Clinica Ginecologia Ostetrica
Scuola di Specializzazione in Ginecologia e Ostetricia
Corso di Laurea in Ostetricia (sedi di PD,VI,RO,TV)

Fisiologia del travaglio di parto: Correlazioni Anatomiche e Movimenti del Bacino

>NUTAZIONE<

G. B. Nardelli - Padova

SOCIETÀ TRIVENETA
DI GINECOLOGIA
E OSTETRICIA

Fondata nel 1934

L'Ospitale di San Leonino in Prà della Valle sede della prima Scola d'Ostetricia in Padova.

Female Pelvis

**Galen (d. ca. 210 AD) and Hippocrates (5th century BC)
were pre-eminent authorities,
followed by Hellenic scholars .**

**Islamic scholars
translated their voluminous writings from Greek and Roman
into Arabic and
then produced new medical knowledge based on those texts.**

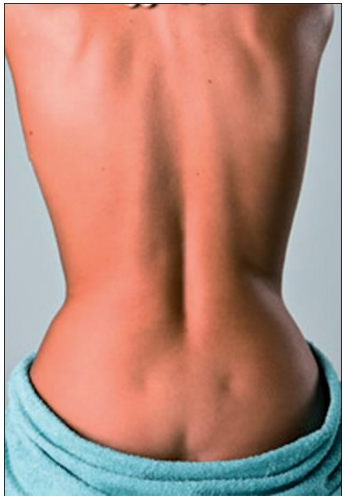
La posizione del corpo materno ha una grande influenza sull'andamento del travaglio di parto

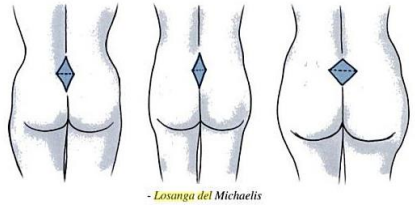
…. sia per il comfort materno

…sia per lo realizzazione della fisiologia materno fetale.

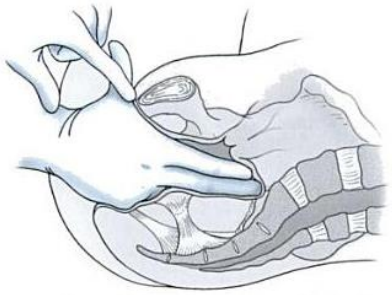
DIAMETRI del BACINO FISIOLOGICO

BACINO NORMALE	*Diametri*	cm
	circonferenza pelvica	86-91
	diametro spino-iliaco	24-26
	cresto-iliaco	27-29
	coniugata esterna di Baudeloque	20
	obliquo esterno dx. e sx.	24
	bitrocanterico	31-32
	bisischiatioo	11
	distanze spino-iliache post../sup.	10,5
STRETTO SUPERIORE	*Diametri antero-posteriori*	cm
	coniugata anatomica	11
	coniugata ostetrica	10,5
	coniugata diagonale	13
	Diametri obliqui	cm
	destro	12
	sinistro	12,5
	Diametri trasversi	cm
	massimo	13,5
	medio	12
STRETTO MEDIO	*Diametri antero-posteriori*	cm
	antero-posteriore	12
	sacro sotto-pubico massimo	13,1
	sacro sotto-pubico minimo	11,5
	Diametri obliqui	cm
	destro e sinistro	12
STRETTO INFERIORE	*Diametri trasversi*	cm
	trasverso	12
	diametro cocci-pubico	9,5-11
	Diametri obliqui	cm
	destro e sinistro	11
	diametro bi-ischiatico	11



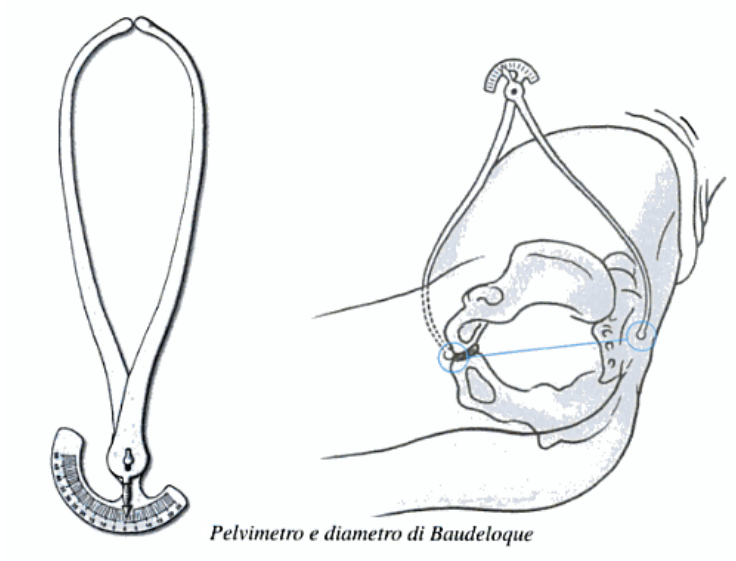


- Losanga del Michaelis



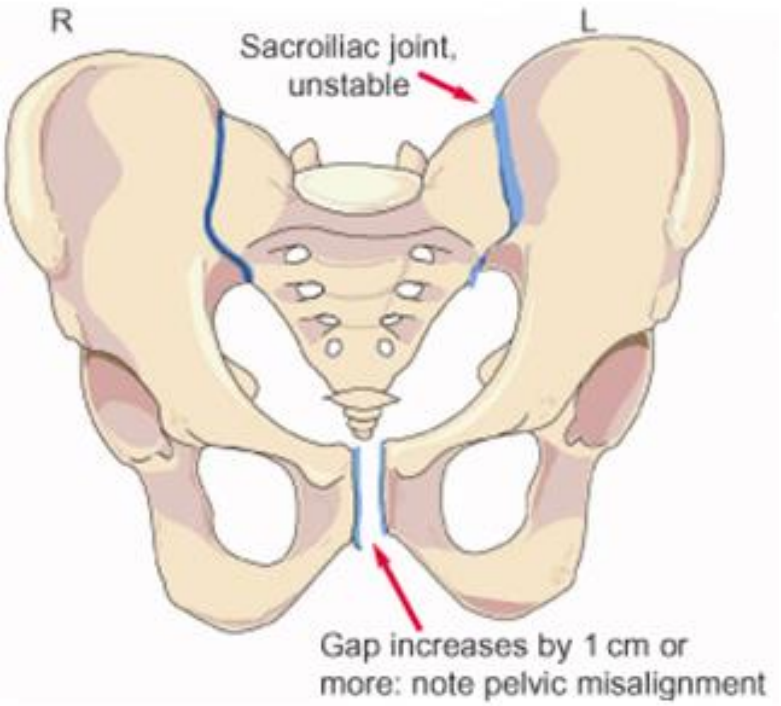
Determinazione della coniugata diagonale

