Programs, Policies, & Places for Youth PA

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Starting Point: Ecological Approach

- Interventions that change psychological, social, **AND** environmental factors should be most effective
- An ecological model of physical activity would lead one to:
  - identify settings where PA or sedentary behaviors take place,
  - provide opportunities and incentives for PA in those settings,
  - reduce opportunities and incentives for sedentary behavior,
  - educate and motivate young people and their families to choose PA options and use opportunities

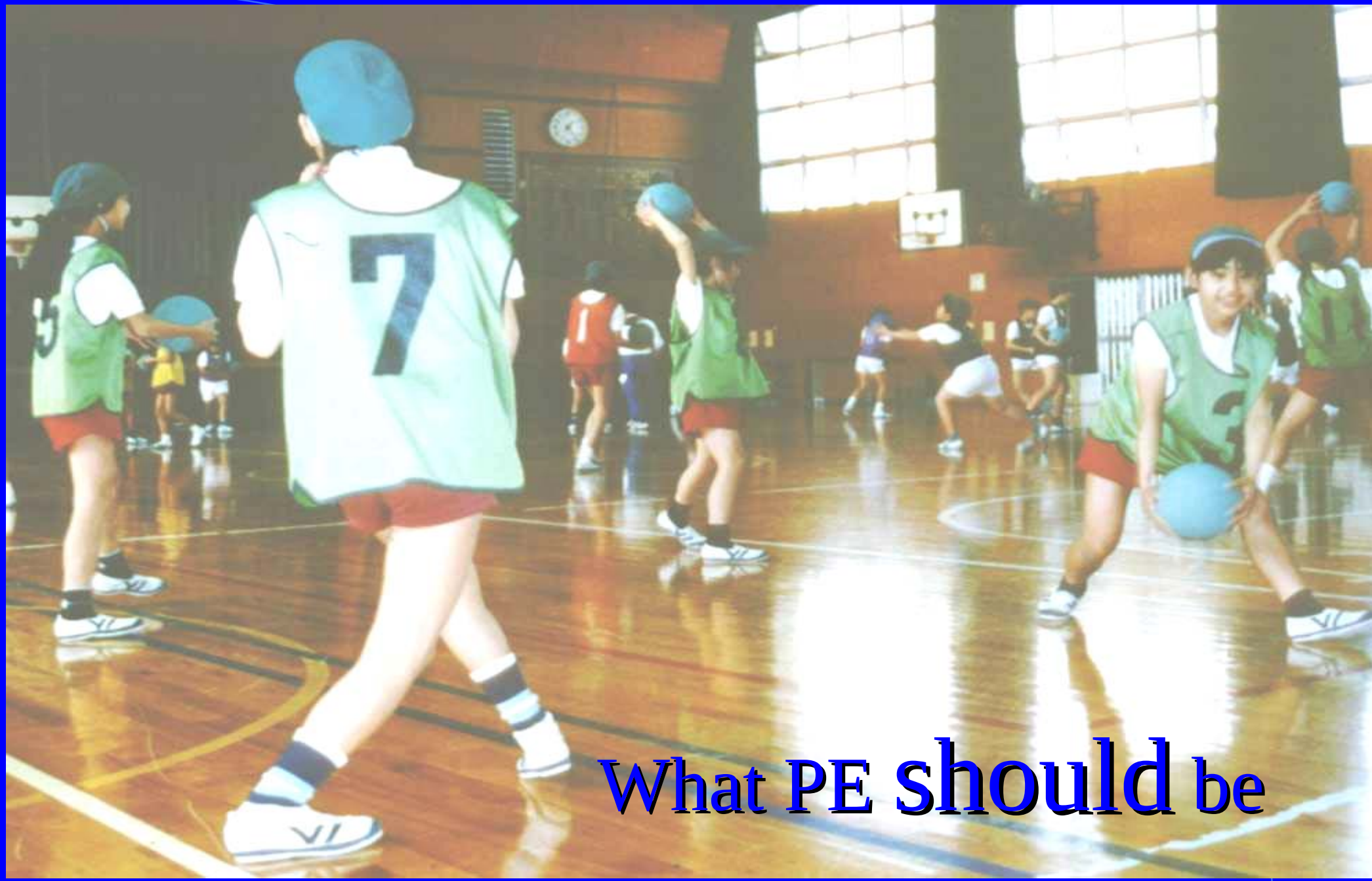
Evidence-Based Intervention Strategies

- School-based approaches
  - PE
  - Curricula
  - Policy & environmental changes
- Family-based programs
- Health care-based programs
- Mass media
- Community-based programs
- Access to recreational facilities & programs
- Active commuting to school
- Community design

Evidence-based PA interventions

- Guide to Community Preventive Services, from CDC
  - Review of evidence on PA interventions
- Recommended: School-based PE
- Recommended: Increased access to PA places, with informational outreach

Kahn et al. (2002) Am J Prev Med, 22 (suppl 4), 73-107.

