Youth Sports: Activity Trends

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Pediatric Associates
I, Megan Dory, M.D., nor my family member(s), have any relevant financial relationships to be discussed, directly or indirectly, referred to or illustrated with or without recognition within the presentation.
Objectives

• Accurately identify youth inactivity

• Identify and encourage activity and discuss morbidity
Inactivity

What does it mean for a child to be inactive?
Physical Activity

Guidelines set by the US Department of Health and Human services:

Children and Youth to participate in 60 minutes of moderate-to-vigorous activity on at least 5 days per week.
So Inactive means...

Not meeting physical activity recommendations.

“It’s not a rash, it’s moss. You need to start being more active than a tree.”
Why Do We Care About Inactivity?

TABLE 2 Percentage of 12-19 year old adolescents with the metabolic syndrome and its sub-components.

<table>
<thead>
<tr>
<th>RISK FACTORS</th>
<th>OVERALL</th>
<th>GIRLS</th>
<th>BOYS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metabolic Syndrome</td>
<td>7.9 (5.5–10.4)</td>
<td>5.9 (3.2–8.7)</td>
<td>9.9 (6.0–14.0)</td>
</tr>
<tr>
<td>High BMI</td>
<td>21.1 (17.3–25.0)</td>
<td>22.5 (17.5–27.5)</td>
<td>19.8 (14.9–24.7)</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>4.8 (2.8–6.8)</td>
<td>3.5 (2.1–5.0)</td>
<td>6.1 (2.5–9.7)</td>
</tr>
<tr>
<td>Elevated Blood Glucose</td>
<td>19.5 (16.6–22.5)</td>
<td>11.4 (7.9–14.9)</td>
<td>27.5 (22.7–32.3)</td>
</tr>
<tr>
<td>High Triglycerides</td>
<td>16.4 (13.0–19.8)</td>
<td>12.8 (8.2–17.5)</td>
<td>19.9 (15.1–24.8)</td>
</tr>
<tr>
<td>Low HDL</td>
<td>17.1 (13.9–20.4)</td>
<td>12.6 (9.3–15.8)</td>
<td>21.7 (17.2–26.2)</td>
</tr>
</tbody>
</table>
2016 United States Report Card on Physical Activity for Children & Youth

### TABLE 1: Report card grading rubric.*

<table>
<thead>
<tr>
<th>GRADES</th>
<th>DEFINITION</th>
<th>BENCHMARK</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>We are succeeding with a large majority of children and youth.</td>
<td>81-100%</td>
</tr>
<tr>
<td>B</td>
<td>We are succeeding with well over half of children and youth.</td>
<td>61-80%</td>
</tr>
<tr>
<td>C</td>
<td>We are succeeding with about half of children and youth.</td>
<td>41-60%</td>
</tr>
<tr>
<td>D</td>
<td>We are succeeding with less than half, but some, children and youth.</td>
<td>21-40%</td>
</tr>
<tr>
<td>F</td>
<td>We are succeeding with very few children and youth.</td>
<td>0-20%</td>
</tr>
<tr>
<td>INC</td>
<td>Incomplete. At the present time there is insufficient information available to establish a grade.</td>
<td>--</td>
</tr>
</tbody>
</table>

*Developed by Active Healthy Kids Canada for the Active Healthy Kids Canada Report Card on Physical Activity for Children and Youth

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### Results From the United States of America's 2016 Report Card on Physical Activity for Children and Youth

**Overall Physical Activity**

- **Sedentary Behavior**: D-
- **Active Transportation**: D-
- **Organized Sport**: F
- **Active Play**: F
- **Health-Related Fitness**: C-
- **Family & Peers**: INC
- **School**: INC
- **Community & Built Environment**: C-
- **Government Strategies**: D+

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Peter T. Katzmarzyk, Kara D. Dennis, Kim Beals, Christopher Bolling, Carly Wright, Scott E. Croston, Thomas L. McKenzie, Russell R. Pole, Brian E. Saadona, Amanda F. St. John, Heidi L. Steth, and Susan B. Stinson
**Overall Physical Activity**

**D-**

**PRIMARY INDICATOR:** The proportion of U.S. children and youth attaining 60 or more minutes of moderate-to-vigorous physical activity on at least 5 days per week.

