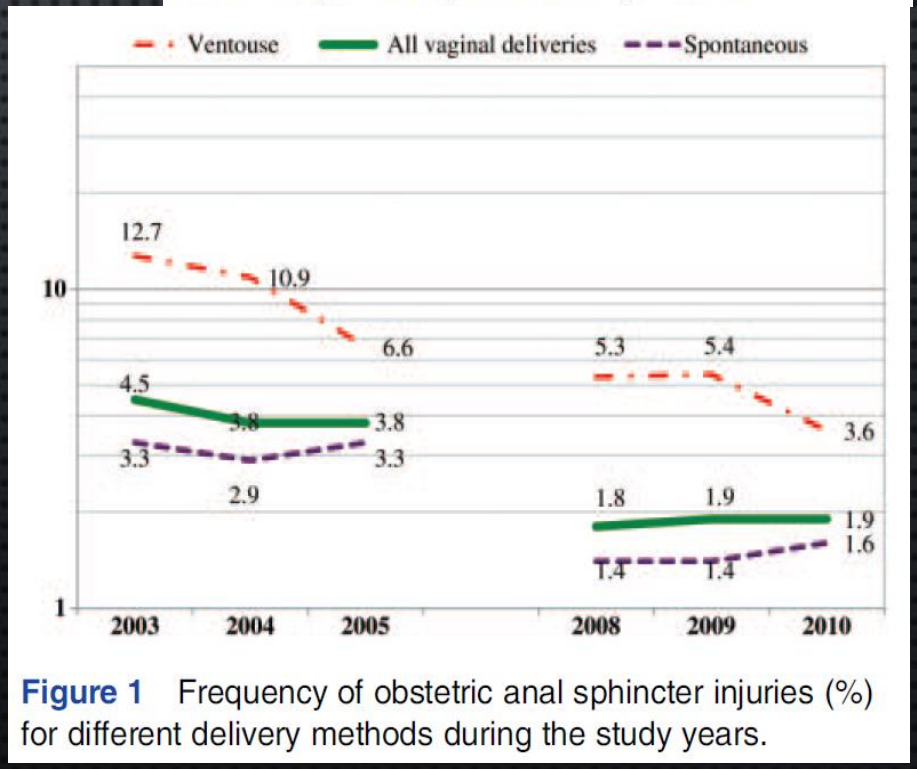


Figure 1 Frequency of obstetric anal sphincter injuries (%) for different delivery methods during the study years.

CAESAREAN SECTION?

- ↓ Less postnatal SUI OR 0.6 [0.4-0.9] (LE3) {Wesnes BJOG 2009; Press Birth 2007}
- No effect on UI prevalence after 50 years (LE3) {Rortveit NEJM 2003, Fritel BJOG 2007}
- ↓ Less UI surgery OR 0.2 [0.1-0.3] (LE3) {Persson Obst Gyn 2000}
- ↓ Less POP OR 0.2 [0.2-0.2] (LE3) {Larsson AmJOG 2009}
- No effect on AI or dyspareunia (LE3) {Nelson DCR 2006, Pretlove BJOG 2008}

CESAREAN SECTION?

- NO DIFFERENCE ABOUT SUI, FI, OR DYSPAREUNIA (LE1) {HANNAH AMJOG 2004}

American Journal of Obstetrics and Gynecology (2004) 191, 917–27

ELSEVIER

AMERICAN JOURNAL of OBSTETRICS and GYNECOLOGY

www.elsevier.com/locate/ajog

Maternal outcomes at 2 years after planned cesarean section versus planned vaginal birth for breech presentation at term: The international randomized Term Breech Trial

	Planned CS n = 457 n (%)			Planned VB n = 460 n (%)				
Outcome	CS n = 408	VB n = 49	Total n = 457	CS n = 203	VB n = 257	Total n = 460	Relative risk (95% CI)	*P*
No sex*†	32 (7.9)	0 (0)	32 (7.0)	19 (9.4)	22 (8.6)	41 (8.9)	0.79 (0.50-1.22)	.33
Pain during sex*†‡	n = 369	N = 49	n = 418	n = 177	n = 235	n = 412		.84
No pain	329 (89.2)	47 (95.9)	376 (90.0)	159 (89.8)	210 (89.4)	369 (89.6)		
Almost no pain	5 (1.4)	0 (0)	5 (1.2)	4 (2.3)	4 (1.7)	8 (1.9)		
Mild or small amount of pain	26 (7.0)	2 (4.1)	28 (6.7)	11 (6.2)	18 (7.7)	29 (7.0)		
Quite a lot of pain	8 (2.2)	0 (0)	8 (1.9)	3 (1.7)	3 (1.3)	6 (1.5)		
Severe or excruciating/ terrible pain	1 (0.3)	0 (0)	1 (0.2)	0 (0)	0 (0)	0 (0)		
Urinary incontinence*†¶	65 (16.0)	16 (32.7)	81 (17.8)	37 (18.4)	63 (24.5)	100 (21.8)	0.81 (0.63-1.06)	.14
Fecal incontinence*†¶	10 (2.5)	1 (2.0)	11 (2.4)	8 (4.0)	2 (0.8)	10 (2.2)	1.10 (0.47-2.58)	.83
Incontinence of flatus*†¶	53 (13.0)	7 (14.3)	60 (13.1)	29 (14.4)	24 (9.3)	53 (11.5)	1.14 (0.80-1.61)	.48

CONCLUSION

- We need to improve our knowledge about labour second phase management
  - Onset of pushing?
  - Indication for episiotomy, Episiotomy type, deep, and angle?
  - Perineum protection (massage, warm pack, hands on)?

THANK YOU

Discussion is open