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Physical Therapy for Low Back and Pelvic Girdle Pain in Pregnancy

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PT, DPT, WCS

Learner Outcomes

As a result of this course, participants will be able to:

1. Describe the etiology of low back and pelvic girdle pain related to childbearing
2. List at least two tests and at least two measures to complete an examination of a pregnant or postpartum patient with musculoskeletal complaints of back and/or pelvic girdle pain.
3. Outline a plan of care with at least three goals of treatment for a patient with back and/or pelvic girdle pain in pregnancy.
4. List at least three skilled manual therapy interventions for the treatment of musculoskeletal low back pain and pelvic girdle pain related to pregnancy.
5. Identify at least five evidence-based physical therapy interventions in pregnancy and postpartum including exercise, bracing, positioning, functional restoration, and modalities.

* Clinical Practice Guidelines

- Pelvic Girdle Pain in the Antepartum Population
- Physical Therapy Clinical Practice Guidelines Linked to the International Classification of Functioning, Disability, and Health from the Section on Women's Health and the Orthopaedic Section of the American Physical Therapy Association
- Authors:
  - Susan C. Clinton PT DScPT OCS WCS COMT FAAOMPT
  - Alaina Newell PT DPT WCS CLT-LANA
  - Patricia A. Downey PT PhD DPT
  - Kimberly Ferreira PT MSPT PhD(c)
- http://www.womenshealthapta.org/wp-content/uploads/2017/02/Final-Antepartum-CPG-2.1.17.pdf

Sara

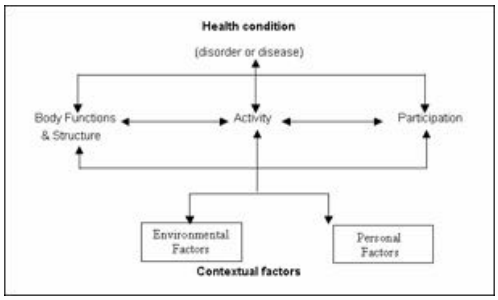
- 26 year old physical therapist
- G2 P1
  - Gravida: number of pregnancies
  - Para: number of deliveries
- 14 weeks IUP (intrauterine pregnancy)

History and Systems Review

- Current obstetrical status
  - Gestational age
  - Estimated date of delivery
  - Health during pregnancy
    - Bleeding /spotting
    - Complications such as gestational diabetes, HTN
    - Weight gain
    - Constitutional symptoms
- Level of Physical activity
- Occupation
- Past obstetric history
  - Complications- pre-term labor
  - Type of delivery
- History of pain, incontinence

Systems Review Guide to Physical therapist practice, ICF Model

- Cardiopulmonary
- Neuromuscular
- Musculoskeletal
- Integumentary
- (Urogential)



*Outcome measures

- Disability Rating Index
- Oswestry Disability Index
- Pelvic Girdle Questionnaire
- Fear Avoidance Belief Questionnaire
- Pain Catasrophizing Scale
- Scales are practical for the determination of baseline disability, function and pain belief as well as change throughout the clinical course.
- Should be utilized in combination with clinical examination for clinical decision.
- Recommendations are based on strong evidence.

Appendix 1.
Pelvic Girdle Questionnaire (English Version)*

To what extent do you find it problematic to carry out the activities listed below because of pelvic girdle pain? For each activity tick the box that best describes how you are today.

How problematic is it for you because of your pelvic girdle pain to:	Not at all (0)	To a small extent (1)	To some extent (2)	To a large extent (3)
1. Dress yourself				
2. Stand for less than 10 minutes				
3. Stand for more than 60 minutes				
4. Bend down				
5. Sit for less than 10 minutes				
6. Sit for more than 60 minutes				
7. Walk for less than 10 minutes				
8. Walk for more than 60 minutes				
9. Climb stairs				
10. Do housework				
11. Carry light objects				
12. Carry heavy objects				
13. Get up/sit down				
14. Push a shopping cart				
15. Run				
16. Carry out sporting activities*				
17. Lie down				
18. Roll over in bed				
19. Have a normal sex life*				
20. Push something with one foot				

* If not applicable, mark box to the right.

How much pain do you experience:	None (0)	Some (1)	Moderate (2)	Considerable (3)
21. In the morning				
22. In the evening				

To what extent because of pelvic girdle pain:	Not at all (0)	To a small extent (1)	To some extent (2)	To a large extent (3)
23. Has your leg/have your legs given way?				
24. Do you do things more slowly?				
25. Is your sleep interrupted?				

