Società Italiana di Urodinamica
Continenza Neurourologia Pavimento Pelvico

2° Corso SIUD Teorico-Pratico
Lacerazioni Perineali Ostetriche

Il danno da parto: epidemiologia, fisiopatologia ed eziopatogenesi delle lacerazioni perineali

Dr. ANDREA BRAGA
Medico Capoclinica
Ginecologia e Ostetricia
Ente Ospedaliero Cantonale
Ospedale Beata Vergine – Mendrisio (CH)

eoc

Il danno da parto

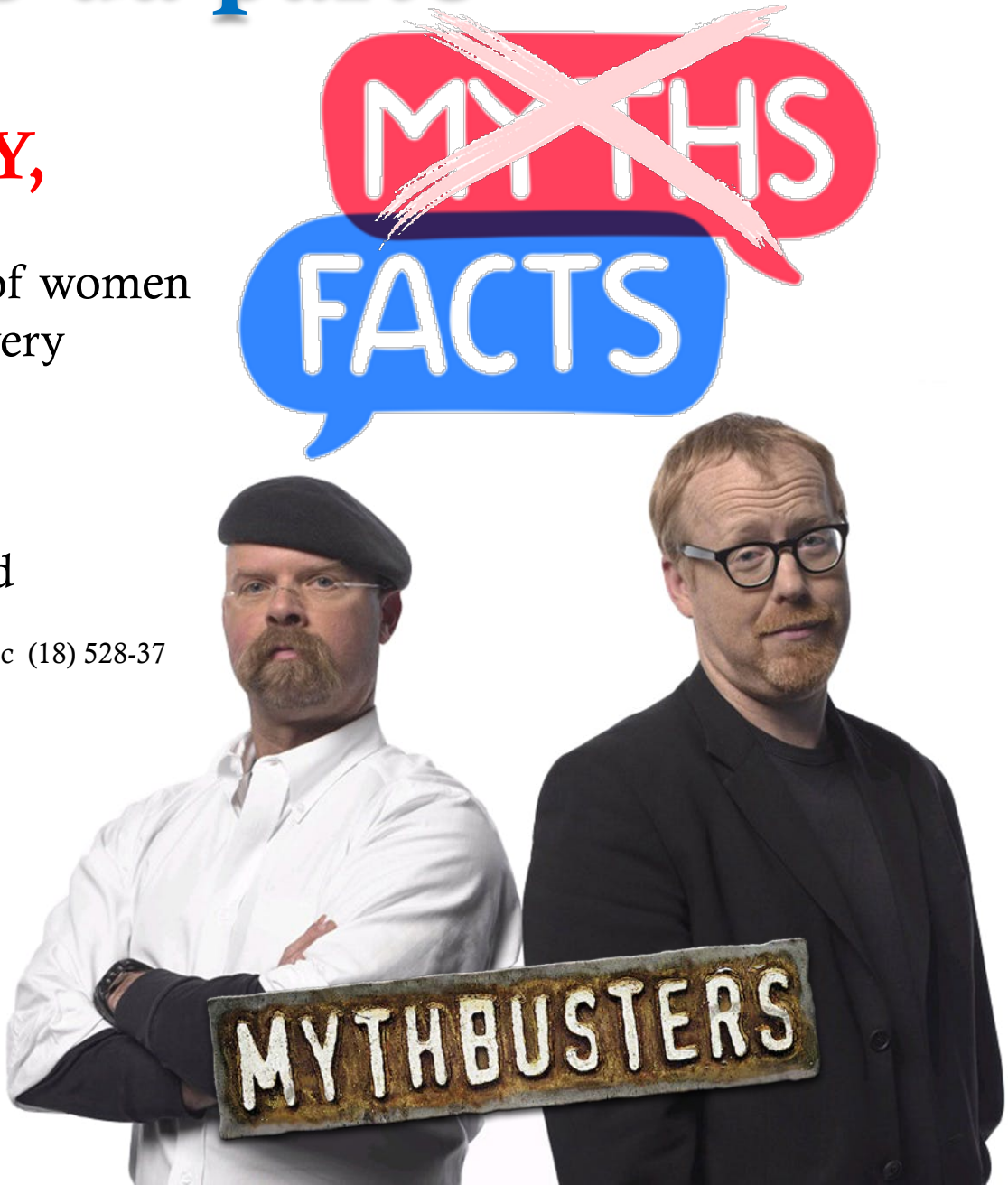
Pelvic floor trauma

is a REALITY,

not a myth.

The identification of women at high risk of delivery related pelvic floor trauma should be a priority for future research in this field

Dietz 2006 Curr Opi Obst Gynec (18) 528-37



Il parto…

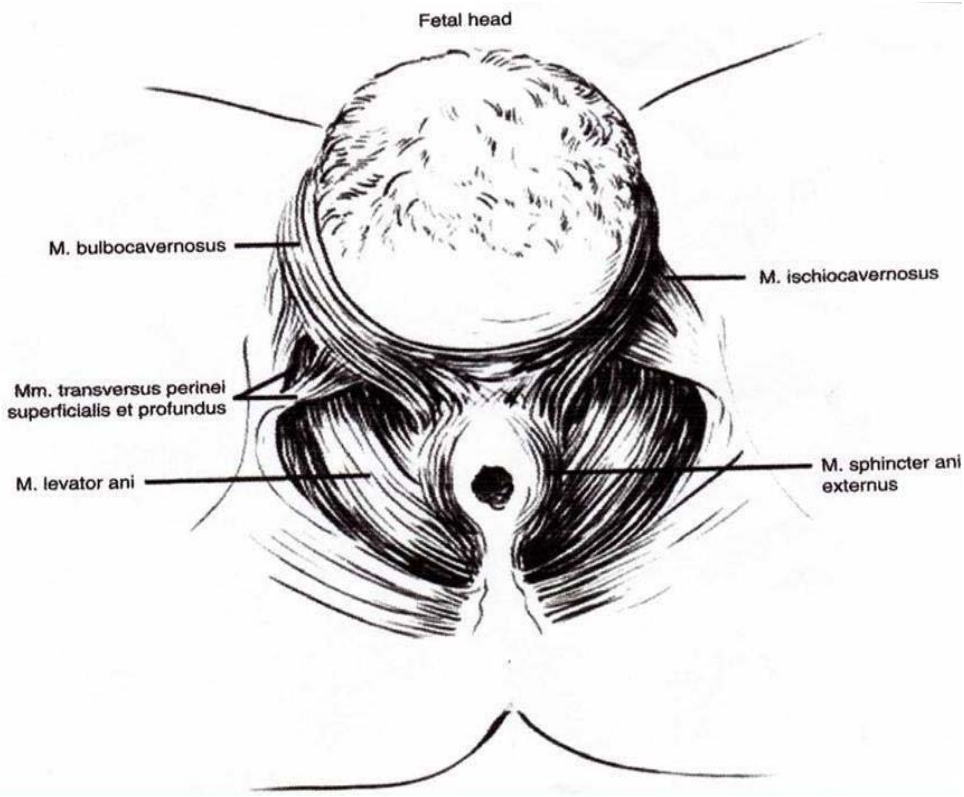

Reality

Il danno da parto

Royal College of Obstetricians and Gynaecologists

Guideline No. 23

Revised June 2004



…In the UK, it is estimated that over 85% of women who have a vaginal birth will sustain some degree of perineal trauma and of these **60–70% will experience suturing…**

Il danno da parto

Severe obstetric tears: a prospective observational study in an Italian referral unit

STEFANIA LIVIO[1], MARCO SOLIGO[1], ELENA DE PONTI[2], ILEANA SCEBBA[1], FEDERICA CARPENTIERI[1], ENRICO M. FERRAZZI[1]

PELVIPERINEOLOGY
A multidisciplinary pelvic floor journal

TABLE 1. – Distribution of perineal laceration and episiotomy.

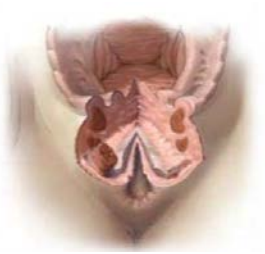
Parameter	1247 vaginal deliveries n (%)
Integrum perineum	233 (18.7%)
Episiotomy	338 (27.1%)
Median	12 (3.7%)
Mediolateral	326 (96.3%)
Spontaneous perineal laceration	
Ist-IInd degree	661 (53%)
Seevere degree	15 (1.2%)*

Il danno da parto

EUROPEAN JOURNAL OF MIDWIFERY

Hands-on or hands-off the perineum at childbirth: A re-appraisal of the available evidence 2017

Angeliki Antonakou[1]



Incidence of OASIS for primiparous women over the past 20 years

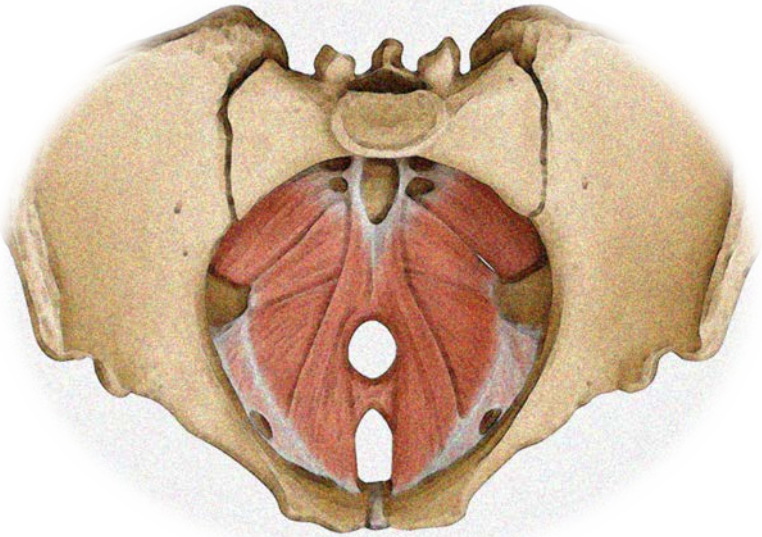
- United Kingdom: **from 1.8% to 5.9 %**
- Norway: **from <1% to 4.3%.**

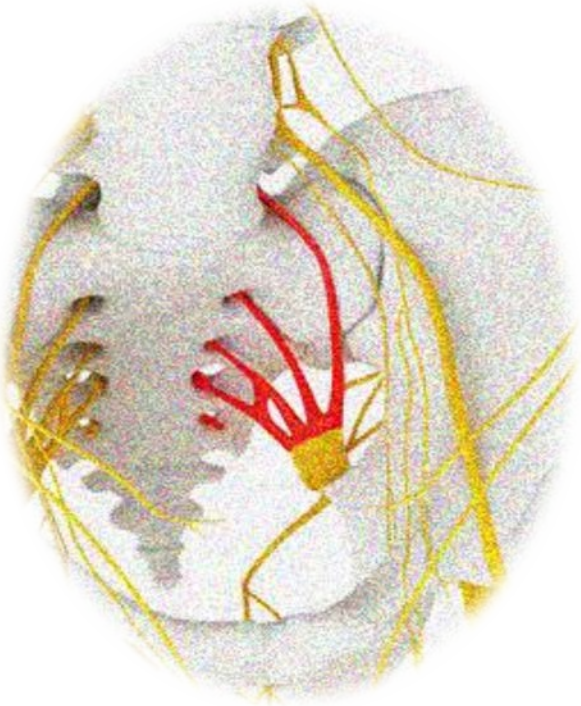
- Other European countries (exception Finland): **from 1% to 4.5%.**

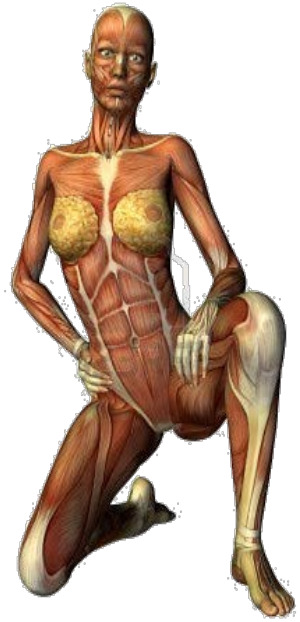
2000 2005 2010 2015

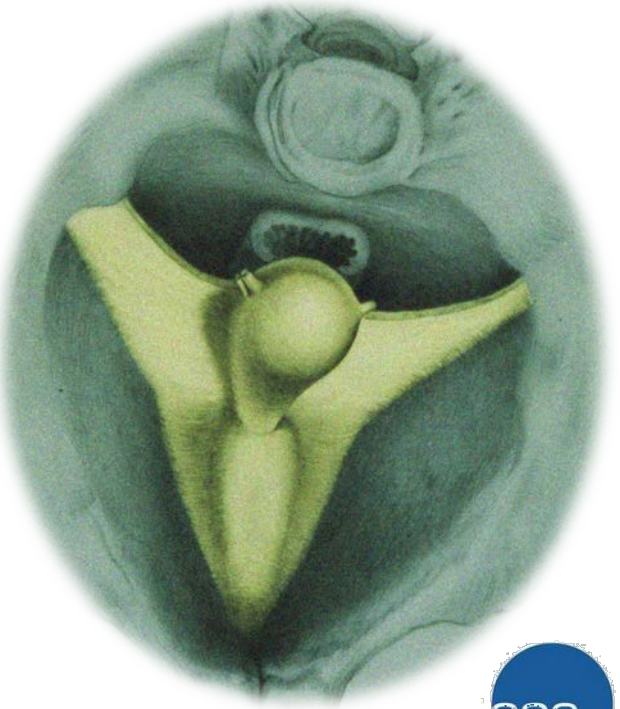
Il danno da parto: fisiopatologia

Il danno da parto: fisiopatologia



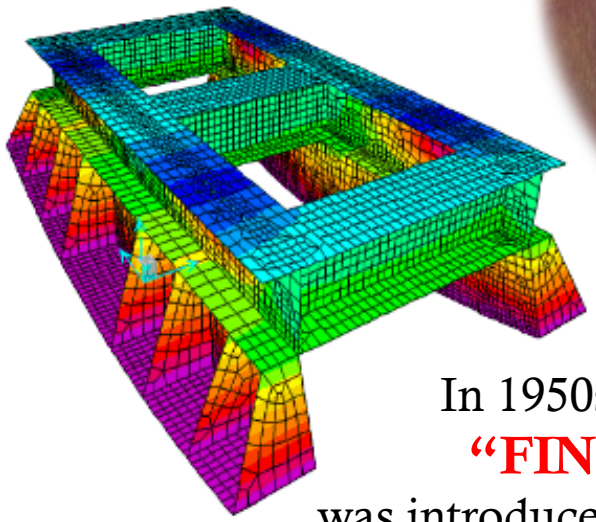


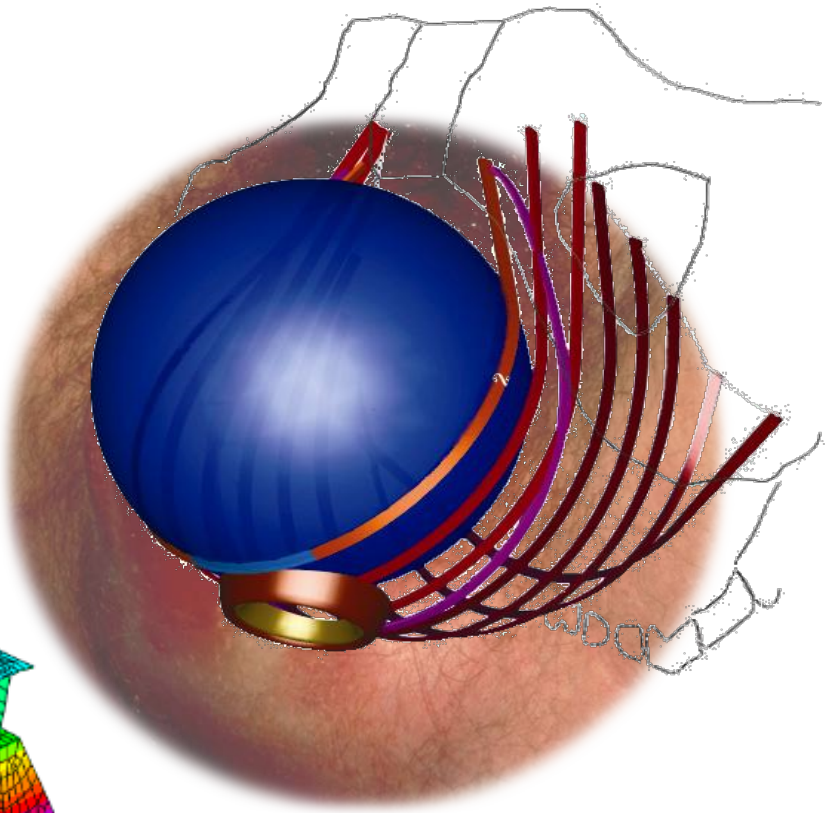


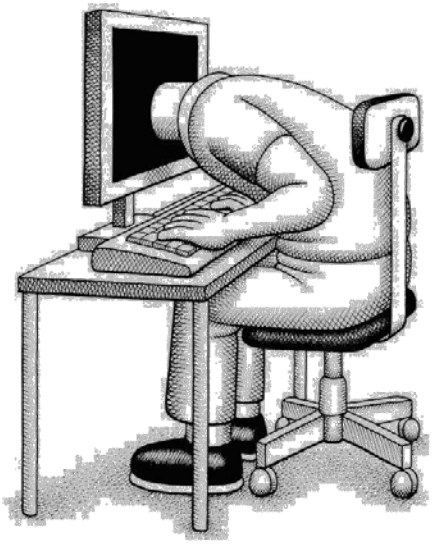


Il danno da parto: fisiopatologia

Computerized model of pelvic floor muscles







In 1950s, a mathematical simulation called
"FINITE ELEMENT ANALYSIS"
was introduced to study the effects of mechanical load.

Il danno da parto: fisiopatologia

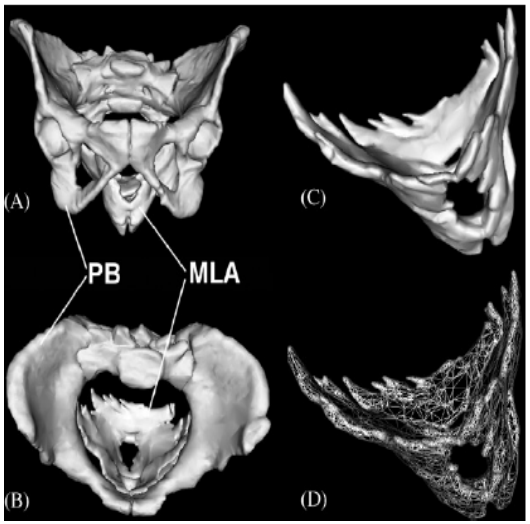
Measuring morphological parameters of the pelvic floor for finite element modelling purposes

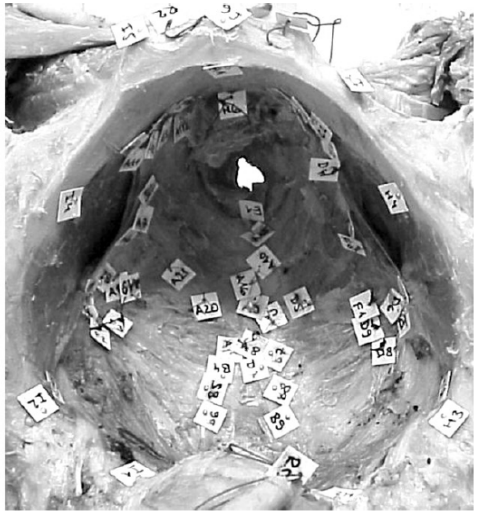
Štěpán Janda[a,*], Frans C.T. van der Helm[a], Sjoerd B. de Blok[b]

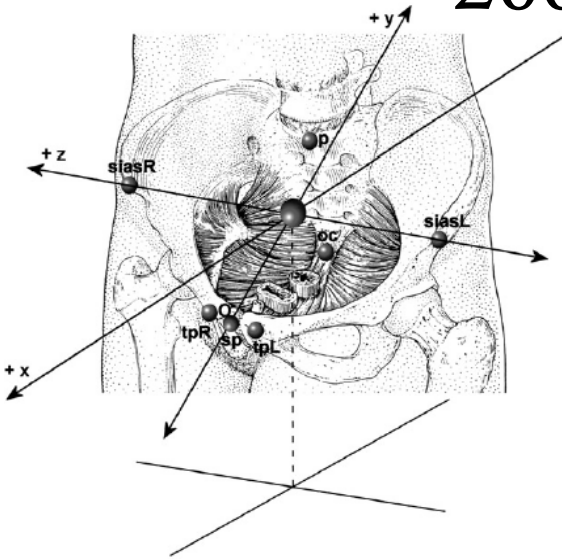
Embalmed 72-yr-old female cadaver

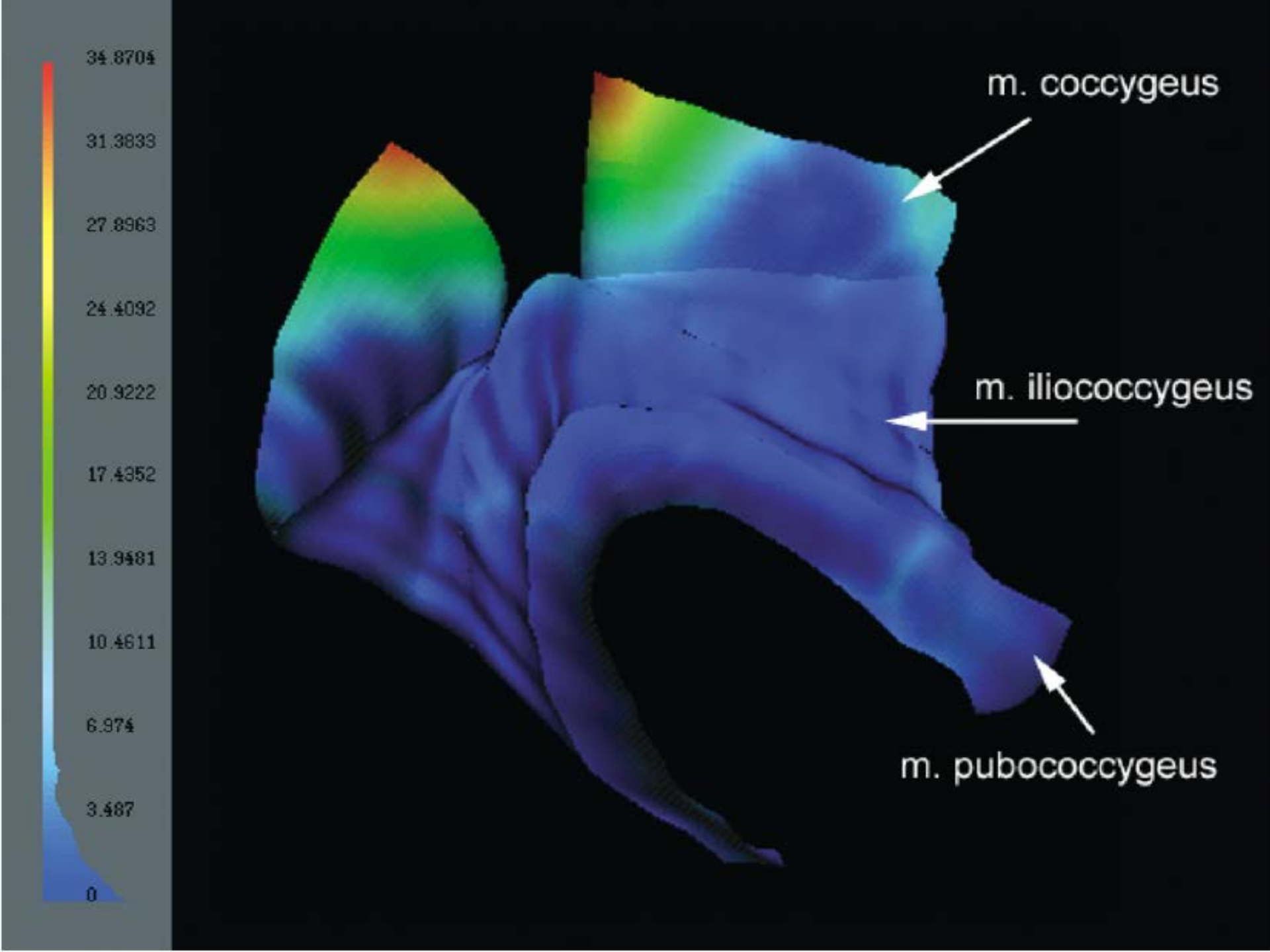
MRI measurements
Cadaver measurements
3D-Palpator measurements

