Building the Female Athlete from the Inside Out

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Learning Objectives:
- Discuss the unique physical differences and histories of women at different life stages that can have an impact on their injury vulnerability, response to rehabilitation, and considerations for return to fitness and sport.
- Discuss and apply the principles of access to movement, balancing the local and global stabilizers, and creating a preparatory foundation for movement to sport specific physical therapy interventions in the female athlete.
- Demonstrate an understanding of the interrelationship between the diaphragm, abdominal wall and pelvic floor on central stability, breathing mechanics, continence, balance, and performance.
- Design age-appropriate, sport-demand specific programs that consider the unique challenges presented by the female athlete to promote maximized results and prevent future women’s health concerns. Integrate assessment considerations for the female patient and identify key medical history issues that may impact rehabilitation course and need for additional referral.

Background
1. Who is the female athlete, and what makes her special?
   a. Statistics
   b. Differences
   c. Uniquities
   d. Prevalence of Female Athlete and Incontinence
2. Core Principles:
   a. Central Stability
   b. Load Transfer
   c. Movement Dysfunction
3. The Nuts and Bolts
   a. Balance of intra-abdominal & intra-thoracic pressure
   b. Diaphragm-Pelvic Floor Piston System
   c. Eccentric Control and Excursion
   d. Neutral Alignment
4. Motor control
   a. Sensory integration
   b. Coordination, Control
5. Evidence of Poorly Balanced and Attenuated Forces and Pressures
6. Movement Integration Continuum: Taking patient to full function
7. Paradigm Shift
   a. Then & Now
   b. 5 steps
The Young Female Athlete
1. Who is the young female athlete?
   a. Pre-pubescent
   b. Pubescent
   c. Post-pubescent
   d. Young adult
2. Case Introduction: gymnast, 13 years old with iliac crest apophysitis
   a. Common young female diagnoses & conditions
   b. Application of the “nuts and bolts”
   c. Growth & Development considerations
   d. Other medical considerations
3. Sport-specific considerations
4. Evaluation
   a. Movement assessment: applied
      i. Applications of core strategy: developmental considerations
      ii. Applications of “neutral spine”
   b. Additional “high points” of examination
   c. Evaluation & Prognosis
5. Treatment/Outcomes
   a. Application of the Movement Integration Continuum
   b. Video/picture demonstration
   c. Age-appropriate considerations
6. Summary
7. Age- & sport-specific resources

The Post-Partum Athlete
1. Challenges of return to activity post-delivery
   a. Physiological changes of pregnancy
   b. Demands on moms – social, emotional
   c. Changes in form and function of the central stability system in the post-partum period
2. Case introduction: mother of 2, 38 years old with history of hip and lumbar pain
   a. Relevant PMHx, signs/symptoms, history of care
   b. Current activity level, functional limitations, participation restrictions
   c. Patient goals
3. Evaluation
   a. Movement assessment: applied
      i. Applications of core strategy: post-partum considerations
      ii. Applications of “neutral spine”
   b. Additional “high points” of examination
   c. Evaluation & Prognosis
4. Treatment/Outcomes
   a. Application of the Movement Integration Continuum
   b. Video/picture demonstration
c. Consideration: time / PT frequency, sport-specific consideration

5. Summary

6. Post-partum resources

The High Impact Athlete
1. Preparing the athlete’s Core Strategy to absorb impact
   a. Continent women demonstrate efficient, task appropriate patterns of recruitment pressure management
   b. Excursion = Shock Absorption
      1. Computer modeling
      2. EMG during running
2. CrossFit survey: Results call into question our current recommendations regarding heavy lifting and female urogenital issues.
3. Pressure measures (vaginal and bladder) in various ADL and fitness activities
   a. Large variability within tasks between subjects
4. Case Introduction: 33 yo, mother of 3, with primary complaint of severe incontinence with participation in CrossFit
   a. Relevant PMH,
   b. Initial findings
   c. Patient goals

5. Evaluation
   a. Movement Assessment: Applied
      1. Application of core strategy: high level athlete
      2. Application of “neutral range”
   b. Additional “high points” of evaluation

6. Treatment and Outcomes
   a. Clinical Reasoning
   b. Application of the Movement Integration Continuum
   c. Video/picture demonstration
   d. Sport-specific considerations

7. Patient epilogue

8. Summary

9. Resources for the High Impact Athlete
Resources

- NASM-YES manual
- *Pilates for Children & Adolescents* (Howard, Zopich, Ickes)
- *Pilates & Calisthenics for Children* (Barnett)
- *Below your Belt* (Women's Health Foundation)
- *Look Inside Your Body* (Usborne)
- AOSSM STOP Sports Injuries Campaign
- APTA Sports Section: Youth Athlete SIG
- APTA Sports Section: Female Athlete SIG
- APTA Women’s Health Section
- Orthopaedics & Sports Sections: Young Athlete home study courses
- www.youthsportspt.com
- www.juliewiebept.com
  - “Dear Coach” blog
- Kidshealth.org
- www.DianeLee.ca
- www.physiodetective.com (Antony Lo)
- Women’s Health Physiotherapy Facebook Group (Michelle Lyons)
- APTA Section on Women’s Health Linked-In Group
References


45. Riddle GC, Ross OA, Spellane VJ. Exercise Considerations for the Pediatric Patient.. In: Kivlan (2009), page 2.