* Scoring procedure: the scores were summarized and recalculated to percentage scores from 0 (no problem at all) to 100 (to a large extent).

Pelvic Girdle Questionnaire

(Stuge 2011)

- The PGQ was the only instrument with satisfactory discriminant validity, thus, it is recommended for evaluating symptoms and disability in patients with pelvic girdle pain.
  - (Grotle M 2012)

How problematic is it for you because of your pelvic girdle pain to:	Not at all (0)	To a small extent (1)	To some extent (2)	To a large extent (3)
1. Dress yourself			✓	
2. Stand for less than 10 minutes		✓		
3. Stand for more than 60 minutes				✓
4. Bend down			✓	
5. Sit for less than 10 minutes	✓			
6. Sit for more than 60 minutes		✓		
7. Walk for less than 10 minutes		✓		
8. Walk for more than 60 minutes				✓
9. Climb stairs			✓	
10. Do housework			✓	
11. Carry light objects	✓			
12. Carry heavy objects		✓		
13. Get up/sit down			✓	
14. Push a shopping cart			✓	
15. Run				✓
16. Carry out sporting activities*				
17. Lie down			✓	
18. Roll over in bed				✓
19. Have a normal sex life*				✓
20. Push something with one foot			✓	
If applicable, mark box to the right.		4	16	15

How much pain do you experience:	None (0)	Some (1)	Moderate (2)	Considerable (3)
In the morning			✓	
In the evening			✓	
			4	

To what extent because of pelvic girdle pain:	Not at all (0)	To a small extent (1)	To some extent (2)	To a large extent (3)
Has your leg/have your legs given way?		✓		
Do you do things more slowly?				✓
Is your sleep interrupted?			✓	
		1	2	3

Figure 1. The English version of the Pelvic Girdle Questionnaire. Reprinted from Stuge *et al.* (2011, p. 564) with permission. Scoring procedure: the scores were summarized and recalculated to percentage scores from 0 (no problem at all) to 100 (to a large extent).

45/75=60%

*Differential Diagnosis

- LBP and PGP should be differentiated from signs and symptoms of serious disease and psychological factors when the symptoms are not associated with the described clinical course of PGP, impairments are failing to normalize and the symptoms are worsening with increased disability.
- Recommendations are based upon strong evidence

Differential diagnosis

Caution / Medical Referral

- History of trauma
- Unexplained weight loss
- History of cancer
- Steroid use
- Drug abuse
- HIV / immunosuppressed
- Neurological signs/symptoms
- Fever
- Systemically unwell

Specific to PGP

- Uterine abruption
- Urinary tract infection

*differential diagnosis

- Transient osteoporosis
  - BMD decreases during pregnancy- up to 3.4% in lumbar spine,3.2% hip, 4.2% femoral neck
- Diastasis rectus abdominis
  - Incidence in the third trimester is 66% with the occurrence in the post-partum population at 39% after 7 weeks to several years.
- Pelvic floor muscle dysfunction

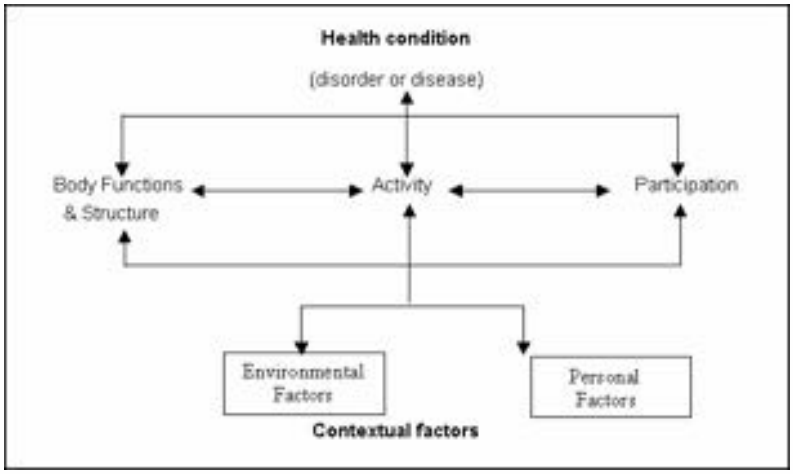
*Differential Diagnosis

- Hip dysfunction
  - bursitis/tendonitis, chondral damage/loose bodies, capsular laxity, femoral acetabular impingement, labral irritations/tears, muscle strains, referred pain from L2,3 radiculopathy, osteonecrosis of the femoral head, Paget's disease, rheumatoid, psoriatic and septic arthritis.
- Lumbar spine
  - spondylolisthesis, discal patterns of symptoms that fail to centralize, and neurological screenings that may reveal the presence of LMN or UMN signs.
  - Bowel/bladder dysfunction should also be considered in combination with multiple sensory, motor and diminished reflexes that could indicate cauda equina syndrome, large lumbar disc or other space occupying lesions around the spinal cord or nerve roots.

