

## **bridging the gap**

Research Informing Policies & Practices  
for Healthy Youth

# US Secondary School Physical Activity Practices and Student Behaviors: National Results from 2007- 2010

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# Background

Schools have the opportunity to be important partners with students in facilitating physical activity (PA). Many organizations have called upon schools to maintain and better support physical activity during the school day

It is the position of the National Association for Sport and Physical Education (NASPE) that physical education is critical to educating the whole child, and that all students in grades K-12 should receive physical education on a daily basis

Supporting physical activity in schools has been increasingly difficult due to a variety of factors including competing demands and school siting decisions

This presentation examines trends in US secondary school PA practices and student PA behaviors from 2007-2010 and explores associations between school practices and physical activity

# Methods

School-level PA practices and principal reported student behavior were obtained from yearly school administrator surveys using representative samples of public secondary schools in the US (about 600 schools/year).

- Data are collected as part of the Youth, Education and Society Study, the UM arm of Bridging the Gap, which is funded by Robert Wood Johnson Foundation. Data represent the 2006/2007 – 2009/2010 school years

Individual student PA data were obtained from surveys of representative samples of US secondary students in 8<sup>th</sup>, 10<sup>th</sup>, and 12<sup>th</sup> grades (total N=17655-63484, depending on grade/outcome).

- Data are collected as part of the Monitoring the Future Study funded by National Institute on Drug Abuse. Data represent the 1990/1991 - 2009/2010 school years

# Measures

Principal reported school-level practices:

- PE required in target grade

- BMI assessments performed on students

- Fitness assessments completed on students

- Programs to promote physical activity

Principal reported student behavior:

- Percentage of students that walk or bike to school

- Participation rates for varsity and intramural sports

- Percentage of students who participated in PE

Student reported physical activity:

- Vigorous activity

- Sports participation

- Participation in sports, athletics or exercise

# Analyses

Trends in school practices and principal reported student behavior were examined using SAS 9.2. Tests of significance were run for differences between:

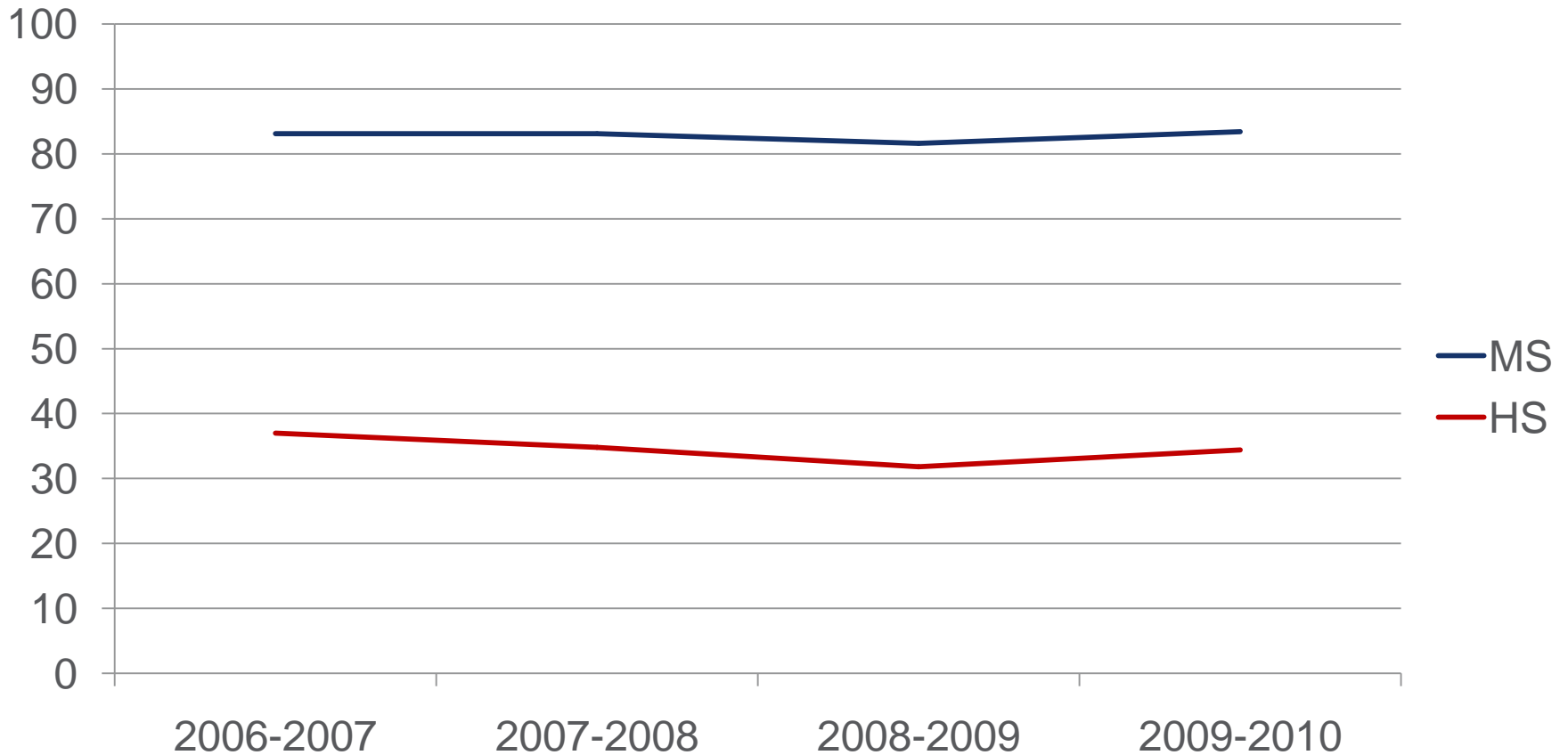
- 2006/7 vs. 2009/10 school year
- Middle school (8<sup>th</sup>) vs. high school (10<sup>th</sup> and 12<sup>th</sup>)
- School SES, using tertiles of SES status (defined by percentage of students receiving free or reduced lunch)

Student reported physical activity was stratified by gender and trends were examined using SAS 9.2

