Management of Musculoskeletal Dysfunction in Pregnancy: Antepartum, Labor/Delivery, and Postpartum
Objectives

- Identify common musculoskeletal diagnoses in pregnant and postpartum populations.
- Describe the impact PT can have on pain management, functional capacity, and labor/delivery.
- Identify common evidence-based PT interventions for pelvic girdle/floor dysfunction during pregnancy and postpartum.
Women’s/Pelvic Health Therapists

• Physical therapists who focus on women’s health issues throughout the life cycle.
  ○ Pregnancy/Postpartum
  ○ Pelvic Pain
  ○ Sexual Dysfunction
  ○ Osteoporosis
  ○ Female Athlete
  ○ Cancer-related pain and fatigue/Lymphedema
  ○ Male pelvic dysfunction*

• Specialty recognized by the APTA in 1995.
Education and Training

- Master’s (MSPT) or Doctorate (DPT, PhD)
- Residency Program (12-18mos)
  - 7 credentialed programs in the US
  - 1-2 student per year/highly competitive
- Continued education courses and/or Certificate of Achievement in Pelvic Physical Therapy (CAPP)
  - CAPP-OB
  - CAPP-Pelvic
- Board Certified Women’s Clinical Specialist (WCS)
  - Highest level of specialization in American Physical Therapy Association
  - Minimum of 2 years women’s health experience OR accredited Women’s Health residency program
  - 5-7 hour computerized examination + case series submission
- 194 WCS practitioners in the US, 12 in the state of Texas
## Current Credentialed Residency Programs

<table>
<thead>
<tr>
<th>Residency</th>
<th>Setting</th>
<th>Credentialed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baylor Rehab/Texas Women’s University (Dallas, TX)</td>
<td>University/Hospital</td>
<td>Yes</td>
</tr>
<tr>
<td>Duke University (Durham, NC)</td>
<td>University/Hospital</td>
<td>Yes</td>
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<tr>
<td>UPMC- Center for Rehab Services (Pittsburgh, PA)</td>
<td>University/Outpatient</td>
<td>Yes</td>
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<tr>
<td>Washington University in St. Louis (St. Louis, MO)</td>
<td>University/Hospital</td>
<td>Yes</td>
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<tr>
<td>Brooks Rehabilitation (Jacksonville, FL)</td>
<td>Hospital</td>
<td>Yes</td>
</tr>
<tr>
<td>Good Shepherd Penn Partners (Philadelphia, PA)</td>
<td>University/Hospital</td>
<td>Yes</td>
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<tr>
<td>Women’s Health Physical Therapy (Richmond, VA)</td>
<td>Private Practice</td>
<td>Yes</td>
</tr>
</tbody>
</table>
### Pelvic Floor Disorders: Pain

- Vulvodynia
- Vaginismus
- Dyspareunia
- Painful Bladder Syndrome/Interstitial Cystitis
- Prostatitis/Prostate Pain
- Pelvic Nerve Entrapment
- Endometriosis

- Rectal pain/Pain with defecation
- C-section/Episiotomy scar pain
- Pelvic girdle pain
  - Coccyx, Sacroiliac Joint, Symphysis Pubis Dysfunction, Low Back
- Testicular/Vaginal/Groin/Penis pain
- Sexual Dysfunction
Pelvic Floor Disorders: Support and Coordination

- Urinary Incontinence
  - Post-prostatectomy; pregnancy/postpartum
- Fecal Incontinence (Solid or Gas)
- Urinary Urgency/Frequency
- Constipation
- Pelvic Organ Prolapse (cystocele, enterocele, etc.)

- Difficulty voiding (urinary and bowel)
- Diastasis Recti (separation of rectus)
- Premature Ejaculation
- Pelvic Girdle Dysfunction
  - SIJ, Pubic Symphysis, Coccyx
- Pregnancy/Postpartum
Pelvic Health Physical Therapy

- Restore normal motor function while reducing the physiological and psychological impact of pregnancy-related pain and dysfunction\(^1\).
- Multidisciplinary approach most effective strategy for the management of pelvic pain disorders\(^{15,20}\)
- Empirical evidence has supported the efficacy pelvic PT in treating to the following conditions:
  - Pregnancy-related pelvic girdle pain\(^{1,2,20}\)
  - Pain management during labor and delivery\(^{27,28,20}\)
  - Pregnancy-related pelvic floor muscle dysfunction\(^{9,10,29}\)
    - Urinary/Fecal Incontinence, Dyspareunia, Vulvodynia, Pelvic Organ Prolapse, etc.
Common Myths