2003








34.8704
31.3833
27.8963
24.4092
20.9222
17.4352
13.9481
10.4611
6.974
3.487
0
m. coccygeus
m. iliococcygeus
m. pubococcygeus

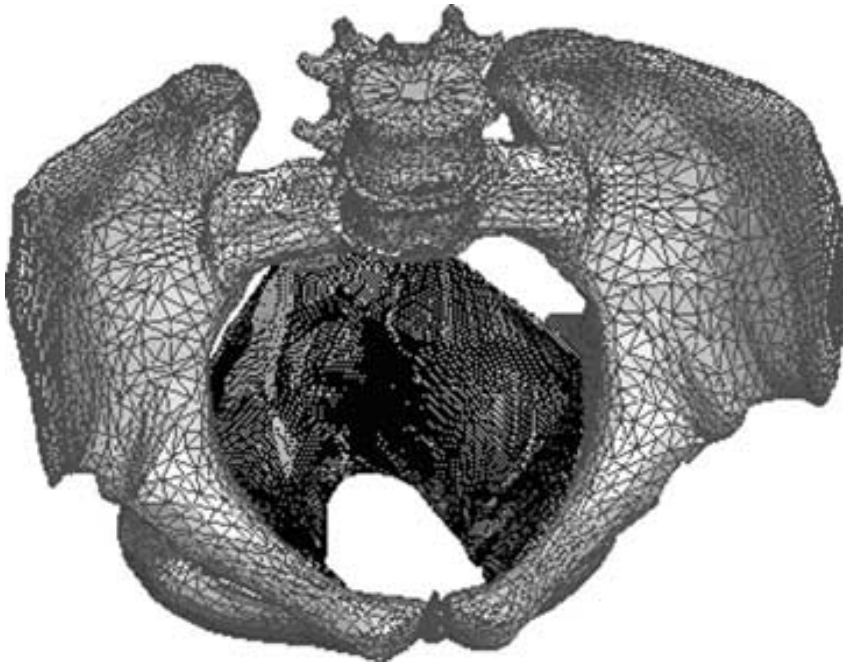
Il danno da parto: fisiopatologia

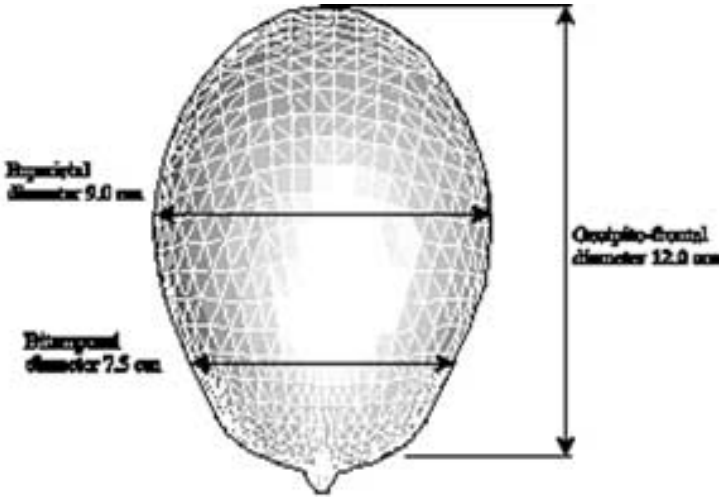
Finite Element Studies of the Deformation of the Pelvic Floor

ANNALS of THE NEW YORK ACADEMY OF SCIENCES

2007

J. A. C. MARTINS,[a] M. P. M. PATO,[b] E. B. PIRES,[a] R. M. NATAL JORGE,[c] M. PARENTE,[c] AND T. MASCARENHAS[d]





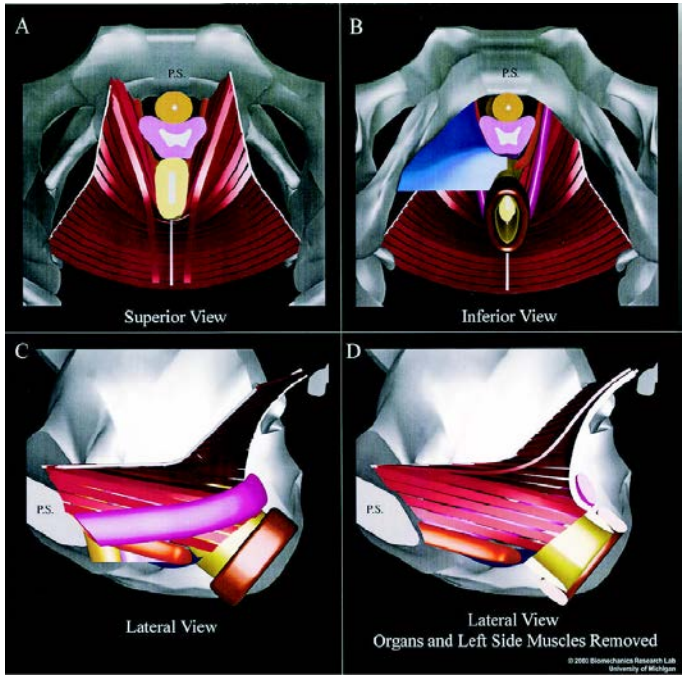
Il danno da parto: fisiopatologia

Levator Ani Muscle Stretch Induced by Simulated Vaginal Birth

Kuo-Cheng Lien, MS, Brian Mooney, MS, John O. L. DeLancey, MD, and James A. Ashton-Miller, PhD

Obstet Gynecol. 2004 January ; 103(1): 31–40.

34-year-old nulliparous white woman



Inclusion criteria:

- ✓ age less than 45 years
- ✓ no previous vaginal delivery
- ✓ no symptoms of urinary incontinence
- ✓ normal support on pelvic examination
- ✓ absence of genital or neurological abnormalities

- ❑ Serial magnetic resonance images
- ❑ Published anatomic data
- ❑ Engineering graphics software

Il danno da parto: fisiopatologia

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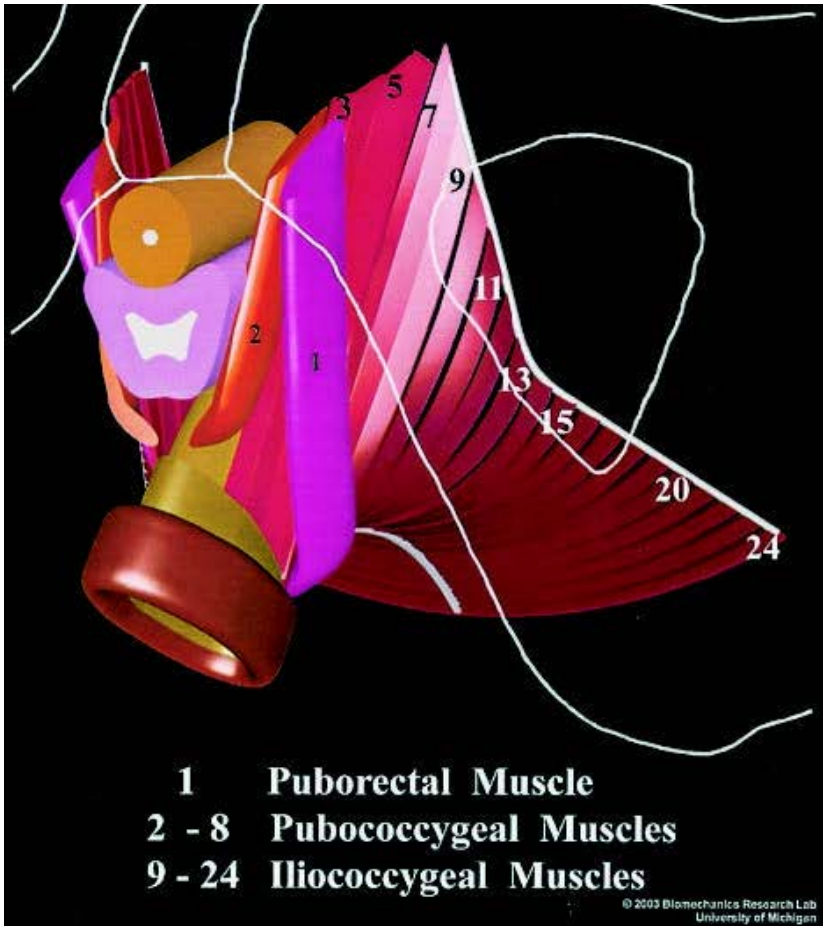

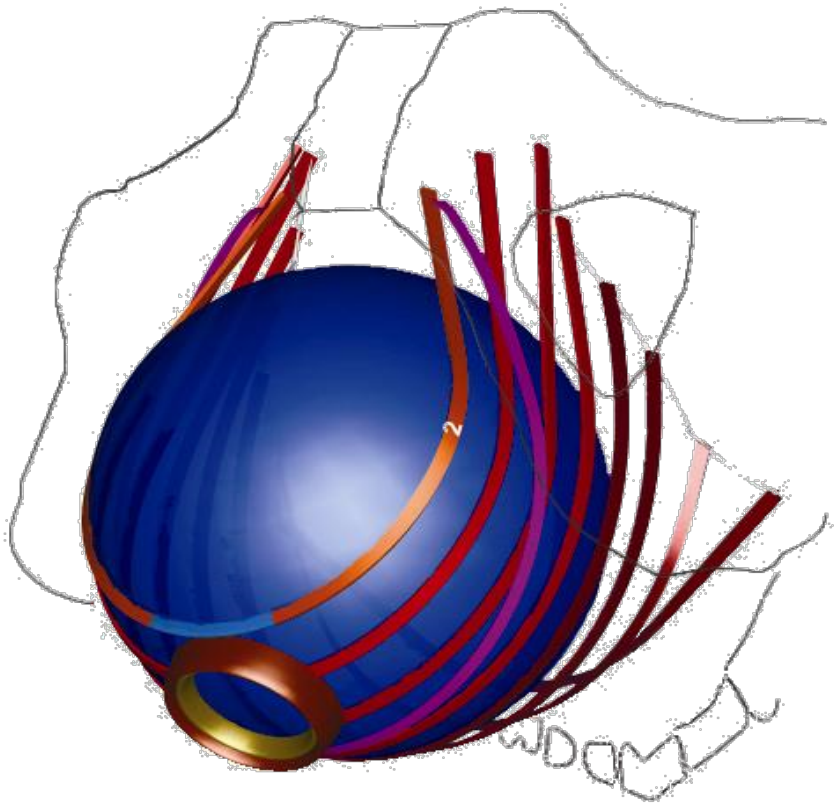

Il danno da parto: fisiopatologia

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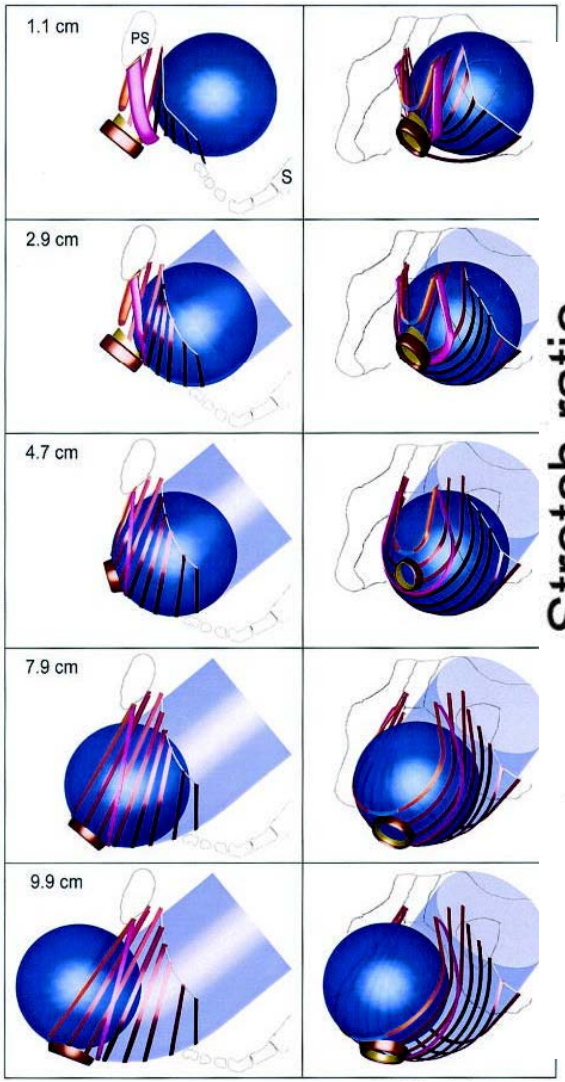
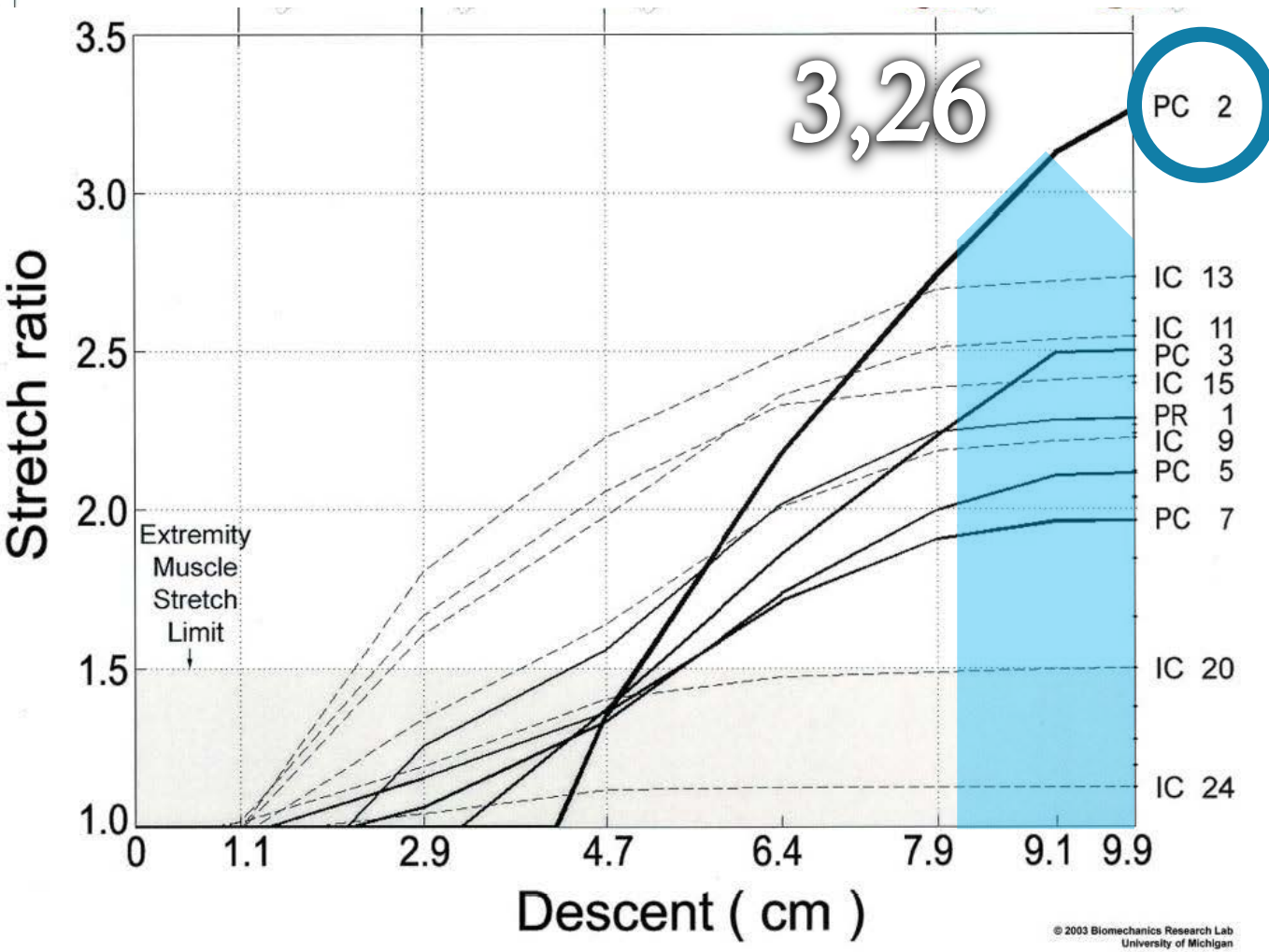


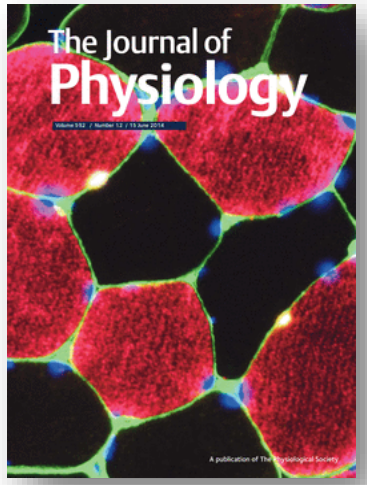


Il danno da parto: fisiopatologia

Journal of Physiology (1995), **488.2**, *pp.*459–469

Injury to muscle fibres after single stretches of passive and maximally stimulated muscles in mice

Susan V. Brooks, Eileen Zerba and John A. Faulkner



Maximum stretch ratio tolerated by striated muscle is **1.5 times** normal length

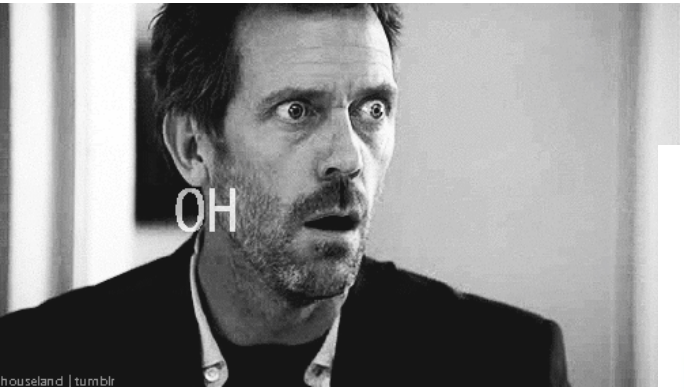
1995

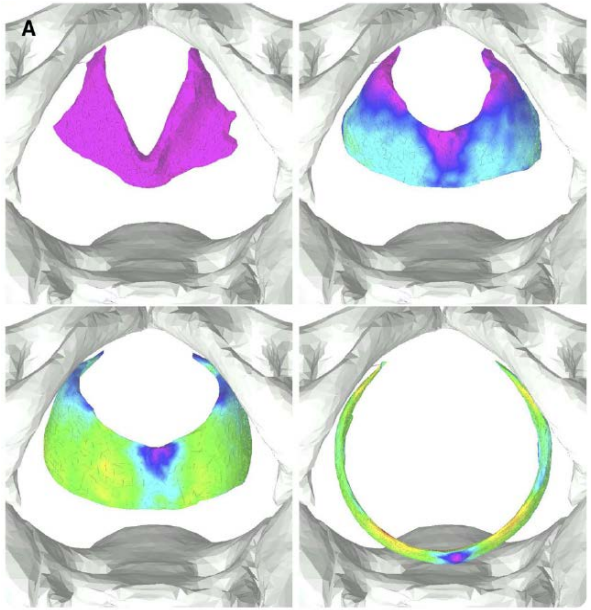
Data were collected on young (2-6 months) male mice obtained from a specific pathogen-free mouse colony

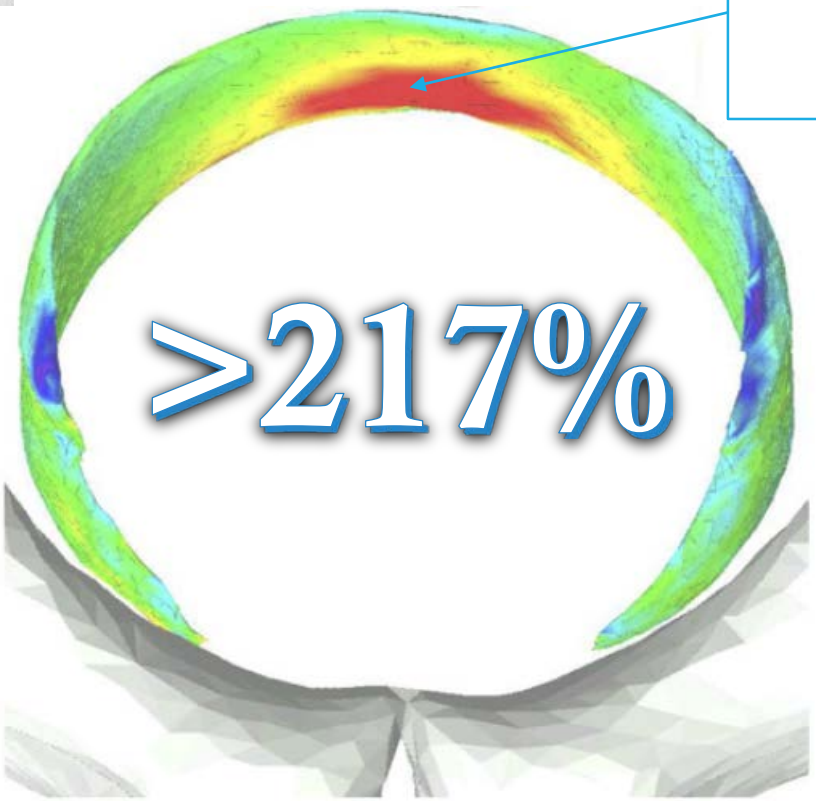
Il danno da parto: fisiopatologia

Quantity and distribution of levator ani stretch during simulated vaginal childbirth

