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Describe the anatomical changes in the pelvis during pregnancy and postpartum and their implications for lumbopelvic pain.

Evaluate the role of hypermobility, Ehlers-Danlos Syndrome, and rectus abdominis strength in postpartum patients and their relationship to pain management.

Recognize indicators of dysfunction in the lumbopelvic system, including femoral acetabular impingement and pelvic organ prolapse.

Discuss the importance of exercise during pregnancy as a preventive measure against postpartum complications and understand *current* return-to-sport guidelines.

Be empowered to communicate effectively with their patients about exercise, rehabilitation, and postpartum care

Leave with enhanced skills in assessing and managing postpartum lumbopelvic-hip complex pain.

### DISCLOSURES

I have no relevant financial relationships with ineligible companies to disclose.

### ANATOMICAL CHANGES DURING PREGNANCY

- Diaphragm elevates up to 2 inches
  - Bilateral carpal tunnel TOS
- Anterior Pelvic Tilt >4 degrees
- Increased Lumbar Lordosis
  - Facet and SI Joint Compression with Extension/Rotation
- Abdominal Collagen Changes reducing tensile force of stability
- Ligamentous Integrity for Joint Stability Reduces
  - Estrogen softens ligaments
- Increased IRD
- Pubic Symphysis Widens

#### Collagen Production Strength vs. Support:

Type I: Overall mechanical strength of the abdominal wall and uterus.

Type III collagen contributes to the support and elasticity.

### ANTERIOR TILT EFFECTS ON THE HIP

- Increased anterior tilt produces functional impingement
  - Decreases rim of acetabulum and femur space
  - Modify with core stabilization
  - Retest your orthopedic testings in a more neutral position
- Abduction and posterior pelvic tilt increased the impingement-free ROM in the hips with FAI.
  - Rehabilitation aimed at altering the tilt of the pelvis may reduce the frequency of impingement and limit further joint damage.
- Reduces Frontal and Transverse Plane
  - Increases demand on the abductors and extensors muscles of the hip, which, combined with a higher stretch derived from the anterior tilt of the pelvis, will contribute to lower back, pelvis, hip, and sacroiliac pain

#### CORE CONTROL

- 8 weeks for return of SI stability
- Anterior tilt of the pelvis structurally reduces by 12-16 weeks,
- Abdominal fascia and collagen changes take 6-9 months.
- Strengthen the rectus abdominus
  - In past patients were informed not to strengthen if they had an IRD.
- Stretch the quadratus lumborum



### THE ROLE OF ABDOMINAL MUSCLES

- Importance of strengthening all abdominal muscles, including rectus abdominus to reduce IRD in both the pregnancy and post-partum phases.
- It takes 6-9 months to regain the tensile collagen make up of the abdominals to provide force closure of the lumbopelvic system.
- If inter-recti distance stays > 3cm it becomes clinically relevant.

# CLINICAL TAKE-AWAYS INTER-RECTI DISTANCE

- MMT abdominals
- Perform Head Lift
  - If rectus abdominus muscle bellies approximate, reduced risk
  - If rectus abdominus muscle bellies does not approximate, refer for PT and consider binding for first 4-6 weeks postpartum
  - Consider Time Frame of Assessment: Type 1 versus Type 3 Collagen
- Ask Hypermobility 5 questions
  - If Hypermobile, >3cm, low back pain, difficulty with tasks- consider referral.

### BEIGHTON'S SCALE

### The Beighton Scoring System measures joint hypermobility on a 9-point scale.

The joints assessed are:

- MCP of the 5<sup>th</sup> fingers >90 degrees.
- CMC of both thumbs with the ability to touch to forearm.
- Elbows > 90 degrees.
- Knees > 90 degrees.
- Spine hands can be placed flat on the ground.
- A positive Beighton score is any score greater than or equal to
  - 5/9 points in adults
  - 6/9 points in children (before puberty)
  - 4/9 points in adults over age 50.

### ASSESSING HYPERMOBILITY

- Hypermobility Questionnaire
  - Can you now [or could you ever] place your hands flat on the floor without bending your knees?
  - Can you now [or could you ever] bend your thumb to touch your forearm?
  - As a child, did you amuse your friends by contorting your body into strange shapes or could you do the splits?
  - As a child or teenager, did your kneecap or shoulder dislocate on more than one occasion?
  - Do you consider yourself "double-jointed"?
- Answering yes to 2 or more of these questions suggests hypermobility (sense 85%, spec 90%)
  - https://www.ehlers-danlos.com/assessing-joint-hypermobility/#1667831445600-59d7a40e-6a28

## CLINICAL TAKE-AWAYS **PELVIC** GIRDLE PAIN

- Identify Risk Factors of
  - High BMI plus hypermobility
  - Have a physical job
  - Older maternal age
  - Previous low back pain
  - Pain during previous pregnancy

Proactive measures by identifying risk factors

- BMI plus hypermobility 7 times more likely to get PGP in the first trimester.
- Identify early signs and symptoms
  - Low back pain
  - Adductor tone
  - Pubic Symphysis Dysfunction
    - Difficulty doing single leg movements
- Utilization of abdominal binders
- Post-Partum: weaker abdominal tone is noted with a wider pubic symphysis.