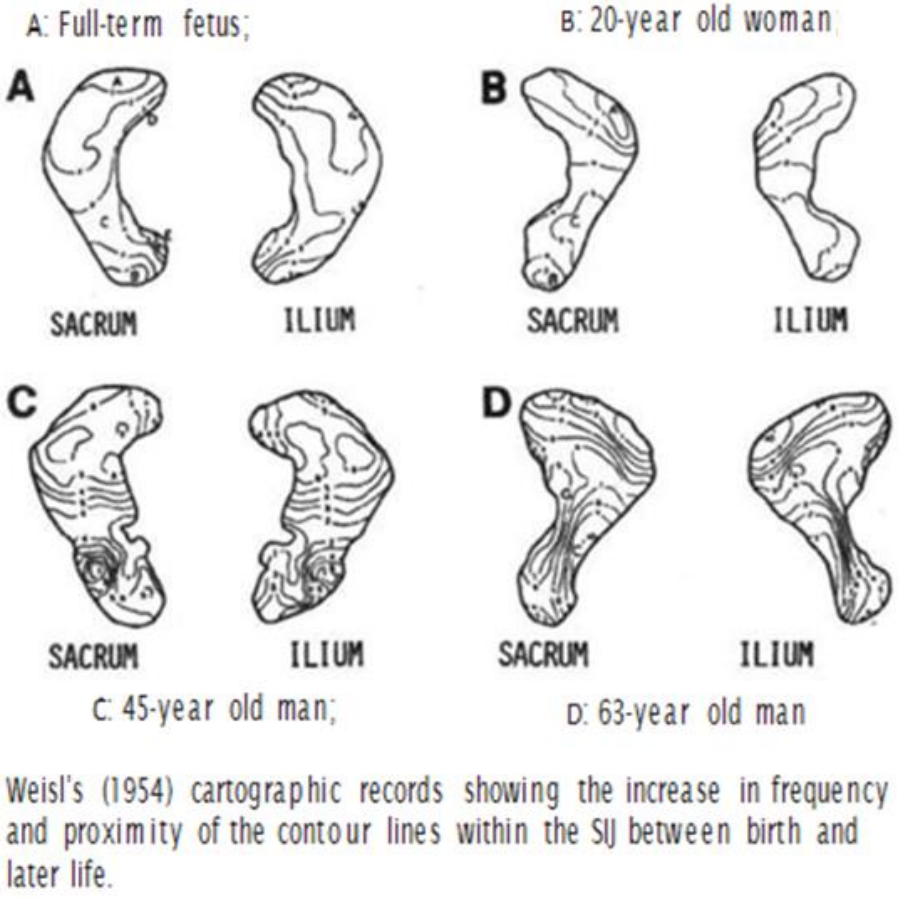
PELVIMETRIA INTERNA - ESTERNA



Pelvimetro e diametro di Baudeloque

….. il bacino femminile non è rigido

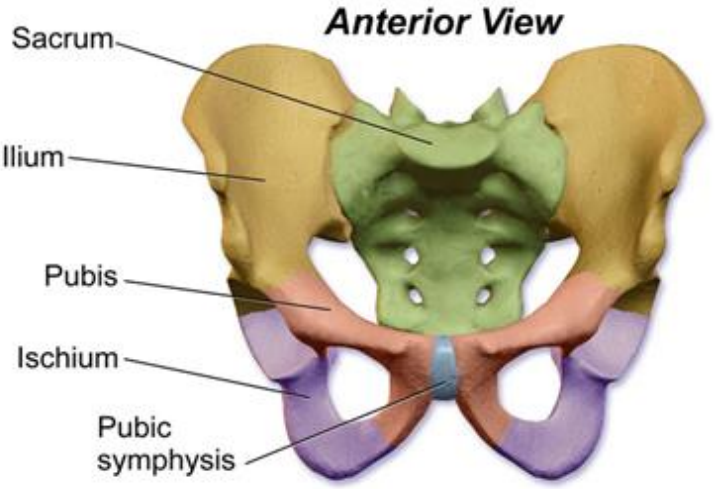


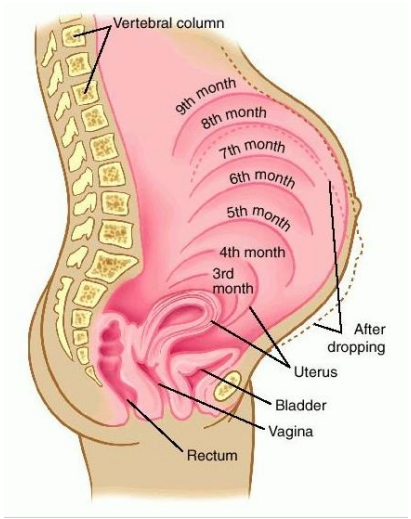


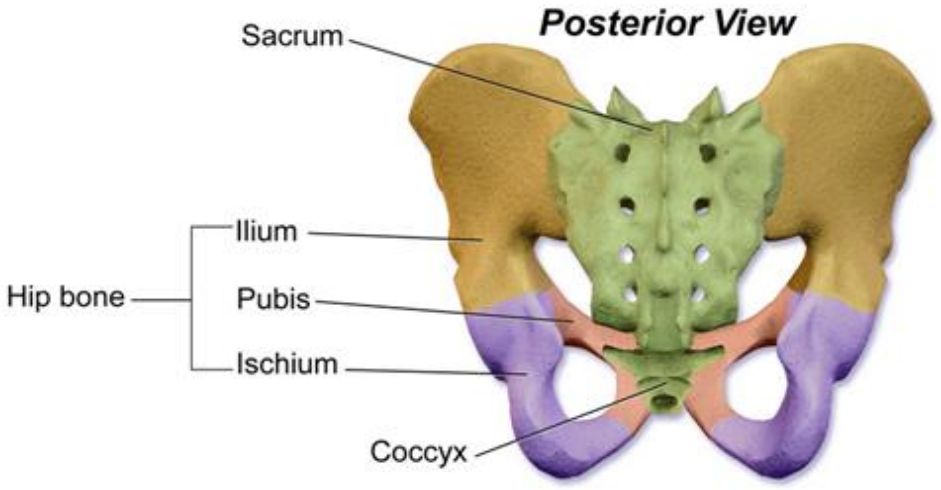
Weisl's (1954) cartographic records showing the increase in frequency and proximity of the contour lines within the SIJ between birth and later life.

