

Introduction

- About 68.9% of women experienced back pain during pregnancy (Wang et al, 2004).
- Risk factors associated with pregnancy-related low back pain include: pre-pregnancy activity level, history of back pain prior to pregnancy, number of previous pregnancy, and history of back pain during previous pregnancies.
- Numerous studies have shown that exercise can reduce the intensity of back pain during pregnancy. However, specific evidence reflecting the benefit of Pilates within this population is limited.
- Most of the studies included exercises targeted at strengthening the core muscles.

Patient History/Systems Review

- 34 year old female that was 21 weeks pregnant with her fourth child.
- Pain began about 1-week prior to physical therapy evaluation, occurred when she was bending forward to pull on her slacks and her back “locked up”.
- Pain at initial visit was an 7 to 8/10 and the patient was unable to return to work as a neonatal intensive care unit nurse
- Greatest difficulty with walking, transitional movements, sitting, standing, reaching, lifting, twisting, and rolling in bed.

Examination

- The patient completed the Modified Oswestry Disability Questionnaire, scoring an 84%, indicating severe disability.
- An anteriorly rotated right innominate and left side-bent and rotated sacrum were noted with bony landmark palpation
- Increased muscle tension bilaterally in the quadratus lumborum and piriformis were noted with soft tissue palpation
- The patient demonstrated an antalgic gait pattern, including bilateral decreased weight shifting, decreased step length, and a very slow cadence
- Active range of motion testing was conducted on the lumbar spine with the following measurements: Flexion 4cm, Extension 0cm, Right side bending 17cm, and left side bending 18cm. These values all demonstrate a decrease in range of motion. A measurement of 6cm and 1.6cm are considered normal for lumbar flexion and extension, respectively. A measurement of 21cm is considered normal for lateral bending (Norkin & White, 2009).

Clinical Impression

- Differential diagnosis included acute low back pain, lumbar instability, sacroiliac dysfunction, and transient osteoporosis.
- At the conclusion of the evaluation, the diagnosis was: Acute pregnancy-related low back pain.
- Problem list included: myofascial and soft tissue restriction, pain, and range of motion impairments.
- The ICF classification consistent with this patient’s examination findings was: acute low back pain with movement coordination impairments.
- The overall prognosis for this patient was good: while she had a history of back pain prior to pregnancy, she was able to manage it successfully using conservative measures

Interventions

- Interventions included myofascial manipulation, instruction in proper body mechanics, muscle energy techniques (MET), joint mobilizations, range of motion, Pilates based core stabilization and strengthening.
- Pilates exercises were performed with the goal of improving postural awareness and core strength and stability.
- MET were performed initially for an anterior rotated innominate.
- Pilates mat exercises were added to the patient’s program beginning the second treatment session. The Pilates chair exercises were incorporated into the treatment plan on the 10th visit. The goal of the Pilates chair exercises was to improve postural awareness, core strength, and leg strength.
- Strength exercises targeting the gluteus maximus, gluteus medius and hip extensors were also added
- The patient was given a home exercise program, which was updated throughout her treatment, including self MET and stabilization exercises.



Outcomes

- Following the 7 weeks of physical therapy intervention, 12 treatment sessions, the patient demonstrated improved position and stability of the SI joint and decreased low back pain.
- Walking pattern was normalized
- The patient completed 2 modified Oswestry Disability Questionnaires over the course of her treatment. Her score improved from 84% to 22%, indicating a moderate level of disability
- Numeric Pain Rating Scale improved from 8 to 7/10 to 2/10
- The patient was able to return to work as a NICU nurse after completing 5 sessions of physical therapy.
- Self discharged from physical therapy due to feeling better.
- One month following discharge, the patient called the treating therapist to resume physical therapy secondary to increasing low back pain.

Comparison of Initial and Follow-up Outcome Measures

	Initial	Follow-up
Pain	8 to 7/10	2/10
Modified Oswestry	84%	22%
Palpation of Bony Landmarks	Right anteriorly rotated ilium Sacrum side bent left and rotated left	Self management of rotation Sacrum in normal alignment
Gait Analysis	Antalgic gait with bilateral decrease in weight shifting, step length, and cadence	Improved step length and cadence

Discussion

- This case indicates the effectiveness of an exercise based physical therapy plan of care that incorporated manual therapy, core strengthening, and core stabilization using Pilates exercises to decrease disability and pain in a 32 year old pregnant female.
- Future studies should include larger sample sizes, as well as methods analyzing the effectiveness of exercise including Pilates in the treatment of pregnancy-related low back pain.