- Exercise is dangerous for sedentary patients during pregnancy
- “I had a C-section, so I won’t have leakage”
- Restricting fluid intake prevents you from leaking
- Stop the flow of your urine to find the muscles
- Pain is normal during pregnancy and postpartum
Anatomical Considerations:
Bony Pelvis and Nerve Supply
Pubic Symphysis (PS)

- Shock absorption/load transfer during ambulation\(^{1,2}\)
- Fibrocartilaginous disk
  - Superior and inferior pubic ligament
- Minimal mobility\(^{3,4}\)
  - Increased during pregnancy
- Hormonal influences
- Attachment site to abdominal and pelvic floor muscles
  - Diastasis recti
- Increased mechanical stress\(^{3,4}\)
  - Pregnancy
  - Hypermobility/Hypomobility
Sacroiliac Joint (SIJ)

- Load transfer from trunk to limbs\(^5,6,11,23\)
- Relies on form and force (muscle) closure for stability
- Attachment site to stabilizing ligaments, pelvic floor (levator ani), gluteal, and paraspinal muscles
- Hyper/Hypomobility and Asymmetry\(^1,11\)
  - Pain with ADLs (sex, walking)
  - Hormonal influence
  - Pregnancy
- Diverse innervation, varied pain referral\(^1,2,7\)
  - Groin/Vagina
  - Posterior thigh/Gluteals
  - Rectal/Anal
### Sacral Ligaments

<table>
<thead>
<tr>
<th>Sacrospinous ligament</th>
<th>Sacrotuberous Ligament</th>
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</thead>
<tbody>
<tr>
<td>Thin, triangular ligament</td>
<td>Flat, triangular ligament</td>
</tr>
<tr>
<td>Apex of ischial spine to lateral borders of coccyx and sacrum</td>
<td>Sacrum to ischial tuberosity</td>
</tr>
<tr>
<td>Prevents posterior rotation of ilium with respect to sacrum</td>
<td>Sacral stabilization</td>
</tr>
<tr>
<td>Attachment site for vaginal vault prolapse surgery (lateral 1/3 of ligament)</td>
<td><strong>Site of pudendal and sciatic nerve entrapment</strong>&lt;sup&gt;29&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Site of pudendal nerve entrapment</strong>&lt;sup&gt;29&lt;/sup&gt;</td>
<td>Dysfunction: low back pain, perineal and coccyx pain, prostate and urogenital dysfunction</td>
</tr>
</tbody>
</table>
Innervation/Nerve Supply

• Lumbosacral plexus posterior to rectum and anterior to sacrum
  ○ Chronic straining/constipation
  ○ SIJ/Lumbar pain
  ○ Gluteal pain

• Nerve to Obturator\(^3\)
  ○ Arises from ventral rami of L2-L4 spinal nerves
  ○ Compression due to fascial entrapment
  ○ Deep ache/pain, paresthesias medial thigh, lateral pelvic wall

• Pudendal Nerve\(^3\)
  ○ Arises S2 –S4 spinal nerves
  ○ Sensory and motor structures to perineum
  ○ Sxs: pain after defecation, orgasm, perineal and/or genital pain, urinary urgency/frequency, burning
  ○ Vaginal delivery, episiotomy
Anatomical Considerations: Pelvic Girdle/Floor Muscles
The Pelvic Floor: Functions

- Muscle structure situated at caudal end of the pelvis
- Contributes to:
  - Continence
  - Sexual play
  - Pelvic organ function
  - Generates Intra-abdominal pressure
  - Lumbo-pelvic stability
  - Lymphatic and venous return
The Pelvic Floor: 1st Layer

- Urogenital Triangle: First Layer\textsuperscript{1,2,29}
  - Superficial Transverse Perineal Muscle
    - Stabilizes perineal body $\rightarrow$ episiotomy, pain with sitting
  - Bulbospongiosus Muscle
    - Women: Vaginal sphincter and clitoral erection $\rightarrow$ pain with arousal, initial entry
  - Ischiocavernosus Muscle
    - Women: Clitoral Erection $\rightarrow$ pain with sex, orgasm
- Innervated by all 3 branches of the Pudendal N. \textsuperscript{29}
The Pelvic Floor: 2\textsuperscript{nd} Layer