La posizione della mamma determina l´ ampiezza di questi diametri

L ‘ANCA è
la regione anatomica che unisce il tronco,
ed in particolare la sua regione pelvica,
alla coscia e quindi all'arto inferiore.







MM dell' ANCA

M. Ileopsoas

-si contrae nel tentativo di mantenere l'equilibrio quando il tronco è inclinato all'indietro

-Inclina il bacino posteriormente rispetto alle anche

M. Grande Gluteo

-raddrizza il tronco partendo dalla posizione di flessione, per es quando si sostiene un peso con le braccia.

-inclina il bacino posteriormente rispetto alle anche, raddrizzando la lordosi lombare.

M Pettineo

M Adduttore Breve

M Adduttore Lungo

M Sartorio

M Gracile

M Grande Adduttore

M Otturatore Est.

M Quadricipite Femorale

M Retto del Femore

MM dell' ANCA

visione anteriore

M Medio Gluteo

M Piccolo Gluteo

M Tensore della Fascia Lata

M Piriforme

M Gemello Sup.

M Otturatore Int.

M Gemello Inf

M Quadrato del Femore

M Bicipite Femorale

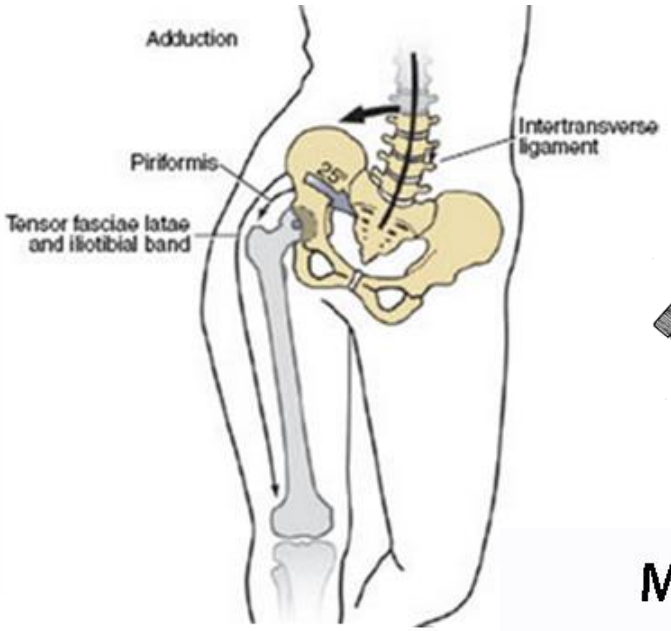
M Semi membranoso

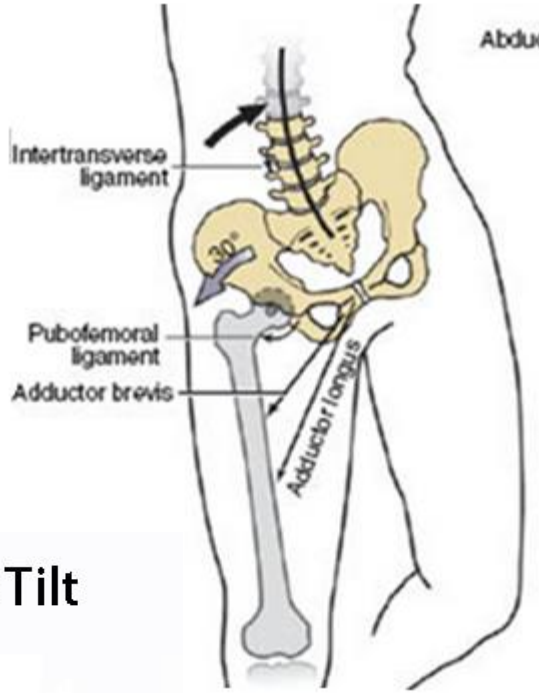
M Semi tendinoso

