

# Post Partum Physical Therapy Getting Back In Shape

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# Pregnancy



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# Center of Gravity Changes

- Anterior pelvic tilt, increased lordosis
- Increased thoracic kyphosis/cervical lordosis
- Ribcage Expansion and Elevation
- Shallow Breathing Pattern
- Overuse of Neck Muscles
- Genu Recurvatum
- Pronation of feet



▪ Taken from Elizabeth Noble, Essential Exercises for the Childbearing Year

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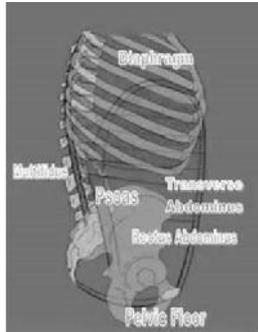
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### Abdominal Canister

- Contains the abdominal and pelvic viscera
- Bordered by:
  - Respiratory Diaphragm
  - Abdominal wall
  - Pelvic diaphragm
  - Lumbar muscles




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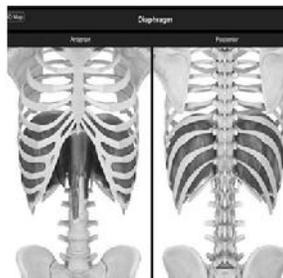
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### Respiratory Diaphragm

- Influences position and function of all other body systems
- R hemi-diaphragm is larger, higher and crura attaches lower onto lumbar vertebra
- L side is smaller, lower dome, and shorter crura attachment




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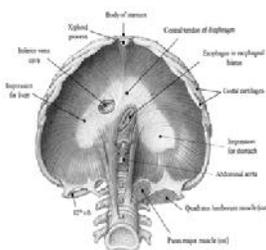
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### Diaphragmatic Breathing

- Diaphragm attaches at bottom of ribcage
- Contracts to pull air in as ribs widen outward
- Relaxes as you exhale and ribs drop back down
- Abdominal muscles oppose inhalation and assist in exhalation
- Accessory muscles in neck and low back




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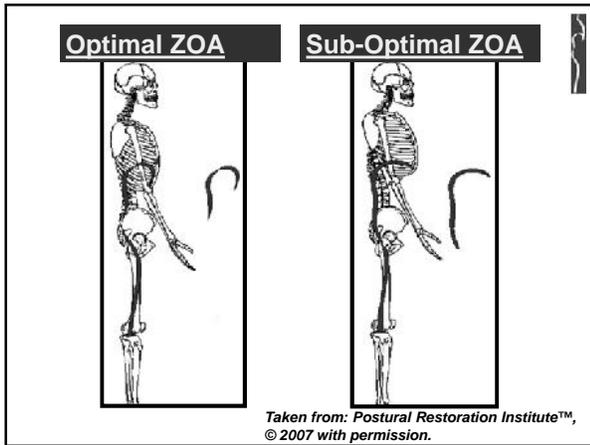
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### Poor Breathing Patterns

- Will cause:
- Overuse of neck or low back muscles
- Paradoxical or "upside-down breathing"
- Hyperinflated lungs with decreased ability to exhale
- Increase sympathetic tone, anxiety breathing

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### Abdominal Wall

- Consists of:
- Transverse Abdominis
- Internal Obliques
- External Obliques
- Rectus Abdominis

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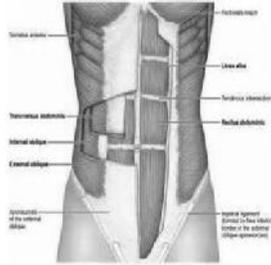
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## Abdominal Wall

- Fascial Components:
- Linea Alba- connects aponeurosis of TA, IO, & EO
- Runs from xiphoid to pubic symphysis
- Rectus Sheath- encloses rectus abdominis ant & post




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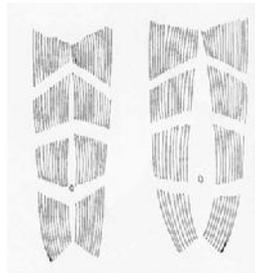
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## Diastasis Recti Abdominis DRA

- Boissonnault & Blaschak (1988) – 27% of women have DRA in 2<sup>nd</sup> trimester, & 66% in 3<sup>rd</sup> trimester
- Spitznagel et al 2007—52% of patients found to have DRA, 66% of these had incontinence or prolapse
- Richardson et al 2002—TA contributes intrapelvic stiffness though fascial tension