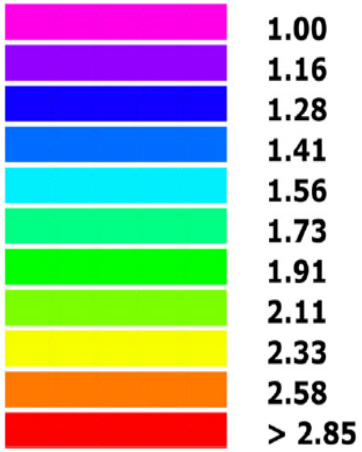
Lennox Hoyte, MD; Margot S. Damaser, PhD; Simon K. Warfield, PhD; Giridhar Chukkapalli, PhD; Amitava Majumdar, PhD; Dong Ju Choi, PhD; Abhishek Trivedi, PhD; Petr Krysl, PhD







Maximal stretch is **3.5** in PC

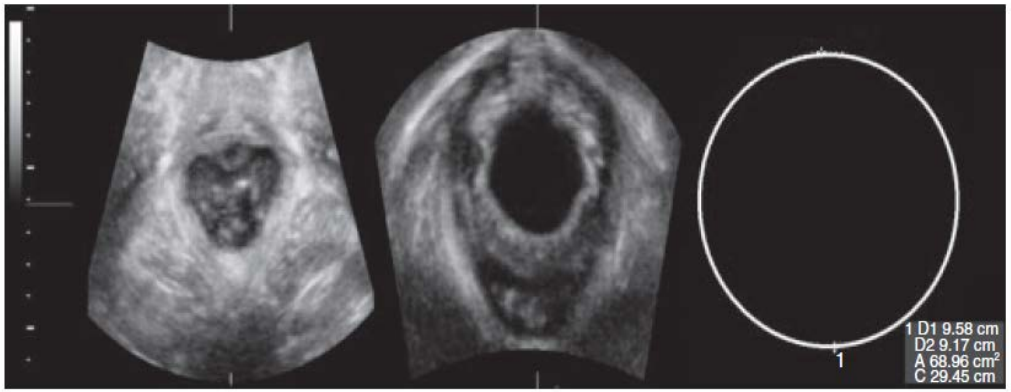


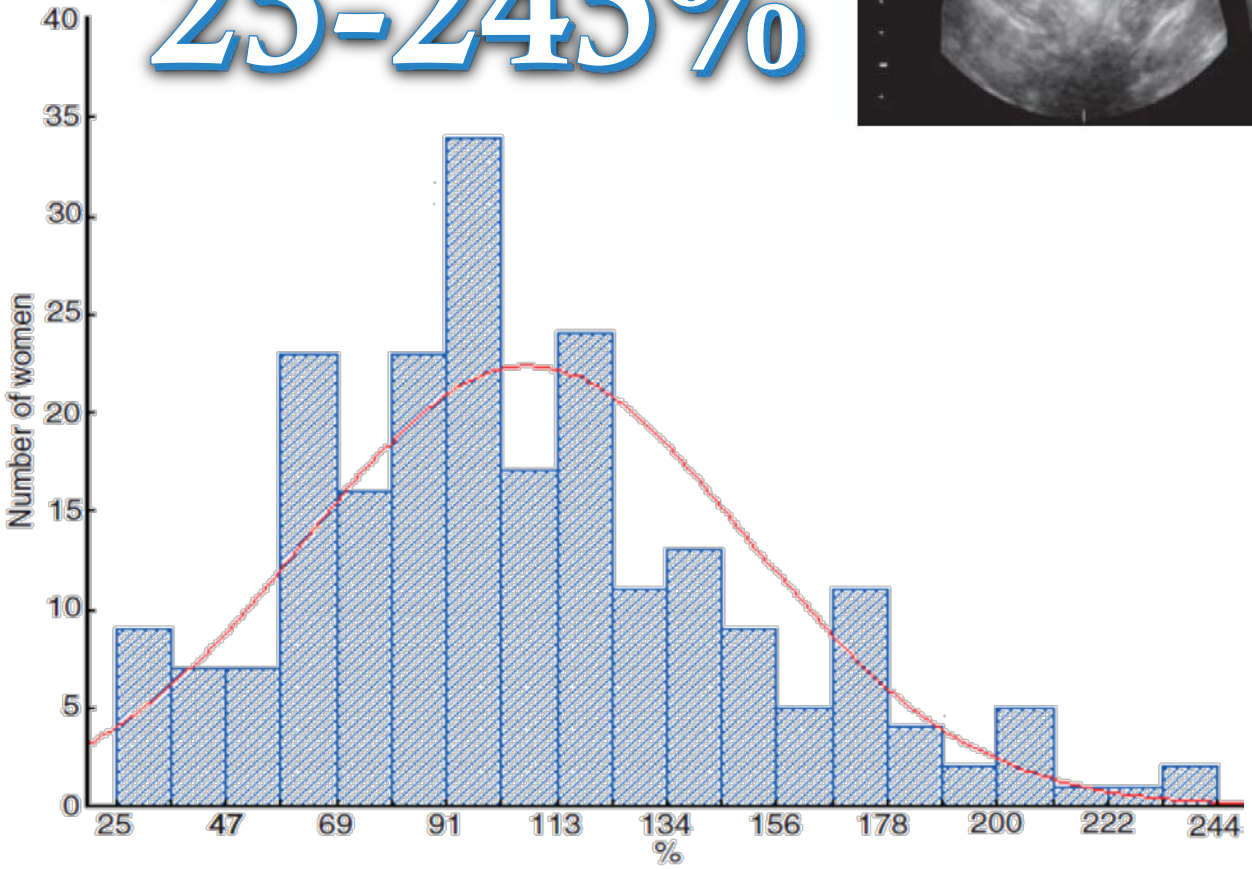
Il danno da parto: fisiopatologia

How much does the levator hiatus have to stretch during childbirth?

K Svabík,[a] KL Shek,[b] HP Dietz[b]

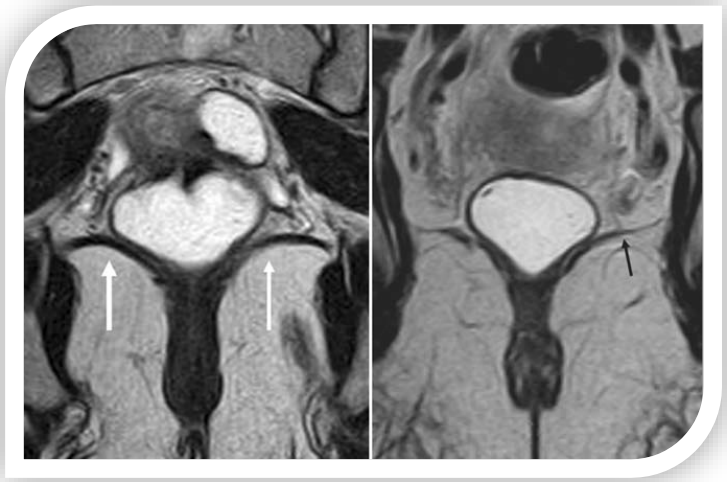
25-245%





2009

Il danno da parto: fisiopatologia



The occurrence rate of postpartum levator avulsion:

15-39.5%	3D-4D US	24h - 9 months
17.7%-19.1%	MRI	6 - 12 months

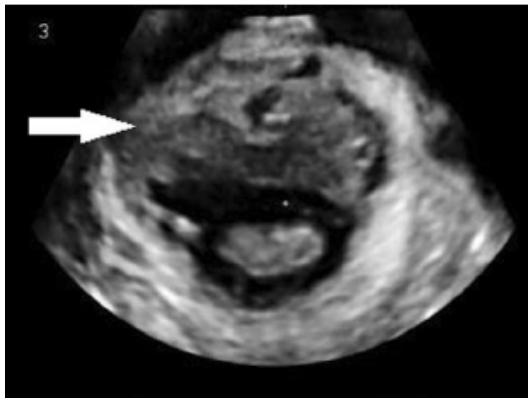
Cassado Garriga, J., et al., Tridimensional sonographic anatomical changes on pelvic floor muscle according to the type of delivery. Int Urogynecol J, 2011. 22(8): p 1011-8.
Novellas, S., et al., MR features of the levator ani muscle in the immediate postpartum following cesarean delivery. Int Urogynecol J, 2010. 21(5): p. 563-8.

Il danno da parto: fisiopatologia

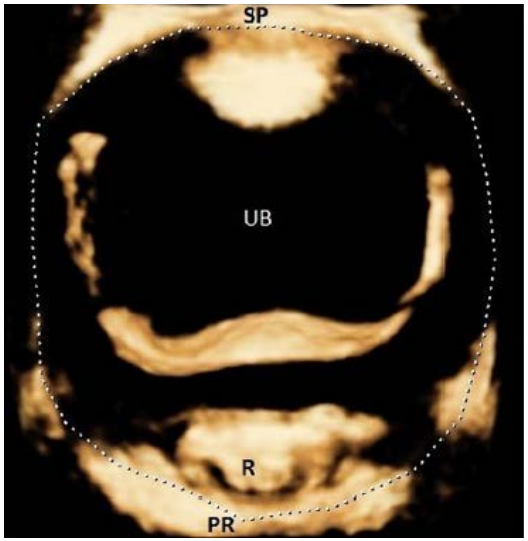
Association between pelvic floor muscle trauma and pelvic organ prolapse 20 years after delivery

Ingrid Volløyhaug[1,2] · Siv Mørkved[3,4] · Kjell Å. Salvesen[1,5]

2015



Levator avulsion was associated with POP-Q ≥2 **(OR of 9.91 and a 95 % CI of 5.73 – 17.13)**, and with sPOP **(OR 2.28, 95%CI 1.34 – 3.91).**



Levator hiatal area >40 cm2 was associated with POP-Q ≥2 **(OR 6.98, 95 % CI 4.54, – 10.74)** and sPOP **(OR 3.28, 95 % CI 1.96 – 5.50).**

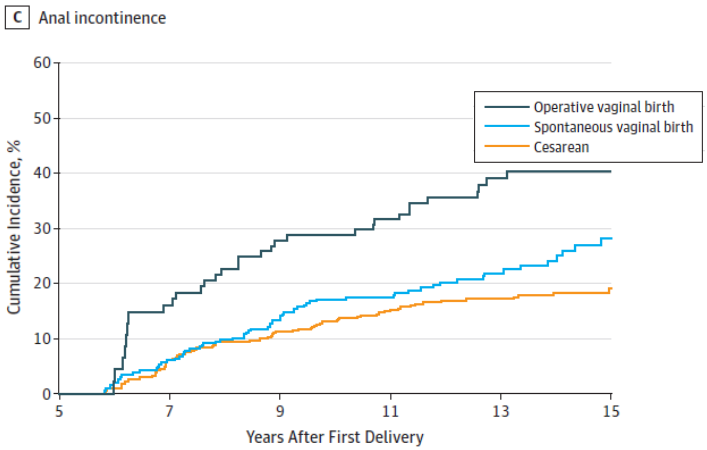
Il danno da parto: fisiopatologia

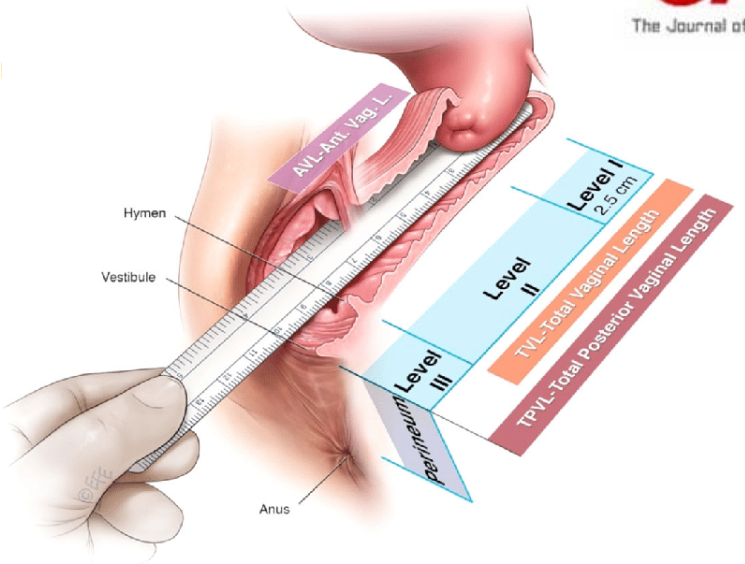
JAMA | Original Investigation

Association of Delivery Mode With Pelvic Floor Disorders After Childbirth

Joan L. Blomquist, MD; Alvaro Muñoz, PhD; Megan Carroll, MS; Victoria L. Handa, MD,

JAMA
The Journal of the American Medical Association
2019





Genital hiatus Size, cm	Anal Incontinence HR(95%CI)	Stress Urinary Incontinence HR(95%CI)	Pelvic Organ Prolapse HR(95%CI)
≤ 2.5	1 [Reference]	1 [Reference]	1 [Reference]
3	1.65 (1.13 – 2.41)	1.84 (1.19-2.83)	3.49 (2.02-6.03)
≥ 3.5	1.60 (1.12 – 2.27)	2.31 (1.57-3.40)	11.74 (7.51-18.4)

Il danno da parto: fisiopatologia

Pudendal nerve stretch during vaginal birth:
A 3D computer simulation

Kuo-Cheng Lien, MS,[a,*] Daniel M. Morgan, MD,[c] John O. L. Delancey, MD,[c]
James A. Ashton-Miller, PhD[a,b]

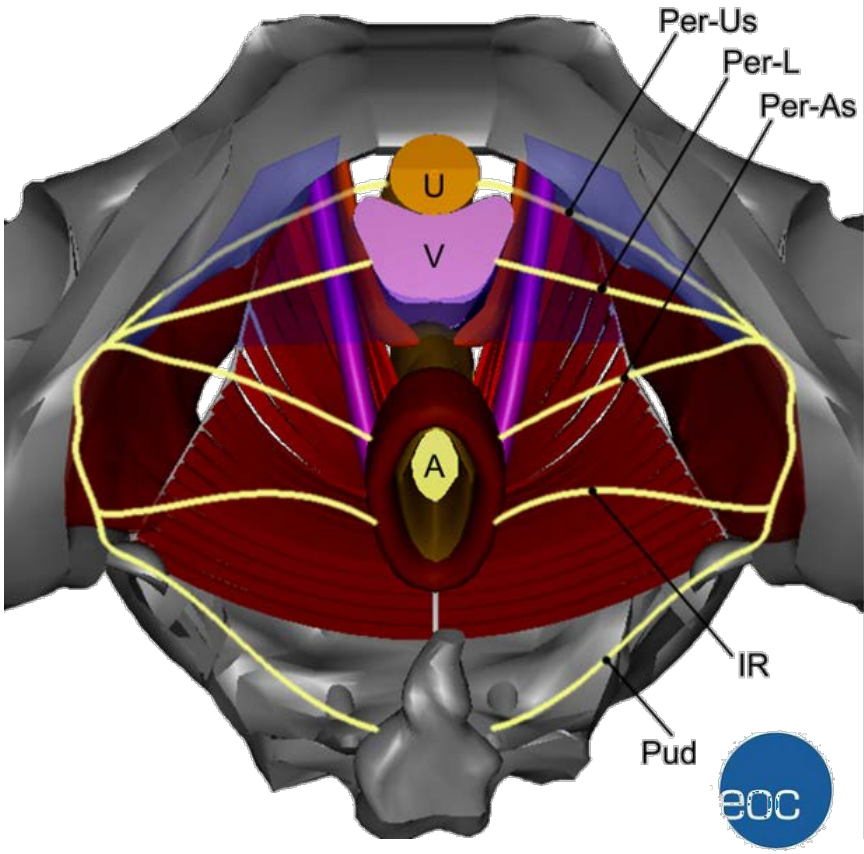
AJOG American Journal of Obstetrics & Gynecology

2004

- ❑ 12 hemi-pelvises from 6 female formalin-fixed cadavers
- ❑ 3D-Computer model

- ➢ Origin S2-S4

- ➢ Branches:
  - Inferior Rectal Branch(IRN)
  - Perineal nerve:
    Labial (ant./post.)
    Uretral Sphincter (Per-US)
    External Anal Sphincter (Per-AS)
  - Dorsal nerve of clitoris



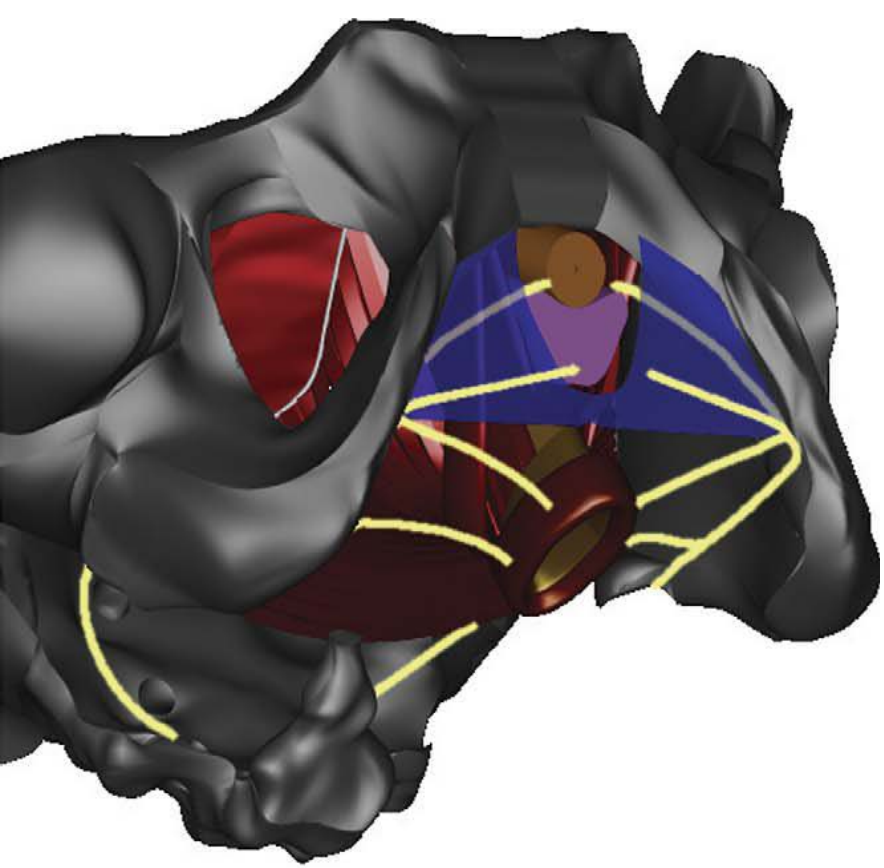
Il danno da parto: fisiopatologia

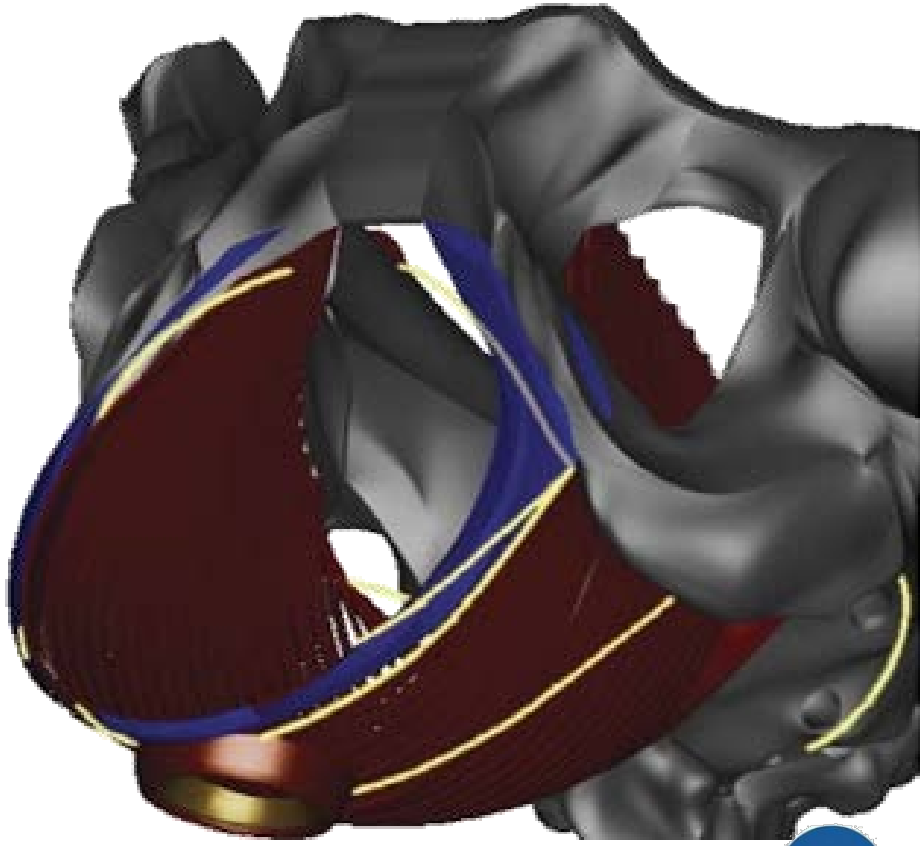
Pudendal nerve stretch during vaginal birth:
A 3D computer simulation

AJOG American Journal of Obstetrics & Gynecology

Kuo-Cheng Lien, MS,[a,*] Daniel M. Morgan, MD,[c] John O. L. Delancey, MD,[c]
James A. Ashton-Miller, PhD[a,b]

2004





Il danno da parto: fisiopatologia

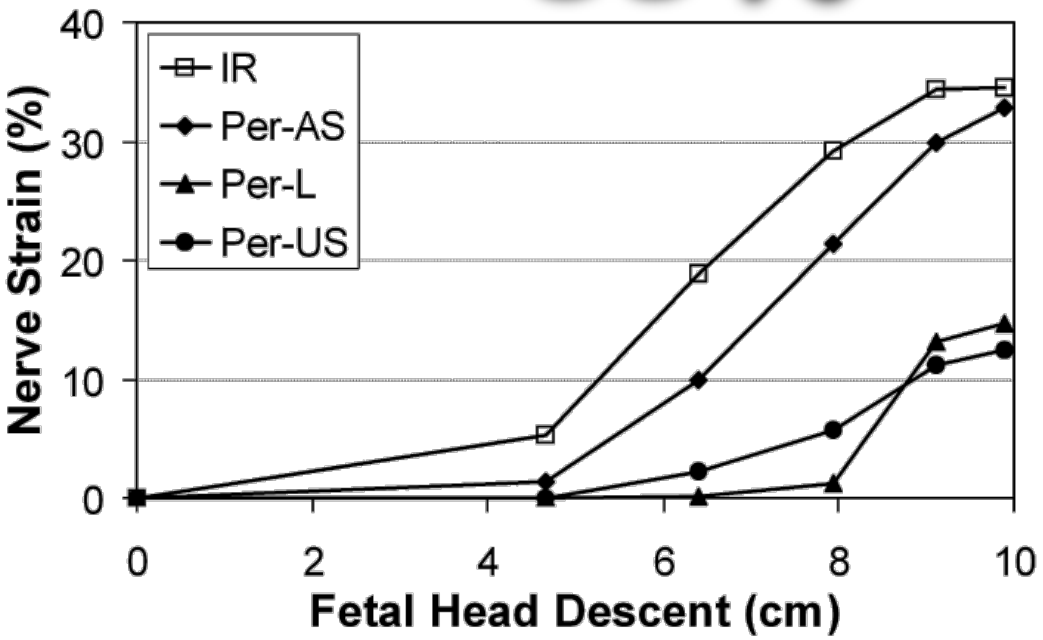
Pudendal nerve stretch during vaginal birth: A 3D computer simulation