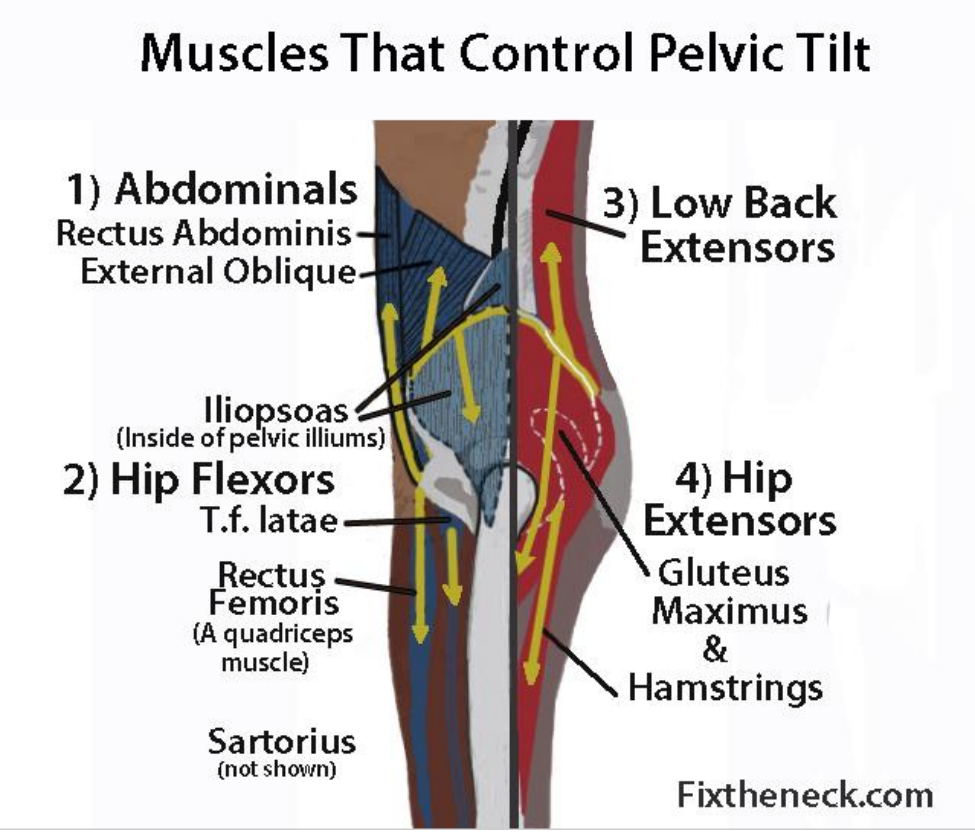
MM dell' ANCA

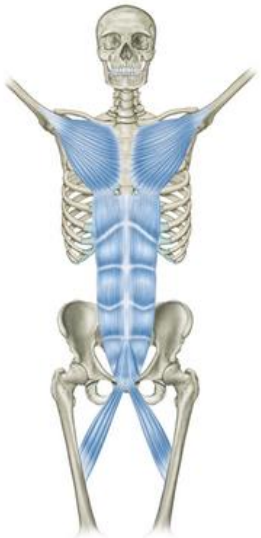
visione posteriore

Controllo Muscolare dell'inclinazione









INCORRECT UPRIGHT POSTURE

HEAD
Chin pushing forward. Eyes focus down

SHOULDERS AND CHEST
Slouching constricts the ribcage, makes breathing more difficult and causes indigestion

ABS, BUTT & UTERUS
Slack muscles ollow out the back and tilts pelvis forward causing backache, strained abdominals, and excess pressure on the bladder.

KNEES
If pressed back you strain joints and push pelvis forward

FEET
Weight on inner borders strains arches and calves causing leg aches.

CORRECT UPRIGHT POSTURE

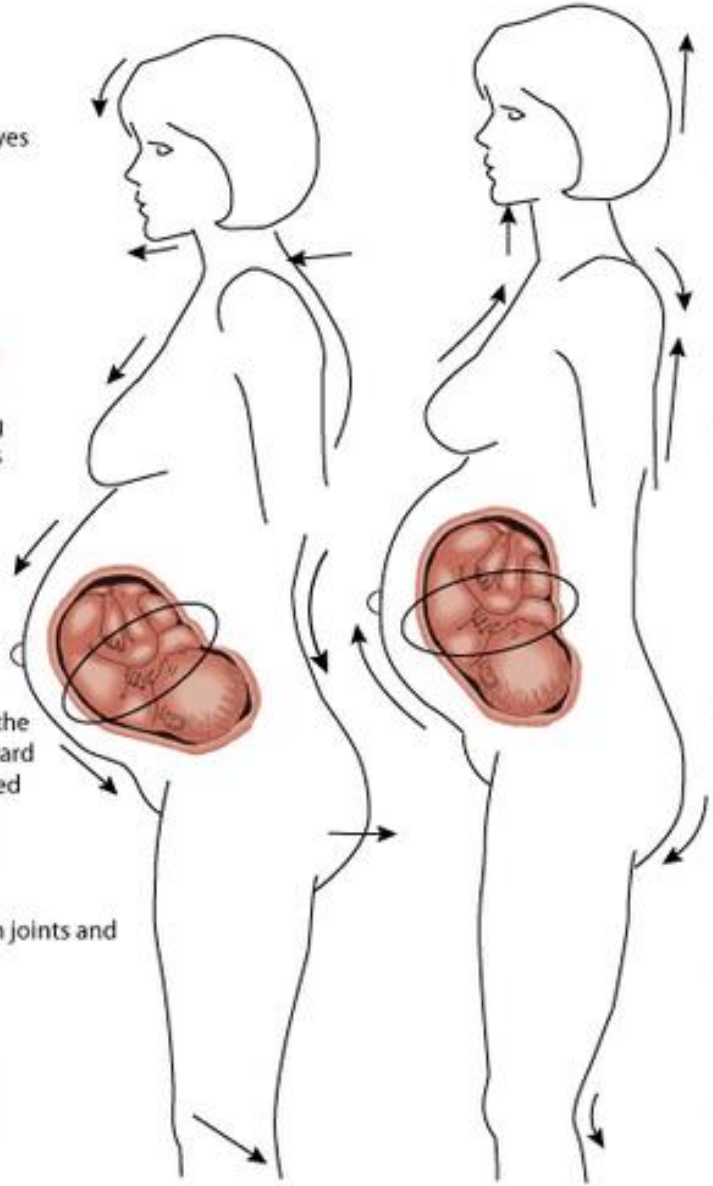
HEAD
Lift through the crown of the head and keep chin lifted and ears in line with neck.

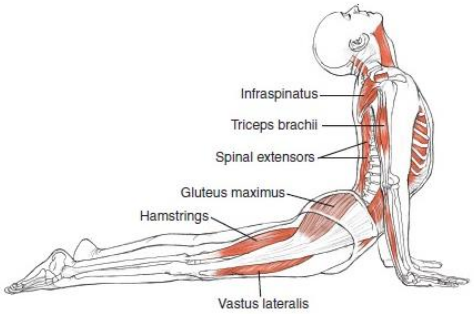
SHOULDERS AND CHEST
Draw shoulders back and down while you lift the rib cage up.

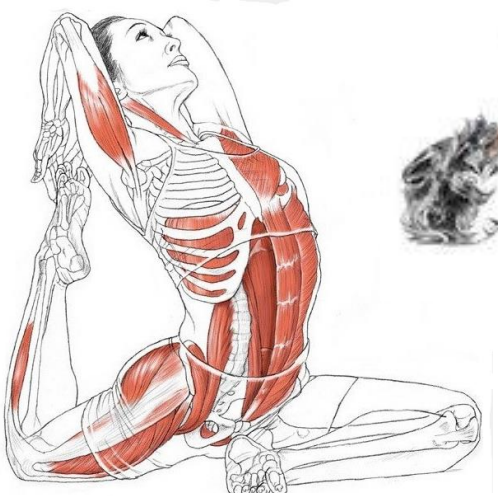
ABS, BUTT & UTERUS
Contract abdominals to suport baby, tuck butt under and tilt pubic bone slightly forward to center pelvic bowl.