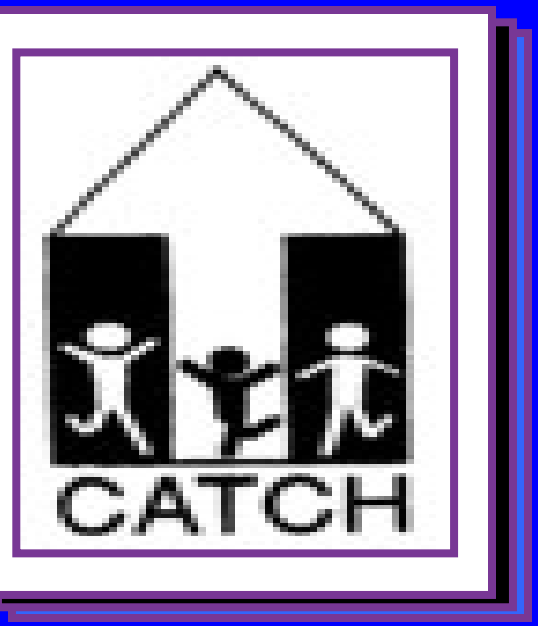


What PE should be

What PE is—too often

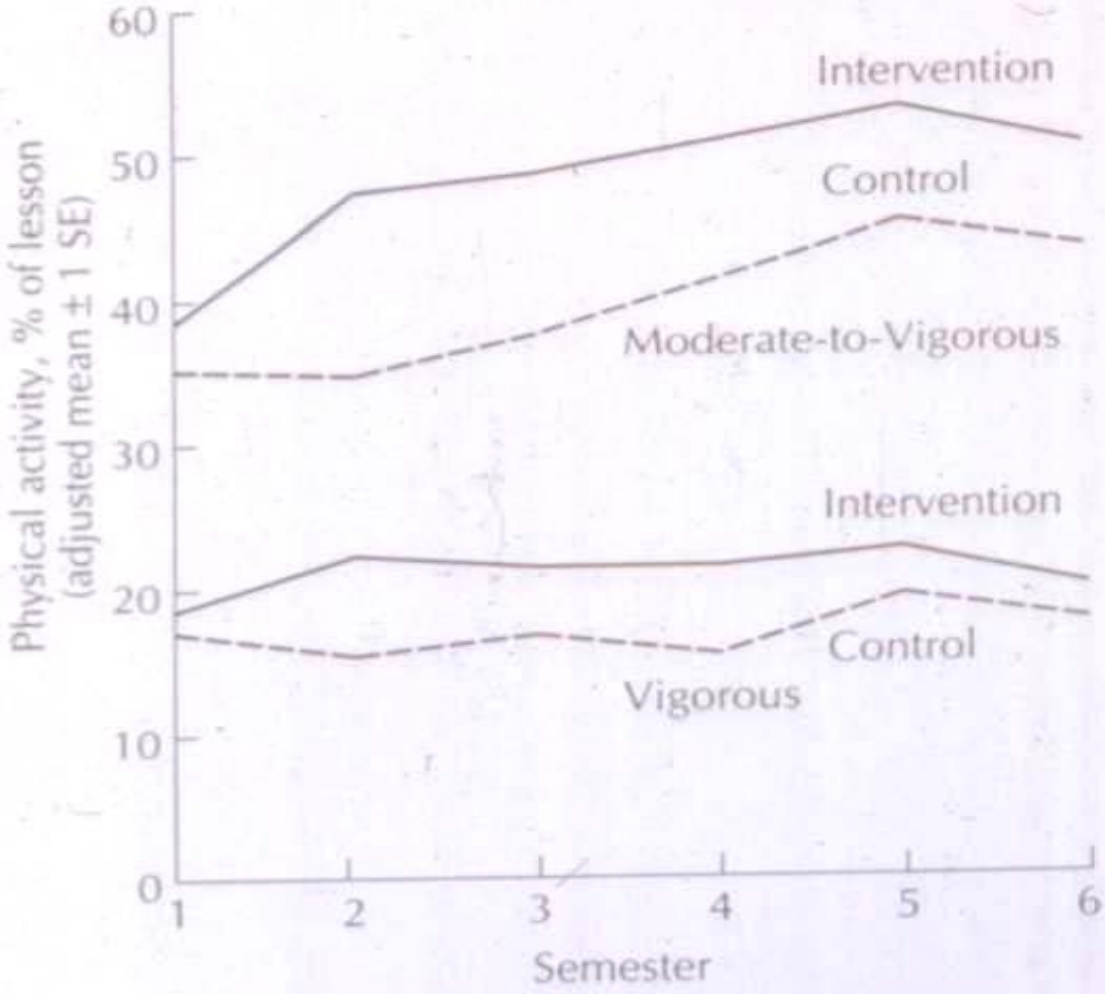
Intervention Opportunities: Schools

- CATCH
  - Heart health program in 96 elementary schools in 4 states
  - Enhanced PE
  - Health Education
  - Food service changes
  - Family intervention



- Luepker et al., 1996. JAMA

Figure 6-2. Moderate-to-vigorous and vigorous physical activity observed during Child and Adolescent Trial for Cardiovascular Health (CATCH) physical education classes



Source: Luepker RV et al. *Journal of the American Medical Association* 1996 (reprinted with permission).

