

## Policies for Promotion of Physical Activity in Youth

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Arnold School of Public Health  
University of South Carolina



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## Societal Trends Influencing Physical Activity

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## Transportation to School Columbia, SC



Sirard, 2004

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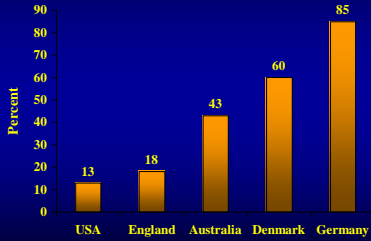
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## Transportation to School



Percent of children walking and bicycling to school by country (CA Safe Routes to Schools 1996, Dept. of Transport 2001, Gilewe et al. 1998, Carlin et al. 1997)

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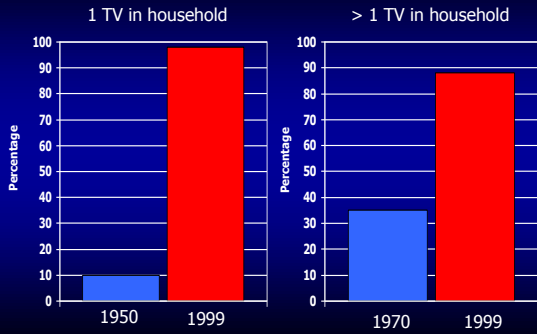
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## Television



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## Children's Access to Television

- 50% of children  $\leq 6$  years lived in a house with  $\geq 3$  TVs
- 36% of children  $\leq 6$  years had a TV in their bedrooms

Rideout et al. 2003

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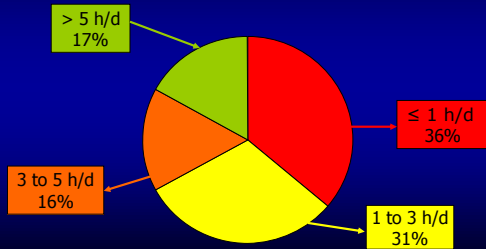
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## Children's TV Viewing Habits



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## Health Benefits of Physical Activity in Children and Youth

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- Increased Physical Fitness
  - Cardiorespiratory endurance
  - Muscular strength
- Better Body Composition
  - % fat in overweight
  - Fat gain in normal weight

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- Improved Cardiovascular and Metabolic Health
  - Blood lipid profile
  - Insulin sensitivity
  - Blood pressure
- Enhanced Bone Health
  - Bone mineral density

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- Improved Mental Health
  - Depressive symptoms
  - Anxiety

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Increasing Prevalence of  
Childhood Obesity

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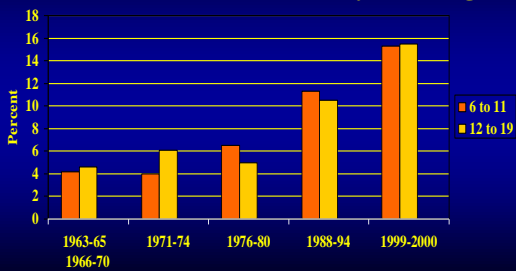
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### Overweight ( $\geq 95^{\text{th}}$ percentile of BMI) children and adolescents 6-19 years of age



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### How Physically Active Should Kids Be?

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### 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.

Strong et al. J Pediatr 2005;146:732-737

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## How Active are American Kids?

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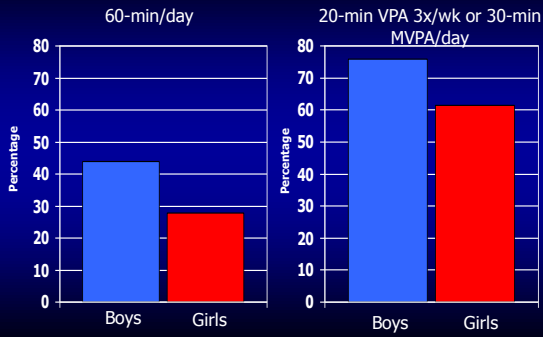
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## Youth Risk Behavior Survey - 2005



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## CSA Monitor

- Computer Science and Applications, Inc.
- Model 7164
- Weighs 1.5 oz; 5x5x1.5 cm
- Measures integrated accelerations in the vertical plane

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## Objectively Measured Physical Activity in Sixth-Grade Girls

Pate RR, Stevens J, Pratt C, Sallis JF, Schmitz KH,  
Webber LS, Welk G, Young DR. *Arch Ped Adolesc Med.*  
2006;160:1262-1268.