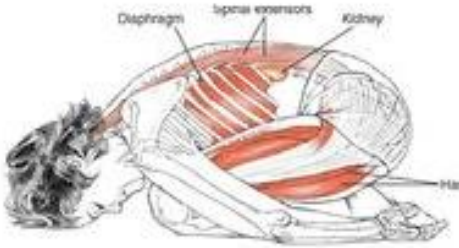
KNEES
Bend knees to ease body weight over feet.

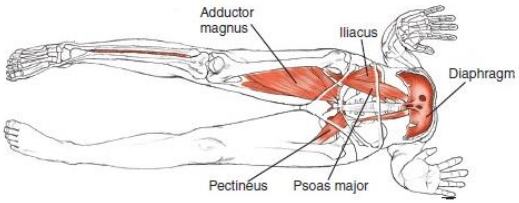
FEET
Distribute body weight over center of each foot.

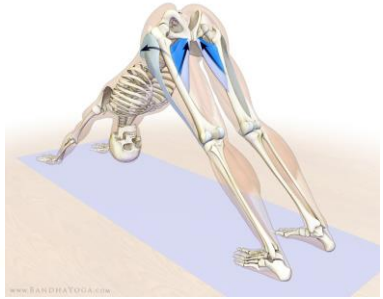


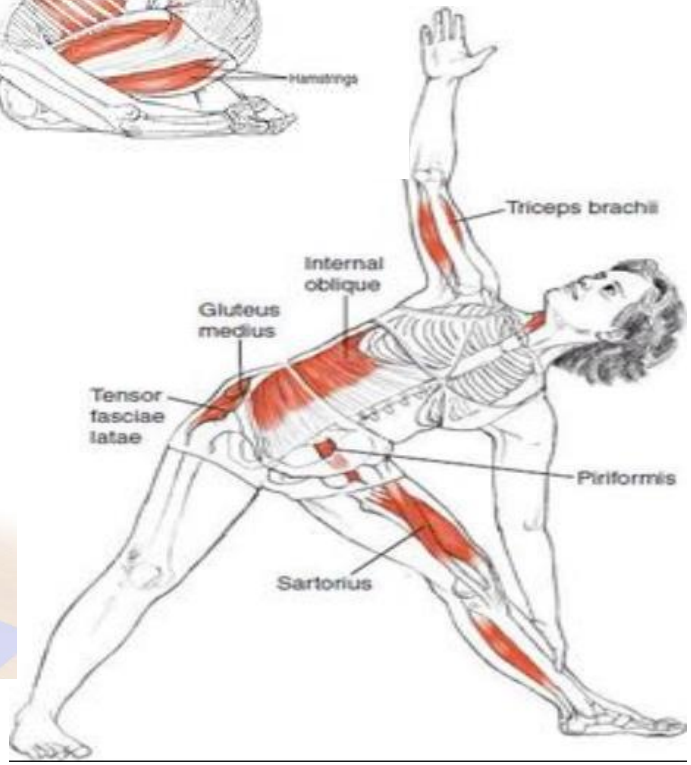

Infraspinatus
Triceps brachii
Spinal extensors
Gluteus maximus
Hamstrings
Vastus lateralis

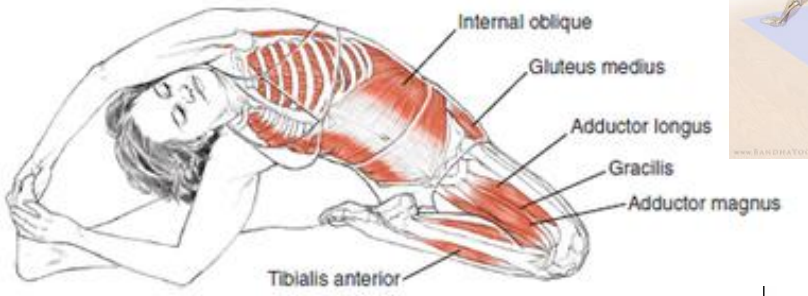


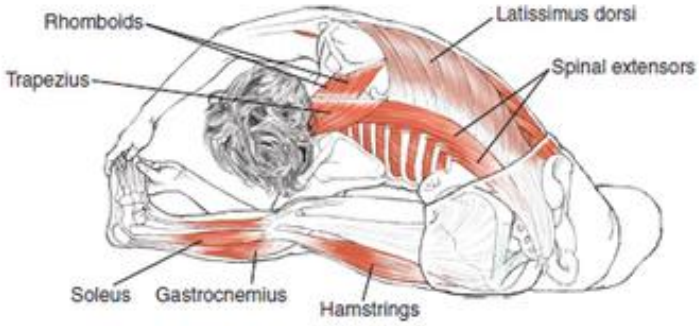

Diaphragm
Spinal extensors
Kidney
Hamstrings

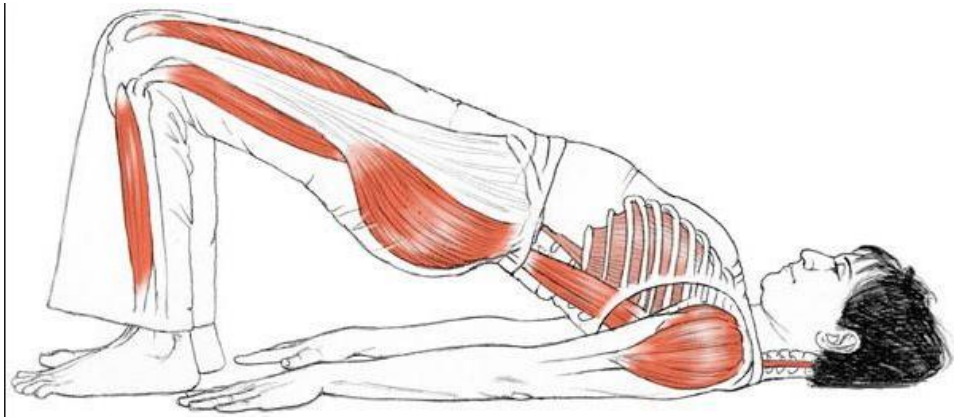

Adductor magnus
Iliacus
Diaphragm
Pectineus
Psoas major




Triceps brachii
Internal oblique
Gluteus medius
Tensor fasciae latae
Piriformis
Sartorius