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## Diastasis Recti

- Beer et al 2009 found the normal width of the linea alba (inter-recti distance IRD) is highly variable
- Xyphoid= 7mm +/- 5mm
- Umbilicus 13mm +/- 7mm
- Below umbilicus 8mm +/- 6mm
- DRA is considered pathological when the IRD measurement exceed 2.5-2.7 cm
- Mild DRA (2.5-3.4cm) Severe (5-20cm) (Rath et al 1996, Coldron et al 2006)

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## Diastasis Recti



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## DRA Correction Exercises

Transverse Abdominis & Rectus Abdominis



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## Popular Corrective Techniques

- Tupper Technique- Julie Tupper
- To wear splint continuously
- High repetitions of TA emphasizing strong contractions
- Too much back extension in exercise program and body mechanics
- Teaches belly breathing
- MuTu Systems- Wendy Powell
- Doesn't advocate use of splint unless very large DRA
- Gentle TA use with emphasis of use with daily activities
- Too much back extension in exercise program and body mechanics
- Better diaphragmatic breathing techniques

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### Abdominals Postpartum As they Relate to C-Sections

- C-sections:
  - Disruption of fascial components and occasionally the muscles
  - Crucial to retrain for restoration of pelvic stability, muscle balance and correct breathing
  - Often myofascial release in clinic or at home self scar release can be helpful

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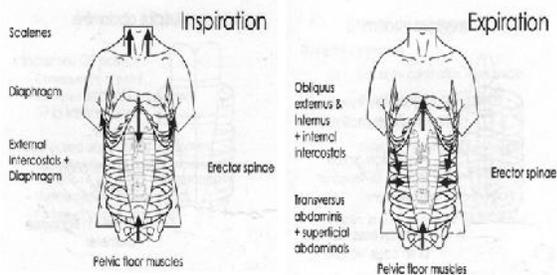
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### Pelvic Diaphragm: Tying It All Together!




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### Pelvic Instability-Why Do We See This in Pregnancy & Postpartum?

- Generalized Ligament Laxity
- Increased levels of relaxin in the body
- Muscles that get tight: ie: anterior chest wall, gastroc-soleus, low back extensors
- Muscles that become weak: deep abdominals, gluteals




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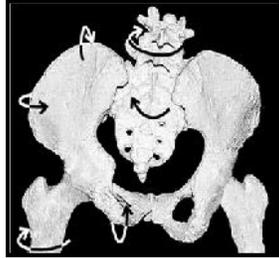
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### Pelvic Instability-Why Do We See This in Pregnancy & Postpartum?

1. A Common Pattern We See Involving Pelvic Rotations

- 1. R side of the diaphragm has a dominate pull as it attaches to the right anterior lumbar vertebrae, thus rotating the lumbar spine to the right
- 2. In turn, the sacrum and pelvis rotate right as the left pelvis tilts forward.
- 3. This creates muscle imbalance and loss of neuromuscular control around the pelvis




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### Some Common Diagnoses We See Clinically Postpartum Due to Pelvic Rotations

Osteitis Pubis

▪ Formed by 2 pubic bones and held together by ligaments

▪ Clinically: pain with walking, transfers, rolling

▪ Treatments include

- -Belting
- -Deep abdominal wall strengthening
- -Education about gait walking sticks to unload, shorter strides, no uneven surfaces, standing even weight bearing

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### Some Common Diagnoses We See Clinically Postpartum Due to Pelvic Rotations

Coccydynia

▫ Pain at the coccyx/sacrum usually with sitting, transitional movements, prolonged stand/ walk and even coughing/ defecation

▫ Passage of fetus through birth canal and/or forceps delivery can overstretch or even rupture the supporting sacral/coccyx ligaments

Treatment:

- manual techniques
- reposition pelvis into proper alignment
- belting
- body mechanics education

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## Belting for Instability

- Serola
- Diane Lee
- Exos Belt

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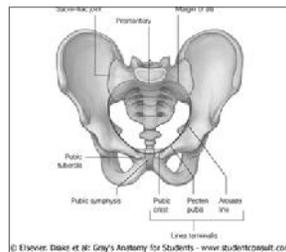
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## The Effects of Pregnancy/Delivery on the Pelvic Floor

- Pelvic Inlet:
  - Abdominal and hip muscles become weaker and imbalanced
  - Position and strength is affected by any malrotations of ilium/sacrum/ribcage



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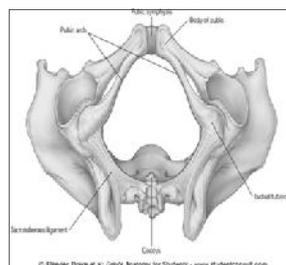
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## The Effects of Pregnancy/Delivery on the Pelvic Floor cont.

