



Pregnancy Considerations and Postpartum Return to Sport

2024 Sport Medicine Symposium

June 22, 2024



About the Presenter

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- Graduated with BSPT from Bradley University in 2000
- Received MBA from Purdue University NW in 2010
- Board Certified Pelvic Rehab Practitioner through the Herman and Wallace Institute in 2014 (PRPC)
- Over 20 years experience as a physical therapist and pelvic health provider
- Committee member for Male UI Clinical Practice Guideline creation for the APTA academy of pelvic health
- Treats pelvic health conditions of all ages and genders
- Extensive background in outpatient orthopedics, neurological rehabilitation, inpatient acute care and home health care
- Has worked for the Community Healthcare System for over 20 years

Objectives



- Explore the physiological changes during pregnancy and processes of postpartum recovery
- Identify the signs and criteria that indicate readiness to return to sport
- Provide guidelines for individualized exercise programs, including modifications and progressions
- Discuss common postpartum risks for injury and prevention strategies
- Identify the role of pelvic physical therapy and when a referral is needed to promote a safe return to sport

Key Physiologic Changes During Pregnancy and Postpartum Considerations



Hormonal Changes

- Increased Relaxin in the body during pregnancy and up to 3 months post breastfeeding cessation may influence ligamentous stability

Cardiovascular Changes

- Blood volume increases and cardiac output increases by 30-50%

Pulmonary Changes

- Breathing changes occur with advancing pregnancy and functional lung capacity diminishes, available oxygen for aerobic activity is diminished

Musculoskeletal (MSK) Changes

- The levator hiatus widens significantly during pregnancy and increases even further during vaginal delivery as the pelvic floor muscle stretch to 250% of their baseline. It takes up to 12 months to return to the same width that is seen post cesarean delivery and does not return to prenatal size.
- The pelvic floor muscles, associated connective tissue and nerves reach optimal healing at 4-6 months postpartum
- Bladder neck mobility increases after vaginal delivery and remains higher as compared to 37 weeks gestation
- Uterine scar remodeling is still noted to be occurring at 6 weeks and abdominal fascia tensile strength is show to be at 51-59% at 6 weeks and 73-93% post C-section (Ceydeli et al. 2005)
- At 3-6 months postpartum 36% of new mothers will experience a prolapse of grade 2 or more
- Between 15-30% will experience urinary incontinence in the first year (Bo et al. 2017)

Postpartum Recovery: Energy Expenditure and Mental Health Considerations



Relative Energy Expenditure in Sport (RED-s)

- The impairment in bodily functions due to an excess in energy expenditure without adequate replacement resulting from excessive activity or other lifestyle factors
 - Previously termed Female Athlete Triad Syndrome
 - Increases risk for stress fractures, pelvic floor dysfunction and fertility issues

Postpartum Depression (PPD)

- Experienced by 20% of postpartum mothers
- Edinburgh Depression Scale

Return to Sport: Current Guidelines and Expert Consensus



Few guidelines exist and position statements provide little to no guidance on individualized return to sport

Current Academy of Obstetrics and Gynecology (ACOG) guidelines: begin exercise as soon as you feel ready or are released by your OB, Aim for moderate intensity aerobic activity 150 min/week



Best practice recommendations take into consideration tissue healing, remodeling, rebound and recovery



Biopsychosocial concerns and energy expenditure requirements related to caring for a newborn must be considered when determining recovery and return to sport timelines

Individualized Exercise Program: Timelines and Progression



0-2 weeks

Pelvic floor muscle exercises for both strength and endurance

Low level core exercises (e.g. pelvic tilt, bent knee fall outs, clams shells)

Walking program



2-4 weeks

Progress previous exercises, walking program

Introduce squatting, lunging and bridging that are consistent with functional requirements of a new mother



4-6 weeks

May introduce low impact cycling or cross training machines depending on individual recovery and mode of delivery



6 weeks – 3 months

May introduce swimming and/or spinning



3-6 months

Gradual progression of impact and return to running (at the earliest) as long as there are no red flags

Walk/run programs, build running distance/time before intensity with a recommended 10% increase per week

Mild MSK pain that is rated at a 0-3/10, decreases quickly after a run and does not linger into the next day is considered acceptable



9-12 months

Progress return to run (sport) to meet individual short and long-term goals

Postpartum Risk Factors and Red Flags



- Risk Factors for Injury

- Less than 3 month postpartum
- Pre-existing hypermobility syndromes (e.g. Ehler's-Danlos, HSD)
- Breastfeeding
- Pre-existing pelvic floor or lumbopelvic dysfunction
- Psychological issues that may impair judgment with safe return to sport
- Obesity
- C-section or perineal scarring
- Relative Energy Deficiency in Sport (RED-s)

- Red Flags

- Pelvic or lower back pain
- Incontinence (urinary, fecal)
- Pelvic Pressure
- Diastasis Recti (abdominal muscle separation)
- Chronic Fatigue
- Ongoing blood loss past 8 weeks that is not related to menstrual cycle

Pelvic Rehabilitation: When to Refer

What is a Pelvic PT?

- A specialized form of physical therapy
- Focuses on muscles, ligaments and connective tissues in and around the pelvic region
- Treats conditions such as pelvic pain, incontinence and pelvic organ prolapse.

Red flags (e.g. pain, incontinence or pelvic pressure):

- indicators that the pelvic floor (and associated) muscles are not ready to handle to the current demands being required of them.
- Ignoring red flags can lead to weakness, nerve damage, prolapse and worsening pain conditions

High level evidence

- supports pelvic physical therapy for treating urinary incontinence, pelvic organ prolapse and sexual dysfunction.

