

12th Annual Pediatric and Adolescent Sports Medicine Update for Primary Care

The Pediatric Inactivity Triad: A Risky PIT

Avery Faigenbaum, EdD, FACSM, FNCSA

The College of New Jersey

faigenba@tcnj.edu

Overview

A compelling body of scientific evidences indicates that regular participation in physical activity in the context of family, school, and community programs is essential for normal growth and development. In addition to enhancing cardiorespiratory and musculoskeletal fitness, age-related physical activity can enrich peer relationships, enhance academic performance and foster lifelong well-being. Due to the pleiotropic benefits of physical activity, global health recommendations now suggest that school-age youth should accumulate at least 60 minutes of moderate to vigorous physical activity daily as part of play, sports, transportation, physical education or planned exercise.

Yet despite the efforts of teachers, researchers, and health care providers who continue to highlight the wide range of benefits associated with an active lifestyle, physical inactivity among the world's population is now recognized as a pandemic. The disinterest in physical activity seems to emerge around age 7. Since many chronic diseases that become clinically apparent during the adult years are influenced by lifestyle habits established during the growing years, there is an urgent need to identify physically inactive youth early in life and target them with age-appropriate interventions before they engage in unhealthy behaviors and learn bad habits. Screening for a disorder encourages early detection and promotes intervention.

The time has come to expand our conceptual thinking of this growing problem with novel ideas that reflect the multifactorial nature of youth physical inactivity. We need to adopt the approach of leaders in sports medicine by implementing a complex systems model to better understand the web of related factors that influence physical inactivity in children and adolescents. In offering this new perspective, the tripartite framework of the pediatric inactivity triad (PIT) highlights the complex relationships between physical inactivity and related risk factors in youth.

Outline

- I. Physical activity and health: Let's look beyond push-ups and sit-ups
 - a. Physical, psychosocial and cognitive benefits of daily physical activity
 - b. What happened to free play in our modern society?
 - c. A global pandemic of physical inactivity (note: USA is near the bottom)

- II. Exercise deficit disorder: A paradigm shift
 - a. Exercise as a vital sign
 - b. 60 minutes of what?

- III. Pediatric dynapenia: Not just for grown-ups anymore
 - a. Muscular fitness as a prerequisite to move
 - b. A strength deficit in modern day youth
 - c. First address neuromuscular deficiencies

- IV. Physical Illiteracy: a learned behavior
 - a. Attitudes and behaviors influence physical activity
 - b. The qualitative and quantitative aspects of program design

- V. The Pediatric Inactivity Triad (PIT): A tripartite framework
 - a. A complex etiology of physical inactivity
 - b. A model for addressing the pandemic of physical inactivity
 - c. Related cardiometabolic, musculoskeletal and psychosocial risk factors

- VI. Bright futures
 - a. Where is physical activity?
 - b. Play now or pay later
 - c. Linking health care with fitness care

Selected References

1. Bittencourt N, Meeuwisse W, Mendonça L, et al Complex systems approach for sports injuries: moving from risk factor identification to injury pattern recognition-narrative review and new concept. *Br J Sports Med* epub before print.
2. Faigenbaum A, Best T, MacDonald J, et al. Top 10 research questions related to exercise deficit disorder (EDD) in youth. *Res Q Exerc Sport* 2014;85:297-307.
3. Faigenbaum, A., Bruno, L., A fundamental approach for treating pediatric dynapenia in kids. *ACSMs Health Fitness J*, 2017, 21(4); 18-24.
3. Faigenbaum A and MacDonald J. Dynapenia: It's not just for grown-ups anymore. *Acta Paediatr* 2017; 106: 696-697.
4. Faigenbaum A, Rial Rebullido T, and MacDonald J. Pediatric inactivity triad: A risky PIT. *Curr Sports Med Rep* 2018;17: 1-3.
5. Lee B, Adam A, Zenkov E, et al Modeling the economic and health impact of increasing children's physical activity in the United States. *Health Affairs*. 2017;36: 902-908.
6. Metcalf B, Henley W, and Wilkin T. Effectiveness of intervention on physical activity of children: systematic review and meta-analysis of controlled trials with objectively measured outcomes (EarlyBird 54). *BMJ* 2012;345: e5888.
7. Pesce C. Shifting the focus from quantitative to qualitative exercise characteristics in exercise and cognition research. *J Sport Exerc Psychol* 2012; 34: 766-786.
8. Peterson, M., Saltarelli, W., Visich, P., & Gordon, P. Strength capacity and cardiometabolic risk clustering in adolescents. *Pediatrics*, 2014; 133(4), e896-903.
9. Tremblay M, Barnes J, González S, et al. Global Matrix 2.0: Report card grades on the physical activity of children and youth comparing 38 countries. *J Phys Act Health* 2016; 13: S343-S366
10. Walker, G., Straccolini, A., Faigenbaum, A., Myer, G. Physical inactivity in youth: Can exercise deficit disorder alter the way we view preventive care? *ACSMs Health Fitness J*, 2018; 22(2): 42-46.