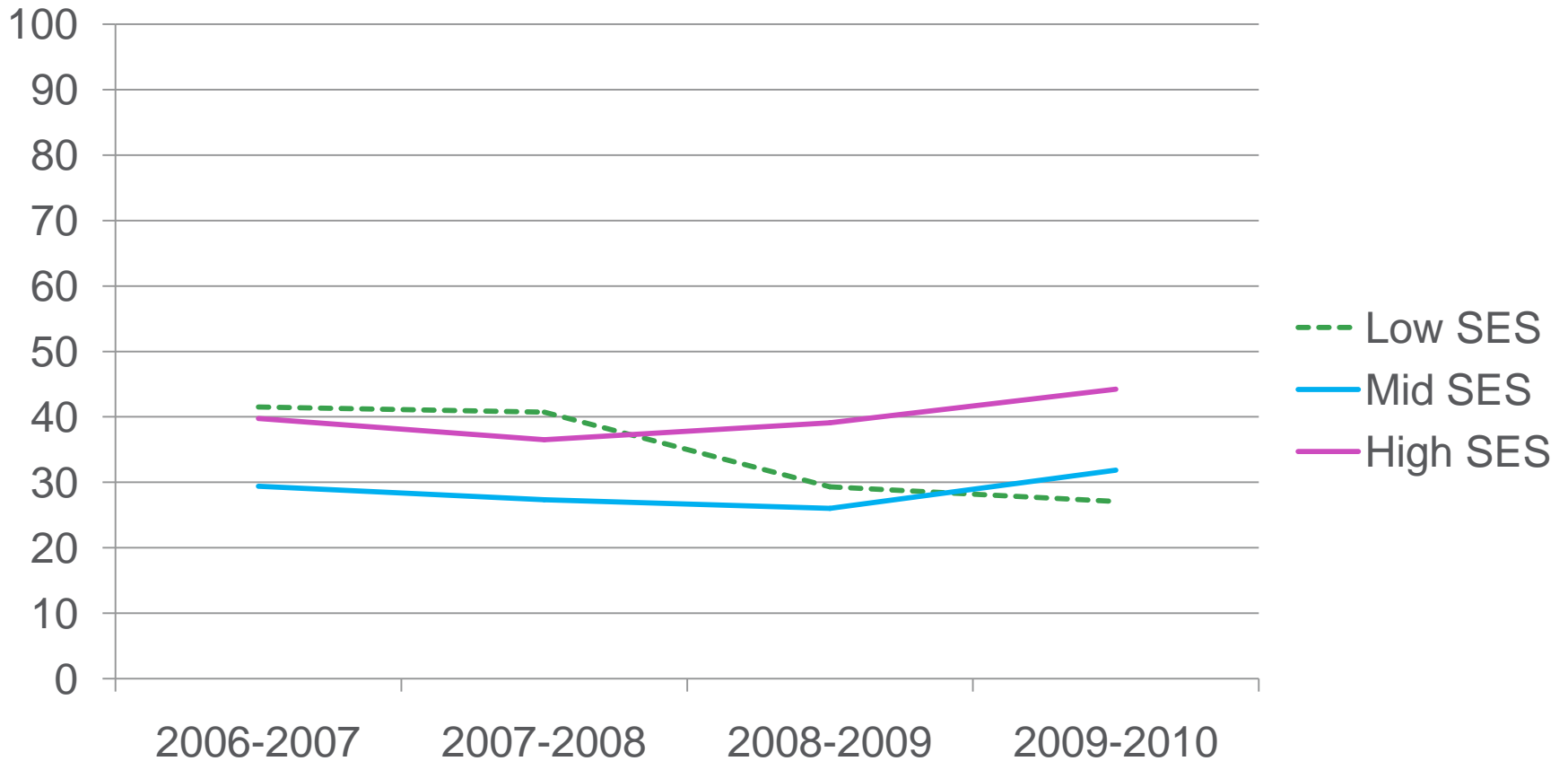
Associations between school practices and student physical activity were examined in Stata 11 using complex survey design commands controlling for age, race, parental education, region, urbanicity