- **Urogenital Diaphragm (UGD): Second Layer\textsuperscript{1,2,29}**
  - Perineal Membrane
    - Inferior fascia of the UGD
  - Sphincter Urethra
    - Constricts the urethra \(\rightarrow\) urethral and bladder pain; UI
  - Deep Transverse Perineal Muscles
    - Aides in stabilizing the perineal body \(\rightarrow\) pain with defecation and sitting

- Damaged with episiotomy/vaginal tearing
- Innervated by the all 3 branches of the **Pudendal N.**
The Pelvic Diaphragm = the deepest muscle layer

Anterior

Symphysis pubis
(Urogenital diaphragm)

Urethra
Vagina
Anal canal

Posterior

Levator ani
Coccygeus

Obturator internus

Piriformis

Superior View of Female Pelvis
The Pelvic Floor: 3rd Layer

- Levator ani (LA)\(^1,2\)
  - Deepest layer of the pelvic floor
  - Pubococcygeus m., Iliococcygeus m., Puborectalis m.
    - Lumbopelvic stability $\rightarrow$ joint/muscle pain
    - Resists increases in intra-abdominal pressure $\rightarrow$
    - Contracts during orgasm $\rightarrow$ pain with orgasm/hyperarousal
    - Relaxes for defecation and urination $\rightarrow$ voiding dysfunction

- Coccygeus m./Sacrospinous ligament\(^2,29\)
  - Stabilizes/Inserts at sacrum and coccyx
  - Coccyx pain
  - Pain with sitting, chronic constipation, vaginal delivery
Pregnancy/Postpartum-Related Musculoskeletal Diagnoses
Symphysis Pubis Dysfunction (SPD)

- Under-recognized diagnosis; true incidence to higher than reported\(^3,4\)
- Primigravid or multigravid
- Pts with symphyseal width > 9.5mm experience pain
- Onset of symptoms are variable\(^3,4\)
  - Insidious, sudden, during pregnancy, labor/delivery, and postpartum
- Resolution is often spontaneous (6mos)
- ¼ SPD pts report persistent pain at 4-6mos
- Recurrence approx 41-77% with new pregnancy, menstruation, breast feeding\(^3,4\)
Physical Findings and Symptoms of SPD

- Radiating pain to back, groin, perineum, lower abdomen, thigh and/or leg. 3,4,26
- Shooting pain in symphysis pubis or lower abdomen
- Pain with ADLs
  - Sit to/from stand, turning in bed, stair climbing
- Pain with weight-bearing activities
  - Walking, unilateral stance, hip abduction,
- Shuffle or antalgic gait
- No position is comfortable for more than a few minutes
- Dyspareunia
- Difficulty emptying bladder
PSD Video
SIJ Pain/Dysfunction

- SIJ is origin of pain for 13% of pts with persistent LBP\(^1,7\)
- **Symptoms:**\(^1,26\)
  - Sharp pain in low back/hips/gluts/groin → referral down both extremities
  - Decreased pain with laying down
  - Pain with ADLs (walking, jogging, stairs, *sit to/from stand*, etc.)
- **Asymmetric laxity of SIJ**\(^7\)
  - Increased risk of persistent, moderate to severe PPP postpartum (damen)
- 2 or 3 positive SIJ provocative tests\(^1,7,26\)
- Delayed activation of lumbar, internal obliques, and gluts → early activation of biceps femoris\(^1,7\)
Fig. 2. Distraction provocation SIJ test.
Fig. 3. Thigh thrust SIJ provocation test.
Fig. 5. Compression provocation SIJ test.
Coccyxdynia

- Postpartum coccydynia is at 7.3%\(^1,12\)
- Common Causes:
  - Forceps or vacuum delivery
  - Traumatic fall \(\rightarrow\) coccygeus/sacrospinous l.
- No evidence to support coccydynia in pregnancy
  - Evidence in postpartum
- Symptoms:
  - Pain with defecation
  - Pain with sitting, moving sit to/from stand
- Physical Findings:
  - Tenderness at sacrococcygeal junction
  - Pelvic joint malalignment
  - Pain with mobilization during rectal assessment
Pregnancy-Related Low Back Pain