The current physical activity guidelines in the U.S.² and globally¹ call for children and youth to participate in at least 60 minutes of moderate-to-vigorous physical activity daily. The grade of D- indicates that the majority of U.S. children and youth do not meet physical activity recommendations.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Prevalence of Activity*</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-11 YEARS</td>
<td>42.5%</td>
</tr>
<tr>
<td>12-15 YEARS</td>
<td>7.5%</td>
</tr>
<tr>
<td>16-19 YEARS</td>
<td>5.1%</td>
</tr>
</tbody>
</table>

*Based on accelerometer data from the 2005-06 National Health and Nutrition Examination Survey (NHANES)

**FIGURE 1** Prevalence of meeting physical activity recommendations in 6-19 year old children and youth in 2005-06.

- **AGE 6-11 YEARS:** 42.5%
- **AGE 12-15 YEARS:** 36.1%
- **AGE 16-19 YEARS:** 48.6%

**PERCENT**

- **OVERALL:** 7.5%
- **GIRLS:** 5.1%
- **BOYS:** 11.7%

Source: 2005-06 National Health and Nutrition Examination Survey. Physical activity levels were obtained by objective measurements using accelerometers.
Factors Contributing to Inactivity

- 33% less likely with Learning Disability
- 57% less likely with ADHD
- 34% less likely with functional limitation (medical/behavioral/other health condition)
- Race
## Medical Conditions Affecting Sports Participation

Stephen G. Rice and the Counsel on Sports Medicine and Fitness

**Pediatrics, April 2008, Volume 121/issue 4**

<table>
<thead>
<tr>
<th>Condition</th>
<th>Condition</th>
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</thead>
<tbody>
<tr>
<td>Atlantoaxial Instability</td>
<td>Malignant neoplasm</td>
</tr>
<tr>
<td>Bleeding Disorder</td>
<td>Musculoskeletal disorders</td>
</tr>
<tr>
<td>Cardiovascular disease</td>
<td>Neurologic disorders</td>
</tr>
<tr>
<td>Cerebral palsy</td>
<td>Obesity</td>
</tr>
<tr>
<td>Diabetes</td>
<td>Organ transplant recipient</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>Ovary, absence of one</td>
</tr>
<tr>
<td>Eating Disorders</td>
<td>Pregnancy/postpartum</td>
</tr>
<tr>
<td>Eyes</td>
<td>Respiratory conditions</td>
</tr>
<tr>
<td>Fever</td>
<td>Rheumatologic disease</td>
</tr>
<tr>
<td>Gastrointestinal</td>
<td>Sickle cell disease</td>
</tr>
<tr>
<td>Heat Illness</td>
<td>Sickle cell trait</td>
</tr>
<tr>
<td>Hepatitis</td>
<td>Spleen, enlarged</td>
</tr>
<tr>
<td>HIV</td>
<td>Testicle, undescended or absence of one</td>
</tr>
<tr>
<td>Kidney, absence of one</td>
<td></td>
</tr>
<tr>
<td>Liver, enlarged</td>
<td></td>
</tr>
</tbody>
</table>
Diabetes mellitus

Explanation: All sports can be played with proper attention and appropriate adjustments to diet (particularly carbohydrate intake), blood glucose concentrations, hydration, and insulin therapy. Blood glucose concentrations should be monitored before exercise, every 30 min during continuous exercise, 15 min after completion of exercise, and at bedtime.
**School**

**PRIMARY INDICATOR:** The proportion of U.S. high school students attending at least one physical education (PE) class in an average week.

Approximately half of U.S. adolescents attend at least one physical education class per week. There are disparities by age and gender as girls attend less often than boys, and attendance in physical education drops significantly from the elementary through high school years. The grade of D+ for this indicator is lower than that for the 2014 Report Card.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Proportion Attending at Least One PE Class per Week*</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOYS</td>
<td>55.3%</td>
</tr>
<tr>
<td>GIRLS</td>
<td>47.8%</td>
</tr>
</tbody>
</table>

*based on data from the 2015 Youth Risk Behavior Surveillance System (YRBSS)\(^1\)

**FIGURE 19** Percentage of schools that require physical education across grades.
Unstructured Play Time - Recess

FIGURE 13  Percentage of elementary schools in which students participate in regularly scheduled recess during the school day, by grade level.

