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Failing Fitness:
Results from a study of physical education and physical activity environments in California schools

UCLA Center to Eliminate Health Disparities
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Failing Fitness:

Physical Activity and Physical Education in Schools

The California Endowment commissioned this report as part of its efforts to improve physical activity, reduce childhood obesity and reduce health disparities in California. Further reports on PE and physical activity for California youth are forthcoming to inform discussions about needed policy changes.

NOTES

This brief highlights findings from a study examining the current state of physical activity and PE in a statewide sample of 77 California schools. It provides insight on improving PE and outlines recommendations for policy solutions to increase physical activity among all students. The information presented here can be used to inform policymakers, school officials, parents and others in making schools healthier, more active places for students.

ACTIVITY MATTERS FOR CALIFORNIA KIDS® POLICY BRIEF *January 2007*

Increasing Physical Activity for Healthy Children

Escalating rates of childhood obesity and diabetes, and the precipitous decline in children's physical activity levels, constitute alarming national health trends. There are twice as many overweight children and nearly three times as many overweight teens in the United States as there were two decades ago.[1] These increases are even more significant in low-income and ethnic minority groups.[2] In part, disparities in obesity rates among ethnic minority youth may be attributed to below-average levels of physical activity, particularly among girls.[3] An excess of calories consumed relative to the calories used for physical activity and growth is contributing to increasing rates of obesity.[4]

Reversing this troubling trend means addressing this energy surplus in the places where kids spend most of their waking moments—schools. There is an urgent need to implement effective policies and practices to increase physical education (PE) and physical activity among all students in order to prevent excess weight gain and improve mood, attentiveness and concentration. This is especially true for schools in low-income communities, where obesity and health disparities are greatest.

SUMMARY OF FINDINGS

Key findings reported in this brief indicate that PE quantity and quality have declined, and may adversely affect the learning environment, especially in low-income schools:

- Elementary schools are not providing the required number of minutes for PE.
- Most time during PE is spent being sedentary; only four minutes of every half hour involves vigorous activity.
- Bigger class sizes translate to less active PE classes on average; students in classes with more than 45 students are half as active as students in smaller classes.
- Students in lower income schools spend less time being active in PE.
- Level of activity in PE, not total PE time, is linked to student fitness levels.
- Higher levels of activity in PE are associated with better academic performance.

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California Physical Activity and Physical Education (PA/PE) Assessment Study

- 3-year study funded by The California Endowment
- 10 school districts from the CA Department of Education Public School Directory
  - 29 schools (one each from elementary, middle and high school levels except for in one district without elementary schools)
- Average district was 12,000 students
  - 53% Caucasian
  - 43% Latino
- Mean free and reduced-priced lunch (FRPL) eligibility was 58%
- $100 incentive for participation

California PA/PE Assessment Study

Data collection methods

- Survey of principals (or most knowledgeable designee)
  - 45% principals, 48% PE teachers
- Environmental audit of sample of responding schools (facilities, recess, PE class)
- Stakeholder survey
  - teachers
  - PTA members
  - school board members
  - fitness-related non-profit organization staff

Principal survey findings

- Participation rates in physical education (PE) lowest among kindergartners & 10th-12th graders
- Lowest rates of adherence to mandated PE minutes in primary grades, K-3rd
- Mean student-to-teacher ratio in PE classes was approximately 41:1
- Approximately 2 in 5 elementary schools reported that all of their PE instructors were certified

Principal survey findings

- Most commonly reported barriers to students getting sufficient amounts of physical activity
  - Insufficient funding for:
    - Equipment (56%)
    - Staff (32%)
    - Maintenance (29%)
  - Too much concern with test scores (42%)
- Least commonly reported barriers
  - Lack of support for PE by parents (17%)
  - Lack of interest by students (16%)

Principal survey findings

- Tremendous year-to-year variation in FitnessGRAM scores at a given school
  - Particularly at the elementary level
- Three factors associated with increased proportions of students engaged in moderate-to-vigorous physical activity (MVPA) at recess
  - Lower grade level
  - Fewer students present in play areas
  - Increased availability of sports and physical activity equipment

Environmental Audit

Methodology for assessing students' PA levels in PE (Adapted SOFIT)

- "System for Observing Fitness Instruction Time" (SOFIT) originally developed by researchers at SDSU
- Our adaptation adheres to basic protocol, noting PA levels at 10 second intervals, rotating between 4 representative students
- Physical activity levels (1-4 vs. 1-5 in original version)
  - PA level 1 = laying down
  - PA level 2 = standing
  - PA level 3 = walking
  - PA level 4 = running
- PA levels 3 and 4 = MVPA
- Teachers' PA and lesson content also noted