# Principal Reported Practices in Secondary Schools

# Percentage of students attending schools requiring physical education

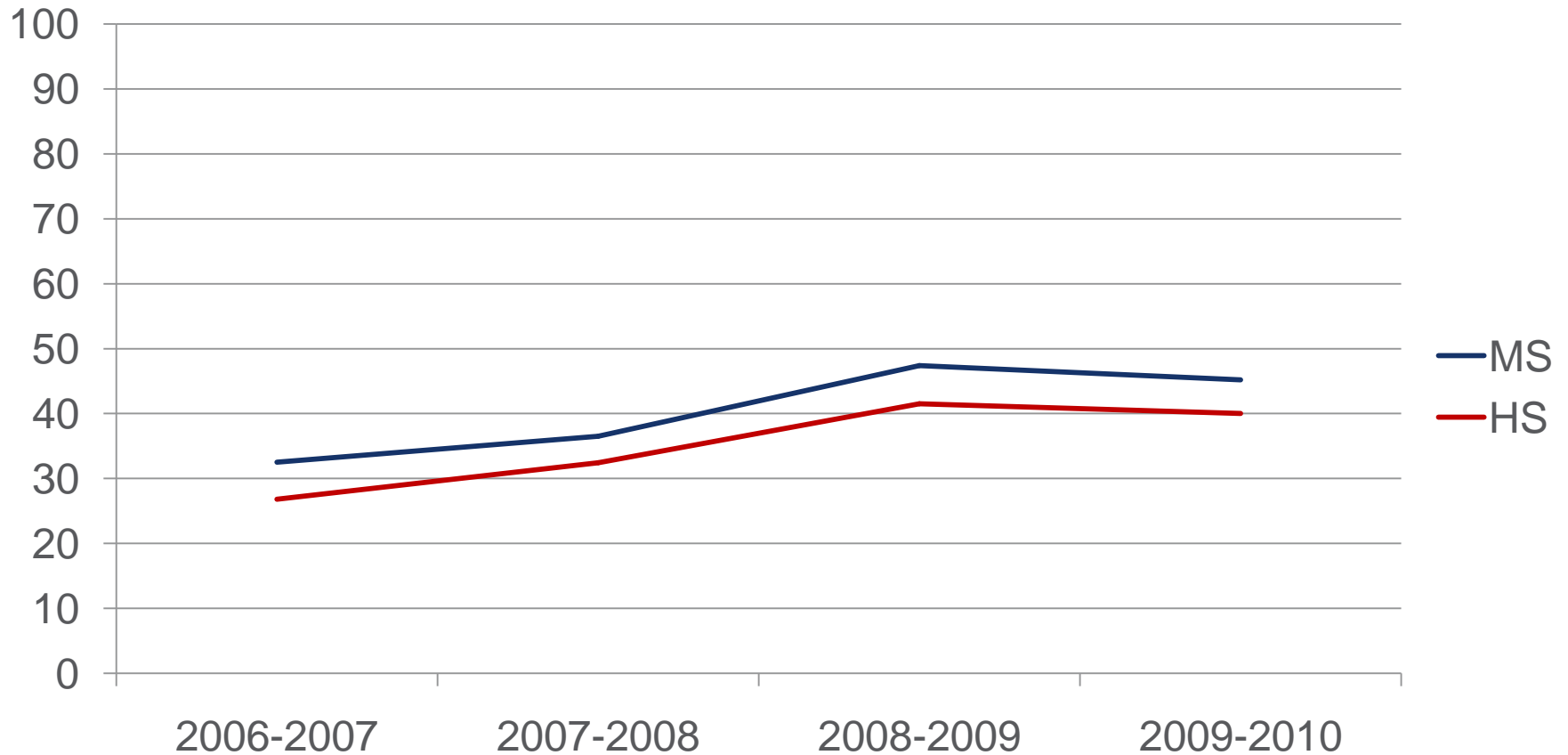


# Percentage of students attending schools requiring physical education: By School SES in HS

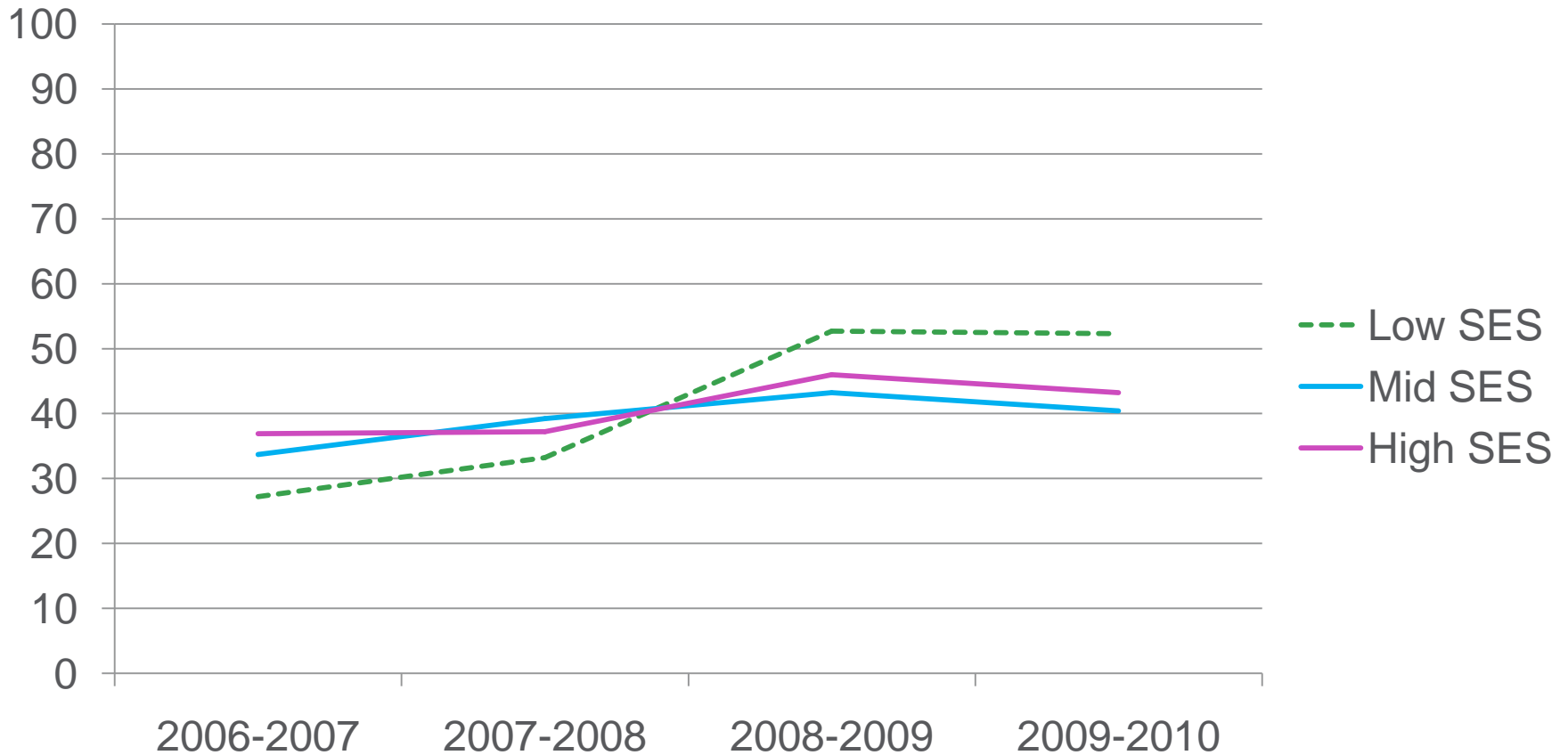




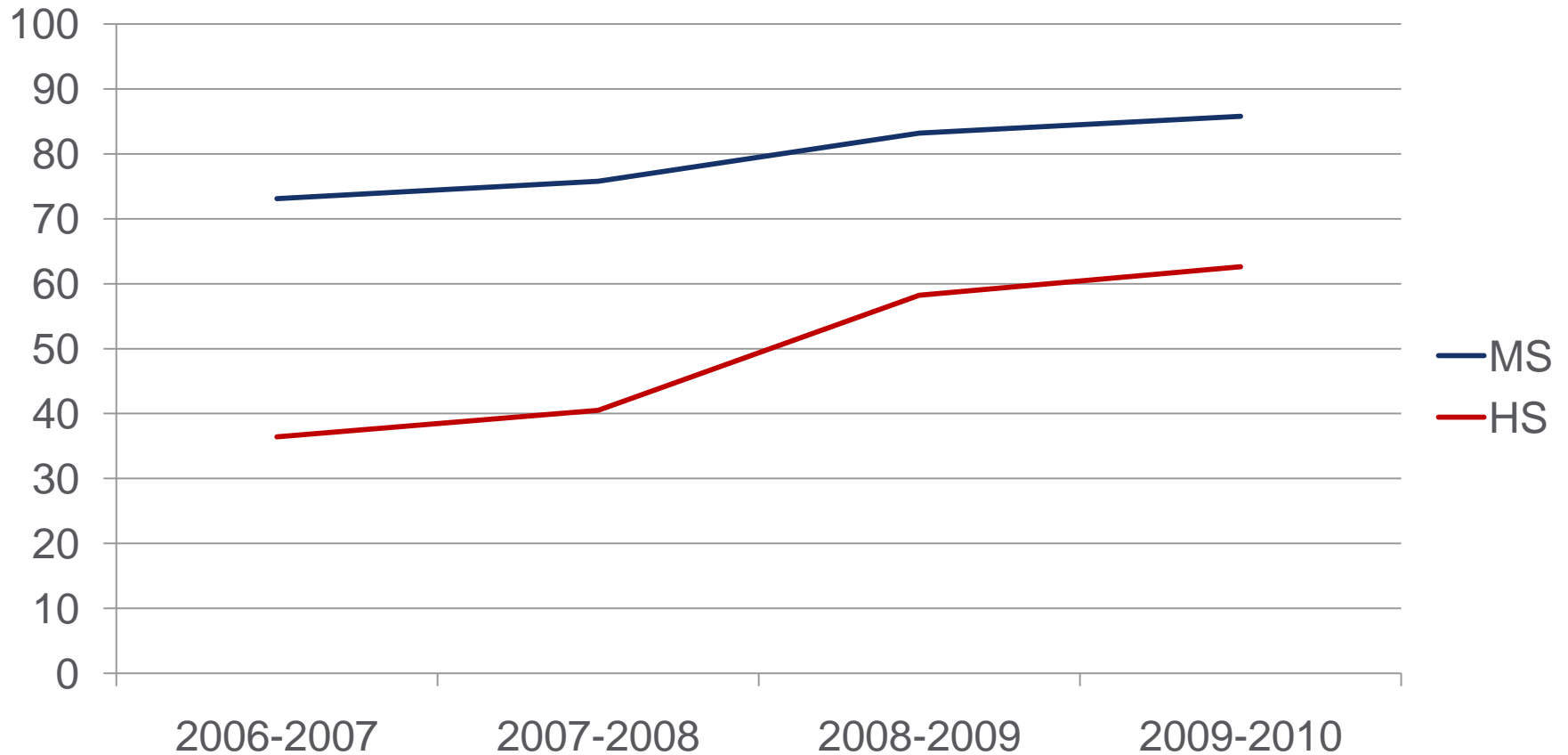
# Percentage of students attending schools that measure BMI