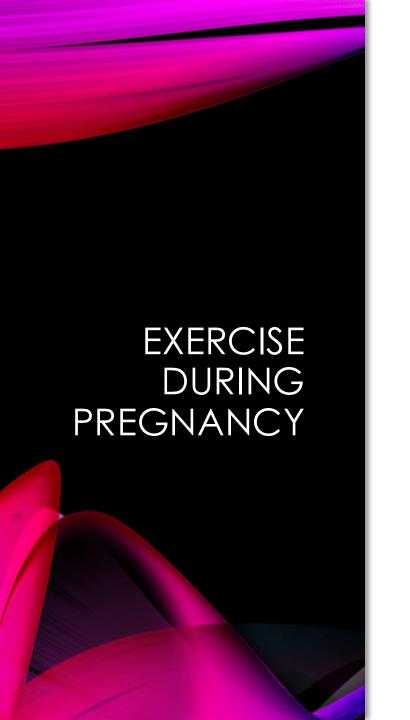
#### HIP STABILITY

- Active stability of the hip is primarily modulated by the deep rotators (OI/Pelvic Floor Interplay)
  - Provides dynamic stabilization
  - Reduces shear forces in the hip
- FABERS: stabilize the Same Side-Iliac Crest
  - If positive continue with hip, if negative consider SI influence.



# CLINICAL TAKE-AWAYS "OBJECTIVE TESTING"

- Consider SI stability until 8 weeks
- Consider Anterior Tilt Influence on Functional Impingement and Muscle Length Tension Ratio until 12-16 weeks
- Consider Core strength from hormonal collagen components until 6-9 months
- MMT
  - Core Strength
  - Hip Rotation Strength
  - Hip Adductor/Abductor Ratio
- Quadratus Lumborum Length
- Assess RED-S (sleep nutrition)
- Greater than 9 months
  - Educate on rectus abdominus strength is not contraindicated with IRD
- Beighton's Scale





ACOG OLD Guidelines



ACOG New Guidelines



Social Media Influence on the Recreational Athlete

# CLINICAL TAKE-AWAYS "EXERCISE"

- Current Guidelines for Post-Partum Return for General Population
  - 12-weeks is the newer standard to returning to running activity.
- High-Level Athletics is Less Researched
- RED-S
  - Research has shown that athletes who consistently get less than eight hours of sleep double their injury risk

### THE RIGHT WORKOUTS

- Key Fact: If a woman is experiencing leakage 12 weeks postpartum, 92% will still be leaking 5 years later without intervention. Pelvic floor training is a great place to start.
- 90% lower their exercise intensity
- 35% reduce exercise frequency
- 25% exercise for shorter durations
- 62.2% take breaks to urinate during workouts

### KEY TAKEAWAYS

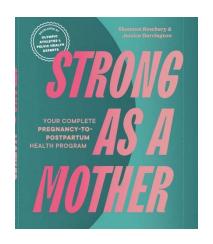
- Inter-recti distance replaces diastasis recti and is still a large concern area for us to educate.
- Limitations on diastasis recti and core strengthening are worth readdressing with patients.
- Rectus abdominus has an increased role in during pregnancy, labor, and post-partum and reducing inter-recti distance.
- Abdominal tone takes 6-9 months post-partum to return, PF 4-6 months.
- High BMI and hypermobility are key factors to consider referral for pelvic girdle pain.
- Frequency, Intensity and Duration need to be monitored in both the peri and post partum athlete.
- Exercise Post-Partum and During Pregnancy: current parameters, social media influence, and is multifactorial

Q&A

• Open floor for questions.

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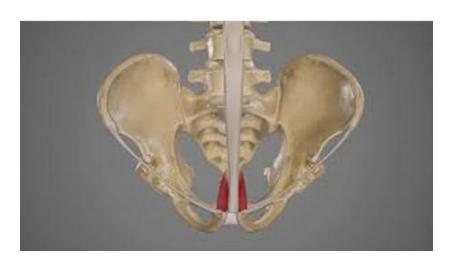


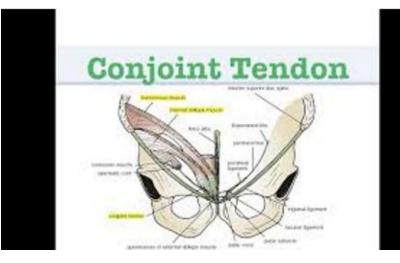


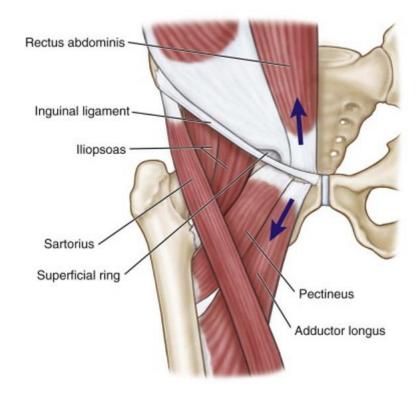
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https://www.therapeuticassociates.com/locations/oregon/portland-metro/bethany/

### OTHER CONSIDERATIONS







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