Sample of Schools

- Aimed for 3 schools in 10 school districts
- 2 classes observed by at least one rater at each school
  - 18 classes at 9 elementary schools
  - 20 classes at 10 middle schools
  - 20 classes at 10 high schools
- Additional observations for training and inter-rater reliability assessment
- Intervals originally coded as 0 (student cannot be observed) were recoded as 2 (standing)

Adaptation of SDSU's SOFIT Environmental Audit tool

SOFIT excerpt:

PHYSICAL **E**DUCATION **C**LASS **A**CTIVITY **L**EVEL **O**BSERVATIONS

Grade_____ Teacher_____ Teacher Gen: MF

Observer_____ No of students_____ Location: O I

Time start_____ Class length____ No of observers___

Time end_____ %M__ %F__ %API__ %B__ %I__ %L__ %W__ %Overwt___

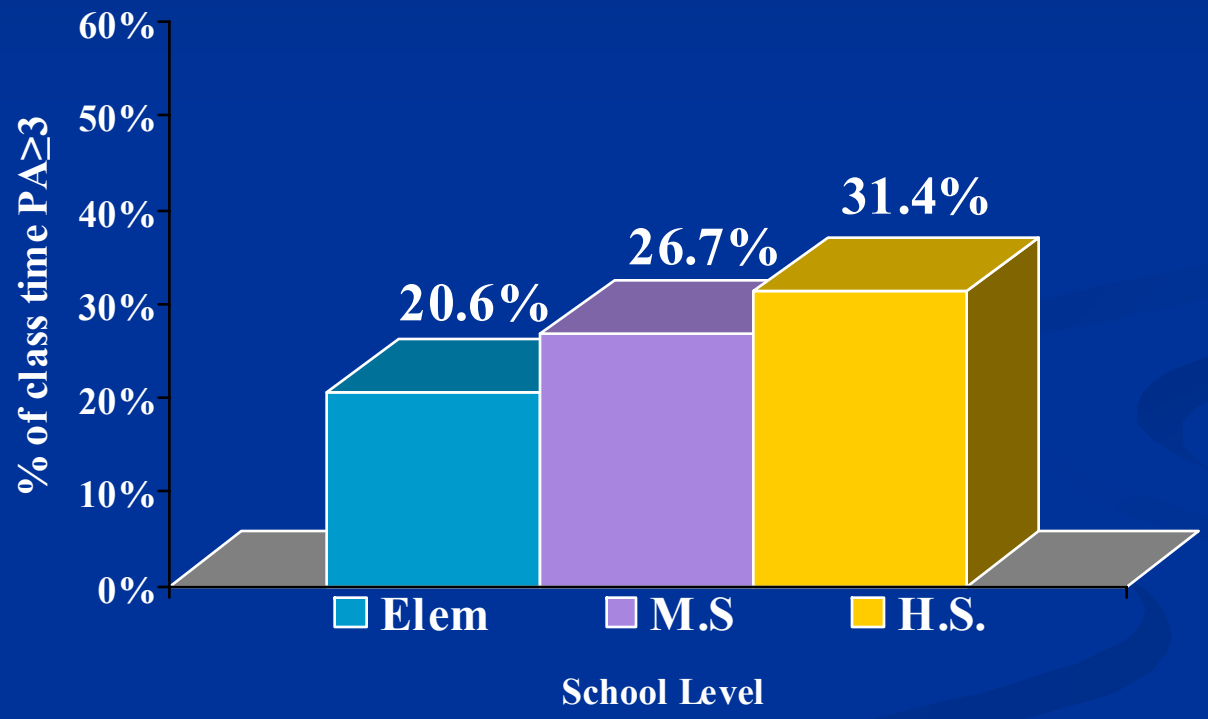
Student	Interval	Activity	Interval	Activity	Interval	Activity
1	1	1 2 3 4 5	49	1 2 3 4 5	97	1 2 3 4 5
M/F	2	1 2 3 4 5	50	1 2 3 4 5	98	1 2 3 4 5
API/B/I/L/W	3	1 2 3 4 5	51	1 2 3 4 5	99	1 2 3 4 5
Avg/Overwt	~					
	12	1 2 3 4 5	60	1 2 3 4 5	108	1 2 3 4 5
2	13	1 2 3 4 5	61	1 2 3 4 5	109	1 2 3 4 5