Internal oblique
Gluteus medius
Adductor longus
Gracilis
Adductor magnus
Tibialis anterior


Rhomboids
Trapezius
Latissimus dorsi
Spinal extensors
Soleus
Gastrocnemius
Hamstrings



Controllo Muscolare dell'inclinazione

POSIZIONI MATERNE IN TRAVAGLIO DI PARTO

SEMI RECUMBENT (45 DEGREES)

BEING SUPPORTED IN SQUATTING POSITION

STANDING UPRIGHT

SWAYING ON BIRTHING BALL

STANDING UPRIGHT WITH A MONITOR

SUPPORTED AND ON THE BALL

LEANING AGAINST THE BED

LAYING DOWN SIDEWAYS

LAYING DOWN POSITION

SIDE LYING (left & right lateral)

WALKING UP AND DOWN THE STAIRS

SITTING UP IN BED

IN THE BATH

HYDROTHERAPY

LEANING AGAINST THE WALL

SITTING DOWN

KNEELING DOWN

HANDS AND KNEES

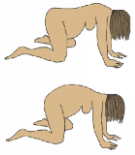
BALANCING ON THE BALL

SUPINE/ LITHOTOMY

SITTING ON THE BALL WITH A MONITOR

LAYING DOWN ON THE BALL

SQUATTING POSITION



Sitting in chair

BEING SUPPORTED WITH A BIRTHING STOOL

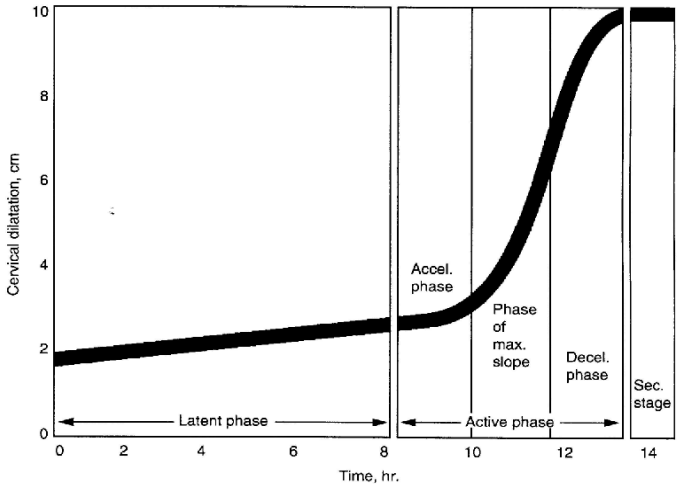
The Royal College of Midwives

Clinica Ginecologia Ostetrica
Scuola di Specializzazione in Ginecologia e Ostetricia
Corso di Laurea in Ostetricia (sedi di PD,VI,RO,TV)

SOCIETÀ TRIVENETA DI GINECOLOGIA E OSTETRICIA
Fondata nel 1934

Nella routine technologica, interventi tipo:
>>>>monitoraggio CTG continuo
>>>>analgesia epidurale
modificano e limitano le posizioni che la madre potrebbe o vorrebbe assumere

(Spiby, 2003) (Declercq 2006)



Posizioni upright (verticali) nella **I^ fase del Travaglio**
sono quelli che evitano la posizione distesa,
e può includere camminare

Posizioni upright (verticali) nella **II^ fase del Travaglio**
Possono essere: seduta, accovacciata o in ginocchio e di essere sulle mani e sulle ginocchia.

Posizioni recumbent (reclinate) includono supina, laterale, litotomica e semi-reclinate con l'uso di cuscini e cunei.

Fattori che influenzano POSIZIONI materna in travaglio

- Preferenza materna e la capacità materna
- Preferenza degli Operatori Sanitari
- Formazione degli Operatori Sanitari
- Ambiente del Parto (Casa, Ospedale)
- Scelta Analgesia (epidurale, narcotici)
- Metodo di monitoraggio fetale
- Infusione di Liquidi/farmaci per via endovenosa

TRAVAGLIO : POSIZIONE IN PIEDI :

---------- Benefici

Aumento dei diametri in-out pelvici

Migliora la contrattilità uterina

Migliora il benessere fetale

Resistenza Practitioner

Riduce la 2^ fase del travaglio

Riduce i parti operativi

Riduce le indicazioni all'Episiotomia

Diminuisce del dolore

Aumenta il controllo materno

Aumenta il coinvolgimento del partner

----------Rischi

Stanchezza materna

Alte dosi di blocco epidurale

93% hanno avuto il Monitoraggio CTG

ma il 71% ha travagliato a letto (Declercq 2002)

Anche nella cultura americana, l'immagine più comune della donna in travaglio è sulla schiena in un letto

(De Jonge,2008)

La posizione **upright** (in piedi, verticali) è supportata dalle evidenze radiologiche dei Ø pelvici, che risultano aumentati in outlet sia nella posizione **squatting** (accovacciata), sia nella posizione **kneeling / hands-knees** (inginocchiata) – *(Gupta 2004)*
Queste posizioni sono sicure, confortevoli e ben accettate dalle pazienti. *(Stremler 2005)*

Posizioni **recumbent** (reclinate) includono supina (De Jonge,2004), laterale, litotomica e semi-reclinate con l'uso di cuscini e cunei.