Kuo-Cheng Lien, MS,[a,*] Daniel M. Morgan, MD,[c] John O. L. Delancey, MD,[c] James A. Ashton-Miller, PhD[a,b]

AJOG American Journal of Obstetrics & Gynecology

2004

35%



Branches	Strain (%)
IR	35
Per-AS	33
Per-L	15
Per-US	13

Il danno da parto: fisiopatologia

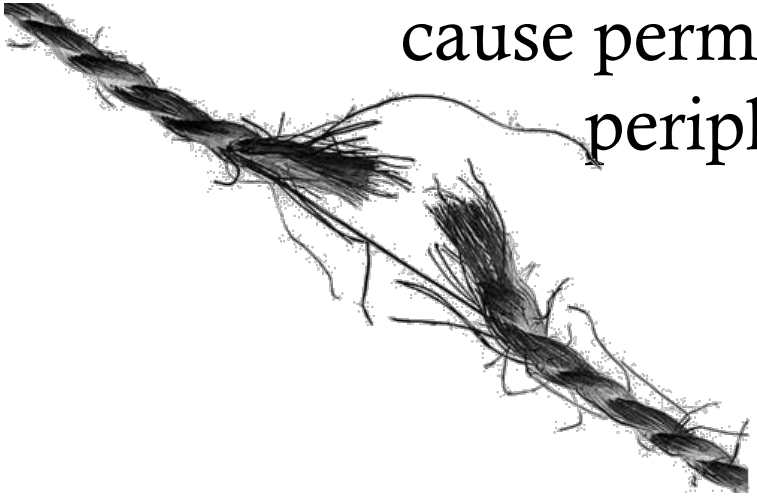
Pudendal nerve stretch during vaginal birth:
A 3D computer simulation

Kuo-Cheng Lien, MS,[a,*] Daniel M. Morgan, MD,[c] John O. L. Delancey, MD,[c]
James A. Ashton-Miller, PhD[a,b]

AJOG American Journal of Obstetrics & Gynecology

2004

25% in nerves' strain
is the known threshold to
cause permanent damages in
peripheral nerves



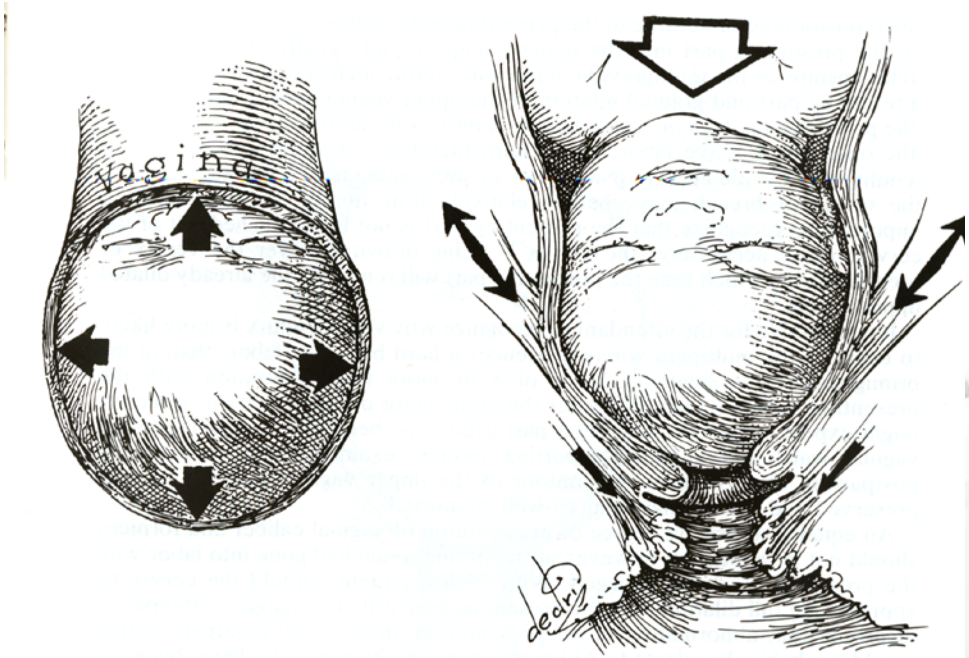
Brown R, et al. Effects of acute graded strain on efferent conduction properties in the rabbit tibial nerve. Clin Orthop 1993:288-94.

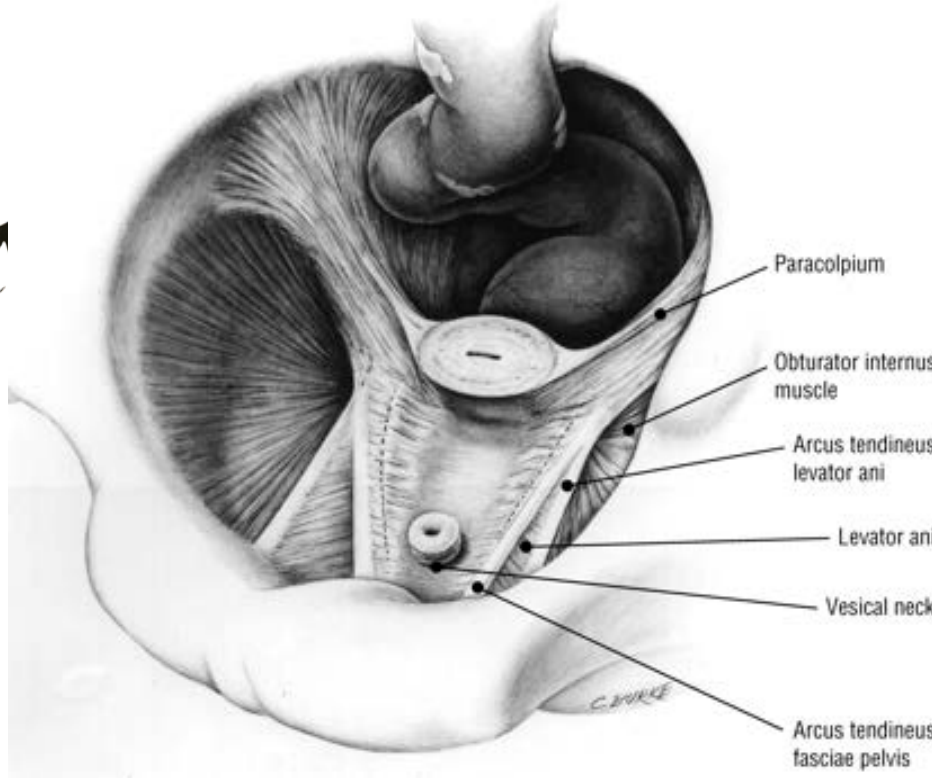
Jou IM, et al. Changes in conduction, blood flow, histology, and neurological status following acute nerve-stretch injury induced by femoral lengthening. J Orthop Res 2000;18:149-55.

Huan SC, Chang CW. Electrophysiological evaluation of neuromuscular functions during limb lengthening by callus distraction. J Formos Med Assoc 1997;18:172-8.

Il danno da parto: fisiopatologia

Stretching and compression of the pelvic fascial complex





Il danno da parto: fisiopatologia

Pregnancy

Hormones (Progesterone; Relaxina)

Changes in biochemical composition of the solid matrix

< Collagen > Glycosaminoglycans

> Elastic properties

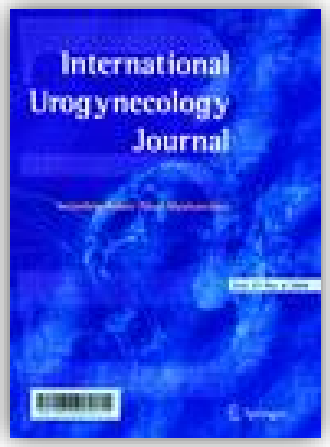
< Tensile properties

Il danno da parto: fisiopatologia

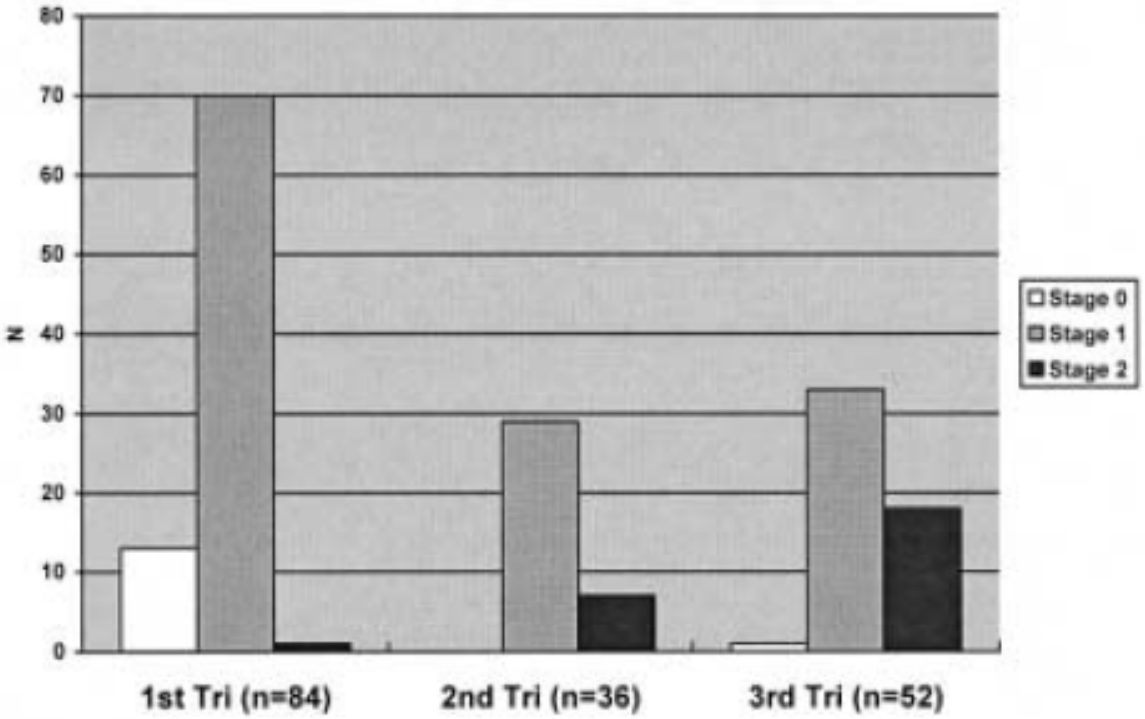
A. L. O'Boyle · J. D. O'Boyle · R. E. Ricks
T. H. Patience · B. Calhoun · G. Davis

Int Urogynecol J (2003) 14: 46–49
DOI 10.1007/s00192-002-1006-3

The natural history of pelvic organ support in pregnancy



129 nulliparous pregnant



Overall POPQ stage was significantly higher in the third trimester than in the first (P = 0.001).

Individual POPQ points which showed significant differences between the first and third trimesters include Aa, PB, Ap, Ba, Bp, TVL GH

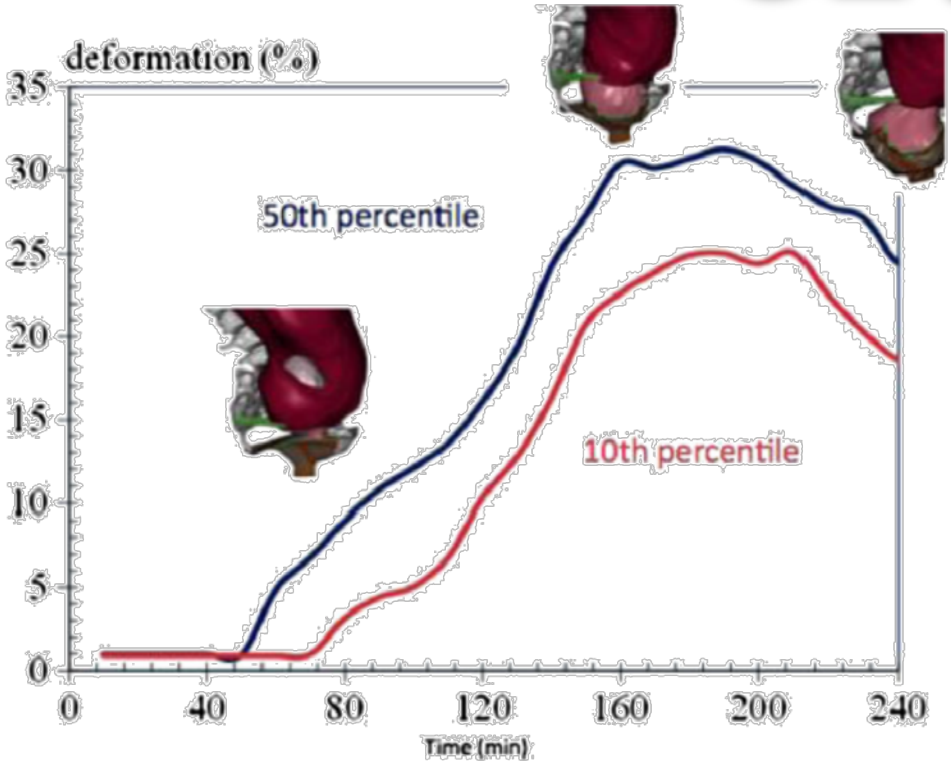
Il danno da parto: fisiopatologia

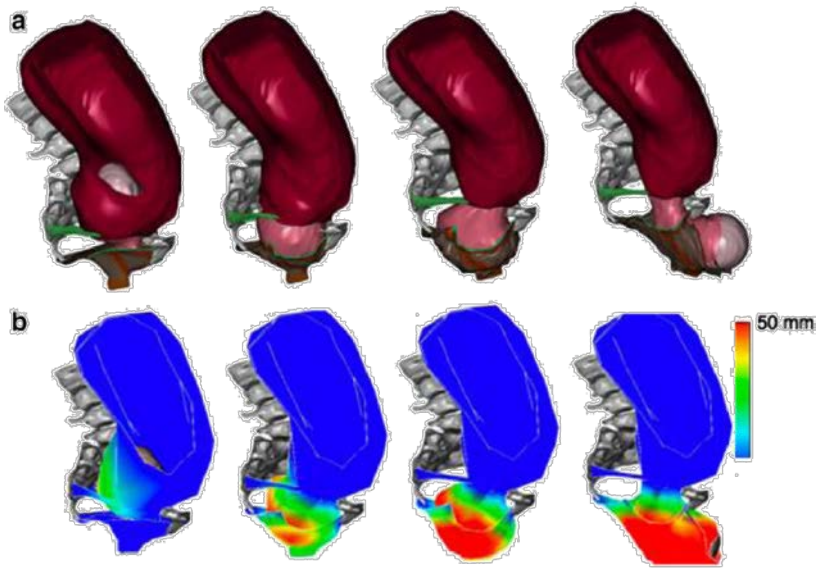
Biomechanical pregnant pelvic system model and numerical simulation of childbirth: impact of delivery on the uterosacral ligaments, preliminary results

J. Lepage · C. Jayyosi · P. Lecomte-Grosbras · M. Brieu · C. Duriez · M. Cosson · C. Rubod

2015

32%

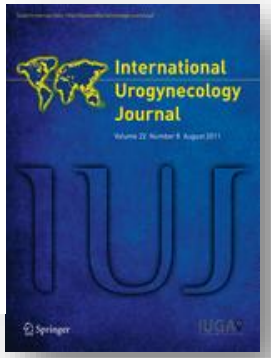




Il danno da parto: fisiopatologia

Pregnancy impact on uterosacral ligament and pelvic muscles using a 3D numerical and finite element model: preliminary results

Estelle Jean Dit Gautier [1,2,3,4] · Olivier Mayeur [3,4,5] · Julien Lepage [1] · Mathias Brieu [3,4,5] · Michel Cosson [1,2,3,4] · Chrystele Rubod [1,2,3,4]



2018

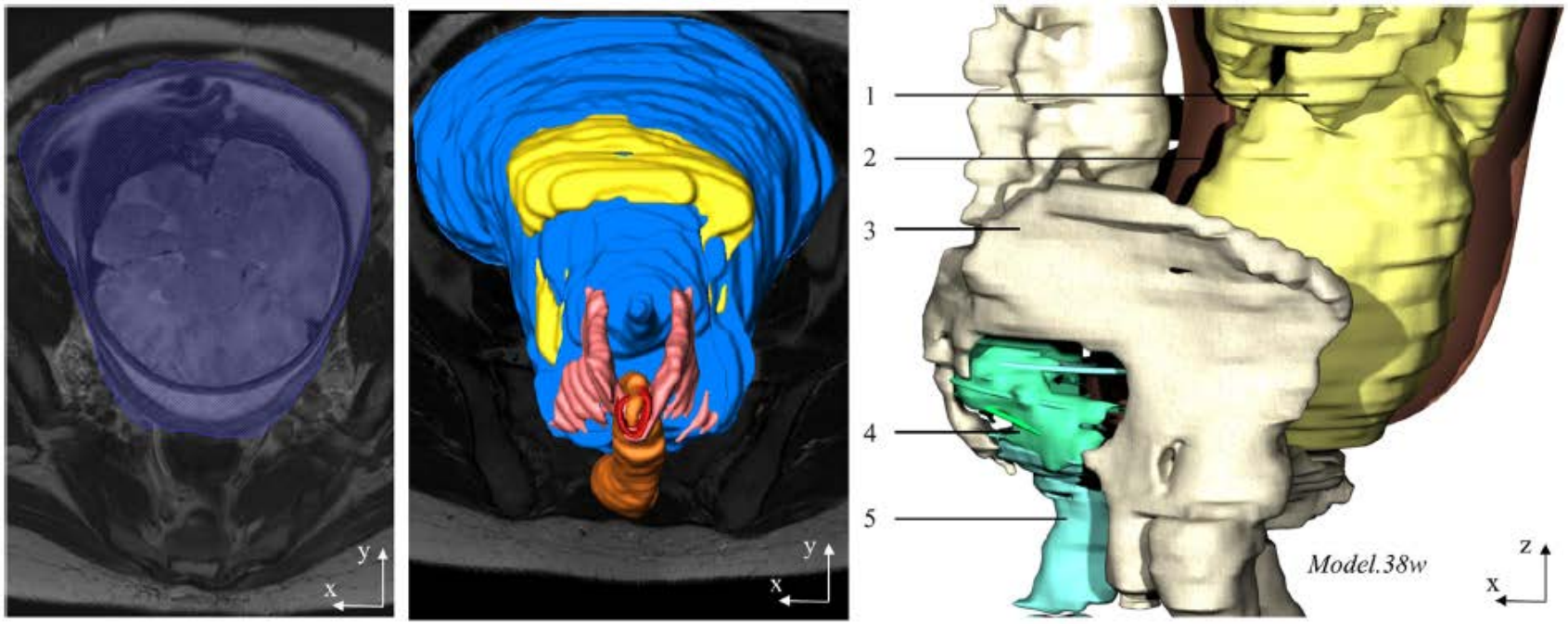
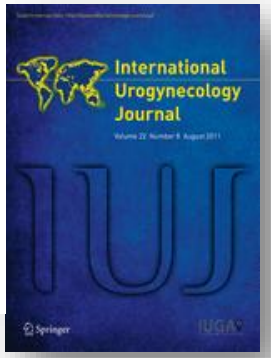


Fig. 1 Geometry of the parturient: **a** Magnetic resonance imaging (MRI) with contour segmentation of the uterus; **b** 3D reconstruction on the AVIZO software; **c** 3D model used to analyze geometry: fetus (1), uterus (2), bone (3), uterosacral ligaments (4), puborectal muscle (5)

Il danno da parto: fisiopatologia

Pregnancy impact on uterosacral ligament and pelvic muscles using a 3D numerical and finite element model: preliminary results

Estelle Jean Dit Gautier [1,2,3,4] · Olivier Mayeur [3,4,5] · Julien Lepage [1] · Mathias Brieu [3,4,5] · Michel Cosson [1,2,3,4] · Chrystele Rubod [1,2,3,4]



2018

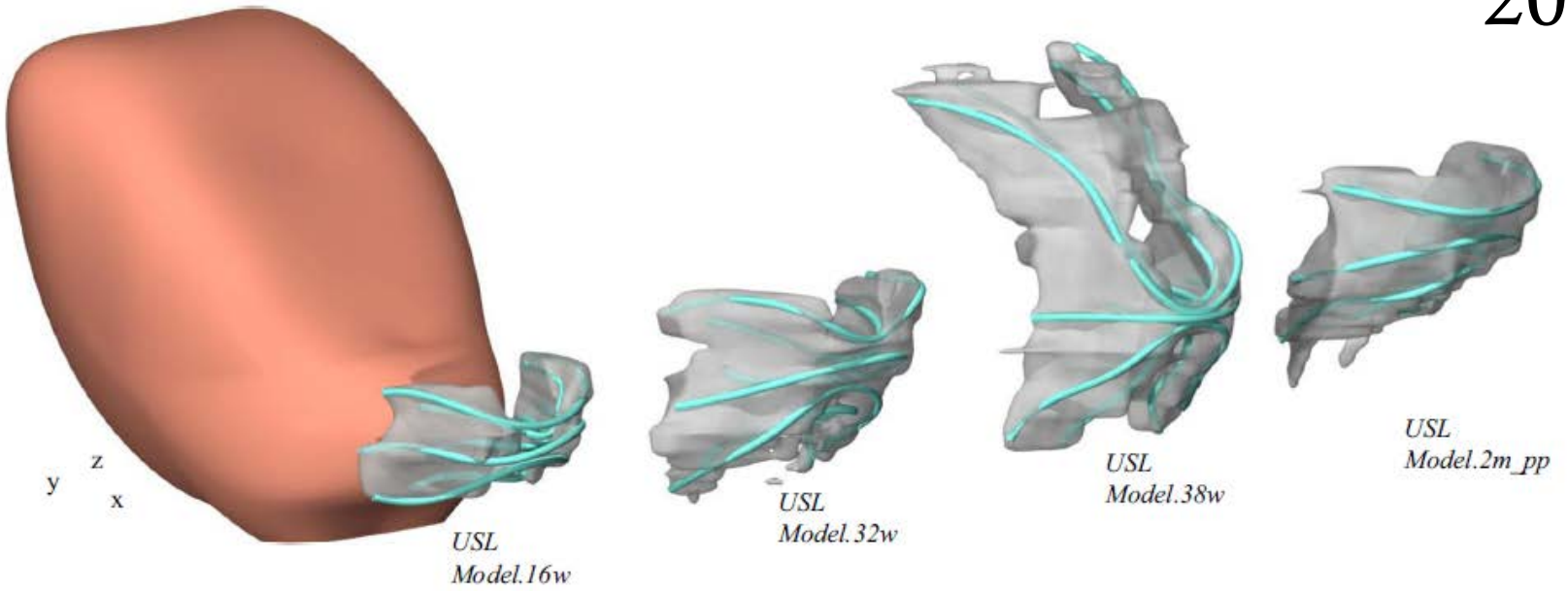
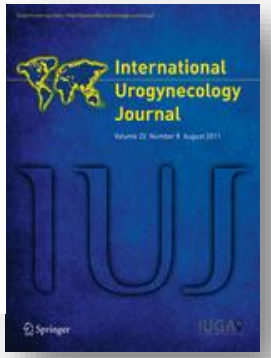