Organized Sport Participation

PRIMARY INDICATOR: The proportion of U.S. high school students participating on at least 1 school or community sports team.

A grade of C- for organized sport participation reflects the data that more than half of U.S. youth participate on at least 1 organized sports team. However, the prevalence of sports participation among girls is significantly lower than that among boys.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Proportion on One or More Teams*</th>
</tr>
</thead>
<tbody>
<tr>
<td>BOYS</td>
<td>62.2%</td>
</tr>
<tr>
<td>GIRLS</td>
<td>53.0%</td>
</tr>
</tbody>
</table>

*Based on data from the 2015 Youth Risk Behavior Surveillance System.

FIGURE 9  High school sport participation in boys and girls in the U.S. between 1971 and 2015.

FIGURE 11 Most popular sports in high school boys and girls in 2014-15.

If ½ of HS students participate in organized sports, then how come < ½ meet physical activity standards?

Soccer & softball/baseball- 45.1 min active

24% participants met guidelines through sport
Drop Out Rates

- 1/3 participants drop out annually
- 70% drop out by adolescence
- #1 reason for dropping out of sports -> No longer FUN
How to Promote Activity?

Make it FUN!

“Positive movement experiences have been deemed the key variable for sustaining children’s participation in physical activities”
How to make sports FUN?

- 81 factors contributing to why sports are FUN
- Choice-driven
- Rewarding
The point cluster FUN MAP. This map illustrates the 11 dimensions of fun conceptualized from the 81 fun-determinants by players, parents, and coaches. The patterns represent the 11 fun-dimensions as four overarching fundamental tenets of fun.
Dimension of Fun

- Example:
  - Being a Good Sport
    - Playing well together as a team
    - Being supported by my teammates
    - Supporting my teammates
    - When players show good sportsmanship
    - Getting help from teammates
    - Warming up and stretching as a team
The cluster rating FUN MAP. This map combines qualitative and quantitative data by representing the mean importance rating for each dimension via layers; dimensions with a greater number of layers indicate greater importance to fun. Connected via dashed lines, the three highest rated dimensions of fun, “Being a good sport”, “Trying hard”, and “Positive coaching” collectively define the youth sport ethos.
Avoid Early Specialization

Sports Specialization and Intensive Training in Young Athletes

Benefits of Youth Sports
- Leadership
- Fun
- Self-esteem
- Teamwork
- Physical activity skills
- Peer socialization

By The Numbers
- As many as 70% discontinue playing organized sports by age 13
- Only 1% high school athletes who receive any scholarships
- Between 3-11% high school athletes compete at the college level
- At least 50% athletic injuries related to overuse
- Between only 0.3-5% high school athletes reach professional level sports

- 50% of injuries related to overuse
- Sports specialized training independent risk for injury
- Hours of sports/wk > # y/o OR organized sports: free play > 2:1 -> incr odds of serious overuse injury
**GUIDANCE**

**RECOVERY**
- Taking 1 month off from a sport at least 3 times per year allows for physical and psychological recovery.

**PLAY A VARIETY OF SPORTS**
- Participating in multiple sports decreases the chance of injuries, stress, and burnout.

**INJURY PREVENTION**
- Having at least 1-2 days off per week from a sport can decrease the chance for injuries.

**PRIMARY FOCUS**
- Learn lifelong physical activity skills and have fun.

**SPECIALIZATION**
- Delaying specializing in a single sport until late adolescence may lead to a higher chance of accomplishing athletic goals.

**EARLY DIVERSIFICATION & LATER SPECIALIZATION**
- Provides a greater chance of lifetime sports involvement, lifetime physical fitness, and possibly elite participation.

**PLAY A VARIETY OF SPORTS**

**Recovery:**
- 1 month off from sport 3x/year
- 1-2 days off/week

**Late Specialization**

**Have Fun!**
In Summary

- Physical activity = 60 min exercise 5-7 d/wk
- Most US kids do not meet standards for physical activity
- Inactivity -> long term health problems
- Encourage activity
  - Include those with limitations
  - Avoid early specialization
  - Make it FUN
References