- Incidence ranges from 50-80%\(^1\)
- Definitive cause and etiology remain unclear
  - Possible hormonal influence vs. postural changes
- Risk factors:\(^1,26,27\)
  - Amenorrhea, increasing parity, pelvic pain in previous pregnancy, LBP and hypermobility prior to first pregnancy, increased BMI, physically demanding occupation, high psychological stress and low job satisfaction
- Decreased bone density, age of menarche, and use of oral contraceptives are NOT risk factors\(^27\)
- Long history of consistent moderate exercise and activity prior to first pregnancy decreased the risk of LBP\(^26\)
Postpartum Low Back Pain

- 5-43% of women with persistent LBP during postpartum\(^2\)
- 85% more likely to experience relapse in subsequent pregnancies
- Contributing factors:
  - High BMI 3 to 6 months postpartum
  - Early onset of pain during pregnancy
  - Higher maternal age
  - Persistent joint hypermobility
  - Higher levels of low back/pelvic pain during and after pregnancy
  - History of low back pain prior to pregnancy
Urinary Incontinence

- Incidence ranges from 30-55%\textsuperscript{1,9}
- UI during pregnancy can be responsible for dysfunction that develop decades later
- Risk Factors during Pregnancy:\textsuperscript{9}
  - Maternal age >35
  - Pre-existing UI
  - Increased initial BMI
- Risk Factors during Postpartum\textsuperscript{9}
  - Increased maternal BMI
  - Increased maternal age (>30)
  - UI during pregnancy
  - Diabetes
  - Forceps delivery (primiparous)
  - Trauma during 2\textsuperscript{nd} stage of labor
  - Larger baby
Anal/Fecal Incontinence

- External anal sphincter (skeletal muscle) is 10-20% of resting continence\textsuperscript{28}
- Internal anal sphincter (smooth muscle) is responsible for the remainder\textsuperscript{28}
- Obstetrical trauma is the most common cause of anal incontinence in women\textsuperscript{2,28}
- Rectal urgency is a major predictor of incontinence
- 15\% postpartum women report symptoms at 6 week follow-up\textsuperscript{28}
- Sexual dysfunction higher in women with fecal incontinence\textsuperscript{28}
3rd and 4th Degree tearing

- 3rd degree tear = dysfunction of EAS
- 4th degree tear = disruption of EAS, IAS, and rectal mucosa
- Disruption of structures vital for continence and pelvic organ support
- Risk Factors:
  - Primigravid, previous episiotomy, dyssynergic defecation during pregnancy, prolonged 2nd stage labor, closed glottis pushing on command vs. bearing down with urge, instrumental birth, regional anesthesia, increased fetal weight (>7.7bs)
- Postpartum symptoms:
  - Dyspareunia, vaginal/vulvar/groin pain, difficulty sitting/walking/standing/climbing stairs, pain/bleeding defecation, FECAL INCONTINENCE (FI), SIJ/LBP
- Prevalence of anal incontinence after 3rd/4th degree tear is 36-63%
Prevention of Perineal Trauma

- Patient education
- **Perineal massage during the last 6 weeks of pregnancy**\(^{16,29}\)
- **Avoid close glottis (Valsalva) pushing during the 2nd stage of labor**\(^{16,29}\)
- **Encourage upright or later positioning for 2nd stage labor and delivery**\(^{16,29}\)
- MD slows delivery of baby’s head
- Do NOT use perineal massage during delivery unless completely necessary
Physical Therapy Interventions: Antepartum and Postpartum
Posture and Activity Modification

- Correct dysfunctional postures during static and dynamic positioning\textsuperscript{2,5,6,18,19}
  - Sitting, standing, sit to/from stand (exhale + glut/ab/PFM contraction = decreased instability)
  - Sleep positioning
  - Lifting/carrying baby

- If initiating yoga and/or pilates
  - One-on-one or very small group (3-4) instruction
  - Certified and experience with pregnancy/postpartum
Posture and Activity Modification

- Limit activities with excessive repeated stress on pelvic girdle\textsuperscript{6,8,18,19}
  - Running, Tennis, Cycling
  - Crossfit/Insanity workout
  - Individualized cardio and strengthening program
- Gait Training\textsuperscript{5,6}
- Bladder/Bowel training
  - Urgency and Frequency
  - Bladder schedule
Postural considerations