Mean measures of activity levels

	Mean	Median
% time at PA level ≥ 3	26.4%	23.3%
% time at PA level = 4	9.4%	7.6%
Average PA level	2.2	2.2

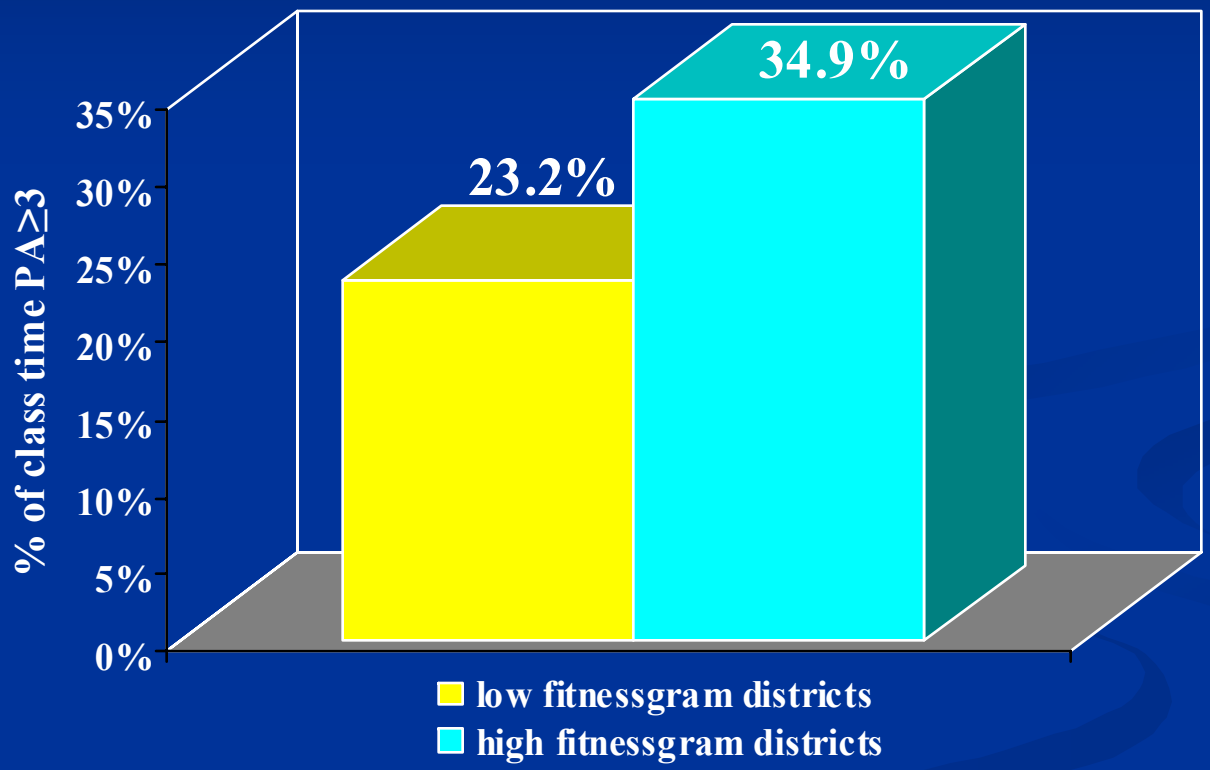
Total observations = 58 classes

Average amount of PE class time in MVPA by school level



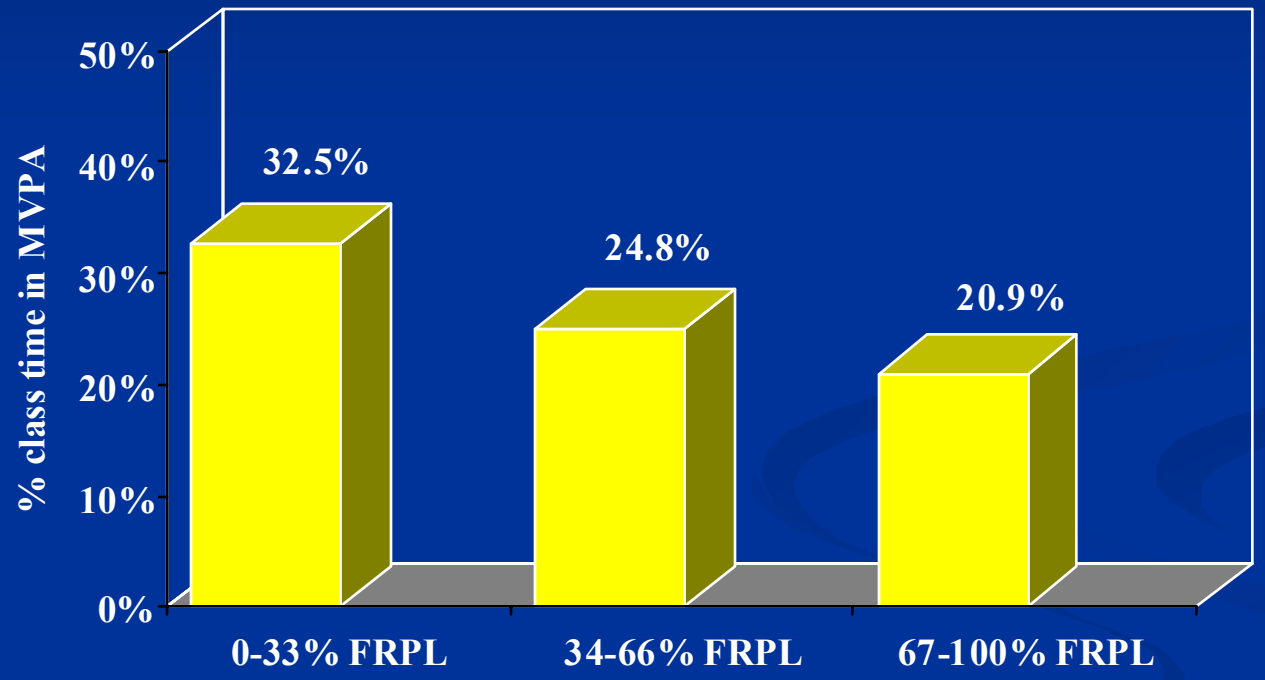