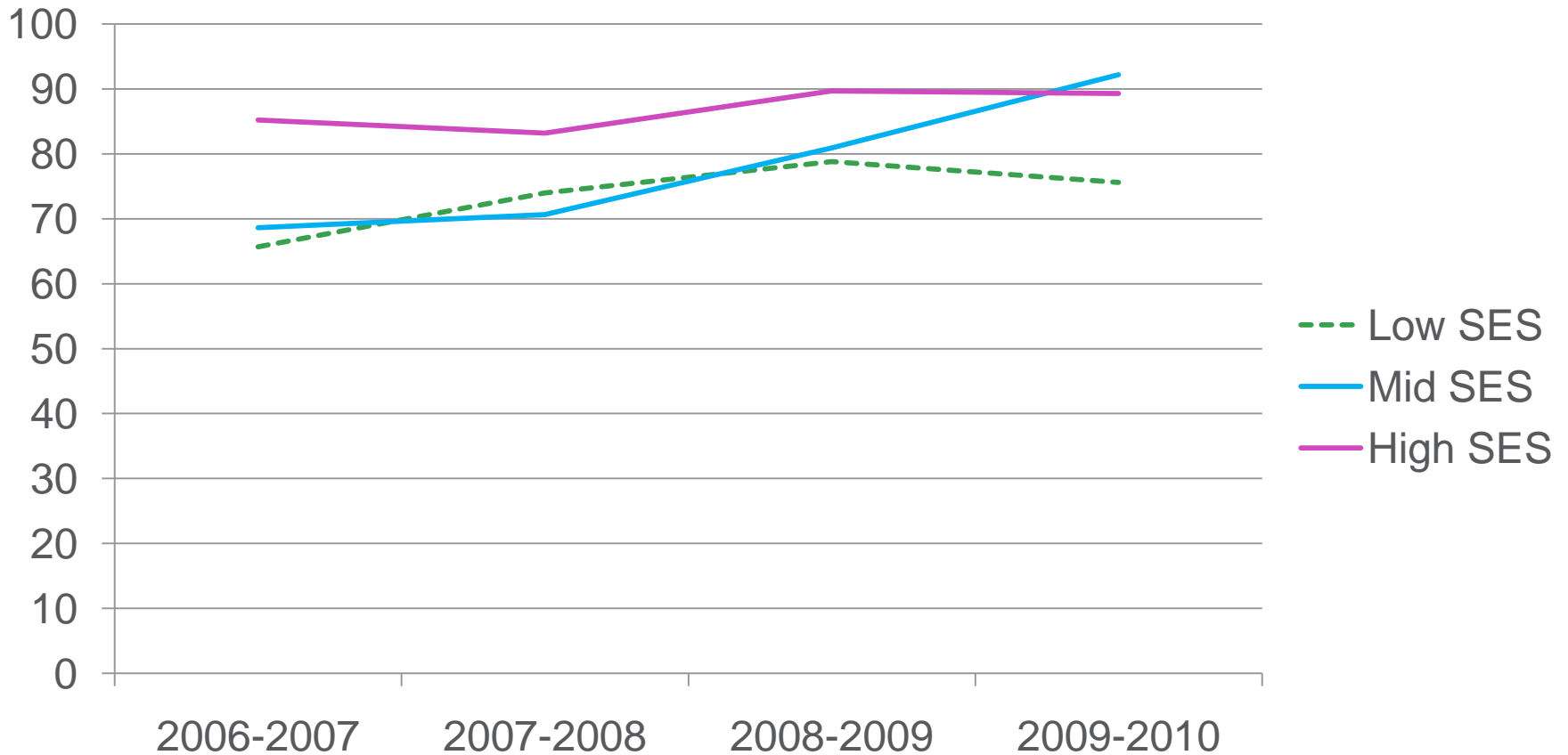
# Percentage of students attending schools that measure BMI: By School SES in MS



