Policies for Promotion of Physical Activity in Youth

Russell Pate
Arnold School of Public Health
University of South Carolina

Societal Trends
Influencing Physical Activity

Transportation to School
Columbia, SC

Walk 9%
Bike 1%
Other 94%

Sirard, 2004
Transportation to School


---

Television

1 TV in household  > 1 TV in household

Percentage


---

Children’s Access to Television

• 50% of children ≤ 6 years lived in a house with ≥ 3 TVs
• 36% of children ≤ 6 years had a TV in their bedrooms

Rideout et al. 2003
**Children’s TV Viewing Habits**

- ≥ 5 h/d: 17%
- ≤ 1 h/d: 36%
- 1 to 3 h/d: 31%
- 3 to 5 h/d: 16%

---

**Health Benefits of Physical Activity in Children and Youth**

- Increased Physical Fitness
  - Cardiorespiratory endurance
  - Muscular strength
- Better Body Composition
  - % fat in overweight
  - Fat gain in normal weight
• Improved Cardiovascular and Metabolic Health
  ▪ Blood lipid profile
  ▪ Insulin sensitivity
  ▪ Blood pressure
• Enhanced Bone Health
  ▪ Bone mineral density

• Improved Mental Health
  ▪ Depressive symptoms
  ▪ Anxiety

Increasing Prevalence of Childhood Obesity
Overweight (≥ 95th percentile of BMI) children and adolescents 6-19 years of age

How Physically Active Should Kids Be?

Evidence Based Physical Activity for School-Aged Youth

School-age youth should participate every day in 60 minutes of more of moderate to vigorous physical activity that is enjoyable and developmentally appropriate.

How Active are American Kids?

Youth Risk Behavior Survey - 2005

Percentage

Boys Girls

Percentage

Boys Girls

CSA Monitor

- Computer Science and Applications, Inc.
- Model 7164
- Weighs 1.5 oz; 5x5x1.5 cm
- Measures integrated accelerations in the vertical plane
Objectively Measured Physical Activity in Sixth-Grade Girls


Purposes

- To describe baseline PA characteristics of a diverse sample of 6th grade girls using accelerometry
- To examine the relation of these variables to PA
  - Race/ethnicity
  - Socioeconomic status
  - Geographic location
Methods

- Cross-sectional study
- Six middle schools from each community:
  - Tucson, AZ
  - San Diego, CA
  - New Orleans, LA
  - Washington DC & Baltimore, MD
  - Minneapolis, MN
  - Columbia, SC
- Random sampling of eligible girls
- n = 1578

Measures

- Race/ethnicity
- Socioeconomic Status
  - Free or reduced-price school lunch
- Weight and height
- Physical Activity
  - Actigraph accelerometers
  - 6 complete days of data
  - 30-second intervals

Data Reduction

- Count thresholds
  - Sedentary (< 50)
  - Light (51-1499)
  - Moderate (1500-2600)
  - Vigorous (> 2600)
- Primary analyses - MPA
  - 1500 counts/ 30 seconds
  - Corresponds to 4.6 MET cut point
- Additional cut points
  - 3.0 MET cut point (579 counts/ 30 seconds)
  - 3.8 MET cut point (1047 counts/ 30 seconds)
Time spent in various intensities

- **Light**: 341.6 min/day, 41.1%
- **Sedentary**: 459.9 min/day, 55.7%
- **Vigorous**: 5.6 min/day, 0.7%
- **Moderate**: 18.1 min/day, 2.2%

Percentage of Girls Meeting Guidelines

- 0.4 METs: 4.6%
- 3.0 METs: 3.8%
- 6.0 METs: 3.0%

- * males > females (p<0.001)
- ^ all age groups significantly different (p<0.001)
- No significant age*gender interactions

Median Moderate Minutes/Day

- * males > females (p<0.001)
- ^ all age groups significantly different (p<0.001)
Interventions to Promote Physical Activity in Youth

Intervention Settings
- School
- Home
- Community
- Healthcare
- Media
LEAP Methods

- 8th grade girls from 24 high schools
- 1603 girls, 50% African-American
- School randomly assigned to control or intervention
- Physical activity: 3DPAR
  - In 8th grade at baseline
  - In 9th grade during school based intervention

LEAP Intervention Components

- Physical Education
- Other Health Components
  - Health Education
  - Health Environment
  - Health Services
  - Faculty/Staff Wellness
- Family/Community Environment
LEAP PE