- Correct faulty movement patterns due to chronic pain

- Dysfunctional posture influences muscles
  - Increased demand on pelvic floor muscle group
  - Decreased resting period \(\rightarrow\) ischemia
  - Inactivation and weakness of neighboring muscle groups

- Altered mechanoreceptor activity
  - Pain influences movement pattern and proprioception
  - Tone changes indicate CNS reprogramming \(\rightarrow\) chronic pain
Manual Therapy

- **Joint mobilization/manipulation and muscle energy techniques**\(^2,24,25\)
  - Restore pelvic alignment
  - Improved muscle length/tension
  - Decreases nerve traction

- **Scar mobilization and management**
  - C-section, episiotomy/laceration

- **Myofascial/Trigger Point release**\(^24\)
  - Deactivating pain-referring taut muscle bands
  - Lengthening muscle inside and outside the pelvic floor
  - Enhances PFM relaxation
  - Self-management
Neuromuscular Re-education

- Down-regulation of CNS$^{1,8,24}$
  - Diaphragmatic/Deep breathing
    - ANS regulation/Restore altered levels of arousal
    - Improved muscular awareness/decreased anxiety
    - Increases lateral rib expansion and relaxes abdominal wall
  - Paradoxical Relaxation
    - Progressive PFM relaxation
    - Redistribution of muscle tension
    - Utilized to modulate symptoms of pain
- Cognitive/Behavioral Techniques
  - Minimize fear and pain-avoidance behavior
  - Desensitization (touch, scar/pelvic floor massage)
EMG Biofeedback and Pelvic Pain

- Alter and improve PFM activity and control\textsuperscript{1,21}
  - Visual, tactile, and auditory feedback
    - Computer or television screen
  - Surface electrodes and/or internal vaginal or rectal sensor (SEMG)
    - Avg resting muscle activity 2-4 microvolts
  - Static and dynamic activity
    - Vaginal penetration, walking, standing, hook-lying, toilet positioning for proper defecation
- Effective in finding optimal birthing position\textsuperscript{1}
  - Lowest resting SEMG reading at baseline and lengthening/bulging
- Can be used for acute postpartum intervention\textsuperscript{1}
- Effective in minimizing symptoms of the following pelvic conditions:
  - Vulvodynia, vaginismus, dyspareunia, urinary and fecal incontinence, and dysfunctional voiding (constipation, etc.)
Biofeedback
TENS/Electrical Stimulation

- Decreases pain and promotes analgesia\textsuperscript{14,15,17}
  - Inhibition of A\textsubscript{δ} and C fibers
  - Amplification of descending pain inhibitory pathways (Dionisi)
- Intra-vaginal or external (sacral, lumbar, and thoracic spine) electrodes
- Home unit or in-clinic application
- No standardized protocol
  - Treatment can range from one to two times per week
  - 15 - 30 minutes in duration
  - Intensity to patient’s tolerance
- Long term effect unknown
  - Decline in response due to tolerance to TENS analgesia
  - Acute flare-ups
Low Back/Pelvic Girdle Pain Treatment

- Pelvic girdle stabilization exercises
  - Mini squats; abdominal and pelvic floor strengthening
  - Correction of diastasis recti
- TENS/Interferential Current (IFC)
- Pelvic girdle support brace
  - Serola Belt or Trainer’s Choice Pregnancy SI Belt
- Soft tissue mobilization
  - Trigger point/Myofascial release
  - Joint mobilization
- Functional movement re-education
  - Stair, gait, sit to/from stand, and bed mobility training
  - Minimizing asymmetrical stance or movement
Pelvic Girdle Pain Treatment

- **Pubic Symphysis (PS) and SIJ**
  - Avoid unilateral standing
  - Step-to gait pattern when negotiating stairs
  - Gluteal recruitment with hip extension (sit to stand, stairs, etc.)
  - Manual realignment of SIJ and PS
    - Post alignment stabilization exercises
  - Careful instruction with abdominal and pelvic floor strengthening

- **Coccyx**
  - NO KEGELS, please!
  - Sit on ischial tuberosities (folded hand towels under thighs)
Preventative Rehabilitation: 3rd and 4th degree Tears