*imaging

- Studies are kept to a minimum to decrease the exposure of the fetus to radiation or radiopaque and paramagnetic contrast agents.
- The preferred methods of imaging, ultrasonography or magnetic resonance, have no known association of adverse fetal effects.
- Imagining may be necessary for interventional and or surgical planning as well as to determine the presence of serious medical conditions.

ICF Model



*Risk Factors for LBP and PGP in Pregnancy

- Prior history of pregnancy (multiparity)
- Prior history of LBP or PGP
- History of trauma to the pelvis or spine
- Orthopedic, especially hip, LE, gluteus medius dysfunctions
- Increased BMI
- Smoking
- Work dissatisfaction
- Lack of belief of improvement in the prognosis of PGP
- Recommendation based on strong evidence

Guide to Physical Therapist Practice

- Examination: history, tests and measures
- Evaluation: clinical judgment based on examination
- Diagnosis: examination data organized into syndromes or categories
- Prognosis: plan of care, possible outcome
- Intervention: skilled interaction with patient
- Outcome: results of patient intervention

EXAMINATION

Components of ExaM

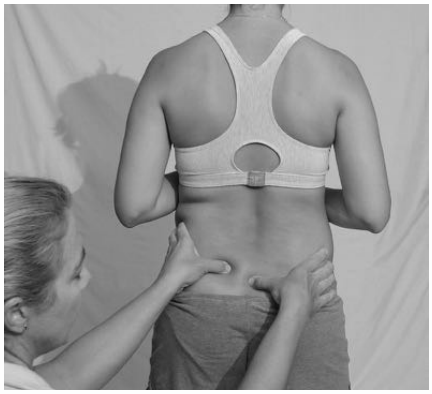
- Gait analysis
- Posture Analysis
- Spinal AROM
- Functional hip strength / balance
- Neurological exam
  - Dermatome
  - Myotome
- Manual muscle test
- Neural tension tests
- Load transfer tests
- Provocation tests
- Palpation
- DRA assessment
- External PFM palpation

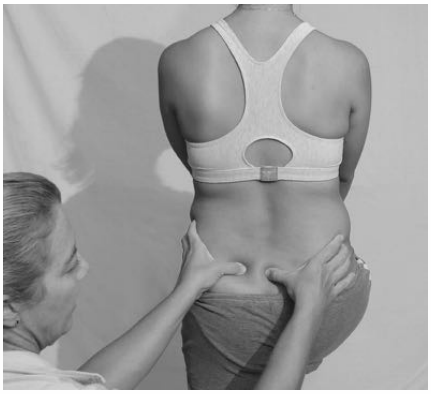
Pelvic girdle palpation

Trendelenberg

Single leg squat

Stork Test





*Physical impairment-based measures

- ASLR
- Compression / Separation test
- Distraction / Compression test
- Gaenslen test
- FABER test
- Hip Passive ROM abduction/adduction
- Lunge
- Menell's Test
- Palpation of Pubic Symphysis
- Palpation of SIJ
- P4 test
- Trendelenburg Test

Neuro exam

Muscle test

Slump sit

Modified supine position

Exam of DRA

Provocation tests

Provocation and Load transfer

FABER

PPPT or P4

ASLR

Hip compression ADD IR

PS palpation

Gaenslen's test

SIJ Compression distraction

SIJ compression /separation test

LDL palpation

PFM palpation

Soft tissue exam
QL, hip

Musculoskeletal pattern C:

- Impaired Muscle Function

- Motor function: motor control, motor learning
- Strength
- Power
- Endurance
- Pain
- Posture

Musculoskeletal pattern D:

- Impaired Joint Mobility, Motor Function, Muscle Performance, and Range of Motion Associated with Connective Tissue Dysfunction

- Decreased ROM
- Inability to squat due to joint instability
- Muscle guarding or weakness
- Pain
- Postpartum sacroiliac dysfunction
- Swelling or effusion

*exam

- Strongest diagnostic accuracy was with the ASLR test, thigh thrust, and the lunge due to higher sensitivities compared to the other tests and measures.
- Combining the positive pain provocation findings from the lunge, manual muscle testing (MMT) of the hip and the hip passive range of motion (ROM) demonstrated the highest, positive likelihood ratios.