Fig. 2 Analysis of Uterosacral ligaments at different gestational ages and postpartum

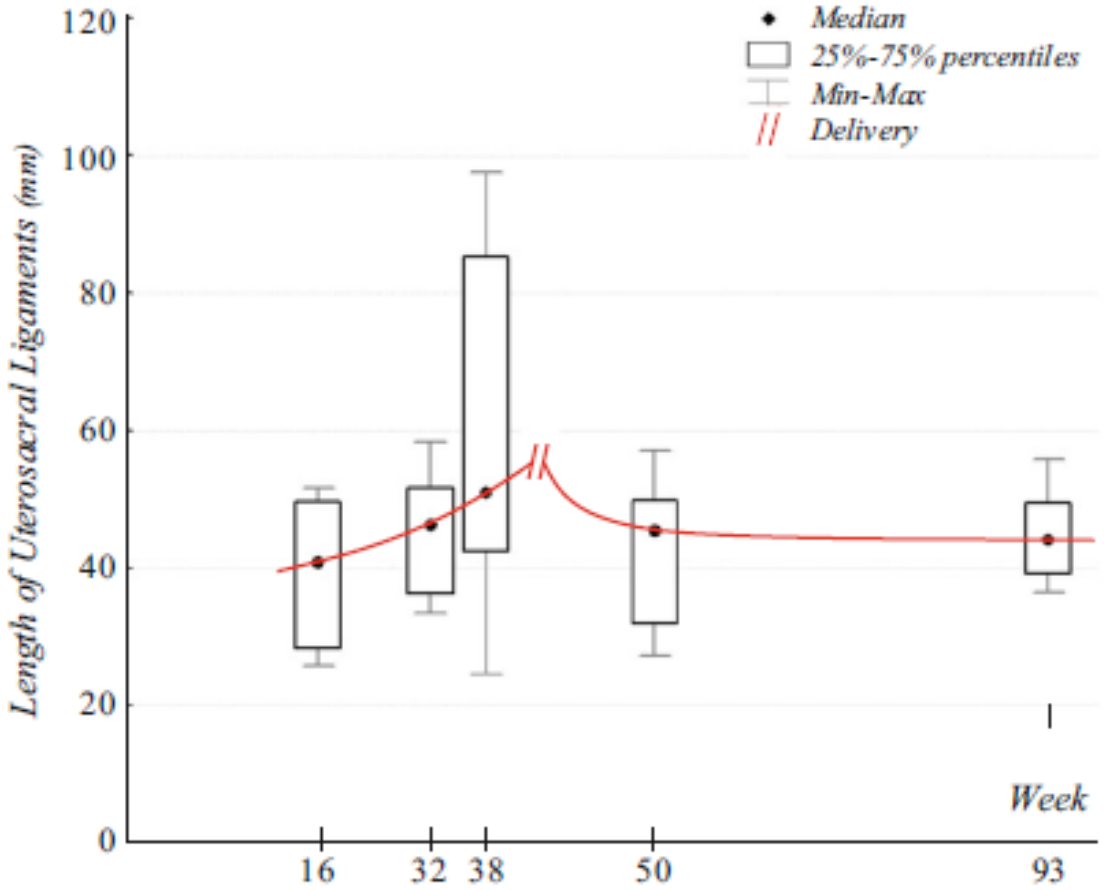
Il danno da parto: fisiopatologia

Pregnancy impact on uterosacral ligament and pelvic muscles using a 3D numerical and finite element model: preliminary results

Estelle Jean Dit Gautier [1,2,3,4] · Olivier Mayeur [3,4,5] · Julien Lepage [1] · Mathias Brieu [3,4,5] · Michel Cosson [1,2,3,4] · Chrystele Rubod [1,2,3,4]



2018



Il danno da parto:di cosa parliamo?

- Urinary dysfunctions
- Anal dysfunctions
- Sexual dysfunctions
- Pelvic organ prolapse

Il danno da parto: epidemiologia

…real size of the problem?...

Il danno da parto: epidemiologia

Large number of publications

Inconsistent or conflicting results


PREVALENCE UNDER REPORTED

…It's always worse than it seems…

not well studied → <u>VERY MUCH UNDERSTIMATED</u>

due to:

- lack of self-reporting (less than 20% of symptomatic women)
- the lack of screening opportunitiy post-partum

Il danno da parto: epidemiologia

…"women **ARE UNINFORMED** about postpartum pelvic floor problems"….

… " women highlighted the lack of service provision for these problems and that health-care practitioners, and society at large, were often **dismissive** of, or **trivialized**, their experiences of enduring postnatal perineal and pelvic floor morbidity"….

Buurman MB,et al. Women's perception of postpartum pelvic floor dysfunction and their help-seeking behaviour: a qualitative interview study. Scand J Caring Sci 2013;27(2):406–13.
Herron-Marx S, et al. A Q methodology study of women's experience of enduring postnatal perineal and pelvic floor morbidity. Midwifery 2007;23(3):322–34.

Il danno da parto: epidemiologia

Do obstetrical providers counsel women about postpartum pelvic floor dysfunction?

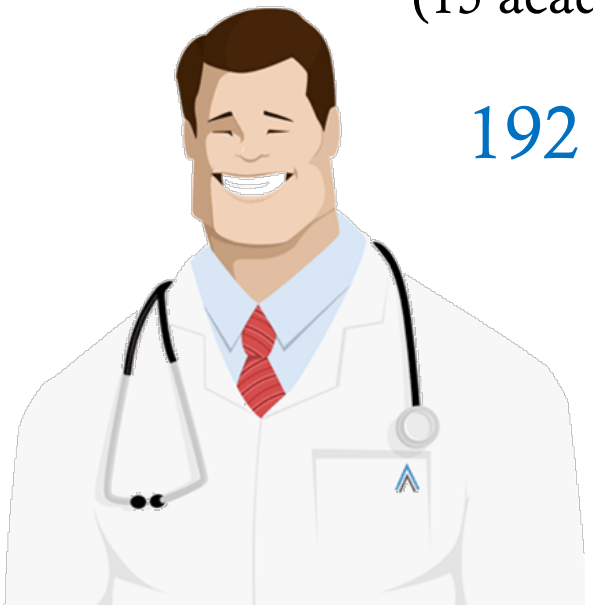
Sybil G. Dessie, MD, Michele R. Hacker, ScD, Laura E. Dodge, MPH, and Eman A. Elkadry,

The Journal of Reproductive Medicine®

J Reprod Med. 2015 ; 60(5-6): 205–210.

pilot survey of obstetrical providers to determine
their prenatal counseling practices related to postpartum pelvic floor dysfunction

The participating sites included 28 medical centers
(15 academic and 13 community) in 9 states



192 physicians completed questionnaires

49.7% were general obstetrician-gynecologists
33.5% were obstetrics and gynecology residents
9.8% were maternal fetal medicine faculty or fellows
6.9% were midwives or nurse practitioners

Il danno da parto: epidemiologia

Do obstetrical providers counsel women about postpartum pelvic floor dysfunction?

Sybil G. Dessie, MD, Michele R. Hacker, ScD, Laura E. Dodge, MPH, and Eman A. Elkadry,

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J Reprod Med. 2015 ; 60(5-6): 205–210.

56.3% reported never discussing postpartum urinary incontinence

73.7% reported never discussing postpartum fecal incontinence

Il danno da parto: epidemiologia

Do obstetrical providers counsel women about postpartum pelvic floor dysfunction?

Sybil G. Dessie, MD, Michele R. Hacker, ScD, Laura E. Dodge, MPH, and Eman A. Elkadry,

The Journal of Reproductive Medicine®

J Reprod Med. 2015 ; 60(5-6): 205–210.

- 39.9 % **lack of time**
- 30.1 % **lack of sufficient information** regarding PFD
- 14.5 % assumption that patients know that PFD is **part of a normal pregnancy and delivery**
- 13.9 % a perceived **low incidence** of PFD
- 5-7 % the concern that **pts would elect cesarean delivery** If informed of the risks associated with vaginal delivery

…Why they did not do this?...

Il danno da parto:di cosa parliamo?

- **Urinary dysfunctions**
- Anal dysfunctions
- Sexual dysfunctions
- Pelvic organ prolapse

le disfunzioni urinarie

Prevalence of postpartum urinary incontinence: a systematic review

DAVID H. THOM[1] & GURI RORTVEIT[2,3]

Acta Obstetricia et Gynecologica. 2010; 89: 1511–1522

2010

33 studies reported a

33% prevalence of any type postpartum urinary incontinence

in the first 3 months postpartum
with a prevalence of
weekly and daily incontinence
of 12% and 3% respectively.

Vaginal delivery group (31%) vs Cesarean section group (15%)

le disfunzioni urinarie

Prospective study to assess risk factors for pelvic floor dysfunction after delivery

MAURIZIO SERATI[1], STEFANO SALVATORE[1], VIK KHULLAR[2], STEFANO UCCELLA[1], EVELINA BERTELLI[1], FABIO GHEZZI[1] & PIERFRANCESCO BOLIS[1]

Prospective study
967 women delivered vaginally
(336 for final analysis)

2008

ICIQ in addition with 5 items for anal function and 2 items for sexual function
Interview during hospitalisation and telephone interview at 6 -12 months

EXCLUSION CRITERIA:

presence of urinary, anal or sexual symptoms prior to delivery
(even during pregnancy);women delivered by caesarean section or twin pregnancy;

le disfunzioni urinarie

Prospective study to assess risk factors for pelvic floor dysfunction after delivery

MAURIZIO SERATI[1], STEFANO SALVATORE[1], VIK KHULLAR[2], STEFANO UCCELLA[1], EVELINA BERTELLI[1], FABIO GHEZZI[1] & PIERFRANCESCO BOLIS[1]

2008

De novo urinary incontinence:

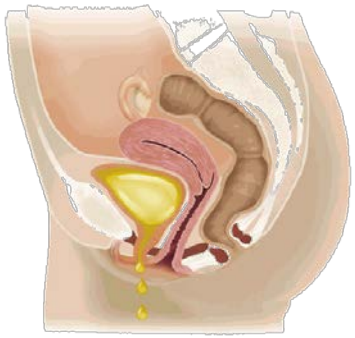
- 27 % at 6 months
- 23.2% at 12 months

Type of symptoms	6 months ($n=92$)	12 months ($n=78$)	Persistence of disturbance (%)
Stress incontinence	49	39	79.6
Overactive bladder	21	17	81
Mixed symptoms	22	22	100

le disfunzioni urinarie

A prospective study of pelvic floor dysfunctions related to delivery

Gabriella Torrisi[a,*], Gianfranco Minini[b], Francesco Bernasconi[c], Antonio Perrone[d], Gennaro Trezza[e], Vincenzo Guardabasso[f], Giuseppe Ettore[a]



2012

Multicenter prospective study
6 public hospitals distributed in various geographical areas of Italy
960 women, 744 women were included for final analysis
only nulliparous women,
having had delivery at term (37–42 w) general questionnaire;
ICIQ-SF; WCGS; 4 questions for sexual function

Pre-pregnancy incontinence was not an exclusion criterion,
but these women were excluded from relevant analyses.

le disfunzioni urinarie

A prospective study of pelvic floor dysfunctions related to delivery

Gabriella Torrisi [a,*], Gianfranco Minini [b], Francesco Bernasconi [c], Antonio Perrone [d], Gennaro Trezza [e], Vincenzo Guardabasso [f], Giuseppe Ettore [a]

2012

Urinary incontinence:

➢ 21.6% at 3 months

- 14% before pregnancy
- 53% during pregnancy
- 32% de novo after delivery

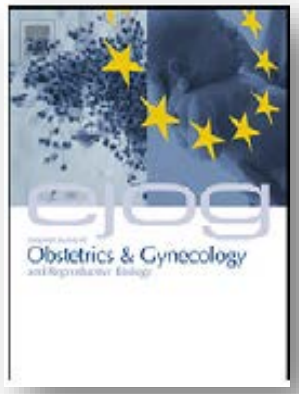
✓ Stress urinary incontinence: 61%
✓ Urge incontinence: 15.5%
✓ Mixed incontinence: 12.4%

Vaginal delivery 27% vs Caesarean section 12%

le disfunzioni urinarie

Pelvic floor assessment after delivery: how should women be selected?

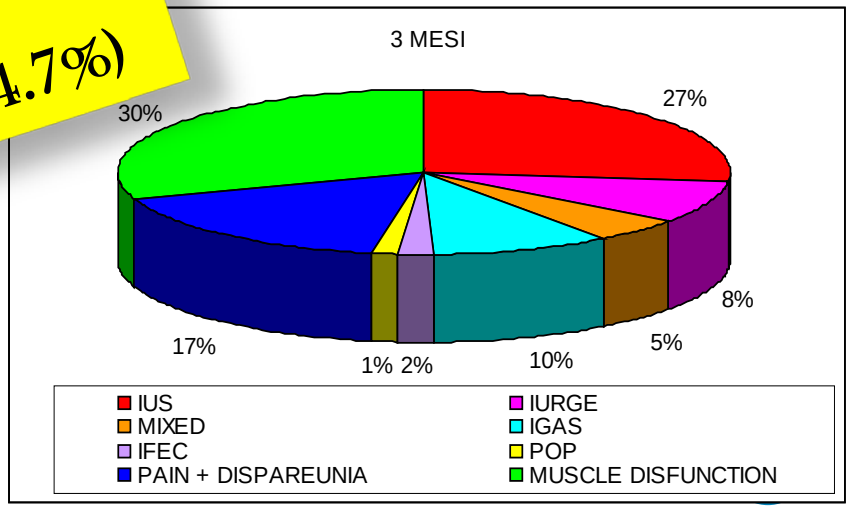
Marco Soligo[a,*], Stefania Livio[a], Elena De Ponti[b], Ileana Scebba[a], Federica Carpentieri[a], Maurizio Serati[c], Enrico Ferrazzi[a]



Prospective observational study
tertiary referral maternity hospital
1293 nulliparous, 685 women were included for final analysis 2016
women who were ≥ 32 weeks gestational age when they delivered

- UI: 18.7%
- AI: 5.4%
- POP: 0.6%
- Pain/Dyspareunia: 8.0%
- Muscle dysfunctions.: 14.2%

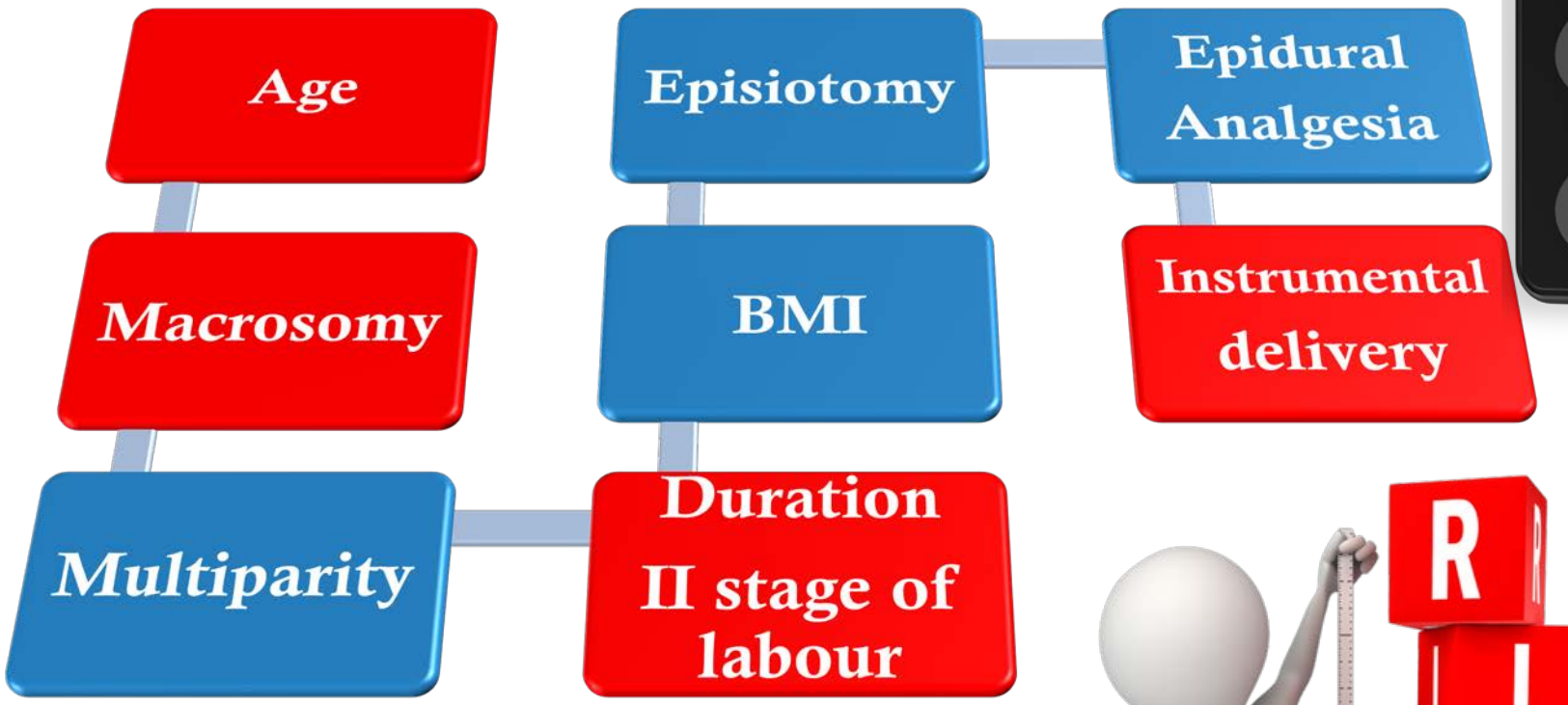
PFDs
238 women (34.7%)



le disfunzioni urinarie

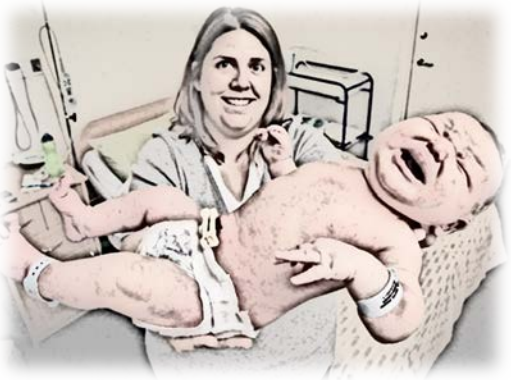
- Age
- Episiotomy
- Epidural Analgesia
- Macrosomy
- BMI
- Instrumental delivery
- Multiparity
- Duration II stage of labour

le disfunzioni urinarie



le disfunzioni urinarie

Macrosomy



≥ 4000 gr

Casey BM et al. Obstetric antecedents for postpartum pelvic floor dysfunction. Am J Obstet Gynecol 2005 May;192(5):1655-62.
Meschia M et al. Prevalence of anal incontinence in women with symptoms of urinary incontinence and genital prolapse. Obstet Gynecol 2002 Oct;100(4):719-23
O'Boyle AL et al. The natural history of pelvic organ support in pregnancy Int Urogynecol J 2003 Feb;14(1):46-9

Duration

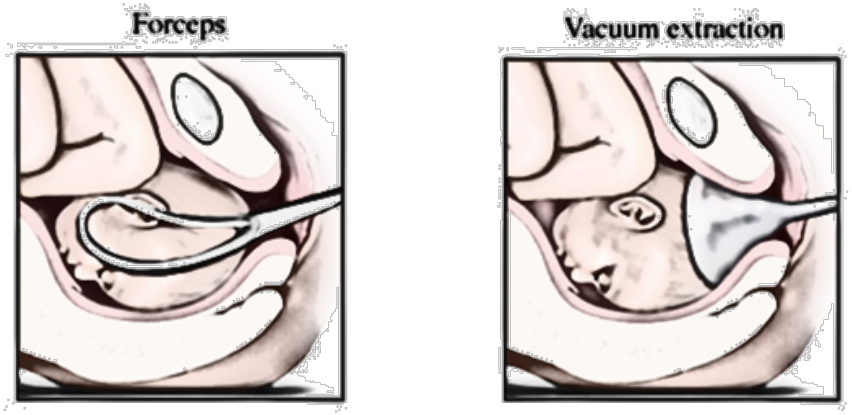
II stage of labour

≥ 60 min

Handa VL et al. Protecting the pelvic floor: obstetric management to prevente incontinence and pelvic orga prolapse. Obstet Gynecol 1996 Sep;88(3):470-8
Gurel H et al. Pelvic relaxation and associated risk factors: the results of logistic regression analysis *Acta Obstet Gynecol Scand* . 1999 Apr;78(4):290-3
Dietz HP et al. The effect of childbirth on pelvic organ mobility.*Obstet Gynecol*, 2003 Aug;102(2):223-8

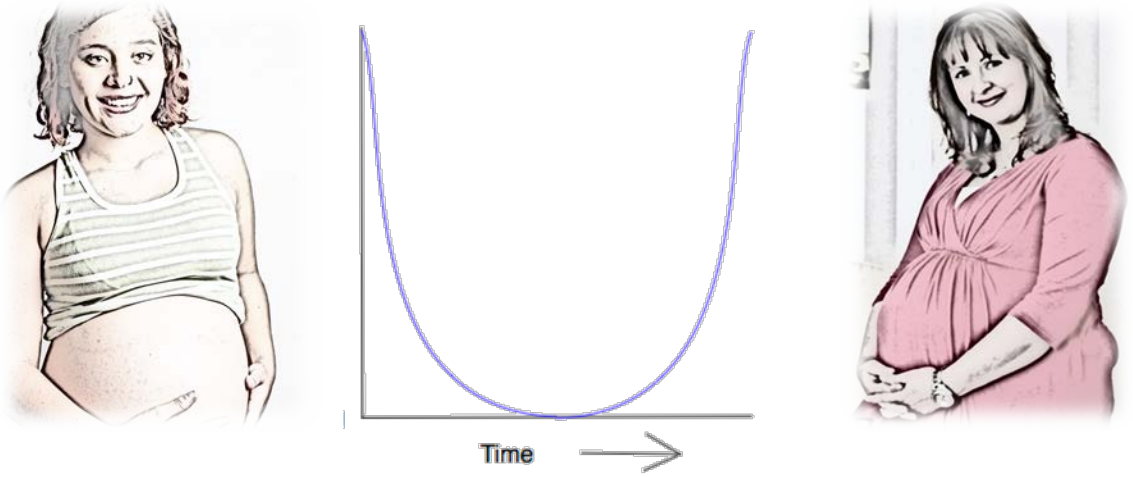
le disfunzioni urinarie

Instrumental delivery



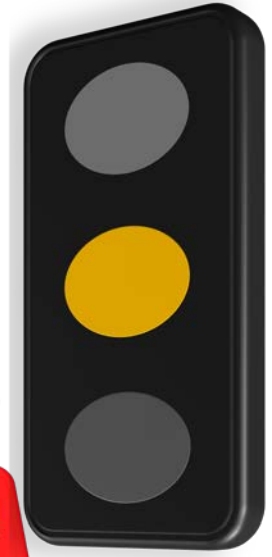
Meyer S 1998 Obstet Gynecol
Gurel H 1999 Acta Obstet Gynecol Scand
Casey BM 2005 Am J Obstet Gynecol
Dainer MJ 1999 Curr Opin Obstet Gynecol

Age



Bump RC. Dynamic UPP trasmission ratio determinations after continence surgery: understanding the mechanism of success, failure, and complications. Obstet Gynecol, 1988. 72(6): p. 870-4.
Bunne G. et al. Influence of pubococcygeal repair on urethral closure pressure at stress. Acta Obstet Gynecol Scand, 1978. 57(4): p. 355-9.
Heilbrun, M.E., et al., *Correlation between LAM injuries on MRI and FI, POP and UI in primiparous women.* Am J Obstet Gynecol, 2010. 202(5): p. 488 e1-6.