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## Purposes

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

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## 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

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## 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

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## 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)

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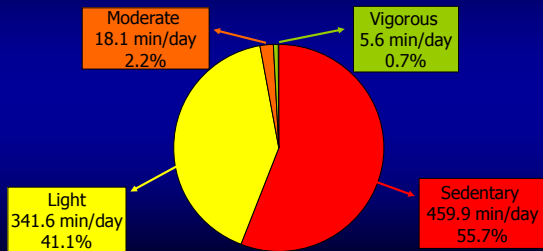
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## Time spent in various intensities




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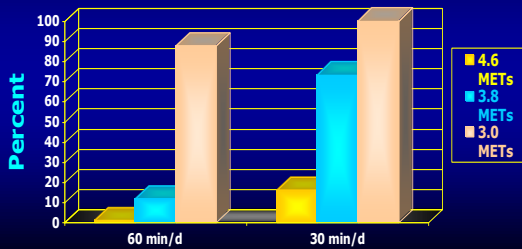
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## Percentage of Girls Meeting Guidelines




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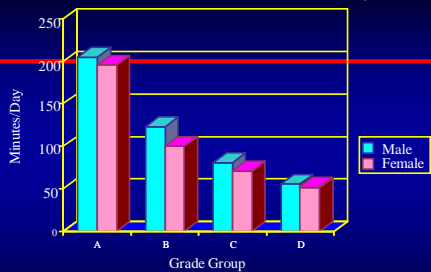
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## Median Moderate Minutes/Day



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

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Interventions  
to Promote Physical Activity  
in Youth

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**Intervention Settings**

- School
- Home
- Community
- Healthcare
- Media

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## 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

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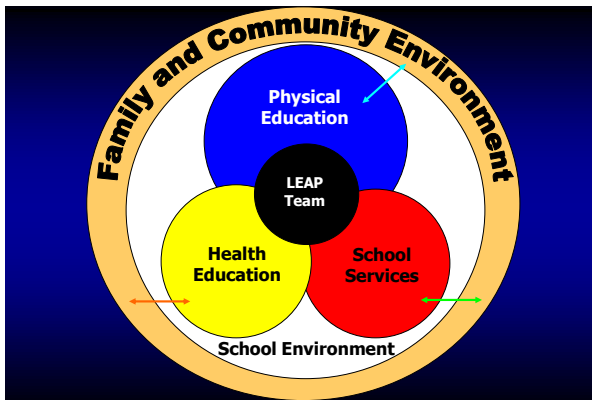
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## LEAP Intervention Components

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

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## 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

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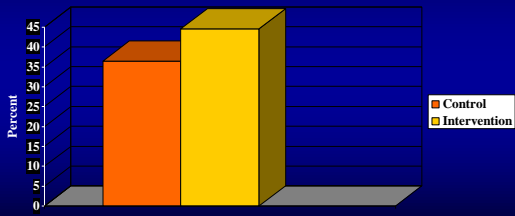
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### Prevalence of Participation 1 30-min blk of VPA



Group P=.05

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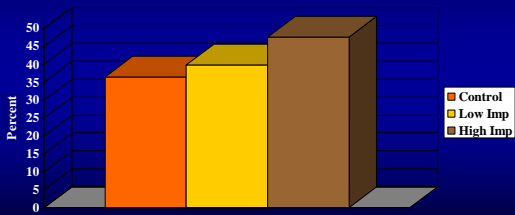
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### Prevalence of Participation 1 30-min blk of VPA