CATCH: 3-Year Maintenance of Improved Diet and P.A. Nader et al.,APAM, 1999

- 96 schools, 3714 students
- Intervention, grades 3-5
- Follow-up, grades 6-8
- Sustained improvements in reported:
  - % energy from fat
    - (30.6%-Int; 31.6%-Control)
  - Min of daily vigorous P.A.
    - (8.8 min diff in grade 8)


SPORTS, PLAY & ACTIVE
SPARK
RECREATION FOR KIDS!
www.sparkpe.org

SPARK Intervention

- Elementary PE classes emphasized movement for all & sports skills
- Self-management classes
  - Taught behavior change skills
  - Included weekly goal setting
  - Involved families
- Teacher training
- 3 experimental conditions
  - Control—usual PE
  - SPARK taught by trained classroom teachers
  - SPARK taught by PE specialists

SPARK Outcomes

- PE specialists>trained classroom teachers> controls

- Improved quality of PE instruction
- Increased physical activity in PE
- Improved cardiorespiratory & muscle fitness
- Improved sports skills
- Positive impact on academic achievement
- Students enjoyed SPARK lessons

Sustainability of SPARK

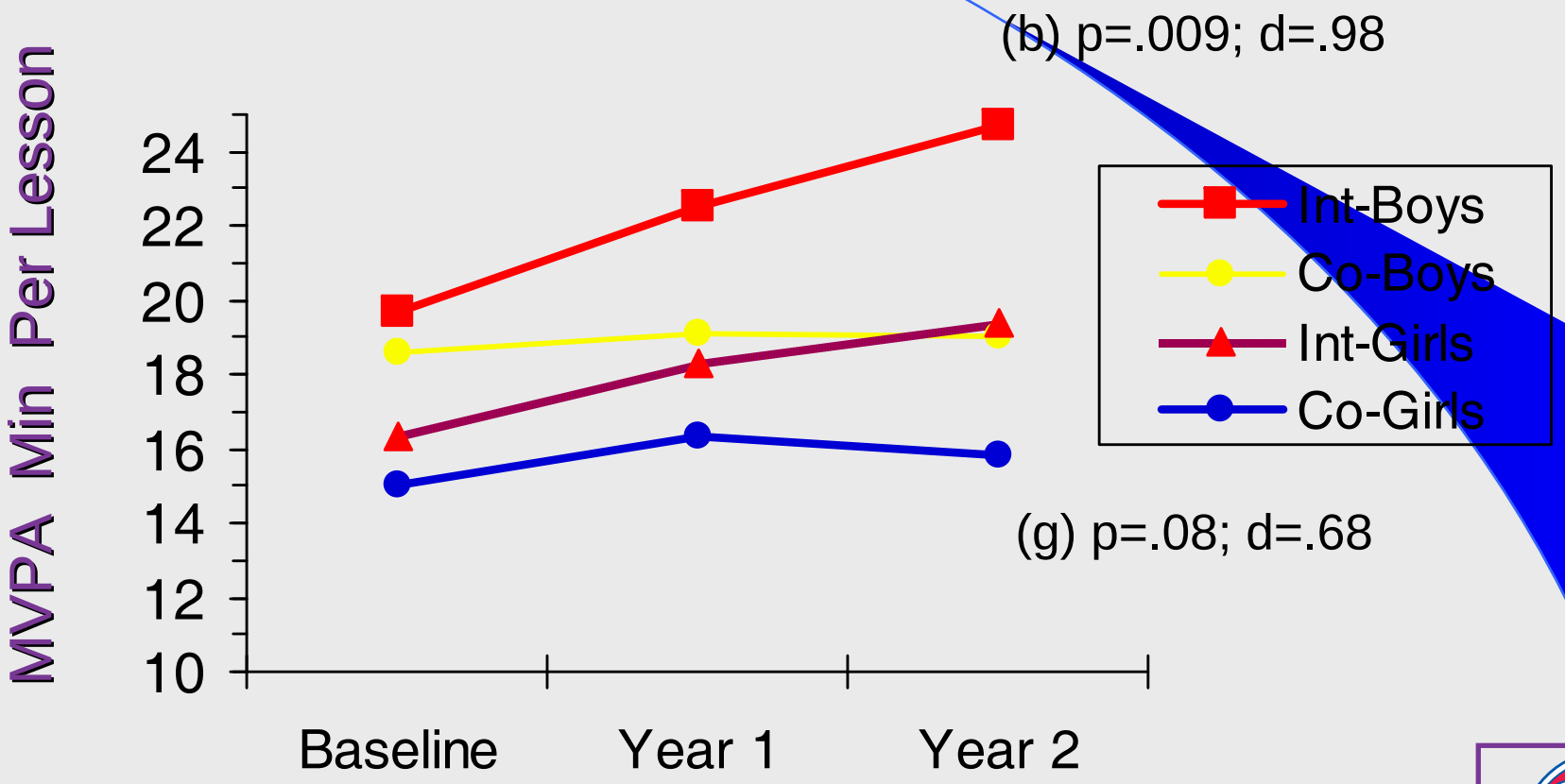
- Independent evaluation conducted by U. of South Carolina
- 277 SPARK schools had been trained more than 1 year prior to survey
- Mailed survey completed by teachers at 111 schools (48% response rate—probably affected by teachers changing schools)
- 75% used SPARK more than 2 years
- SPARK users taught PE more frequently (3.4 days/wk) than non-users (2.7 days/wk)