*Risk of falls

- The antepartum population is at high risk for falls, comparable to the geriatric population.
- Incidences are reported at 26.8% with 35.3% having fallen 2 or greater times during pregnancy.
- Individuals during the 7th month have the highest rate of falls, which coincides with peak of prevalence of pelvic girdle pain in the last trimester of pregnancy.
- While strong evidence exists to support a high risk of falls, no measures have been validated to objectively assess the dynamic balance and fall risk in antepartum population.
- Recommendation is based on theoretical/foundational evidence

Findings of exam

Sara-Plan of care

- Frequency and duration: 2x/wk x 4 weeks
- Interventions: Manual physical therapy including Joint mobilization, Soft tissue mobilization, myofascial release, Neuromuscular re-education, Therapeutic exercise and activities, Gait training, Home exercise/care program, cold packs for pain management. Patient may benefit from maternity SI Belt to improve load transfer across pelvic girdle joints.
- PLAN FOR NEXT VISIT: Manual therapy to restore optimal loading of pelvic girdle joints, body mechanics training, hip abductor and rotator muscle strengthening, abdominal muscle activation, pelvic floor muscle exercises, trial SI Belt

Short term Goals of treatment

- Within 3 weeks:
- Patient returns demonstration of in correct performance of pelvic floor muscle exercises and transversus abdominis muscle activation to optimize pelvic girdle and core stability.
- Patient demonstrates improved load transfer across joints of the pelvic girdle during transitional movements and during ASLR test.
- Patient demonstrates ability to perform self management strategies to reduce pain and improve function.
- Patient returns demonstration in performing hip strengthening exercises.
- Patient returns demonstration of postures and body mechanics to reduce strain to pelvic girdle joints.
- Patient reports a decrease in worst pain to 3/10 to allow patient to return to normal work, household, exercise, and community activities.

Long term goals

- Within 6 weeks:
- Restore normal loading across joints of the pelvic girdle and evidenced by negative provocation tests - decreased pain with P4 test, and PS palpation test
- Patient independently activates pelvic floor and abdominal muscles before movement to stabilize pelvic girdle and optimize joint loading
- Patient is independent in a comprehensive home exercise and self management program.
- Decrease score on pelvic girdle questionnaire x 25% indicating significant and clinical meaningful improvement in disability related to pelvic girdle pain

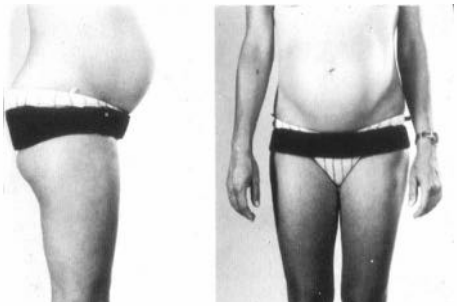
INTERVENTION

Serola SI Belt

SI Belt at or below ASIS

SI Belt

- SI Belt application
- Does not have to be as tight as possible, firm but comfortable



*SI belts

- **Non-elastic belts**
- **88% experienced reduced problems when wearing the belt**
  - **No evidence of adverse effects of belt**
    - **Ostgaard 1994**
- **SIJ belt reduced rotation by 19%**
  - **Vleeming 1992**
- **90 women referred for PSD**
- **Use of rigid or non-rigid pelvic support belt did not add to the effects provided by exercise and advice**
  - **Depledge 2005**

*Support belts

- Clinicians should consider the application of a support belt in the antepartum population with PGP.
- The four studies reviewed investigated different patient populations, had varied intervention groups and controls, different durations of intervention application and different timing of follow-up.
- Further research is needed to clarify initial application, duration and specific antepartum PGP patient classification for support belt intervention.
- Recommendation is based on conflicting evidence

MANUAL THERAPY

- Joint mobilization: Use the least amount of force as is effective to get results
- Teach patients how to mobilize themselves
- A little bit of soft tissue work goes a LONG way