Group P=0.05  
Trend P=.02

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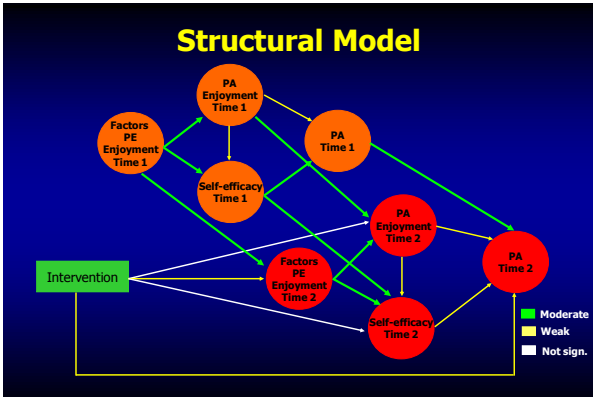
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### Long-term effects of an intervention to increase physical activity in high school girls

Pate RR, Saunders R, Dishman RK, Addy C, Dowda D, Ward SE. *Am J Prev Med.* 2007;33:276-280.

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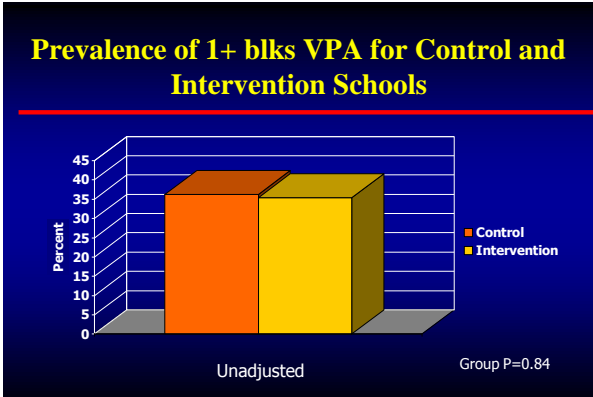
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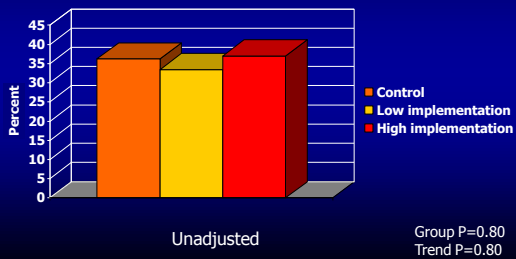
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## Prevalence of 1+ blks VPA for Control and Intervention Implementation Schools




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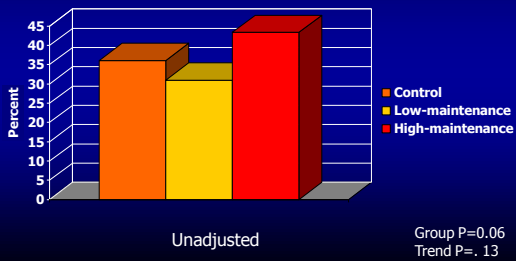
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## Prevalence of 1+ blks VPA for Control and Intervention Maintenance Schools




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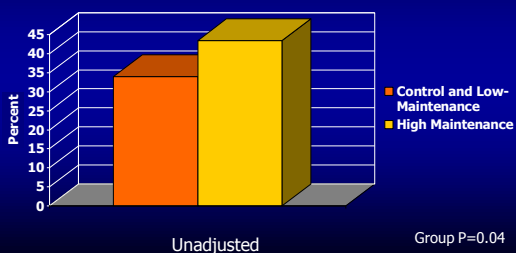
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## Prevalence of 1+ blks VPA for Control and Non-maintenance Schools versus Intervention Maintenance Schools




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## Preventing Childhood Obesity: Health in the Balance



Institute of Medicine  
Committee on Prevention of Obesity in Children  
and Youth

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## 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



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## 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

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## Industry

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



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## Community Programs

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



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## 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



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## 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

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## Schools



- 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

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## 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

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# Promoting Physical Activity in Children and Youth: A Leadership Role for Schools



## Scientific Statement from the American Heart Association Council

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### Recommendation 1

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



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### 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



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### Recommendation 3

- States and school districts:
  - Ensure PE is taught by certified and qualified PE teachers



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### 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



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### Recommendation 5

- Expand PA opportunities
  - Clubs
  - Lessons
  - Intramural sports
  - Interscholastic sports
- Coaches and leaders should be qualified



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## Recommendation 6

- Promote walking and bicycling to school
- Work with local governments to ensure safe routes to school



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## Recommendation 7

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



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## Recommendation 8

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



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## Recommendation 9

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



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