- Res Quart Exerc Sport (Dowda et al, 2005)

Middle School Physical Activity and Nutrition
1996 - 2000

www.sparkpe.org

M-SPAN: Effects on MVPA in PE

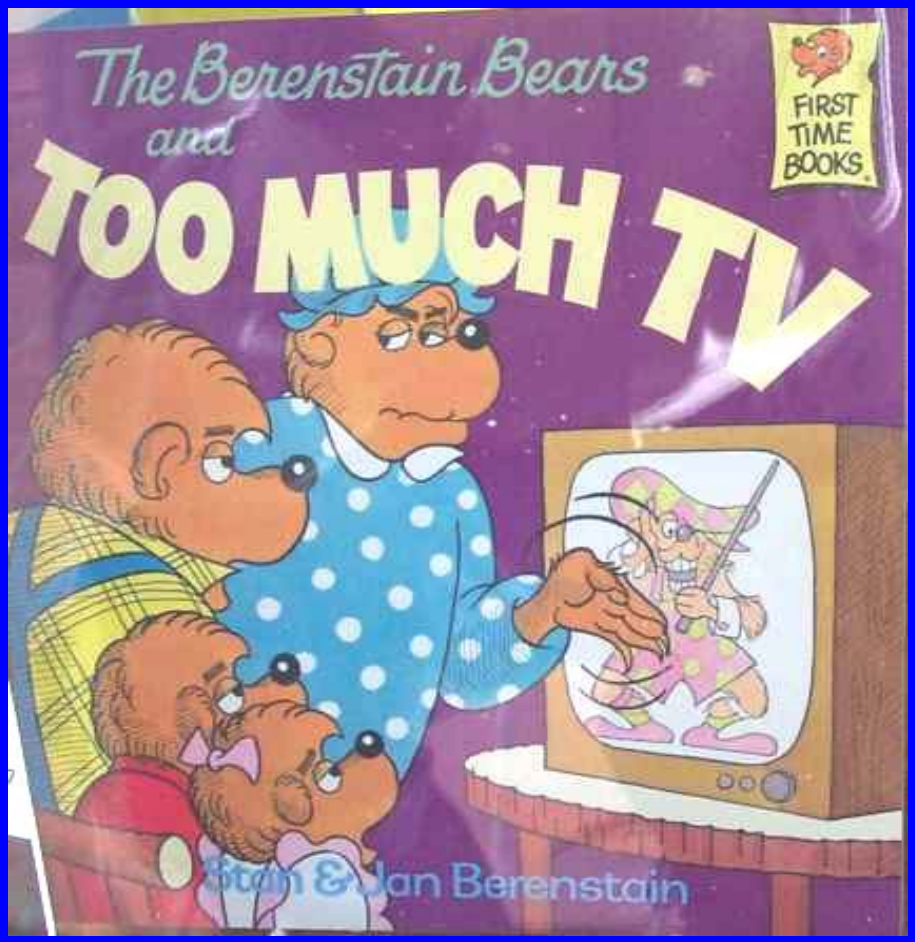


N=12 Intervention & 12 Control Schools; 1847 lessons

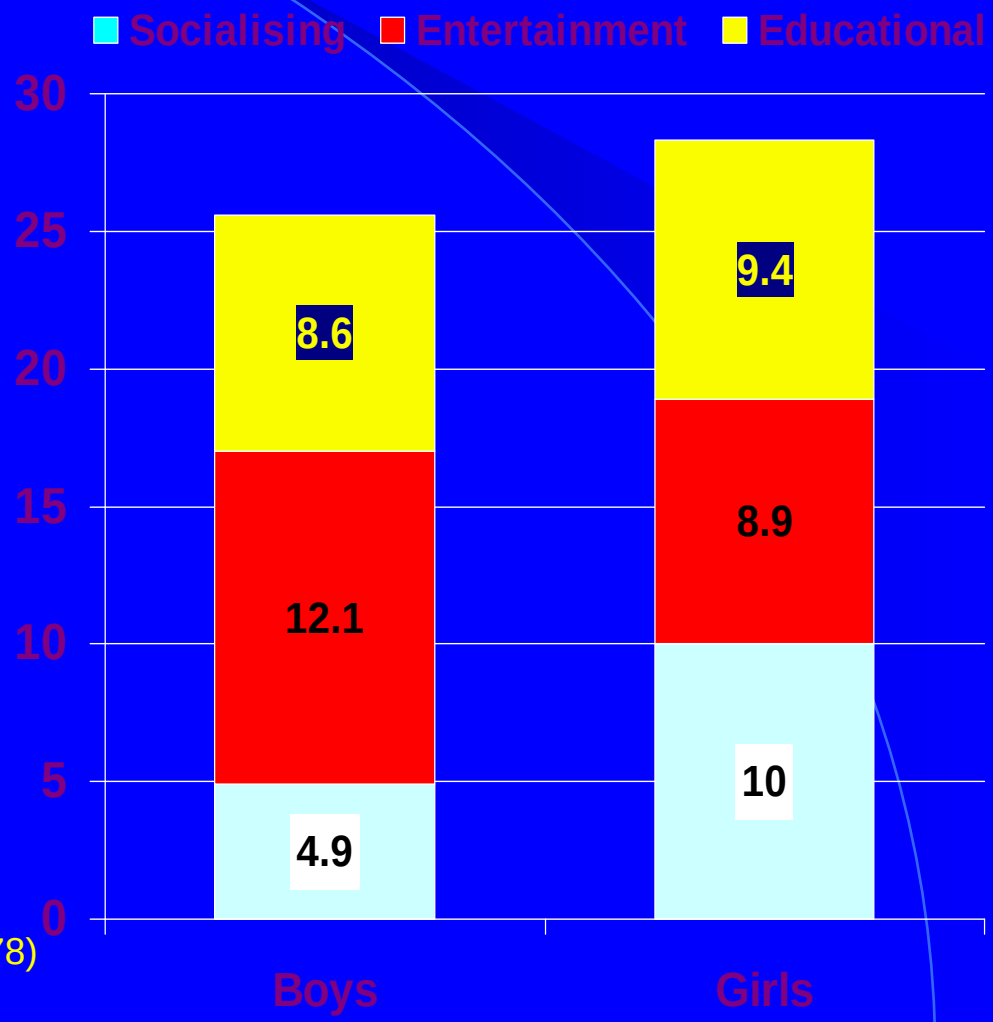
School Environment & PA

- PA directly observed in all “activity areas” at middle schools, before and after school and after lunch
- Regression analyses showed such variables as area size, # improvements (hoops, soccer goals), presence of supervision & equipment explained
  - 59% of boys’ PA
  - 42% of girls’ PA

Alternative target: sedentary behaviors



(Marshall et al., 2000, N=1678)



Reducing Children's TV Viewing to Prevent Obesity Robinson, JAMA, 1999

- 200 third & fourth graders
- Program: 18-session curriculum to reduce TV, videotape, and videogame use
- TV turnoff for 10 days
- 7-hour per week TV budget
- How to be "intelligent viewer"
- Newsletters for parents
- Electronic TV time manager (ID codes)

Reducing Children's TV Viewing to Prevent Obesity Robinson, JAMA, 1999

Outcome	Int-Control Chg	p
BMI	-0.45	.002
Triceps SF (mm)	-1.47	.002
TV hours/week	-5.53	.001
Meals & TV	-0.54	.01
Snack & TV(1-3)	-0.11	.16
P.A. min/week	-16.7	.60

Planet Health: School-Based Obesity Reduction Gortmaker et al., APAM, 1999

- 5 intervention, 5 control middle schools
- 2 yr, 32-lesson curriculum: decrease TV& hi-fat foods; increase fruit/vegetable & PA
- Obesity in girls: Control 21.5% to 23.7%.
  Program 23.6% to 20.3% ($p<.03$).
- No obesity effect for boys
- Reduced TV for boys & girls; increased fruit/vegetable for girls
- In girls, decr in TV & obesity correlated