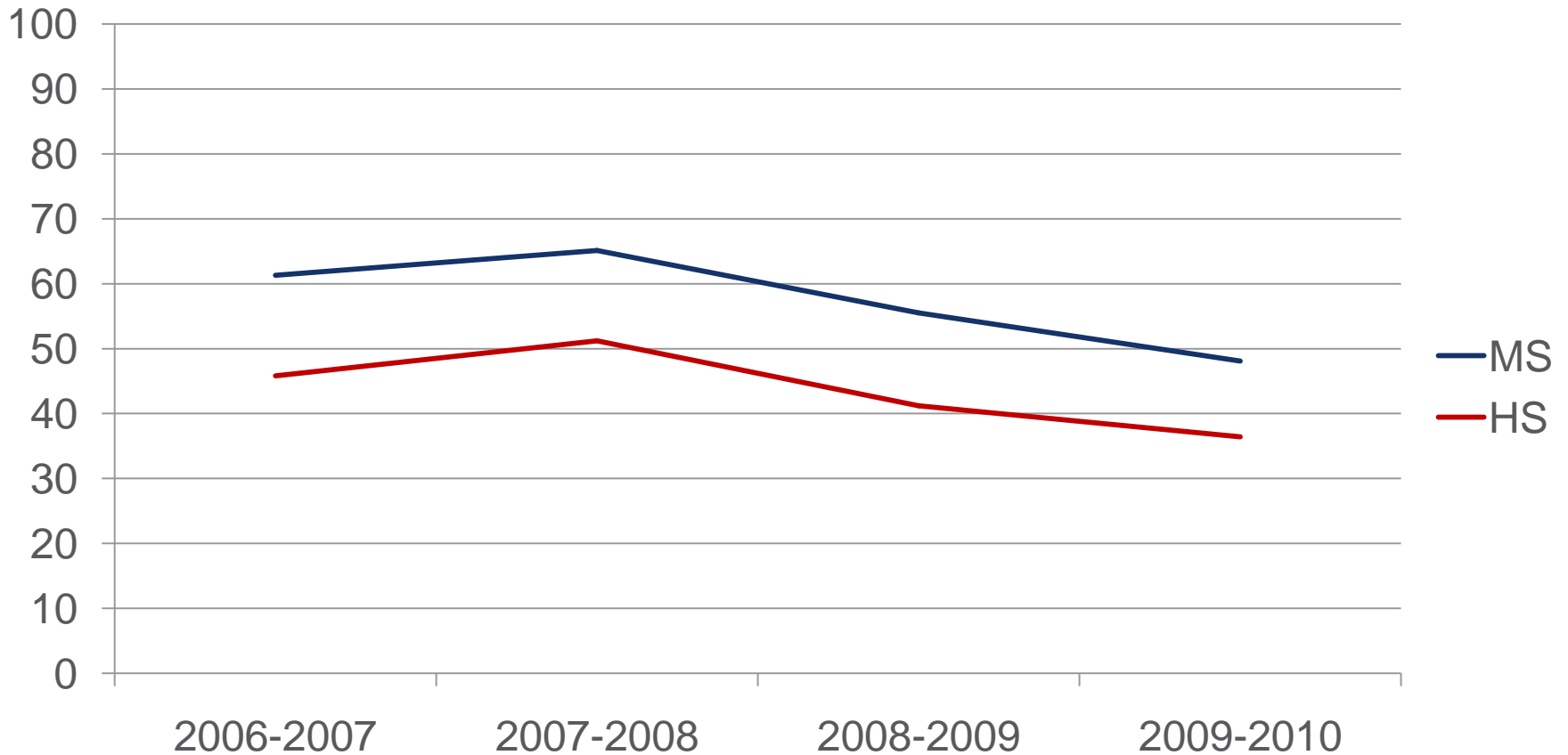
# Percentage of students attending schools that implement fitness tests



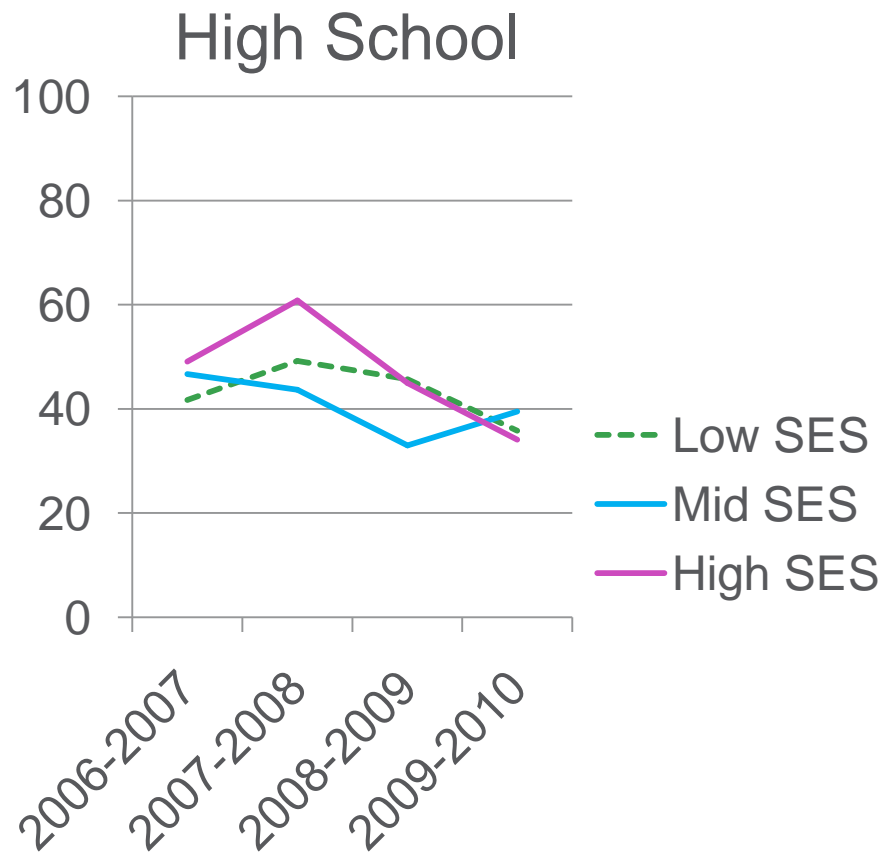
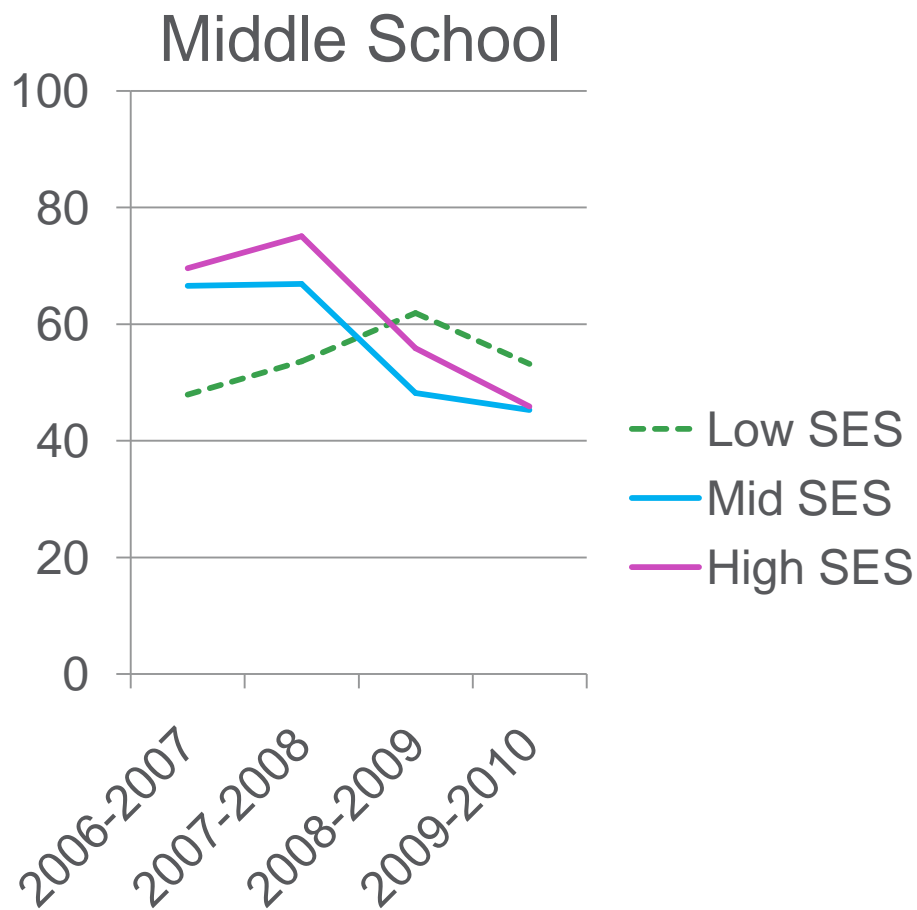
# Percentage of students attending schools that implement fitness tests: By School SES in MS