- Automatic referral after incidence of third and fourth degree tear
  - 4 weeks after primary repair
- Physical therapy tactile and verbal instruction on pelvic girdle strengthening
  - Safe exercise progression
  - Functional training: gait, bed mobility, sit to/from stand, stairs
- Regulation of increased intra-abdominal pressure
- Re-evaluation after 6 week MD check-up
- Asymptomatic = maintenance program
- Symptomatic = PT plan of care for treatment (8-10 weeks)
Post-Partum Care: C-section and Vaginal Delivery

- **Acute postpartum intervention**
  - Prevent respiratory complications → diaphragmatic breathing
  - Reduce gas pain/promote bowel movement → side-lying bowel massage, defecation techniques
  - Pelvic floor strengthening → visualization or biofeedback
  - Check/Minimize Diastasis → Abdominal strengthening and/or bracing (abdominal binder)
  - Bed mobility/transfer training
  - Promote good body mechanics
  - Incisional pain management → TENS/INF, ice to abdomen, heat to spine
Post-Partum Care: C-section and Vaginal Delivery

- **Outpatient Postpartum Care**¹
  - 10 days to 2 weeks (vaginal) OR 6-8 weeks (C-section)
  - PT: screen for dysfunction spine, pelvic/perineum, trunk and extremities
  - Mobilization of scar tissue
  - Pelvic girdle strengthening program
  - Pelvic floor muscle coordination program
    - Down-training for pain
    - Strengthening for weakness/support
  - Correction of diastasis recti
  - Correction of pelvic asymmetry and trauma to coccyx
Benefits of Maternal Exercise

• **Maternal**
  - Decreased postpartum pelvic floor dysfunction
  - Decreased pain/prevents development of pelvic girdle pain
  - Increased aerobic capacity and physical work capacity

• **Labor and Delivery**
  - Decreased time in stages
  - More likely to have spontaneous delivery
  - Less likely to require instrumentation
  - Decreased hospital stay
  - Timely deliveries (less likely to extend past term)
Exercise with Caution

• **CONS:**
  - Increase maternal core temp in hot/humid temps
  - Monitor intensity of exercise
  - Do not go to end-range with stretching, especially pelvic girdle pain

• **Warning Signs to Terminate Exercise (print out for active patients):**
  - Vaginal Bleeds
  - Dyspnea PRIOR to exertion
  - Dizziness or Headache
  - Chest Pain (new onset)
  - Decreased fetal movement/ Pre-term labor
  - Calf pain/swelling (R/O DVT)
  - Amniotic leakage
  - Muscle weakness
Exercise Recommendations

- At least 30 minutes of moderate exercise daily
- Minimum of 3x/week is preferable to intermittent activity → prevention of soft tissue injury
- Modify exercise based on maternal symptoms
  - Don’t exercise to exhaustion
  - TALK test and Rate of Perceived Exertion
  - Example: Minimize bridging or lumbar extension exercises with dx of spinal stenosis
Good Exercises for MOST Pregnant Women

- **Relaxation/Rhythmic breathing in side-lying**
  - Promotes relaxation and decreased stress
  - Improved blood flow to uterus

- **Abdominal muscle training**
  - Intra-abdominal pressure regulation
  - Education on Valsalva

- **Pelvic floor muscle coordination training**
  - Instructed with visual or tactile confirmation of accurate execution (not Biofeedback)
  - Pelvic floor contraction, relaxation, and lengthening
  - Spine and SIJ stability, pain management

- **Land and water-based aerobics**
  - Dehydration due to increased renal function → hydrate
  - Close monitoring of heart → decreased HR and BP due to hydrostatic pressure
Labor and Delivery Considerations
Positioning during Labor and Delivery: Protecting the Perineum

- Birth positioning and quality of birth attendant are related to perineal outcome\(^1\)
- **Squatting\(^{16,20}\)**
  - Associated with least intact perineum \(\rightarrow\) least favorable outcomes
  - Primigravida
- **Quadruped (Hands and Knees)\(^{1,16,20}\)**
  - Reduced need for sutures
- **Semi-recumbant with regional anesthesia**
  - Increased need for sutures
- **Lateral side-lying\(^{1,16,20}\)**
  - Highest rate of intact perineum
  - Ideal for existing pelvic organ prolapse
Positioning during labor and delivery: Herniated/Bulging disc