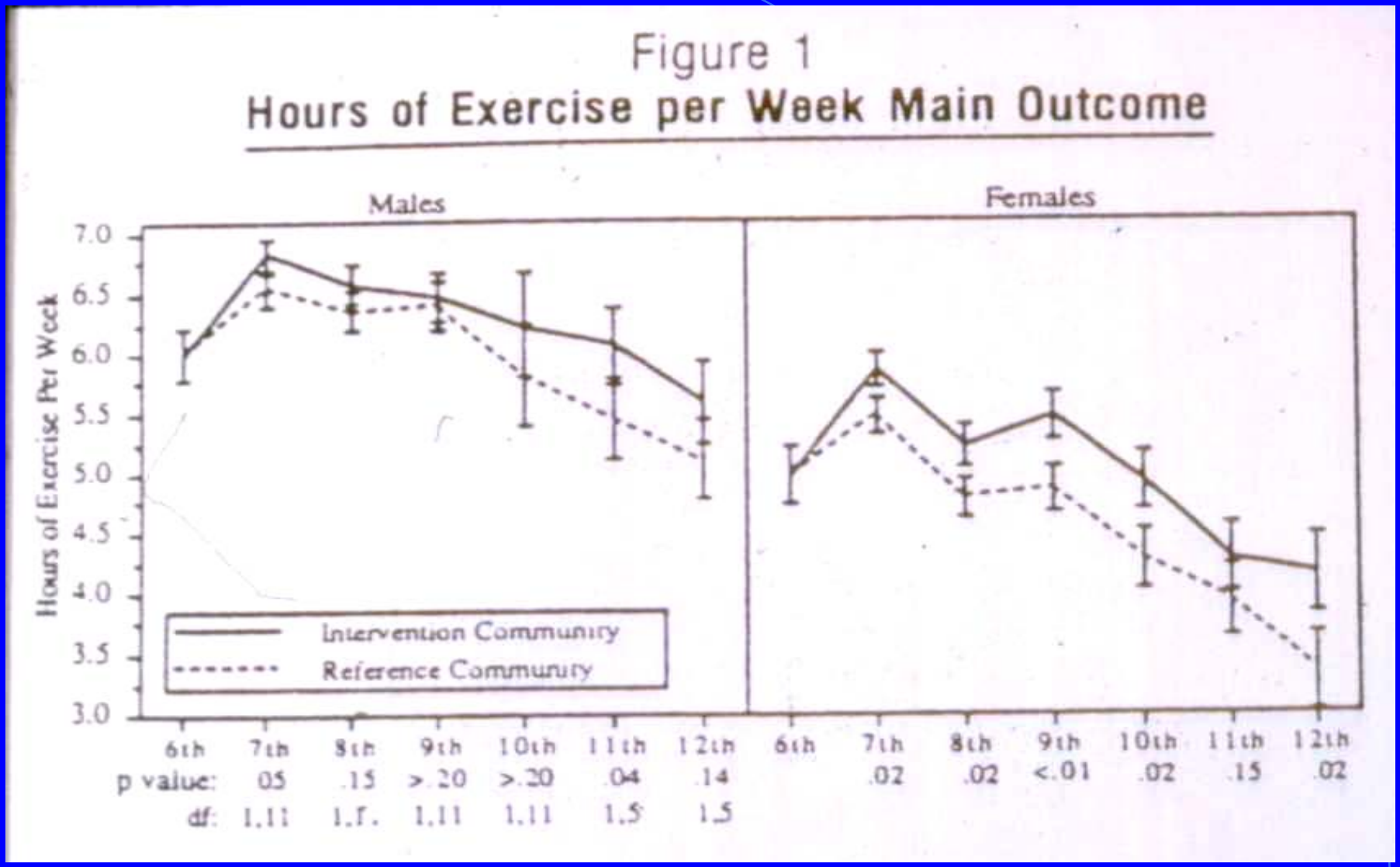
Family-Based Interventions

- 3 major health promotion trials of family interventions to promote PA
  - CATCH, Baranowski et al., Nader et al.
  - None significantly changed PA
- Getting families to participate has been difficult
- Epstein's obesity treatment studies are consistently effective
- Other approaches that need further study
  - Reducing sedentary behaviors
  - Transporting and paying for activity programs (based on correlational results)