Pelvic Measurement

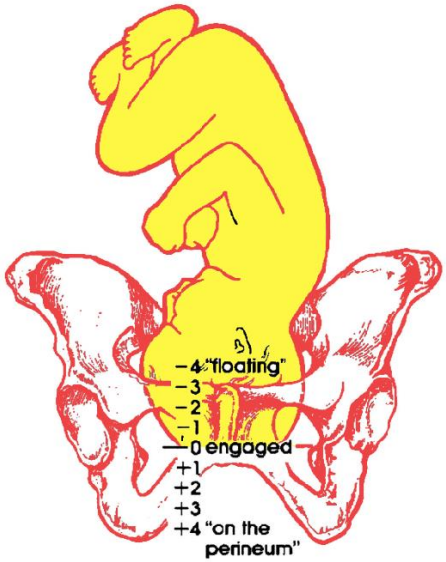
Parameters	Supine	
	Mean ± SD (cm)	Range (cm)
Obstetric conjugate	12.4 ± 0.9	10.7-14.6
Sagittal outlet	11.5 ± 1.3	9.5-14.3
Interspinous diameter	11.0 ± 0.7	9.7-12.4
Intertuberous diameter	12.4 ± 1.1	10.1-15.5
Transverse diameter	12.9 ± 0.7	11.7-14.4

Parameters	Hand-to-Knee	
	Mean ± SD (cm)	Range (cm)
Obstetric conjugate	12.4 ± 0.8	10.5-14.0
Sagittal outlet	11.8 ± 1.3	9.6-14.6
Interspinous diameter	11.6 ± 1.1	10.1-14.4
Intertuberous diameter	12.5 ± 0.8	11.2-14.5
Transverse diameter	12.8 ± 0.7	11.8-14.0

Parameters	Squatting	
	Mean ± SD (cm)	Range (cm)
Obstetric conjugate	12.3 ± 0.8	10.6-13.7
Sagittal outlet	11.7 ± 1.3	9.4-14.5
Interspinous diameter	11.7 ± 1.0	10.0-14.7
Intertuberous diameter	12.7 ± 0.8	11.3-14.6
Transverse diameter	12.8 ± 0.8	11.3-14.3

Diametri :

- antero-posteriore (11-11.5 cm)
- trasverso/interpinoso (10-10.5 cm)



Hand to knee position (Michel et al., 2002)

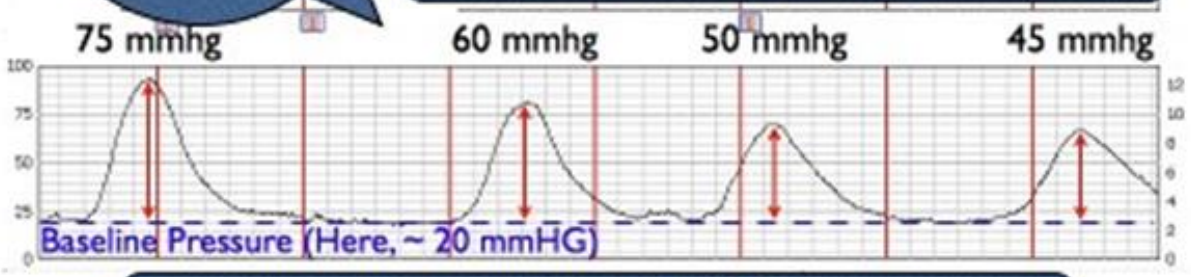
Modified Montevideo units of uterine contractions

	Nulliparous sitting	Nulliparous supine	multiparous sitting	multiparous supine
5-6cm dilation	151 +/- 70	138+/- 75	100 +/- 53	125+/- 67
6-7 cm dilation	134 +/-48	120+/- 52	102 +/- 32	152+/-52
7-8 cm dilation	131 +/- 31	160+/- 87	123 +/- 43	149+/- 65
8-9 cm dilation	176 +/- 42	170+/- 88	144 +/- 48	142+/- 60
9-10 cm dilation	194 +/- 70	196 +/- 81	135 +/- 43	147+/- 74
10 cm - delivery	226 +/- 104	226+/- 93	211 +/- 124	247+/- 87

Calculating MVUs

With an IUPC, the pressures in mmHG can be quantified, as well as the frequency of contractions

Contraction forces are usually reported in Montevideo Units (MVUs), which represent the total of the intensity of each contraction in a 10 minute period. MVUs > 200 are adequate for 90% of labors to progress.



75+60+50+45=230 MVUs
(Note that the baseline pressure was subtracted from each reading)

Cochrane Database Syst Rev. 2009 Apr 15;(2):CD003934. doi: 10.1002/14651858.CD003934.pub2.

Maternal positions and mobility during first stage labour.

Lawrence A[1], Lewis L, Hofmeyr GJ, Dowswell T, Styles C.

21 studies
3706 women
Ist STAGE Labour
Upright position

Cochrane Database Syst Rev. 2013 Aug 20;8:CD003934. doi: 10.1002/14651858.CD003934.pub3.

Maternal positions and mobility during first stage labour.

Lawrence A[1], Lewis L, Hofmeyr GJ, Styles C.

Cochrane Database Syst Rev. 2013 Oct 9;10:CD003934. doi: 10.1002/14651858.CD003934.pub4.

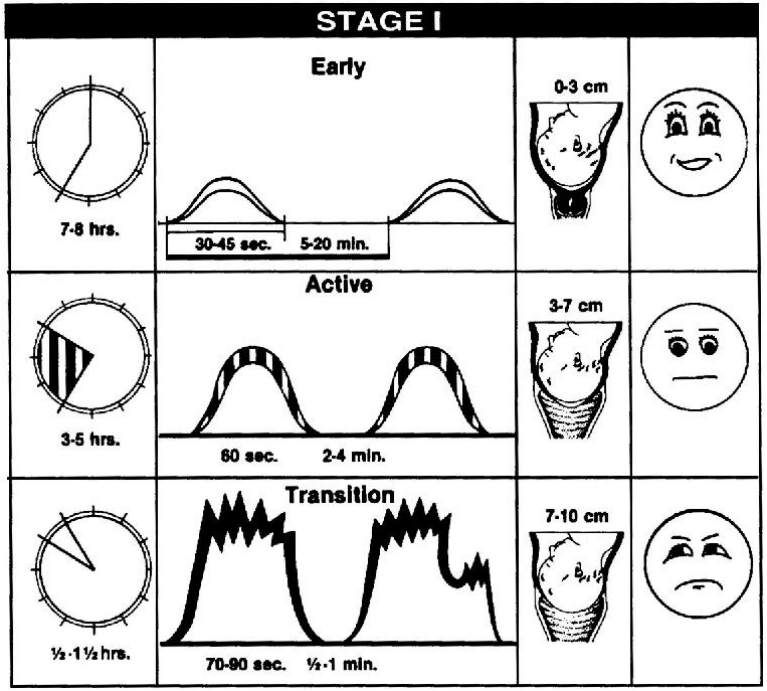
Maternal positions and mobility during first stage labour.

Lawrence A[1], Lewis L, Hofmeyr GJ, Styles C.