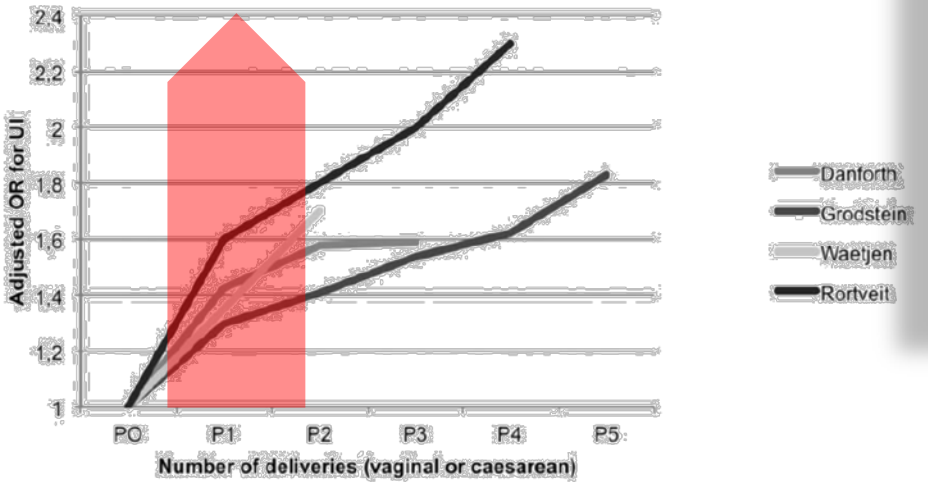
le disfunzioni urinarie



- Age
- Macrosomy
- Multiparity
- Episiotomy
- BMI
- Duration II stage of labour
- Epidural Analgesia
- Instrumental delivery

le disfunzioni urinarie

Multiparity



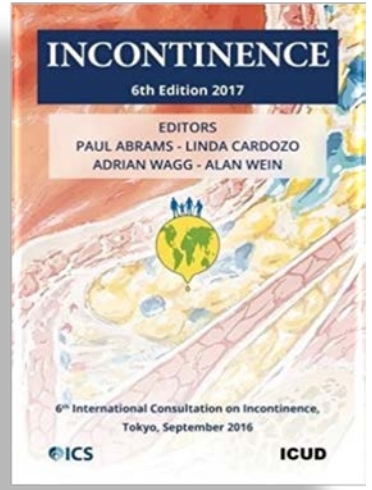


Figure 7. Adjusted OR for UI from large cross-sectional surveys grouped according to number of deliveries(128,145,156,178)

BMI

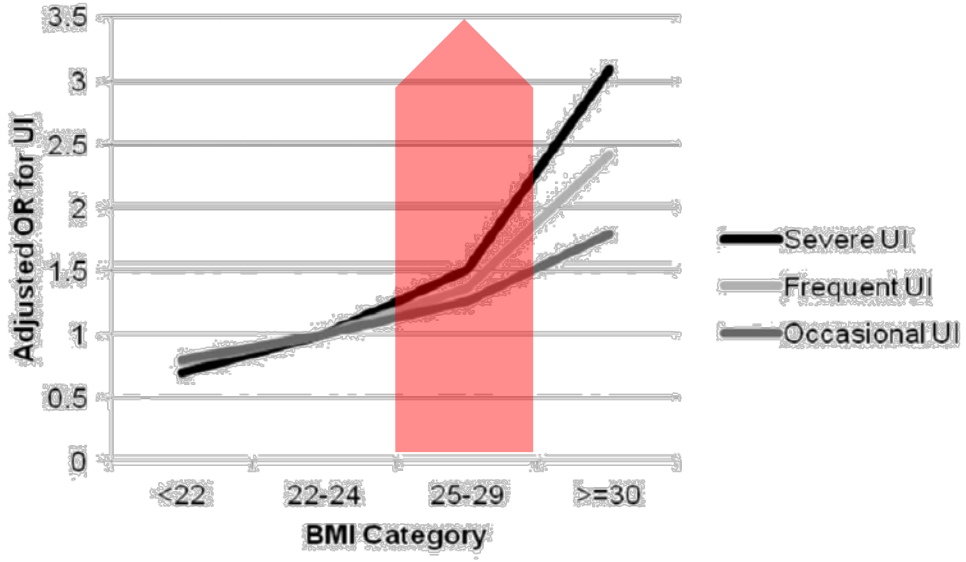
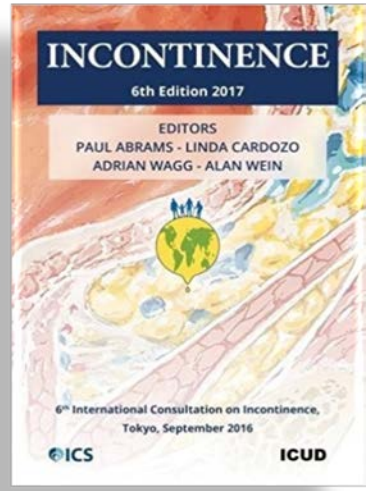
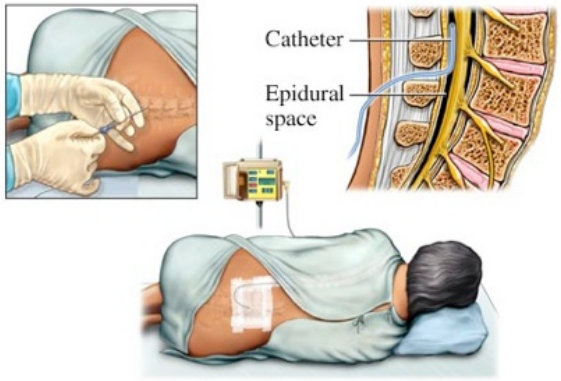


Figure 5. Associations between BMI and UI severity from [156].

le disfunzioni urinarie

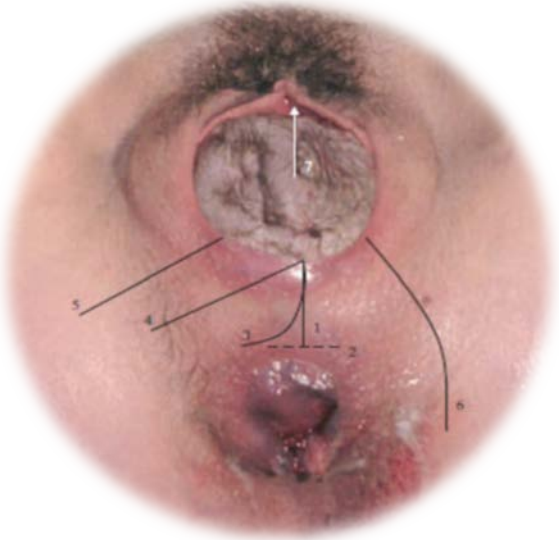


Epidural Analgesia



Epidural analgesia during labour: controversial results regarding its potential effect on the pelvic floor and perineal injury. There is a lack of prospective, randomized trials, requiring further research and development in order to draw recommendations.

Episiotomy

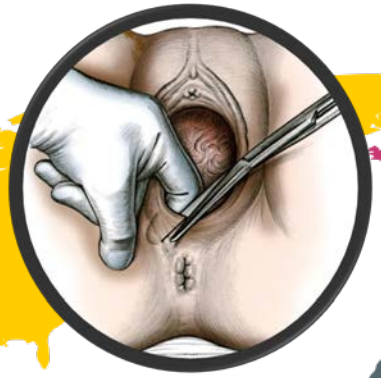


Episiotomia

Episiotomy story

HEALTH CARE FOR WOMEN INTERNATIONAL
https://doi.org/10.1080/07399332.2018.1445253

…BEFORE 1980



Statistical trends of episiotomy around the world: Comparative systematic review of changing practices

Christophe Clesse [a,b,c], Joëlle Lighezzolo-Alnot [b], Sylvie De Lavergne [c], Sandrine Hamlin [c], and Michèle Scheffler [c,d]

Episiotomia

Episiotomy for vaginal birth

Guillermo Carroli[1] and Luciano Mignini[1]

Cochrane Library

Cochrane Database of Systematic Reviews

2000 - 2008

The objective of this review was to assess the effects of restrictive use of episiotomy compared with routine episiotomy

Authors included eight studies (5541 women)

Selection criteria:

Randomized trials comparing :

- restrictive use of episiotomy with routine use of episiotomy;
- restrictive use of mediolateral episiotomy versus routine mediolateral episiotomy;
- restrictive use of midline episiotomy versus routine midline episiotomy;
- use of midline episiotomy versus mediolateral episiotomy.

eoc

Episiotomia

Episiotomy for vaginal birth

Guillermo Carroli[1] and **Luciano Mignini**[1]

Cochrane Library

Cochrane Database of Systematic Reviews

2000 - 2008

Compared with routine use, restrictive episiotomy resulted in:

- ❑**Less severe perineal trauma**
- ❑**Less suturing**
- ❑**less posterior perineal trauma**
- ❑**Fewer healing complications**

Episiotomia

Episiotomy for vaginal birth

Guillermo Carroli[1] and Luciano Mignini[1]

Cochrane Library

Cochrane Database of Systematic Reviews

2000 - 2008

The primary question is whether or not to use an episiotomy routinely. The answer is clear. There is evidence to support the restrictive use of episiotomy compared with routine use of episiotomy. This was the case for the overall comparison and the comparisons of subgroups, that take parity into account.

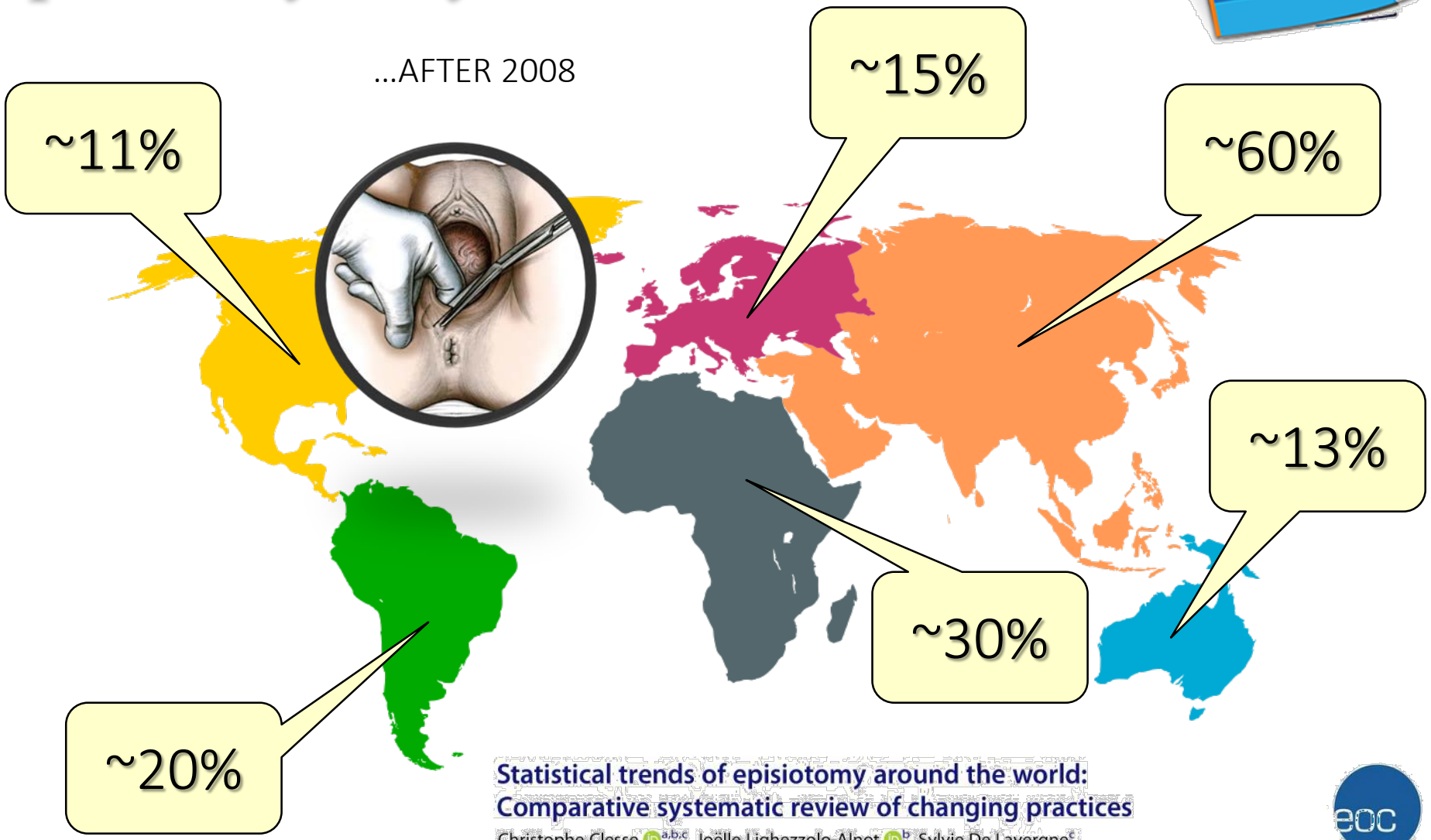
In light of the available evidence, restrictive use of episiotomy is recommended. However, it needs to be taken into account that long term outcomes were assessed by studies with high loss of follow up.

Episiotomia

Episiotomy story

HEALTH CARE FOR WOMEN INTERNATIONAL
https://doi.org/10.1080/07399332.2018.1445253

...AFTER 2008



Statistical trends of episiotomy around the world: Comparative systematic review of changing practices

Christophe Clesse [a,b,c], Joëlle Lighezzolo-Alnot [b], Sylvie De Lavergne [c], Sandrine Hamlin [c], and Michèle Scheffler [c,d]

Episiotomia

Cochrane Library

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2017

Selective versus routine use of episiotomy for vaginal birth (Review)

Jiang H, Qian X, Carroli G, Garner P

This updated review includes 12 studies (6177 women)

Episiotomia

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Selective versus routine use of episiotomy for vaginal birth (Review)

Jiang H, Qian X, Carroli G, Garner P

This updated review includes 12 studies (6177 women)

For women where an **unassisted vaginal birth** was anticipated, a policy of **selective episiotomy may result in 30% fewer women experiencing severe perineal/vaginal trauma**

Episiotomia

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Selective versus routine use of episiotomy for vaginal birth (Review)

Jiang H, Qian X, Carroli G, Garner P

We do not know if there is a difference for

- ❑ Blood loss at delivery
- ❑ Apgar score less than seven at five minutes
- ❑ Perineal infection
- ❑ Moderate or severe perineal pain
- ❑ Long-term (six months or more) dyspareunia
- ❑ Long-term(six months or more) urinary incontinence
- ❑ Genital prolapse
- ❑ Long-term effects (urinary fistula, rectal fistula, and faecal incontinence).

Episiotomia

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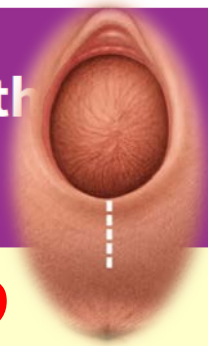
Selective versus routine use of episiotomy for vaginal birth (Review)



MIDLINE EPISIOTOMY NOT EXCLUDED

NO INSTRUMENTAL DELIVERY

Authors' conclusions

In women where no instru delivery is intended, selective episiotomy policies result in fewer women with severe perineal/vaginal trauma. Other findings, in the short or long term, provide no clear evidence that selective episiotomy policies results in harm to mother or baby.

The review thus demonstrates that believing that routine episiotomy reduces perineal/vaginal trauma is not justified by current evidence. Further research in women where instrumental delivery is intended may help clarify if routine episiotomy is useful in this particular group. These trials should use better, standardised outcome assessment methods.

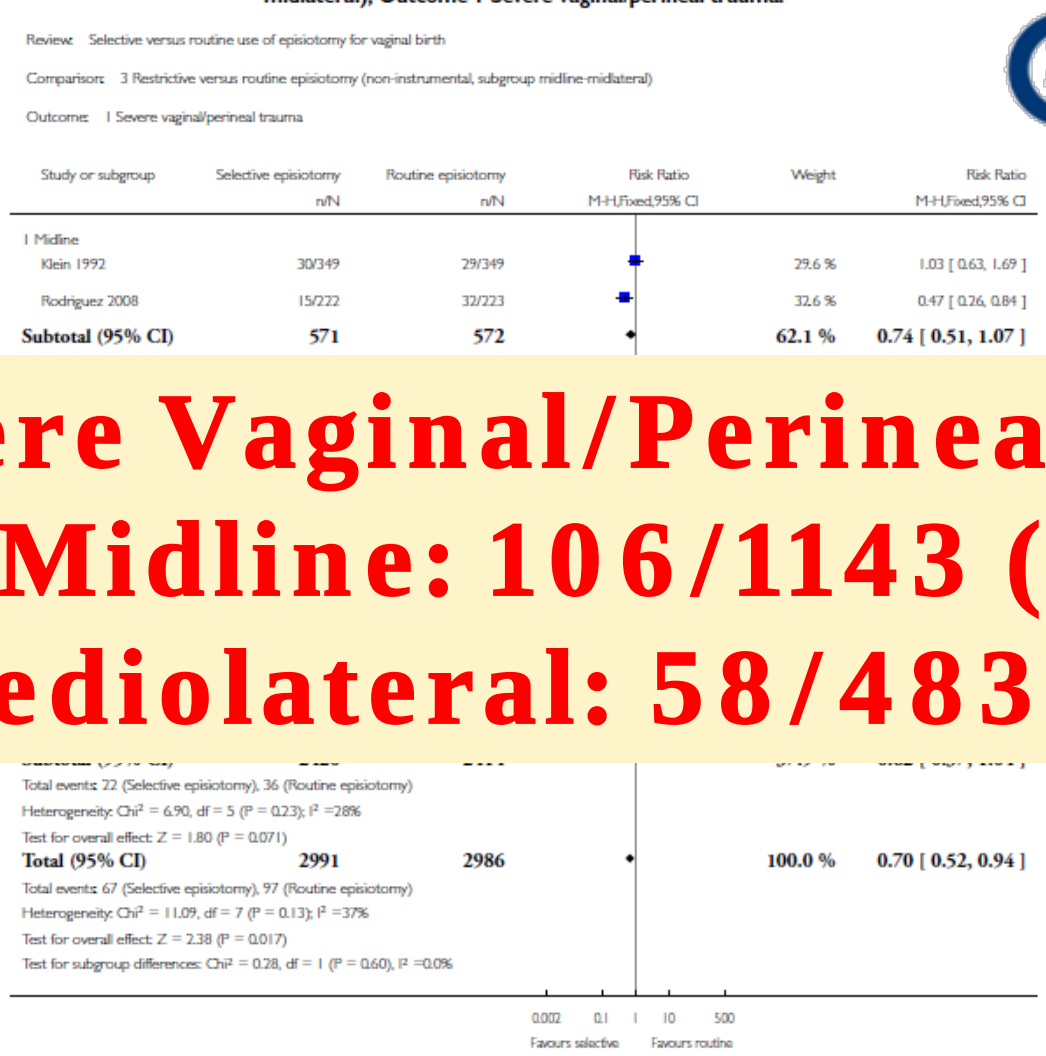
Episiotomia

Analysis 3.1. Comparison 3 Restrictive versus routine episiotomy (non-instrumental, subgroup midline-midlateral), Outcome 1 Severe vaginal/perineal trauma.

Review: Selective versus routine use of episiotomy for vaginal birth

Comparison: 3 Restrictive versus routine episiotomy (non-instrumental, subgroup midline-midlateral)

Outcome: 1 Severe vaginal/perineal trauma



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Severe Vaginal/Perineal Trauma:

Midline: 106/1143 (9.3%)

Mediolateral: 58/4834 (1.2%)

Episiotomia

The role of mediolateral episiotomy during operative vaginal delivery

A.H. Sultan[a], R. Thakar[a], K.M. Ismail[b], V. Kalis[c], K. Laine[d], S.H. Räisänen[e], J.W. de Leeuw[f,

ejog
European Journal of Obstetrics & Gynecology and Reproductive Biology

2019

Therefore, the evidence coming from the presented observational studies provides in our opinion enough basis to recommend the liberal use of a mediolateral or lateral episiotomy cut at 60° to the midline when operative vaginal delivery is needed.