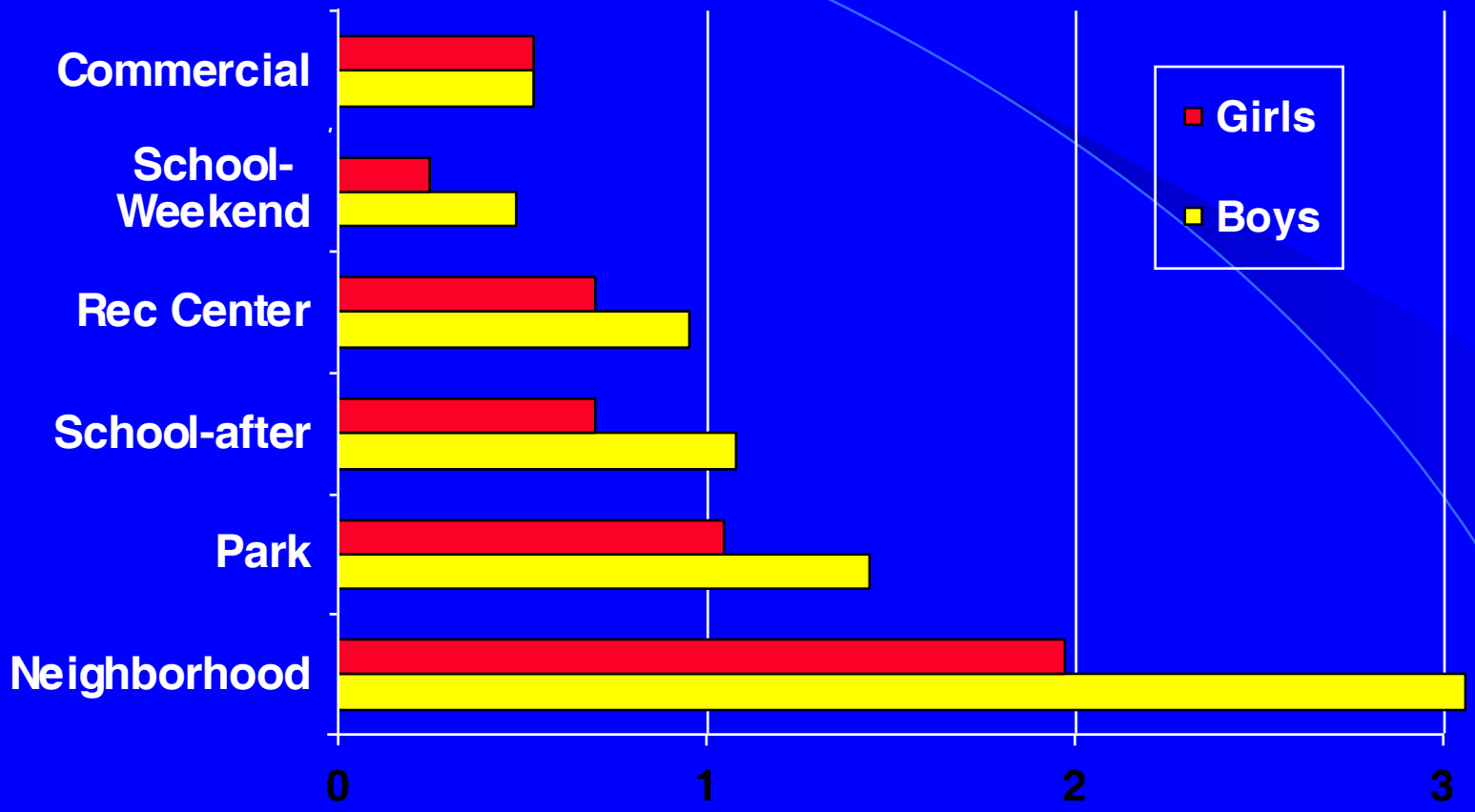
Community-based Approaches

- Up to 70% of daily PA in after-school hours
- Robinson's Dance for Health showed after-school program can be effective
- Pate's Active Winner's study showed difficulty of community-based PA promotion
- Current TAAG study links school & community
- Of major CVD community prevention trials, only Minnesota included youth component
  - Class of 1989 study embedded school curriculum in community-wide MHHP program

Minnesota Class of 1989 Study
Kelder et al., 1993



Teens' Use of Places for Physical Activity



Hoefer, Mckenzie, et al., 2001, AJPM

N= 1678 parent reports; 24 schools

Gender P=.001, except "NS" for commercial facilities

Environmental Correlates of PA in Children and Adolescents

- 3 studies show being outdoors is best correlate of young children's PA (r=.74)
- For children & adolescents, access to programs & facilities are consistent correlates

Sallis, Prochaska, Taylor (Review) MedSciSportsExerc, 2000

- CDC Community Guide recommends increased access to PA opportunities, plus informational outreach