Specific Objectives:
- Develop behavioral skills
- Enhance physical activity self-efficacy
- Develop motor skills
- Provide enjoyable participation in physical activity
- Implement a personal out-of-school physical activity program

Prevalence of Participation
1 30-min blk of VPA

Group P=.05

Prevalence of Participation
1 30-min blk of VPA

Group P=.05
Trend P=.02
Long-term effects of an intervention to increase physical activity in high school girls

Prevalence of 1+ blks VPA for Control and Intervention Implementation Schools

- Control
- Low implementation
- High implementation

Unadjusted

Group P=0.80
Trend P=0.80

Prevalence of 1+ blks VPA for Control and Intervention Maintenance Schools

- Control
- Low-maintenance
- High-maintenance

Unadjusted

Group P=0.06
Trend P=0.13

Prevalence of 1+ blks VPA for Control and Non-maintenance Schools versus Intervention Maintenance Schools

- Control and Low-maintenance
- High Maintenance

Unadjusted

Group P=0.04
Policy Recommendations

1. National Priority
2. Industry
3. Nutrition Labeling
4. Advertising & Marketing
5. Multimedia & Public Relations Campaign
6. Community Programs
7. Built Environment
8. Health Care
9. Schools
10. Home

National Priority

- Government - provide leadership for prevention of obesity in youth
  - Federal Government
    - Support PA grant programs
    - Develop & evaluate pilot projects to promote PA
  - State & Local Governments
    - Provide leadership & support for promoting opportunities for PA in communities, neighborhoods, and schools
Industry

- Make obesity prevention a priority
  - Leisure, entertainment, & recreation industries
    - Develop products & opportunities that promote PA & reduce sedentary behaviors

Community Programs

- Local governments, public health agencies, schools, & community organizations
  - Develop programs that promote PA
  - Form community coalitions

Built Environment

- Local governments, private developers, & community groups should expand PA opportunities
  - Improve street, sidewalk, & street-crossing safety
  - Encourage walking & bicycling to school
  - Build schools within walking & bicycling distance of neighborhoods
Schools

- Provide consistent environment conducive to regular physical activity
  - State and Local Education Authorities & Schools
    - All youth participate in at least 30 minutes of MVPA during school day
    - Enhance health curricula to include PA & behavioral skills focus
    - Involve school health services

- State & Local Education Authorities & Schools
  - Expand PA opportunities
    - Physical education
    - Intramural & interscholastic sports programs
    - PA clubs, programs, & lessons
    - After-school use of facilities
    - Use of schools as community centers
    - Walking & biking to school programs
  - Conduct annual weight & height assessments
  - Perform periodic assessments of school’s policies

Home

- Parents should promote regular PA for their children
  - Encourage & support regular PA
  - Limit TV & recreational screen time to < 2 hours/day
  - Serve as positive role models of PA behaviors
Promoting Physical Activity in Children and Youth: A Leadership Role for Schools

Scientific Statement from the American Heart Association Council

Recommendation 1

- All children & youth participate in a minimum of 30 minutes of MVPA during the school day
- Provide extracurricular & school-linked community programs

Recommendation 2

- Deliver health-related PE programs that meet national standards to students at all levels
  - Provide substantial amounts of MVPA
  - Teach motor & behavioral skills
Recommendation 3
- States and school districts:
  - Ensure PE is taught by certified and qualified PE teachers

Recommendation 4
- States should hold schools accountable for PE programs that meet national standards
  - Grades K – 8
    - 150 minutes per week
  - Grades 9 – 12
    - 225 minutes per week
  - Include PE in its core accountability system

Recommendation 5
- Expand PA opportunities
  - Clubs
  - Lessons
  - Intramural sports
  - Interscholastic sports
  - Coaches and leaders should be qualified
Recommendation 6
- Promote walking and bicycling to school
- Work with local governments to ensure safe routes to school

Recommendation 7
- Child development centers & elementary schools
  - Offer at least 30 minutes of recess each day

Recommendation 8
- Provide evidence-based health education programs
  - Emphasize behavioral skills
    - To increase PA
    - To decrease sedentary behaviors
Recommendation 9

- Colleges and universities:
  - Provide professional preparation programs to produce highly qualified teachers to deliver PE and health education programs