Let's Hear it for the Girls: Building The Young Female Athlete
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Learning Objectives (Parts 1-3):

1) Discuss the unique physical differences and histories of young, developing female athletes that can have an impact on their injury vulnerability, response to rehabilitation, and considerations for return to fitness and sport.
2) Demonstrate an understanding of the interrelationship between brain, trunk and spinal growth on the diaphragm, abdominal wall and pelvic floor development and their influence on development of central stability, breathing mechanics, continence, balance, and performance.
3) Identify necessity of injury prevention interventions and introduce principles of age-appropriate training for the preadolescent and adolescent female athlete, considering the onset or presence of the Female Athlete Triad/Tetrad, also known as Relative Energy Deficiency in Sport (RED-S), in the developing female athlete.
4) Design age-appropriate, sport-demand specific programs that consider the unique challenges presented by the young female athlete to promote maximized results and prevent future women’s health concerns. Integrate interpersonal and teaching-learning skills necessary to address the unique psychological, emotional, and cognitive challenges present in caring for the young female athlete and her family and identify key medical history issues that may impact rehabilitation course and need for additional referral.

Outline

PART 1: Developmental Core Strategy and Biopsychosocial Considerations for the Young Female Athlete

1. Who is the young female athlete?
   a. Pre-pubescent
   b. Pubescent
   c. Post-pubescent
   d. Young adult

2. Introduction to Central Stability Development & Concepts
   a. Core Principles:
      i. Central Stability
      ii. Load Transfer
      iii. Movement Dysfunction
   b. The Nuts and Bolts
      i. Balance of intra-abdominal & intra-thoracic pressure
      ii. Diaphragm-Pelvic Floor Piston System
      iii. Eccentric Control and Excursion
iv. Neutral Alignment
   c. Motor control
      i. Sensory integration
      ii. Coordination, Control

3. Case Example(s)

4. Sport-specific considerations

5. Developmental Social, Emotional, Cognitive, Psychological considerations
   a. Biopsychosocial model to pediatric patient evaluation and treatment
   b. “Normal” social, psychological, cognitive emotional developmental considerations
   c. Contributing factors: internal and external to family
   d. 21st century cultural influences
   e. Minding boundaries as the provider/adult influence on the young patient

6. 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

7. Treatment/Outcomes
   a. Application of the Movement Integration Continuum
   b. Video/picture demonstration
   c. Age-appropriate considerations

PART 2: Relative Energy Deficiency in Sport (RED-S): implications for the adolescent female athlete

Objectives:
1. Identify the multi-variable components of Relative Energy Deficiency in Sport (RED-S) and how it differs from the traditional definition on Female Athlete Triad.
2. Identify the immediate and long-term psychological impact of RED-S in the adolescent female athlete population.
3. Discuss strategies for identifying and treating RED-S in the adolescent female athlete population, utilizing a team healthcare approach.
4. Discuss prevention strategies to be implemented at home and on the playing field in the adolescent female athlete population.

1. Moving away from the Female Athlete Triad

2. Multi-systemic implications of (RED-S):
   - Gastrointestinal
- Cardiovascular
- Hematological
- Metabolic
- Endocrine
- Bone Health
- Menstrual Function
- Immunological

3. Psychological implications for adolescence and beyond
4. Screening and diagnosis
5. Treatment strategies for multi-system approach
6. Clinical models for sport participation and return-to-play
7. Healthcare Team approach for addressing RED-S in the adolescent female athlete as a group
8. Prevention at home and on the field

PART 3: When do we need to begin injury prevention? Why and how do we do that?
1. The Injury Report for Today's Young Female Athlete: Who needs injury prevention?
   a. The early sports specializer vs. diversifier vs. engager vs. sampler
   b. Impact of overuse and traumatic athletic injuries on the physical and emotional development of the female
   c. Evidence- and theory-based interventions in use (or not) today
      i. CGS (centimeters/grams/seconds) sports
      ii. Dynamic team sports
2. Key Principles of Injury Prevention for the Young Female Athlete
   a. Long-Term Athlete Development (LTAD) for the girls
      i. Early initiation of physical literacy
      ii. Optimizing windows of accelerated adaptation to training for the female child, preadolescent, and the adolescent
   b. Implementing Integrative Neuromuscular Training (INT)
      i. Harnessing, enhancing, or generating the “Neuromuscular Spurt”
      ii. Appropriate timing of training: chronological age vs. biological age vs. cognitive age vs. training age
      iii. Sufficient training dosage
References


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**RESOURCES**

**Books**

- *Pilates for Children & Adolescents* (Howard, Zopich, Ickes)
- *Pilates & Calisthenics for Children* (Barnett)
- *Below your Belt* (Women's Health Foundation)
- *Look Inside Your Body* (Usborne)
- *Magic School Bus: Inside Your Body* (Joanna Cole),
- *Understanding Myself* (Mary C Lamia, Ph.D.),
- *Sammy's Physical Therapy Adventure* (Michael Fink, PT, DPT)
- *Be the Boss of Your Body Series* (Rebecca Kajander CPNP, MPH & Timothy Culbert MD)
  - Be the Boss of Your Pain
  - Be the Boss of Your Stress
  - Be Fit, Be Strong Be You
- *Conquering your Child's Chronic Pain* (Lonnie Zeltzer)
- *Warrior Girls: Protecting Our Daughters Against the Injury Epidemic in Women's Sports* (Michael Sokolove)
- *Game On: How the Pressure to Win at All Costs Endangers Youth Sports and What*
Parents Can Do About It (Tom Farrey)
• Sports Success Rx: Your Child’s Prescription for the Best Experience (Paul Stricker MD)
• Play (Stuart Brown MD)
• Eat Like a Champion (Jill Castle MS, RDN, CDN)
• Why do I hurt? (Adriaan Louw)
• Mental Floss Magazine: Five Reasons Teenagers Act the Way They Do
  http://mentalfloss.com/article/29895/5-reasons-teenagers-act-way-they-do

Websites

• National Eating Disorders Association (http://www.nationaleatingdisorders.org/)
• Eating Disorders Information Network (http://www.myedin.org/)
• Kids Health (http://www.Kidshealth.org)
• AOSSM STOP Sports Injuries Campaign (http://www.stopsportsinjuries.org)
• Changing the Game Project (http://changingthegameproject.com/)
• Aspen Institute Project Play (aspenprojectplay.org)
• American Development Model (http://www.admkids.com/)
• Team USA Athlete Development (http://www.teamusa.org/about-the-usoc/athlete-development)
• FIFA Medical (www.fifa.com/development/medical/index.html)

Groups

• APTA Sports Section: Youth Athlete SIG
• APTA Sports Section: Female Athlete SIG
• APTA Section on Women’s Health
• APTA Section on Pediatrics: Pediatric Sports-Fitness SIG
• Integrative Women’s Health Institute
• Herman and Wallace Pelvic Rehabilitation Institute