Royal College of Obstetricians and Gynaecologists

B

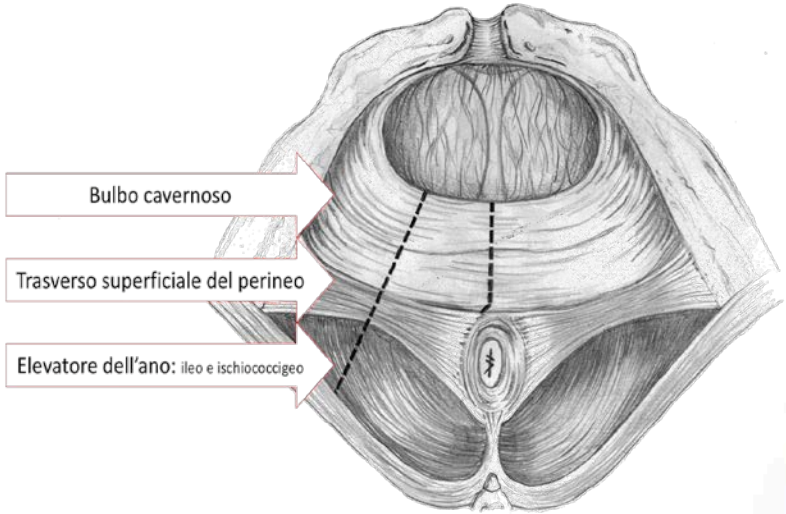
A lower risk of third-degree tear is associated with a larger angle of episiotomy. In a prospective case–control study there was a 50% relative reduction in risk of sustaining third-degree tear observed for every 6 degrees away from the perineal midline that an episiotomy was cut.[25]

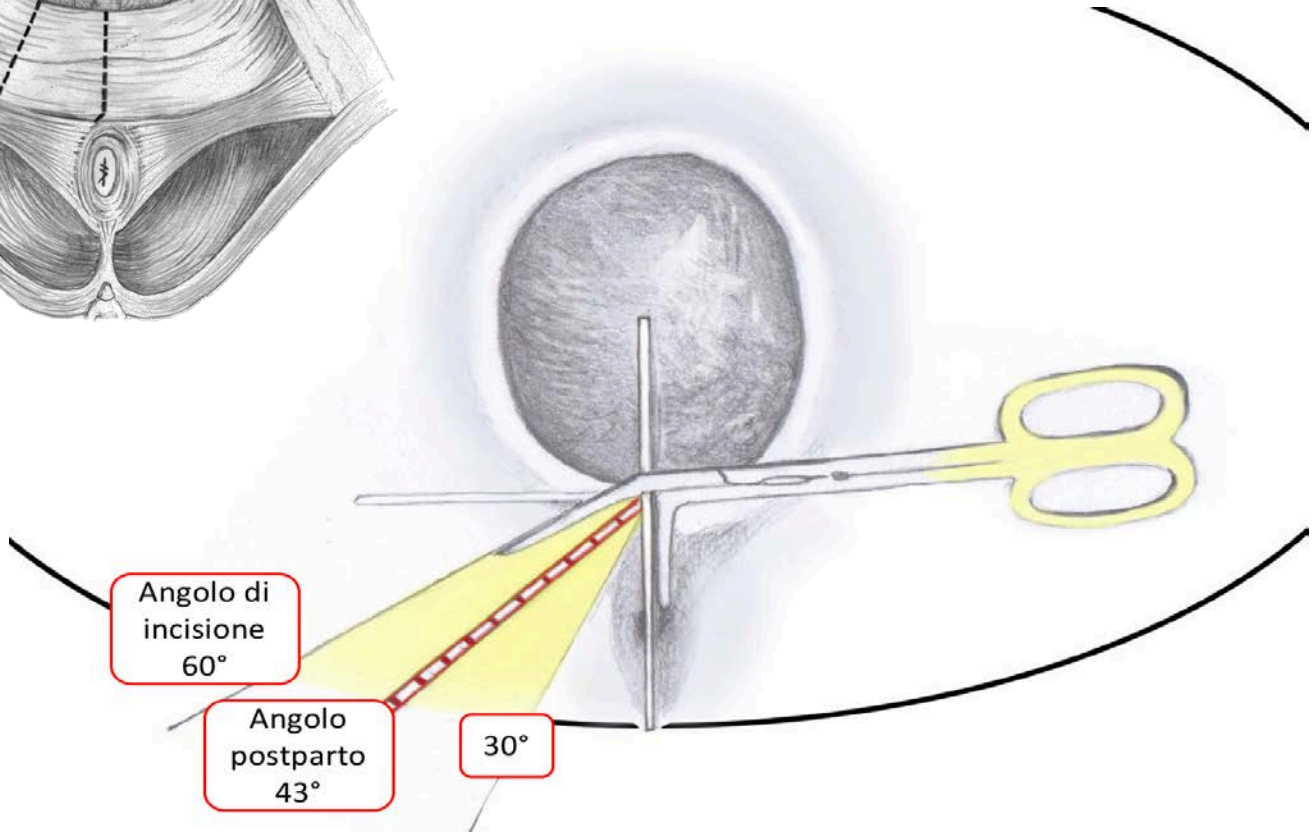
Evidence level IIa

Sultan et al BMJ 1994;308:887-91
Fernando et al BMC Health Serv Res 2002;2:9

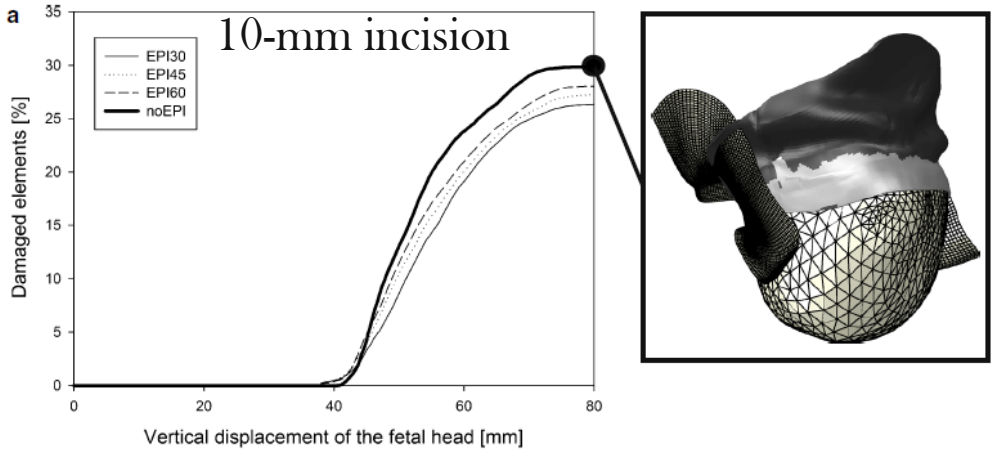
eoc

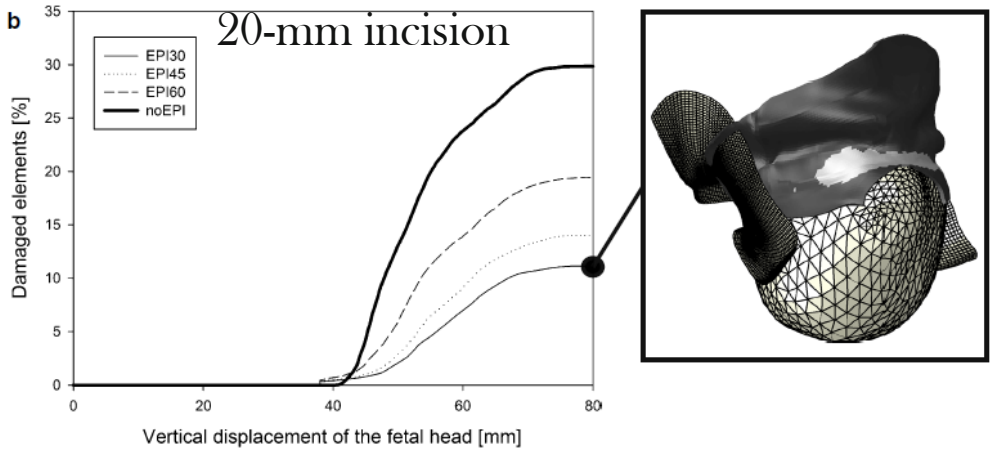
Episiotomia

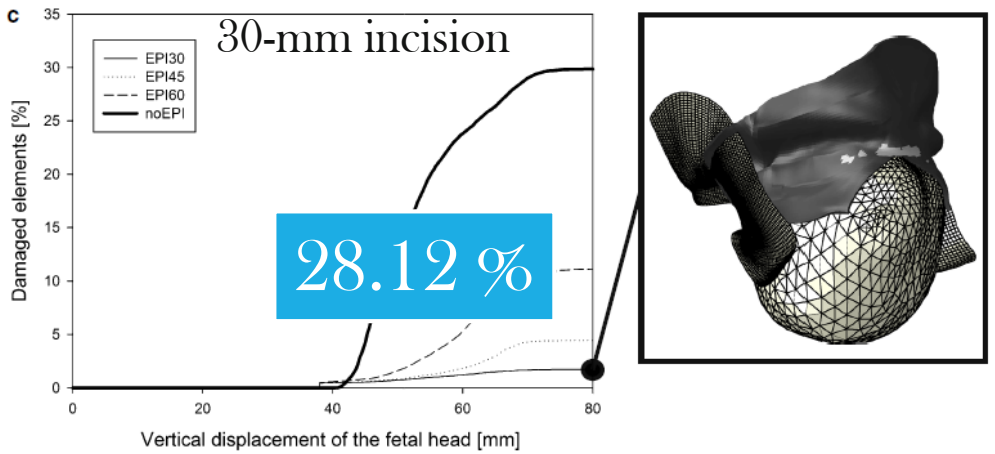




Eogan M, Daly L, Connell PRO, Herlihy CO. Does the angle of episiotomy affect the incidence of anal sphincter injury ?. 2006;190–4.*
Stedenfeldt M, et al. Episiotomy characteristics and risks for obstetric anal sphincter injuries : a case-control study. 2012;(1):724–30.

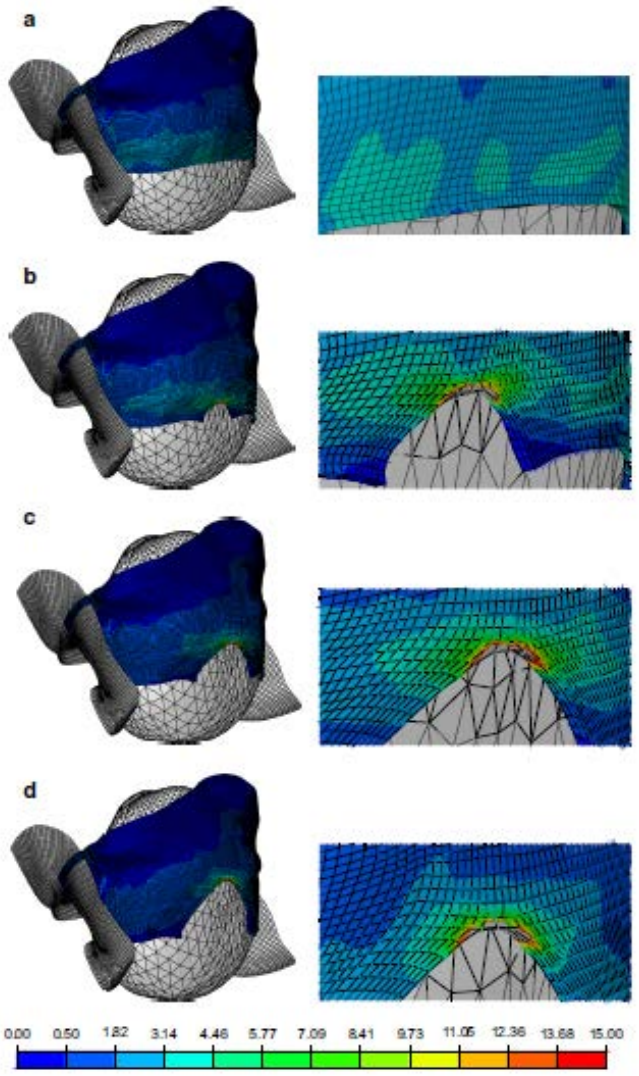

a
10-mm incision
EPI30
EPI45
EPI60
noEPI
Damaged elements [%]
Vertical displacement of the fetal head [mm]


b
20-mm incision
EPI30
EPI45
EPI60
noEPI
Damaged elements [%]
Vertical displacement of the fetal head [mm]


c
30-mm incision
EPI30
EPI45
EPI60
noEPI
Damaged elements [%]
Vertical displacement of the fetal head [mm]
28.12 %


Biomechanics and Modeling in Mechanobiology

2015


a
b
c
d
0.00 0.50 1.82 3.14 4.46 5.77 7.09 8.41 9.73 11.05 12.36 13.68 15.00

Episiotomia

The effectiveness of mediolateral episiotomy in preventing obstetric anal sphincter injuries during operative vaginal delivery: a ten-year analysis of a national registry

IUJ

2018

Jeroen van Bavel[1] · Chantal W. P. M. Hukkelhoven[2] · Charlotte de Vries[2] · Dimitri N. M. Papatsonis[1] · Joey de Vogel[3] · Jan-Paul W. R. Roovers[4] · Ben Willem Mol[5] · Jan Willem de Leeuw[6]

Retrospective population-based cohort study of all births between 2000 and 2010 in The Netherlands

Incidences of OASIS rate in 130,157 primiparous women were:

- **2.5% with mediolateral episiotomy**
- **14% without a mediolateral episiotomy**

(adjusted OR 0.14, 95% CI 0.13-0.15)

Incidences of OASIS rate in 29,183 multiparous women were:

- **2.0% with mediolateral episiotomy**
- **7.5% without a mediolateral episiotomy**

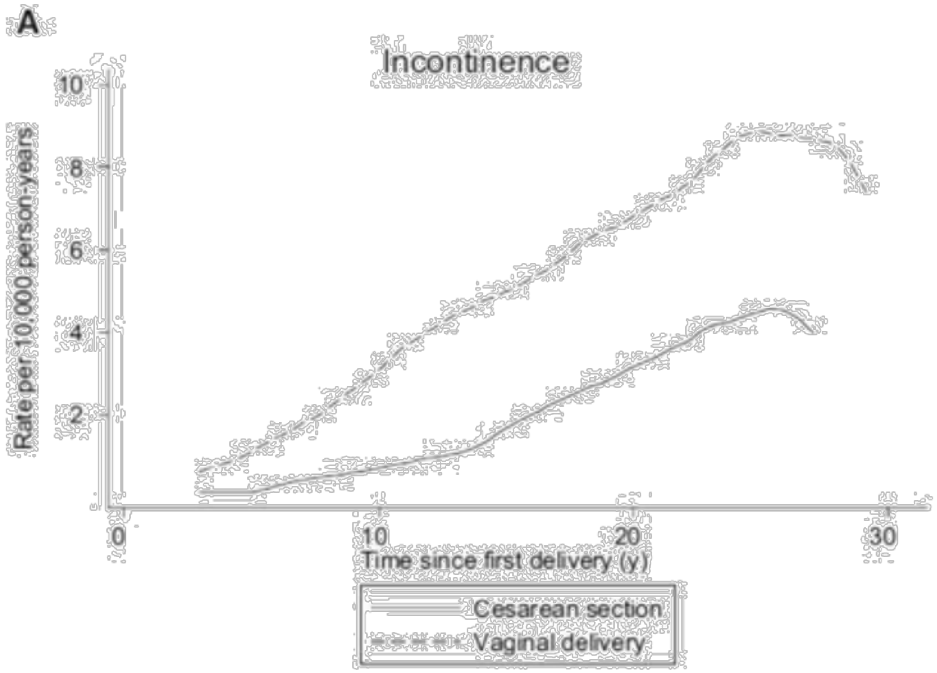
(adjusted OR 0.23, 95% CI 0.21-0.27)

eoc

le disfunzioni urinarie

Cesarean section

Swedish Medical Birth Registry between 1973 and 1982
30,880 women cesarean section group vs. 60,122 women vaginal delivery group only



SUI surgery was observed in:

0.4% of the cesarean group
1.2% of the vaginal group

follow-up time 26.9 years

Risk of SUI is estimated to be:

2.9 times higher
after vaginal delivery
compared with women after cesarean section

Leijonhufvud, A., et al., *Risks of stress urinary incontinence and pelvic organ prolapse surgery in relation to mode of childbirth.* Am J Obstet Gynecol, 2011. 204(1): p. 70 e1-7.

Il danno da parto:di cosa parliamo?

- Urinary dysfunctions
- **Anal dysfunctions**
- Sexual dysfunctions
- Pelvic organ prolapse

le disfunzioni anali

Obstetric Anal Sphincter Injury and Anal Incontinence Following Vaginal Birth: A Systematic Review and Meta-Analysis

Allison LaCross, DNP, CNM, Meredith Groff, DNP, AGPCPNP-BC, Arlene Smaldone, PhD, CPNP, CDE

Journal of Midwifery & Women's Health

2015

Year	Author	Study Design	Follow up	Prevalence AI
1999	Groutz	Cross-sectional	3 months	7 %
1999	Abramowitz	Cross-sectional	2 months	9 %
2000	Signorello	Retrospective cohort	6 months	2.3 %
2001	de Leeuw	Retrospective cohort	14 years	36.7 %
2001	MacArthur	Prospective cohort	3 months	9.6 %
2002	Eason	Cross-sectional	3 months	28.6 %
2004	Sartore	Case control	3 months	2.3 %
2006	Borello-France	Prospective cohort	6 months	12 %
2008	Samarasekera	Retrospective cohort	14 years	20 %
2011	Torrisi	Prospective cohort	3 months	16.3 %
2012	Handa	Prospective cohort	5-10 years	12 %

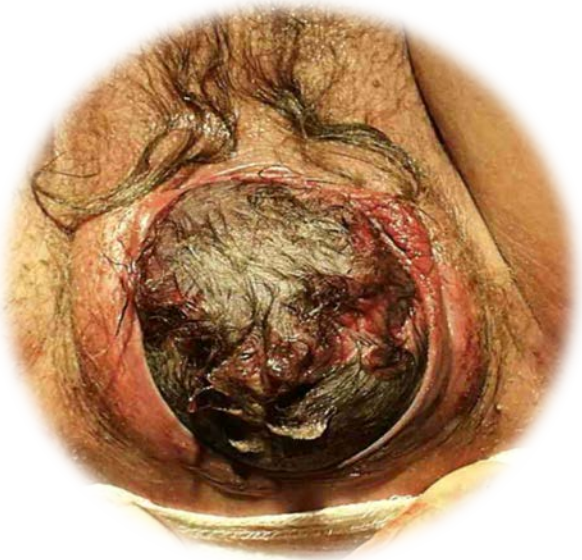
le disfunzioni anali

- ✓ **6%** de novo faecal incontinence post partum

Chaliha et al 1999 Obstet Gynecol
Serati M, Salvatore S et al 2008 Acta Obstet Gynecol Scand

- ✓ 0.7-6% stool incontinence
- ✓ 5-26% flatus incontinence

Wang et al Int Urogynecol j 2006;17:253-60



- ✓ Women at age of 45 experience AI

8-times more than men at same age

Lorge et al. Contemp surg 1993;43:214-24

le disfunzioni anali

- Several perineal tears
- Duration II stage of labour
- Instrumental delivery
- Macrosomy
- Episiotomy
- Epidural analgesia
- Age
- BMI
- Multiparity

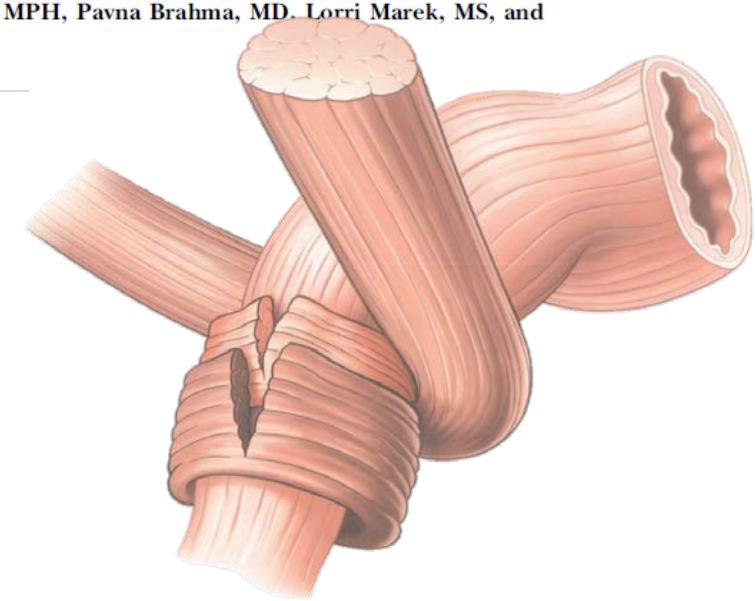
le disfunzioni anali

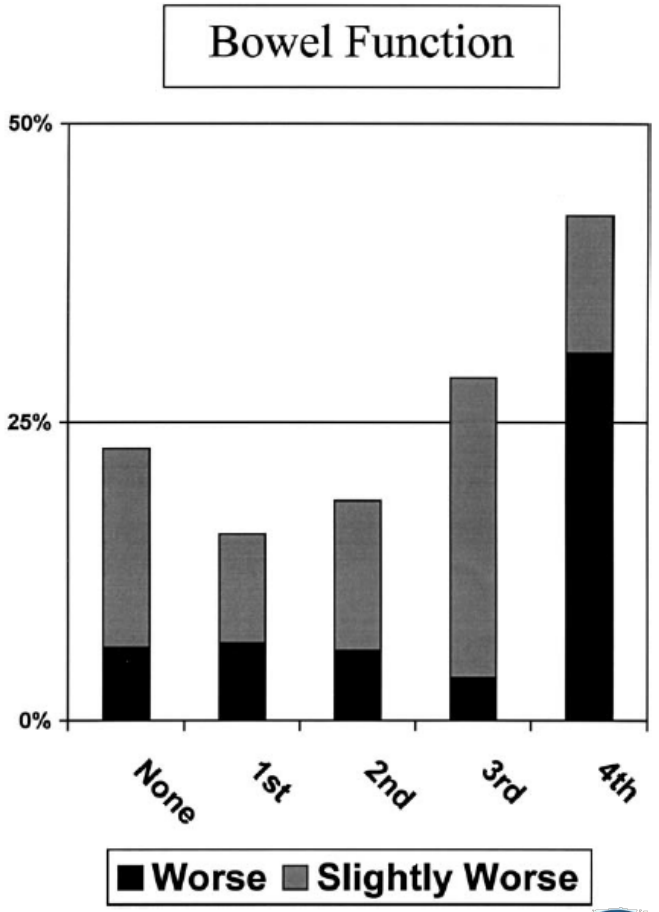
AJOG American Journal of Obstetrics & Gynecology

Fecal and urinary incontinence after vaginal delivery with anal sphincter disruption in an obstetrics unit in the United States

2003

Dee E. Fenner, MD, Becky Genberg, MPH, Pavna Brahma, MD, Lorri Marek, MS, and John O. L. DeLancey, MD

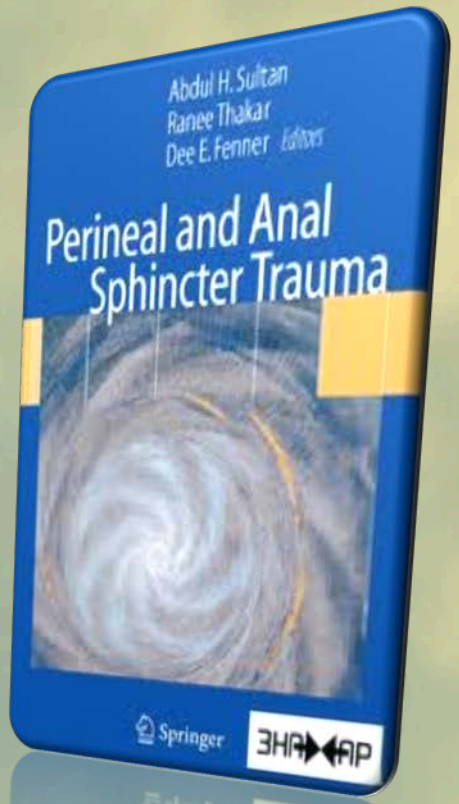




Obstetric Anal Sphincter Injury

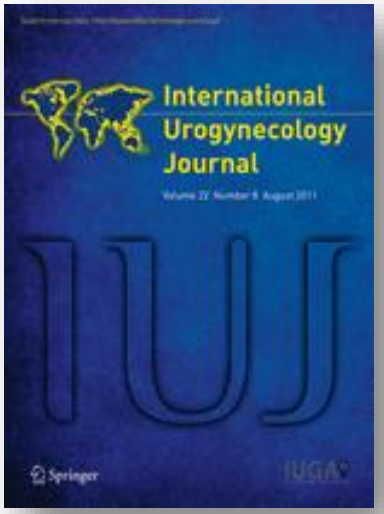
✓ **3.6% AI** → 3rd degree OASIS

✓ **30.8% AI** → 4th degree OASIS



Occult OASIS: 20 - 40%!!

le disfunzioni anali



Does cesarean protect against fecal incontinence in primiparous women?