25 Trials
5218 women
Ist STAGE Labour
Upright + Recumbent position VS Recumbent position + bed care.

There is clear and important evidence that walking and upright positions in the first stage of labour reduces --the duration of labour, --the risk of caesarean birth, --the need for epidural, --does not seem to be associated with increased intervention or negative effects on mothers' and babies' well being

Based on the current findings, we recommend that women in low-risk labour should be informed of the benefits of upright positions, and encouraged and assisted to assume whatever positions they choose.

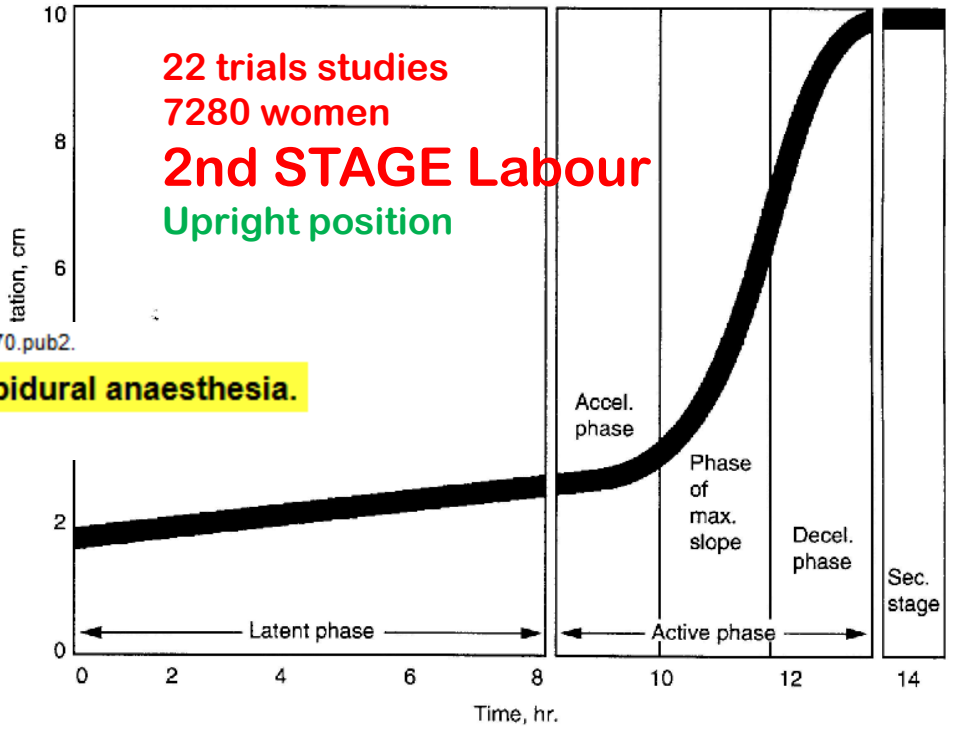


Cochrane Database Syst Rev. 2012 May 16;5:CD002006. doi: 10.1002/14651858.CD002006.pub3.

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

Gupta JK[1], Hofmeyr GJ, Shehmar M.

The findings of this review suggest
several benefits
for upright posture
in women without epidural

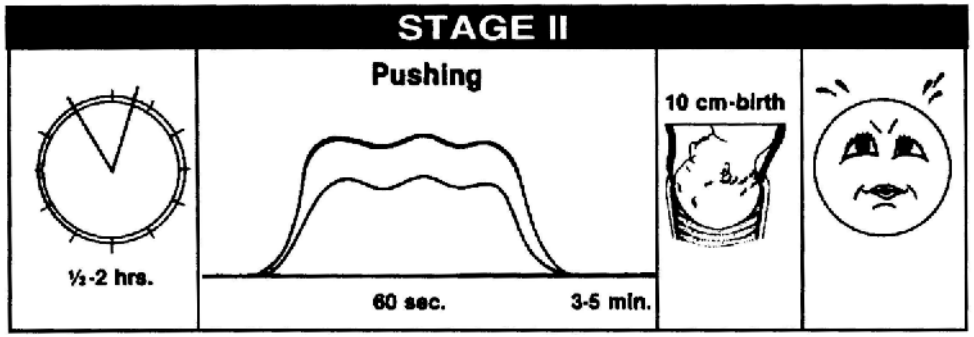


Cochrane Database Syst Rev. 2013 Jan 31;1:CD008070. doi: 10.1002/14651858.CD008070.pub2.

Position in the second stage of labour for women with epidural anaesthesia.

Kemp E[1], Kingswood CJ, Kibuka M, Thornton JG.

There are insufficient data to say anything conclusive about the effect of position for the 2nd stage of labour for women with epidural analgesia



BioMed Research International
Volume 2014, Article ID 638093, 7 pages
http://dx.doi.org/10.1155/2014/638093 Published 15 May 2014

Research Article

Women's Choice of Positions during Labour: Return to the Past or a Modern Wav to Give Birth? A Cohort Studv in Italv

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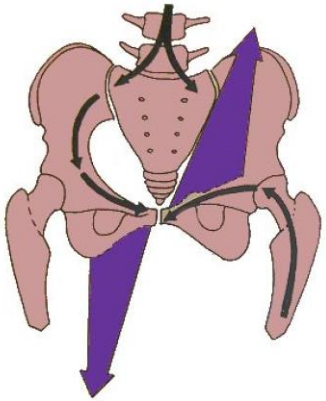

225 women were eligible

<>69 pts Group-A : >50% of labour in **recumbent position** (supine or lateral)

<>156 pts Group-B: when they preferred an **alternative position**:

--the upright position in 46.1%

--the sitting position in 21.1%

--the "on all fours" position in 16.2%

--the balloon-squatting position in 16.6% of the cases.

We found **significant differences between the groups in terms**
-of labour length,
-Numeric Rating Scale score and analgesia request rate,
-type of delivery,
-need of episiotomy,
-and fetal occiput rotation. No differences were found in terms of neonatal outcomes..

Conclusion. Alternative maternal positioning may positively influence labour process reducing maternal pain, operative vaginal delivery, caesarean section, and episiotomy rate.

Women should be encouraged to move and deliver in the most comfortable

TAKE-HOME MESSAGE

la posizione materna
--non influisce contrattilità uterina,

--contribuisce a ridurre in modo significativo il durata del travaglio