# Percentage of students attending schools with programs in place to increase physical activity



# Percentage of students attending schools with programs in place to increase physical activity: By School SES



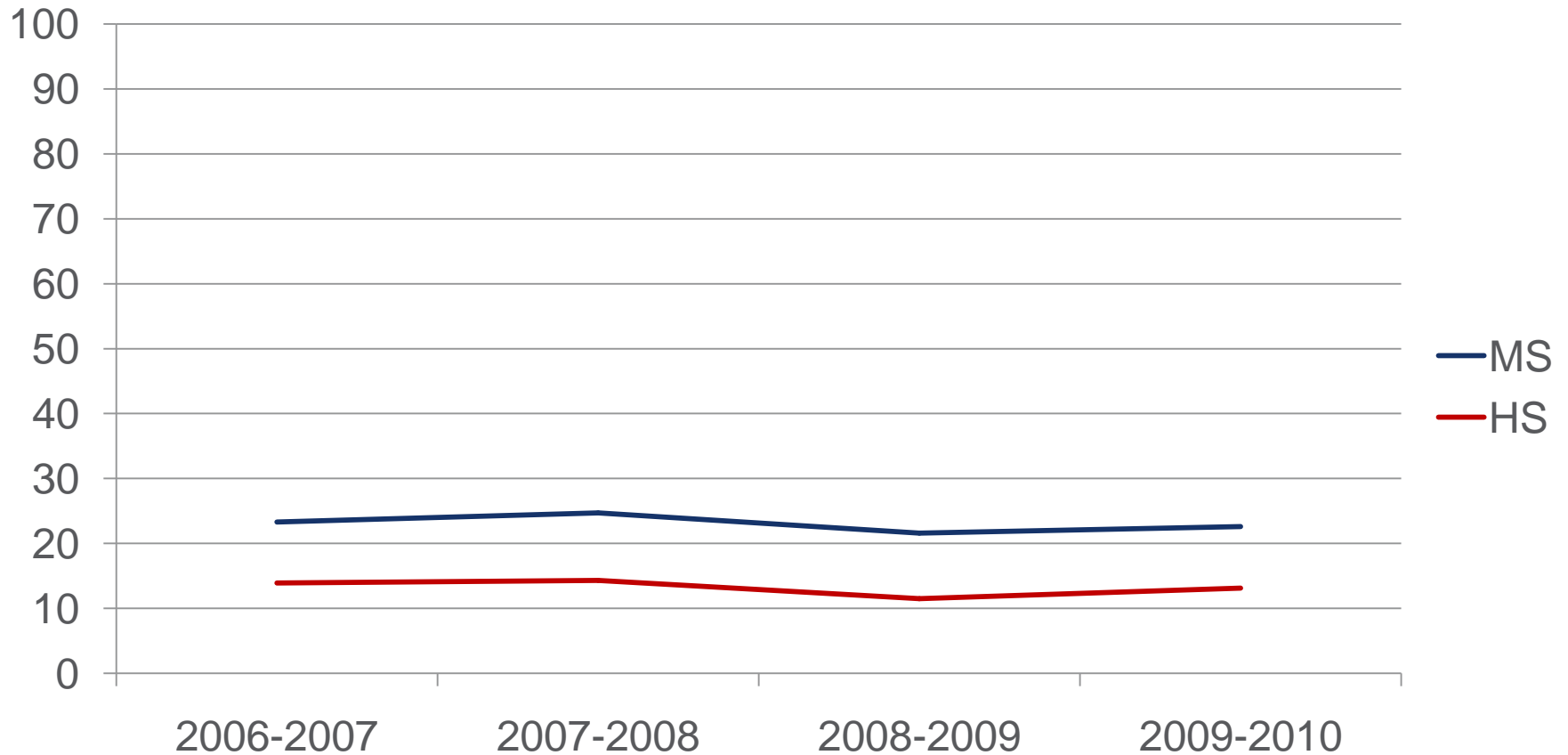
# Summary of principal reported practices in schools

- Overall, the percentage of students attending schools requiring PE for their grade level did not change
  - Students in low SES HS had a decline over time
- The percentage of students in schools measuring BMI and implementing physical fitness tests increased
  - Students in low SES MS schools had increases in BMI assessments; Students in mid SES MS schools had increases in fitness tests
- The percentage of students attending schools where significant activities were underway to promote increased physical activity declined significantly
  - Declines were in students in high SES (MS & HS) & mid SES schools (MS)