The amount of P.E. class time that students were physically active was slightly higher in higher grades but there was a great variation within each school level

Average amount of PE class time in MVPA by district average FitnessGRAM scores



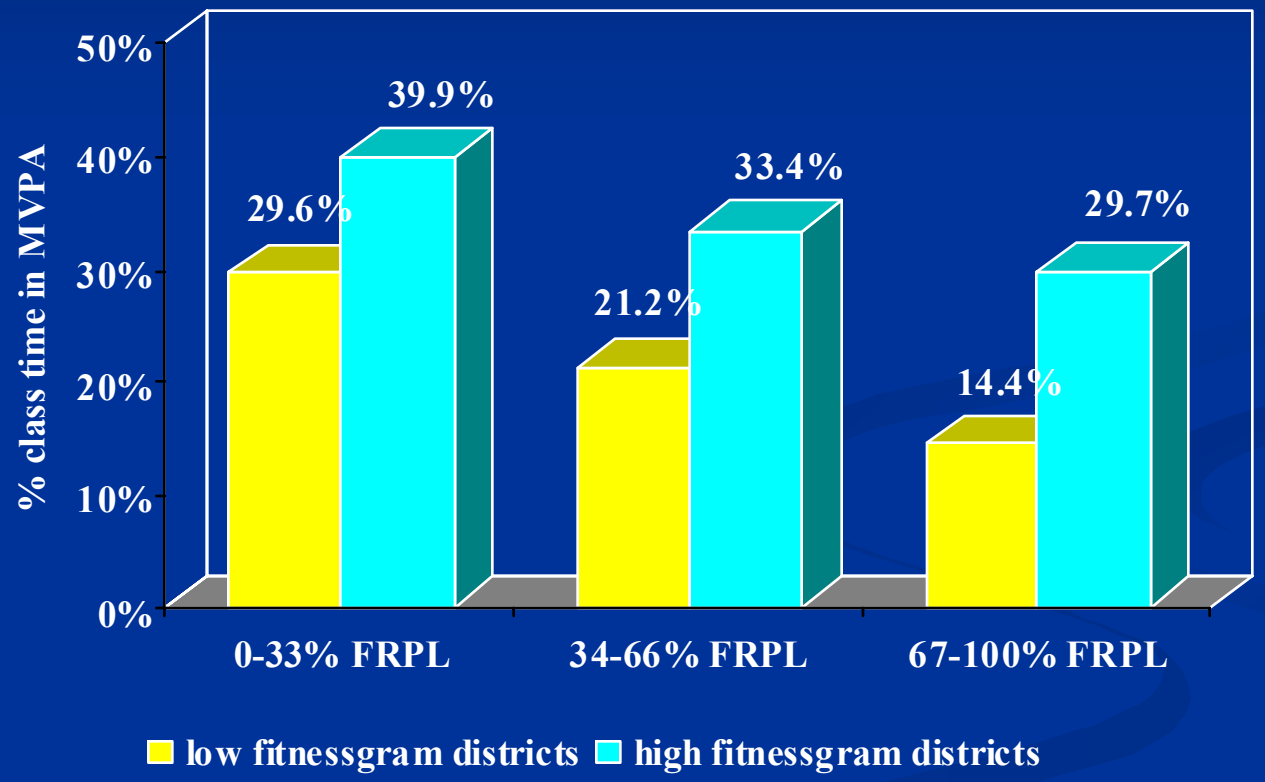
Amount of P.E. class time spent in MVPA was greater in high-scoring FitnessGRAM districts