- **Common complaints:**\(^1,16,20\)
  - Pain worsens with sitting, forward bending
  - Improves with return from forward bending and lumbar extension
- **Common Posture**
  - Excessive lordosis
- **Avoid increased intradiscal pressure or nerve root tension**
- **Avoid excessive spinal flexion for prolonged periods of time**\(^1\)
  - Facing and leaning against a wall in standing
  - Sitting backward on a chair
- **Avoid breath-holding or a Valsalva maneuver during second stage of labor**\(^1,16,20\)
  - Encourage open glottis and verbal sounds
Promoting lumbar extension

Positioning during labor and delivery: Spinal Stenosis

- **Common complaints:**\(^1,16,20\)
  - Low back pain
  - Symptoms improve with sitting or forward flexion/bending

- **Avoid lumbar extension and excessive hip flexion**\(^1,16,20\)
  - Use squatting bar with caution, especially with pts who have radicular pain to BLEs
  - Causes increased nerve root pain and or paresthesias
  - Prolonged standing

- **Promote lumbar flexion**
  - Squatting with bar
  - Quadruped positioning
Positioning during labor and delivery: Spinal Stenosis

http://www.takingcharge.csh.umn.edu/activities/effective-birthing-positions
Positioning during labor and delivery:
Sacroiliac Joint Dysfunction

- **Positions to Promote:**
  - Symmetrical standing or positioning
  - Upright kneeling
  - Quadruped positioning

- **Positions/Activities to Avoid and/or Modify:**
  - Walking during stage I
  - Lithotomy
  - Semi-reclined with legs unsupported

http://www.takingcharge.csh.umn.edu/activities/effective-birthing-positions
<table>
<thead>
<tr>
<th>SPD$^{1,16,20}$</th>
<th>Coccydynia$^{1,16,20}$</th>
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<tbody>
<tr>
<td><strong>Positions to avoid/modify:</strong></td>
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</tr>
<tr>
<td>- Side-lying or Semi-reclined with hips abducted $&gt;45^\circ$</td>
<td>- Semi-reclining</td>
</tr>
<tr>
<td>- Squatting</td>
<td>- Lithotomy</td>
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<tr>
<td><strong>Positions to promote:</strong></td>
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</tr>
<tr>
<td>- Side-lying with hips abducted $&lt;45^\circ$</td>
<td>- Any position that allows the coccyx to move freely</td>
</tr>
<tr>
<td>- Semi-reclined with knees on pillows</td>
<td>- Quadruped over a ball</td>
</tr>
<tr>
<td>- Quadruped or upright kneeling</td>
<td>- Standing or upright kneeling</td>
</tr>
<tr>
<td></td>
<td>- Side-lying</td>
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Pain Management: TENS Unit

- **1\textsuperscript{st} stage of labor**: low intensity TENS can be used continuously\textsuperscript{13-15}
- **2\textsuperscript{nd} stage of labor**: intensity is increased once contractions start and left on for 1 minute\textsuperscript{13-15}
- Placement on electrodes on thoracic and sacral spine (2 channels with 4 electrodes)\textsuperscript{13-15}
  - Channel 1: 2 electrodes placed at mid–back thoracic level T10-L1
  - Channel 2: 2 electrodes placed at sacral level S2-S4
- Frequency: 80 – 150 pps (pulses per second)
- Phase duration: 2-50 microseconds
Coordinating Care

- Refer patients to physical therapy as soon as their pain impacts their function and quality of life
- Duration of treatment
  - Pregnant patients: 1-2x/week until symptoms resolve and/or PRN until delivery
  - Postpartum patients: 1x/week from 4-8 weeks depending on diagnosis
  - MSK screening and consultation
- NP or MD referral required in state of Texas
- PT must have experience with pregnant and postpartum patients
Resources

- **American Physical Therapy Association: Section on Women’s Health**

- **Herman & Wallace: Pelvic Rehabilitation Institute**
  - [http://hermanwallace.com/practitioner-directory](http://hermanwallace.com/practitioner-directory)

- **The International Pelvic Pain Society**
  - [http://www.pelvicpain.org/Patients/Find-a-Medical-Provider.aspx](http://www.pelvicpain.org/Patients/Find-a-Medical-Provider.aspx)

- **International Society for the Study of Women’s Sexual Health**
  - [http://www.isswsh.org/resources/provider.aspx](http://www.isswsh.org/resources/provider.aspx)
THANK YOU!!!!!!

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References