Expert Recommendation:

- all new mothers received a pelvic health evaluations

A pelvic rehab practitioner is highly skilled in postpartum recovery to ensure that the core and pelvic musculature is prepared to support the demands of returning to sport.

Return to Run Guidelines: A Good Place to Start



Return to Running guidelines set forth by Goom et al. (2019) and **The Run Readiness Scale** by Payne et al. (2019)



Assess for readiness to return to impact activity (Goom et al.) and elite sport (Payne et al.)



Consists of:

Pelvic health specific measures
Load management assessment
Strength testing

Return to Run Guidelines: Pelvic Health Specific Measures



Grade 3 or greater pelvic floor muscle strength in both hook lying and standing positions

Assessed via intravaginal/intraanorectal palpation and scored via the Modified Oxford Manual Muscle Testing score

Able to perform PFM endurance of:
10 fast reps
8-12 reps of 6-8 sec holds at maximum voluntary contraction
60 sec 30-50% submax contraction

Genital hiatus + Perineal Body measurement of less than 7 cm on valsalva

Greater or equal to 7 cm can indicate apical fascial support loss and possible need for a pessary



Return to Run Guidelines: Load Management Assessment

Generalized return to Run

- Goom et al. (2019)
- **Must be completed without pain, heaviness, dragging or incontinence*
- Walking: 30 minutes
- Single leg balance: 10 seconds
- Single leg squat: 10 x's each side
- Jog in place: 1 minute
- Forward bounds: 10 x's each side
- Single leg hop: 10 x's each side
- Single leg "running man"
(opposite arm and hip flexion/extension with bent knee):
10 x's each side

Elite Runners return to Sport

- Payne et al. (2019)
- **Must be performed for 1 min without breaks and with good form*
- Hopping on 2 feet: 160 bpm
- Forearm plank hold
- Step ups: 160 spm (switch lead foot at 30 sec)
- Single leg squat: 80 bpm (switch feet at 30 sec)
- Wall sit

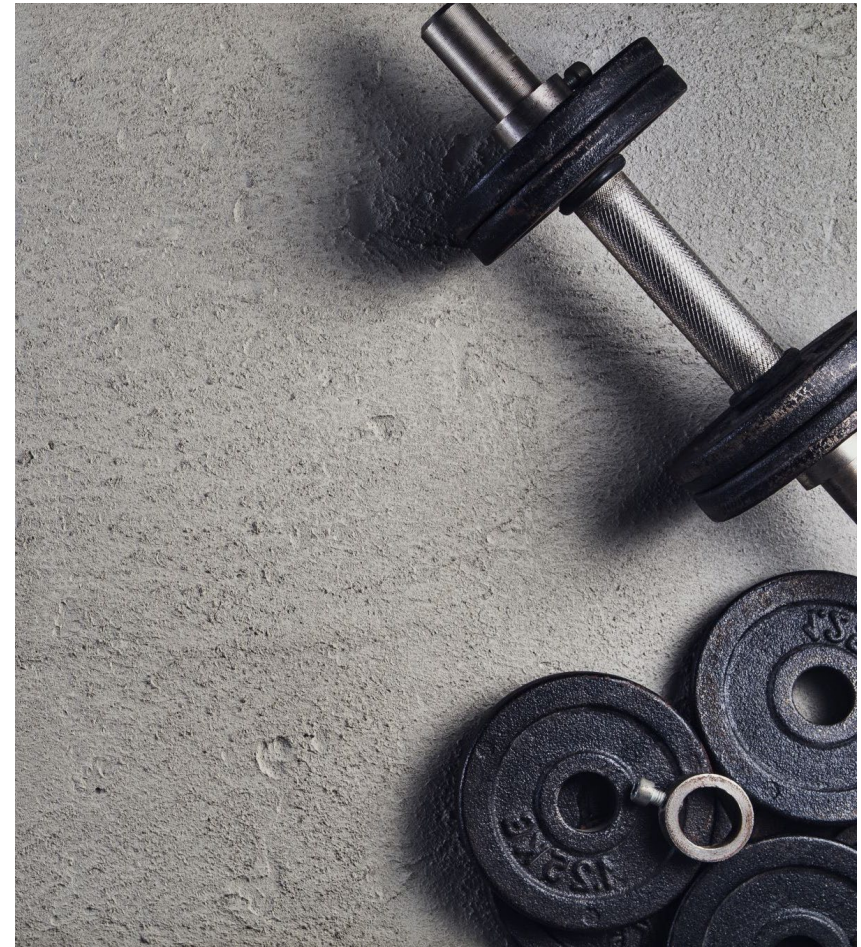
Return to Run Guidelines: Strength Testing



The following should be performed to fatigue, aiming for 20 repetitions of each:

- Single leg calf raise
- Single leg bridge
- Single leg sit to stand
- Side lying abduction

***Weakness in these areas should not be considered a barrier but identify where to focus strength training*



Pelvic Health Services: Locations



COMMUNITY HEALTHCARE SYSTEM®

PELVIC HEALTH THERAPY

Community Hospital Lake Business Center – **Munster**

P: 219-703-2828 | F: 219-703-6878

Community Stroke & Rehabilitation Center – **Crown Point**

P: 219-661-6150 | F: 219-703-6834

St. Catherine Hospital Therapy Services – **East Chicago**

P: 219-392-7400 | F: 219-392-7408

St. Mary Medical Center Therapy Services – **Hobart**

P: 219-947-6580 | F: 219-947-6579

St. Mary Medical Center Therapy Services, Valparaiso Health Center – **Valparaiso**

P: 219-286-3703 | F: 219-286-3704



Questions?

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