Percent of PE class time in MVPA by percent of FRPL-eligible students



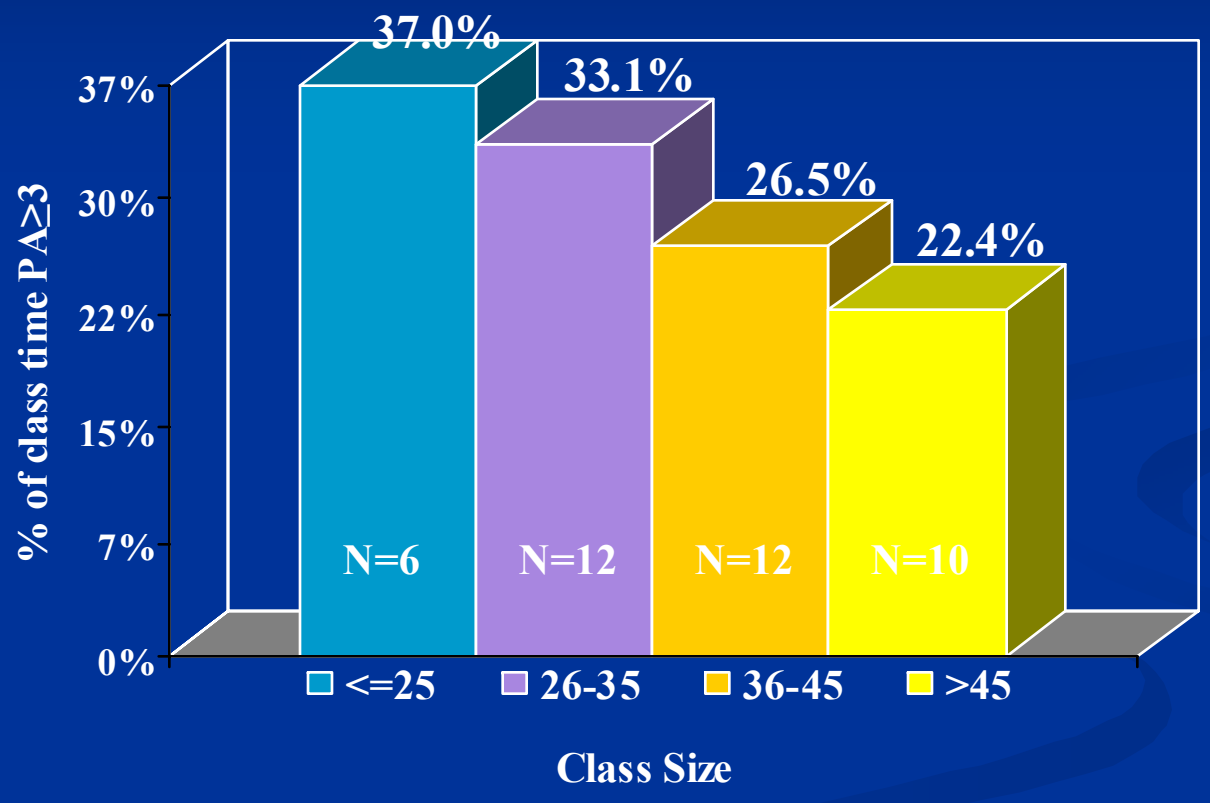
Districts with the lowest percentage of students receiving FRPLs showed the highest percentage of PE class time spent in MVPA

Percent of PE class time in MVPA by percent of FRPL-eligible students & by district average FitnessGRAM score