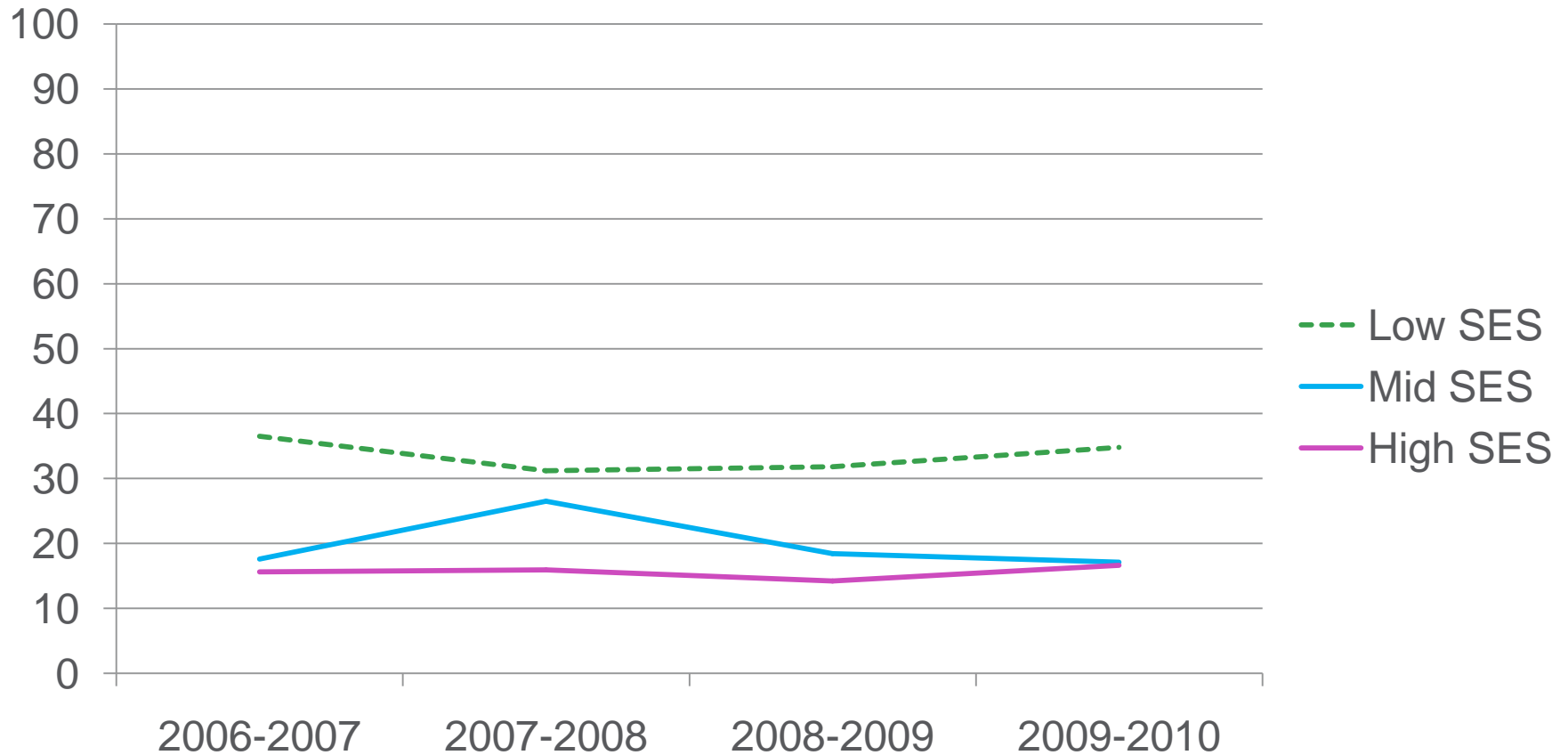
# Principal reported student behavior



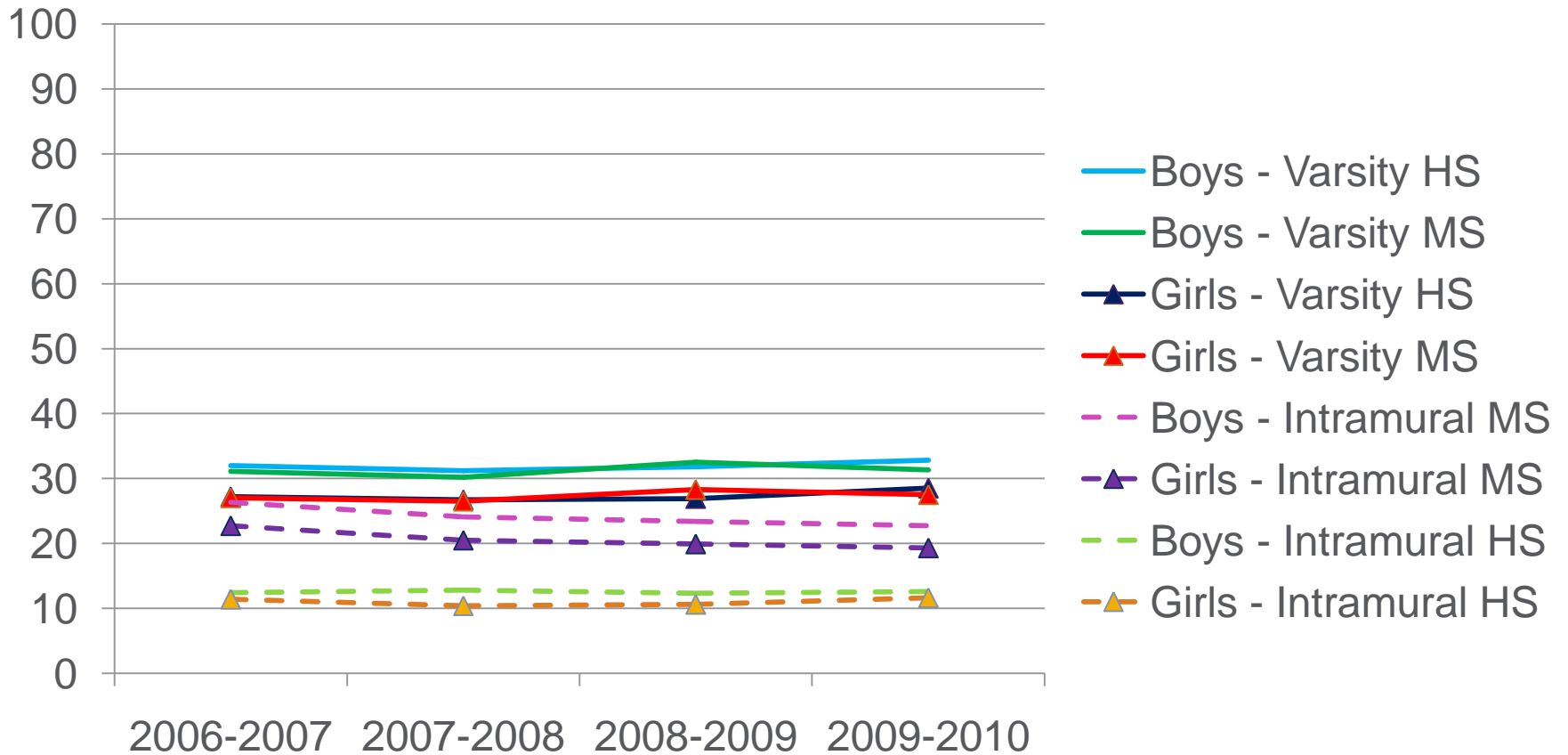
# Percentage of students who walk or bike to school (Principal reported)