Endangered: Children Walking to School

Walking/Cycling to School

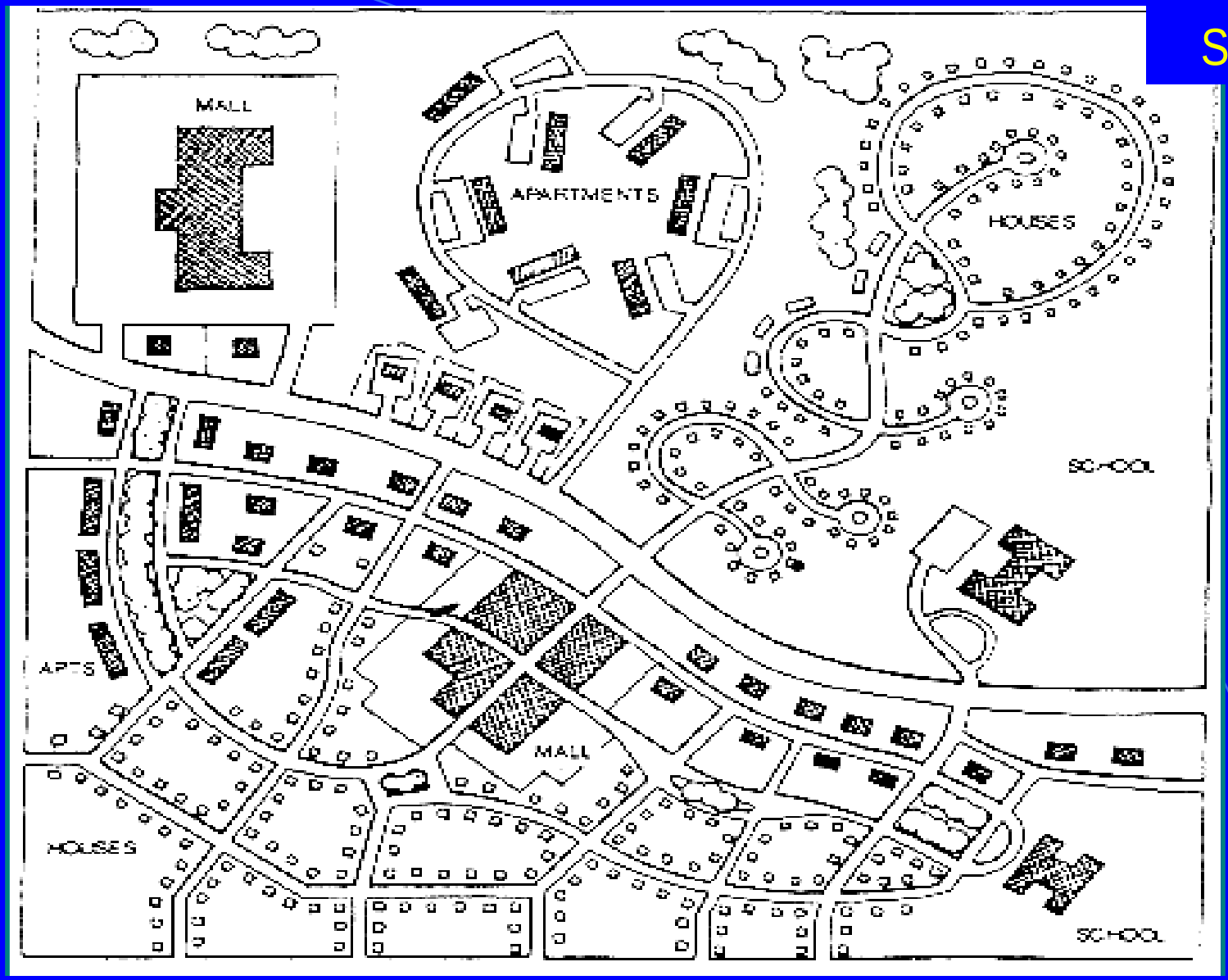
- Can contribute to total PA on a daily basis
- Decreased 37% from 1977 to 1995
- Current rates are 5% to 14%
- Marin County Safe Routes to School evaluation: walking “+” 64%, biking “+” 114% (AJPH, 2003)
- Students passing safety improvements on way to school walked more (16%) than those who did not pass improvements (4%) (Boarnet AJPM, 2005)
- More children walked when there were sidewalks (Ewing, 2004)

NQLS Youth Pilot Study: Correlates of Active Commuting

- 201 parents of children aged 4 to 17
- 16% of children actively commuted
  - 25% in hi-walkable neighborhoods
  - 11% in lo-walkable neighborhoods
- Significant correlates: land use mix, street connectivity, parent concerns
- NS: aesthetics, safety from crime, safety from traffic, walk/bike facilities

Kerr et al., Med Sci Sport Exerc, 2006

Suburban vs Traditional Land Use Patterns



SUBURBAN

TRADITIONAL

Drawing by Frank Speilberg.

Walkable Neighborhoods

- Transportation studies show adults living in walkable neighborhoods vs. auto-oriented suburbs walk & bike more to destinations
  - Mixed use, so homes are near stores, schools,
  - Connected, grid-like streets
  - Residential density to support local shops
- Overall PA differences of 30-60 min & BMI effects documented in adults
- Promising PA effects in youth

Relation of neighborhood walkability to objectively measured PA in 98 adolescents in San Diego: SCAN

Kligerman et al., Am J Health Promotion, in press 2006

Final model of linear regression explaining moderate to vigorous physical activity for buffer of 0.5 mile around the subjects' homes, by street network distance.

Variable	ß	t	p-value	Variance expl.
Gender	-.193	-2.004	.048	.04
Ethnicity	-.284	-2.750	.007	.05
Walkability	**.278**	**2.701**	**.008**	**.05**

Summary-1

- School-based programs
  - Active PE programs need to be disseminated
  - Effective classroom curricula (CATCH) should be disseminated but further improvements needed
  - More studies needed on after-school programs
- Curricula to reduce sedentary behavior
  - Promising initial results; high research priority
- School policies & environments
  - Provide opportunities for kids to choose to be active: adequate places, equipment, & supervision
- Family-based programs
  - History of null effects; innovation needed
  - Try other targets: sedentary behavior & transporting kids to places for PA

Summary-2

- Community-based programs—after school
  - Best opportunity for large effects, most PA is after school
  - Need to test policy & program changes in community agencies
  - Priority research area
- Active commuting to school
  - Early interventions are promising
  - Combination of environmental change & promotion needed
- Availability of recreational facilities & programs
  - Advocate for policies to ensure access to facilities & programs
  - High priority for low income youth
- Community design
  - Research on kids is high priority to inform city planners & officials
  - Promising results suggest more youth PA & active commuting in walkable neighborhoods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