Manual therapy

Adductor isometric to mobilize right pubic symphysis inferiorly

Joint blocking technique to pubic symphysis

"Shotgun pube" general pubic symphysis mobilization

Prone sacral superior glide joint mobilization

Sidelying Sacral superior glide mobilization

Posterior rotation ilium

Self correction mobilization
"Re-set"

Gentle submaximal isometric muscle energy techniques

Piriformis gluteal
soft tissue mobilization

Quadratus lumborum soft tissue
mobilization and manual stretch

*Manual therapy

- There is little to no evidence that spinal manipulation and/or mobilization is harmful to the antepartum female or the fetus.
- Clinicians may or may not utilize manual therapy techniques including high velocity low amplitude manipulations for the treatment of PLBP and PGP.
- This evidence is emerging and treatment could be considered, as there is little to no reported evidence of adverse effects in the healthy antepartum population.
- Recommendations are based upon weak evidence

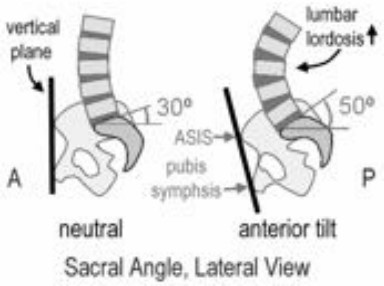
Functional Restoration

Neutral spine

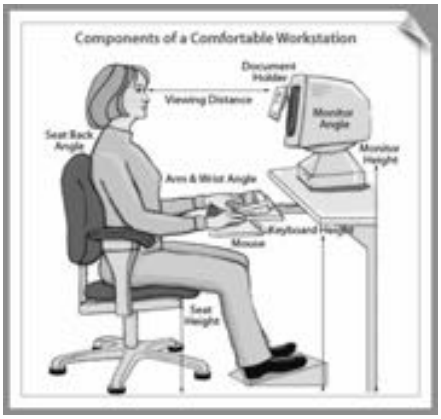
Activate core during movement

Supported sleeping positions

Sit to stand



Computer posture

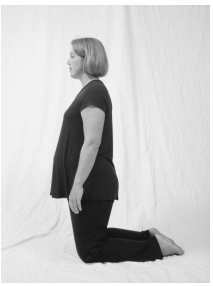


Functional training

Sit to sidelying, log roll

Functional lunge

Floor



Car transfers



sweeping


EXERCISE

*ACOG and Canadian cpgs

- Contraindications to Exercise
- Warning Signs to Stop Exercise and Consult MD

Therapeutic Exercise and Core Stability Training

- Teach activation of
- Transversus abdominus
- Lumbar Multifidi
- Pelvic floor Muscles
- While breathing (diaphragm)

PFM ex

DRA ex

Hip circles

Quadruped ROM ex

Repeated lumbar extension for centralization

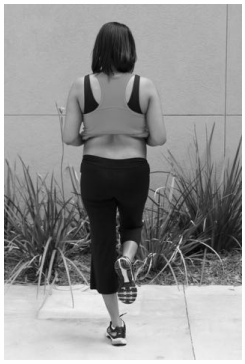
Multi-positional instruction in Neutral spine posture

Exercise Advice Often Absent From Prenatal Care

Missing component of screening and intervention in prenatal health care

Practice single leg balance

- Eyes open
- Eyes shut
- Correct excessive genu recurvatum



Weight shift

- Side to side
- Tandem stance
  - Add therband lat pull down
  - Repeat in alternating stance positions

"Clock step" – more advanced

- Mini lunges around "clock face"
- Dynamic stability, coordination, proprioception

* Exercise

- Clinicians should consider the use of exercise in the antepartum population with PGP.
- ACOG and the Canadian CPG have recommended exercise for health benefits because of the low risk and minimal adverse effects for the antepartum population.
- The two systematic reviews as well as the recent RCTs were non-specific in the application of exercise to heterogeneous groups of Pregnancy Low Back Pain (PLBP) and PGP.
  - The populations varied in early and late pregnancy and demonstrated a variety of exercise interventions.
- Recommendation is based on conflicting evidence

SUMMARY

- Pelvic girdle pain in pregnancy is biomechanical
- Can be effectively treated during pregnancy and in the postpartum with physical therapy
- Multimodal evidence based intervention is required
- Education is required
  - Pain is common but not normal
  - Pain is not damaging to mom or baby
  - Movement matters

QUESTIONS?