- Pelvic Outlet= pelvic floor muscles
  - Increased load causing muscle weakness
  - Inefficient stabilizer of pelvis if malrotations present
  - Delivery may cause tearing of muscles



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### Issues Postpartum Involving the Pelvic Floor

1. Pelvic Floor Hypertonus

- After a vaginal delivery/ episiotomy/ or tearing, pelvic floor muscles undergo trauma and resulting scarring can occur
- Posterior deep pelvic muscles can take over if posture and balanced pelvis is not restored
  - Dyspareunia
  - Vaginismus




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### Treatment Hypertonus Pelvic Floor

- After pelvis restored to neutral, then teach core strength
- Diaphragmatic breathing
  - These women tend to be shallow breathers
- Myofascial Release at hip/trunk/PFM's
  - Internal pelvic floor releases may need to be done
  - Self releases with dilators
- Biofeedback

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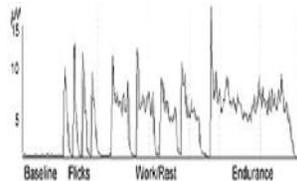
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### Biofeedback

- Not a treatment on it's own
  - (Wilson et al. 1999)
- 2 channel surface emg or a vaginal probe
- Helps with the client's AWARENESS of muscle function (downtraining)
- ENHANCE/MOTIVATE their efforts (uptraining)




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Issues Postpartum Involving the Pelvic Floor cont.

2. Urinary, Bowel, Gas Incontinence

Why?

- After vaginal delivery may get stretching to pudental nerve
- Delivery tearing could result in scarring → hypertonus pfm
- Postpartum weak abdominals and gluteals → assymetric / malcoordinated pelvic floor muscles




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Treatment of incontinence

- Proper instruction in a kegel/ biofeedback for reinforcement
- Teach appropriate kegels to help symptoms (endurance kegels for strength and quick flick kegels for urgency control)
  - (Morkved/Bo et al. 1997)
  - (Bump et al. , 1991)
- Proper education in protection of the pelvic floor
  - **Toileting**, no straining, exhale and use deep abs for defecation
  - **Sit to stand**, no straining, exhale!
  - **Lifting baby or groceries**, no straining, exhale!

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Issues Postpartum Involving the Pelvic Floor cont...

3. Prolapse

Why?

- After a vaginal delivery → defects in the anchoring vaginal wall to the pelvic fascia → vaginal wall descends
- Weak pelvic floor cannot withstand the constant deceleration of the abdominals and viscera
- Schulz 2001: 50% of parous women develop prolapse over the course of their lives, but only 10-20% seek help☺

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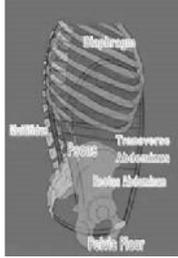
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### Treatment of Prolapse

- 1. Repositioning of the pelvis, ribcage, diaphragm and abdominals
- 2. Proper coordination of diaphragmatic breathing with a pelvic floor muscle/ deep abdominal contraction  
(Sapsford et al., 2001)
  - TA and IO recruited during all PFM contractions (Neumann and Gill, 2002)



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### LET'S PRACTICE A KEGEL

- Isolate PFM without tension of hip muscles
- No breathholding or abdominal bulging outward
- Focus on quality not quantity
- Should be controlled, goal is to build bulk and to be able to hold and breathe FREELY  
Encourage relaxation after contraction

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### Body Mechanics

- Common themes to all:
  - Ribcage down, sink stomach in to engage abs
  - Push through heels, use gluts
  - Don't hold breath!

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### Body Mechanics



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### Body Mechanics



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### Body Mechanics



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### In Closing

- Reminder...we treat the whole continuum of women's health, and the postpartum woman is just one piece...we also treat the pregnant client for a variety of diagnoses

We can teach a new mom how to incorporate self treatments and postures into their busy day

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### Thank you

- Laurie Xiong, MPT
- Gayla Pleggenkuhle PT, PRC
- New Heights Performance Physical Therapy
- 750 Main St, Ste 206
- Mendota Heights, MN 55118
- (p) 651-905-9000
  
- [Newheightsperformance.com](http://Newheightsperformance.com)

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