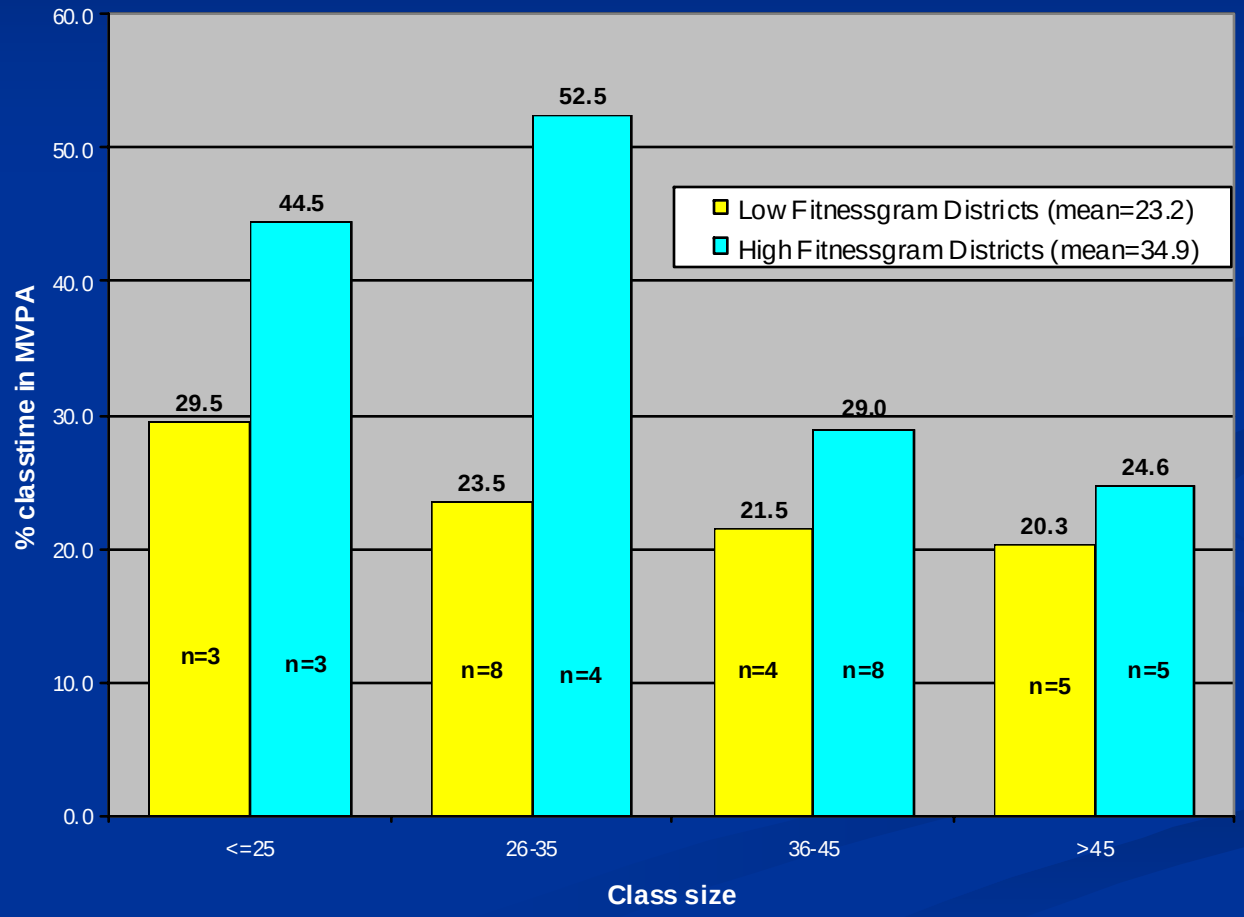
Lowest percentage of PE class time spent in MVPA occurred in low FitnessGram/high FRPL districts

Average amount of PE class time in MVPA by class size (secondary schools only)



The amount of P.E. class time that students were physically active was less in larger classes

Average amount of PE class time in MVPA by class size & district average FitnessGram scores (secondary schools only)



Key Findings

- Barriers to physical activity relate to insufficient funding and a focus on academic test scores
- Students are spending only one-quarter of their PE time in MVPA
  - Most time during PE is spent being sedentary
- Bigger class sizes translate into less active PE classes
  - Students in classes with more than 45 students are half as active as those in smaller classes
- Students in lower income schools spend less time being active in PE
- Level of activity in PE is linked to student fitness levels

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