Jeanne-Marie Guise

Int Urogynecol J (2009) 20:61–67

Based on the multivariate analysis, this study found that for women who deliver either vaginally or by cesarean

Constipation

BMI ≥ 30 Kg/m2

Il danno da parto:di cosa parliamo?

- Urinary dysfunctions
- Anal dysfunctions
- **Sexual dysfunctions**
- Pelvic organ prolapse

le disfunzioni sessuali

Sex After Childbirth

Postpartum Sexual Function

Lawrence M. Leeman, MD, and Rebecca G. Rogers, MD

2012

Postpartum sexual dysfunction (including dyspareunia) is identified in **41–83% of women at 2–3 months postpartum**.

le disfunzioni sessuali

Prospective study to assess risk factors for pelvic floor dysfunction after delivery

MAURIZIO SERATI[1], STEFANO SALVATORE[1], VIK KHULLAR[2], STEFANO UCCELLA[1], EVELINA BERTELLI[1], FABIO GHEZZI[1] & PIERFRANCESCO BOLIS[1]

Sexual dysfunction	6 months	12 months
De novo dyspareunia	23.8%	7.9%
Decrease of libido	17.2%	16.3%
Anorgasmia	12.6%	13%

None of the obstetrical risk factors was found to be significantly associated with a worsened sex life at final follow-up.

Etiology is multifactorial and consequently may not only be related to anatomic damage or changes

le disfunzioni sessuali

BJOG 2000, 107(2), pp. 186–195

Women's sexual health after childbirth

*Geraldine Barrett *Lecturer (Medical Sociology)*, *Elizabeth Pendry *Research Assistant*, *Janet Peacock *Senior Lecturer (Medical Statistics)*, *Christina Victor *Reader (Health Services Research)*, **Ranee Thakar *Research Fellow (Obstetrics and Gynaecology)*, **Isaac Manyonda *Consultant (Obstetrics and Gynaecology)*

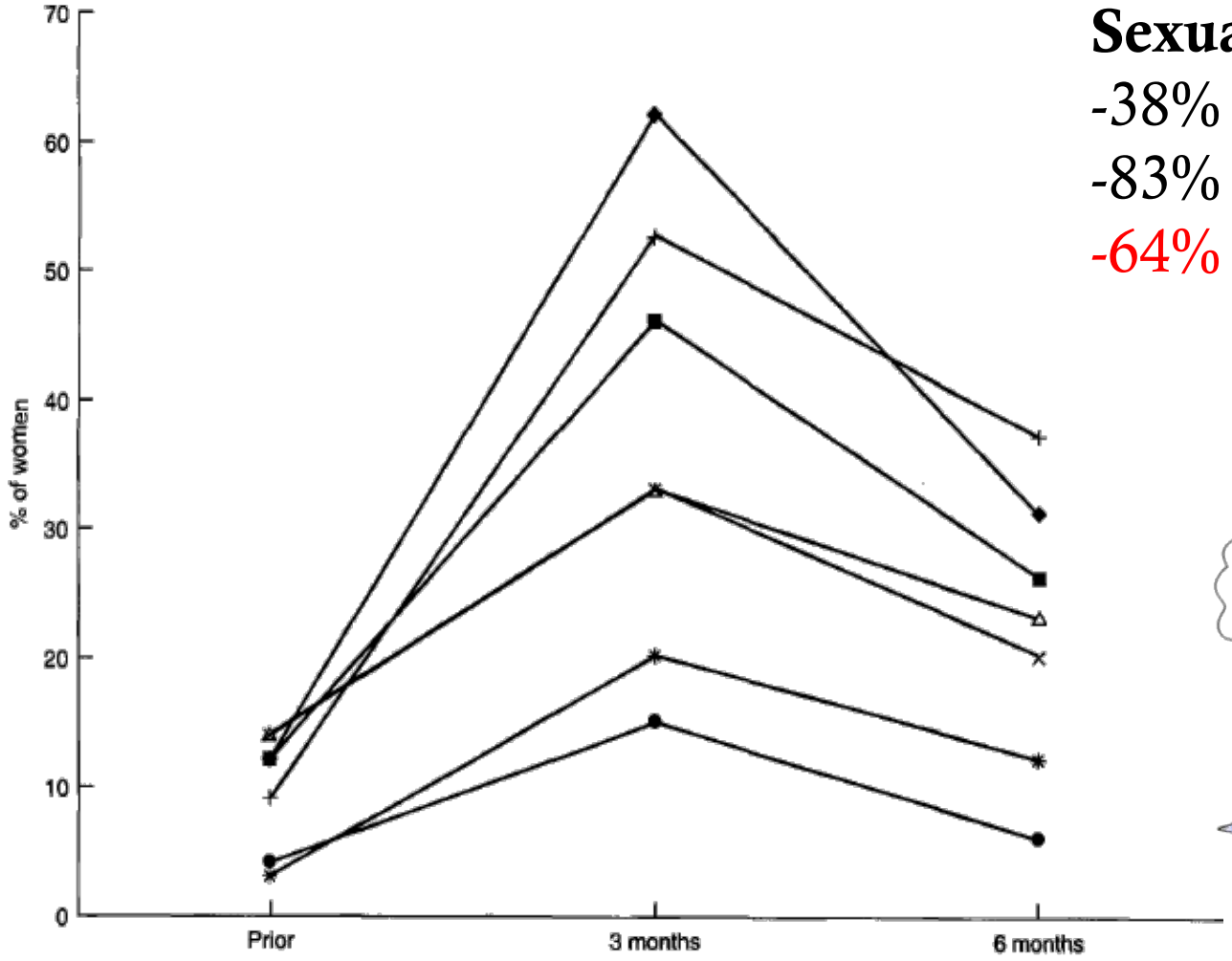
*St George's Hospital Medical School, London; **St George's Health Care Trust, London

796 primiparous women

Only 61% Of Responders (484)
Questionnaires at 3 – 6 months

le disfunzioni sessuali

Women's sexual health after childbirth



Sexual problems:

-38% pre-pregnancy

-83% at three months

-64% at six months

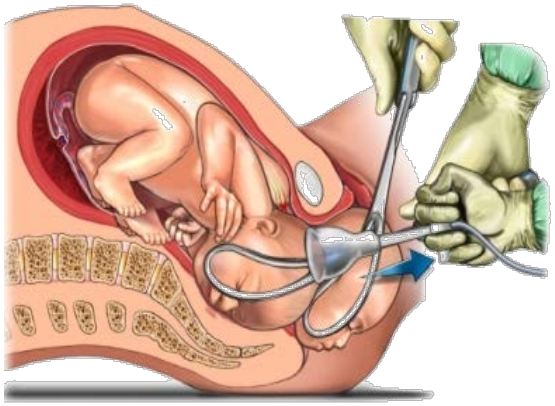
Fig. 1. Sexual problems. –◆– dyspareunia; –■– lack of vaginal lubrication; –△– difficulty reaching orgasm; –✖– vaginal tightness; –✳– vaginal looseness; –●– bleeding/irritation after sex; –+– loss of sexual desire.

le disfunzioni sessuali

Postpartum sexual functioning and its relationship to perineal trauma: A retrospective cohort study of primiparous women

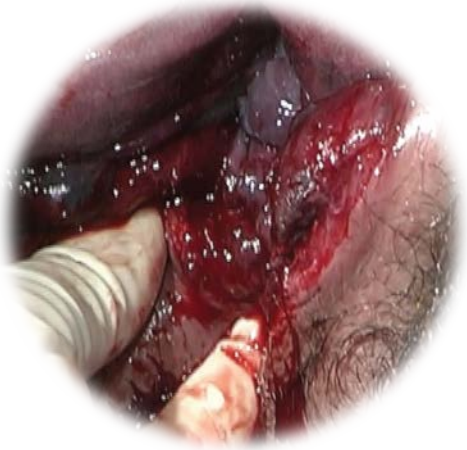
Lisa B. Signorello, ScD,[a, c] Bernard L. Harlow, PhD,[a] Amy K. Chekos,[a] and John T. Repke, MD[b, d]
Boston, Massachusetts, Rockville, Maryland, and Omaha, Nebraska

Instrumental delivery



At 6 months post partum, the use of vacuum extraction or forceps
was significantly associated with dyspareunia (odds ratio, 2.5; 95% CI, 1.3--4.8)

Perineal trauma



Dyspareunia

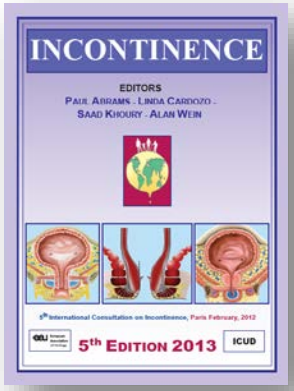
211 ≤ lac. I vs 336 lac. II vs 68 lac. III-IV

- **Laceration II: RR 1.8 (1.2-2.8)**
- **Laceration III-IV: RR 3.7 (1.7-7.7)**

Il danno da parto:di cosa parliamo?

- Urinary dysfunctions
- Anal dysfunctions
- Sexual dysfunctions
- **Pelvic organ prolapse**

Il prolasso genitale



The occurrence rate of pelvic organ prolapse **stage ≥ 2** in the first 3-6 months postpartum has been described in literature

between 1% - 56%

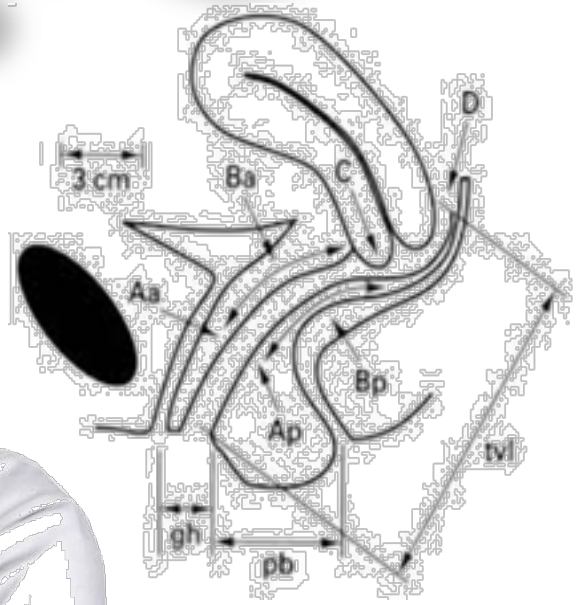
Il prolasso genitale

SYMPTOMS

ANATOMY

VALIDATED QUESTIONNAIRES

- ✓ HRQOL
- ✓ PISQ
- ✓ FSFI
- ✓ P-QOL
- ✓ PFD
- ✓ UDI
- ✓ DDI



Il prolasso genitale

Risk Factors Associated With Pelvic Floor Disorders in Women Undergoing Surgical Repair

Pamela A. Moalli, MD, PhD, Soyna Jones Ivy, MD, Leslie A. Meyn, MS, and Halina M. Zyczynski, MD

Instrumental delivery

BMI

Age of first delivery

Table 2. Obstetric and Current Gynecologic Risk Factors

Characteristic	Cases (n = 80)	Controls (n = 176)	P
Mode of first delivery			<.001
Cesarean	4 (5)	30 (17)	
Spontaneous vaginal	23 (31)	67 (39)	
Forceps	48 (64)	76 (44)	
Age at first delivery <25 y	41 (51)	37 (21)	<.001
Episiotomy	71 (89)	137 (78)	.055
Vaginal laceration–3° or 4°	15 (19)	26 (15)	.2
Infant birth weight > 4000 g	5 (6)	16 (9)	.6
BMI > 26 kg/m^2	53 (66)	61 (35)	<.001
History of gynecologic surgery	27 (34)	29 (16)	.003
Menopausal status			.2
Pre/perimenopausal	46 (58)	100 (57)	
Postmenopausal, no HRT	15 (19)	20 (11)	
Postmenopausal, HRT < 5 y	9 (12)	25 (14)	
Postmenopausal, HRT > 5 y	8 (10)	31 (18)	

Il prolasso genitale

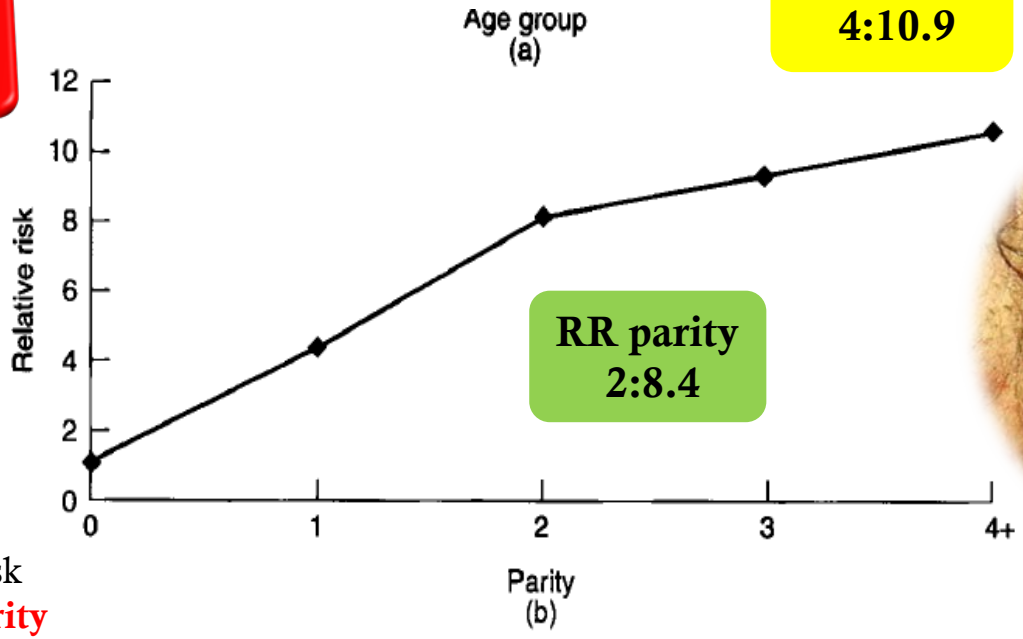
British Journal of Obstetrics and Gynaecology
May 1997, Vol. 104, pp. 579–585

Epidemiology of genital prolapse: observations from the Oxford Family Planning Association study

Jonathan Mant *Clinical Lecturer in Public Health Medicine*, **Rosemary Painter** *Computer Scientist*,
Martin Vessey *Professor of Public Health*

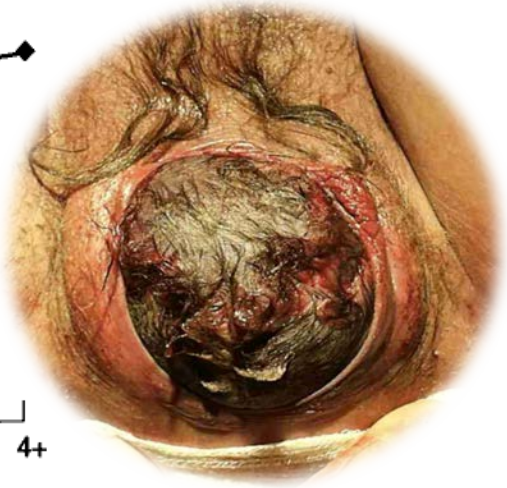
Multiparity

Level evidence II



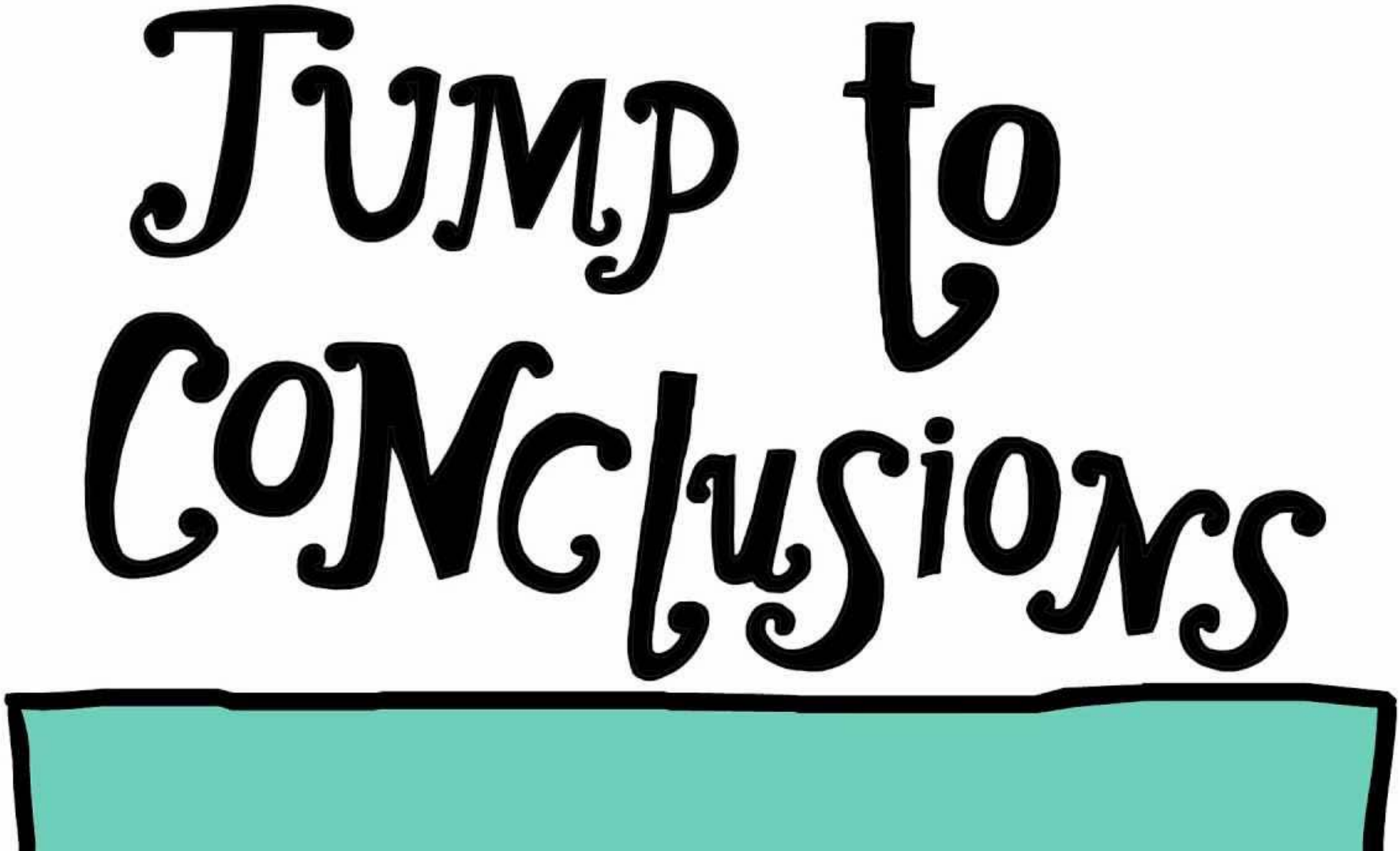
RR parity 4:10.9

RR parity 2:8.4



"…among the potential risk factors invastigated, **parity shows much the strongest relation to prolapse**…"

Il danno da parto



Il danno da parto

“ the complete protection of the perineum has undoubtedly remain a weak spot in our art.”

Ferdinand A.M.F. von Ritgen, 1855

Il danno da parto

International Urogynecology Journal
https://doi.org/10.1007/s00192-019-04205-3

LETTER TO THE EDITOR

Atraumatic childbirth: is it a utopia?

Andrea Braga[1] · Giorgio Caccia[1]

Received: 25 November 2019 / Accepted: 2

As reported by the Royal Coll
Gynecologists (RCOG) Guidelines
that > 85% of women who have a
some degree of perineal trauma, a
experience suturing. Obstetric
(OASIs) represent the most seve
[1–3]. An alarming fact is that the incidence of OASIs in the UK and other Europeans Countries has tripled (from 1.8 to 5.9%) in the last decade, with inevitable consequences for women's health and quality of life [4, 5]. Certainly, this rising rate could be explained by better recognition of OASIs, although the increasing recourse to instrumental delivery and the use of a "hands-off" approach at delivery have played an important role in this growth. In this scenario, the questions are: Can we deliver better? Is perineal trauma inevitable during vaginal delivery? Unfortunately, complete perineum protection during vaginal childbirth remains an ideal. However, it is possible to act on the preventable risk factors for perineal trauma, especially those related to the second stage of labor. This moment is crucial for the onset of pelvic floor dysfunctions (PFDs). Care should be taken following good obstetric practice

port programs in the UK and North Europe suggests a beneficial effect on perineal integrity, with > 50% reduction of OASIs [7–9]. Therefore, protection of the perineum, guiding the crowning of the head at the time of delivery, perineal massage and considering an episiotomy when needed, is advisable.

In conclusion, vaginal childbirth is likely to play the most significant role in the onset of PFDs. Hence, it should be physicians' duty to constantly evaluate our obstetric practice in accordance with the best scientific evidence available.

Compliance with ethical standards

Conflicts of interest None.

In conclusion, vaginal childbirth is likely to play the most significant role in the onset of PFDs. Hence, **it should be physicians' duty to constantly evaluate our obstetric practice in accordance with the best scientific evidence available**


La presa in carico delle disfunzioni pelviche del postpartum è parte integrante del processo di cura che definiamo Assistenza al parto
M.Soligo
Quality of Life

Mendrisio

GRAZIE!

Repubblica e Cantone Ticino