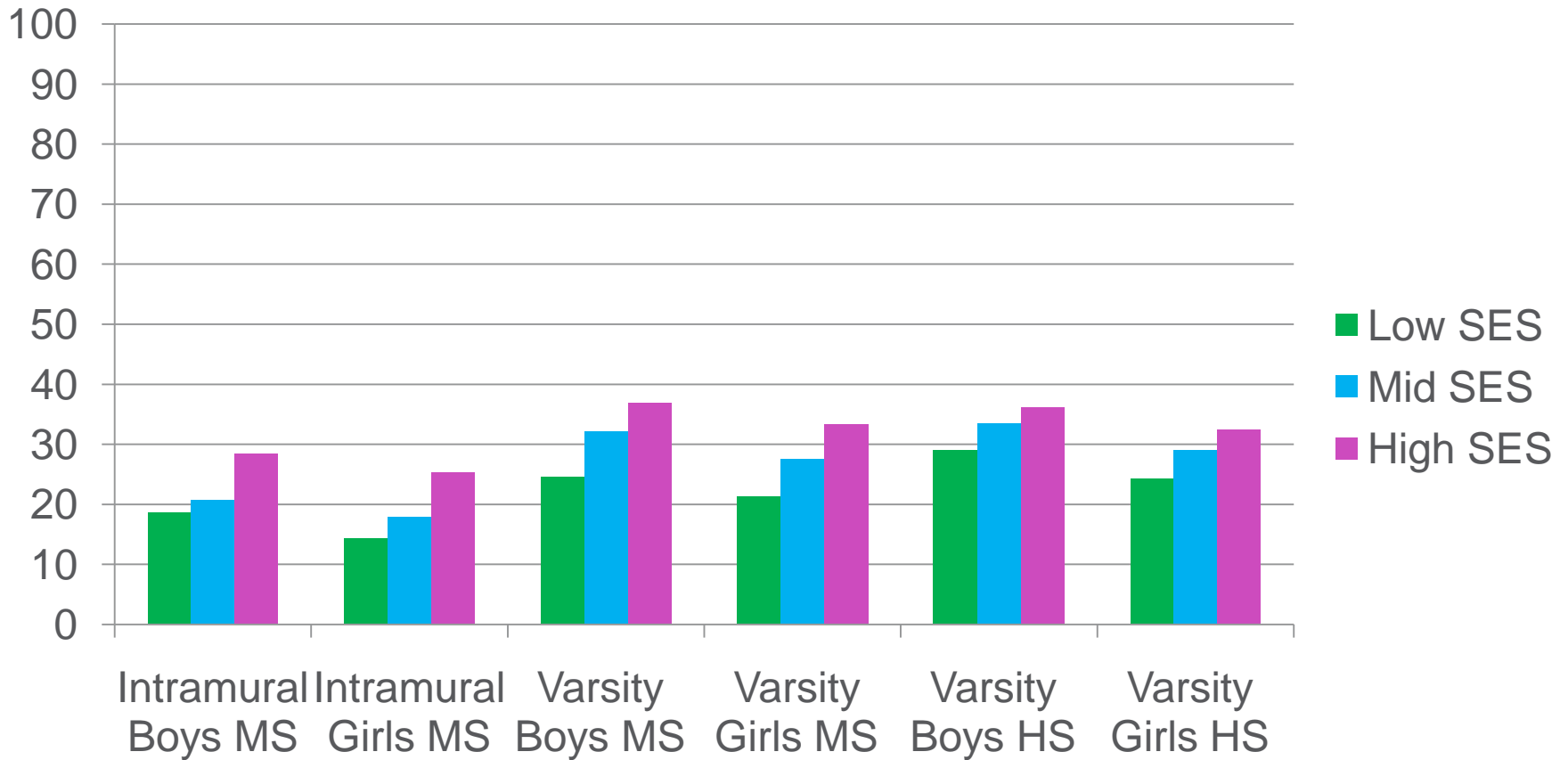
# Percentage of students who walk or bike to school (Principal reported): By School SES in MS



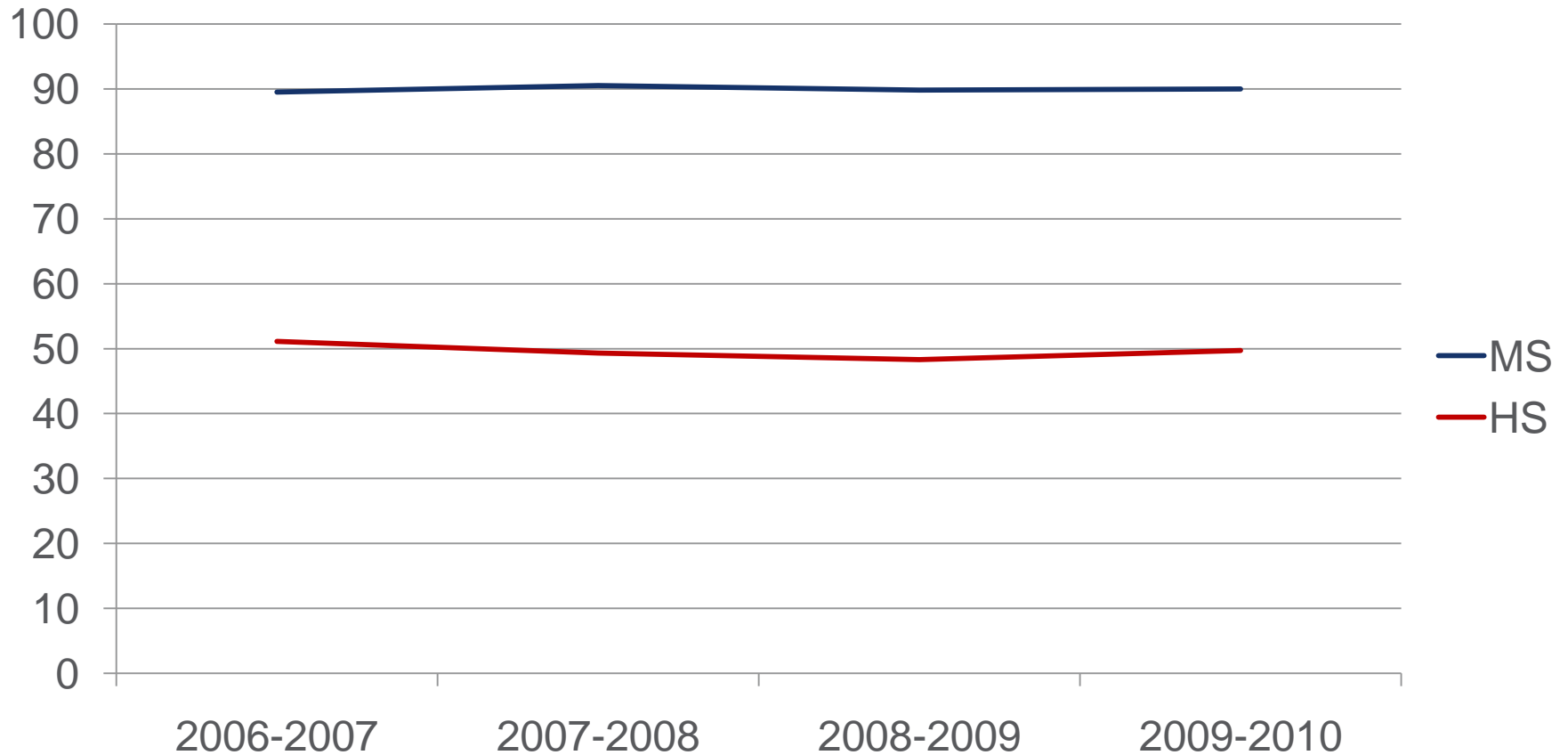
# Percentage of boys and girls who participate in intramural or varsity sports (Principal reported)



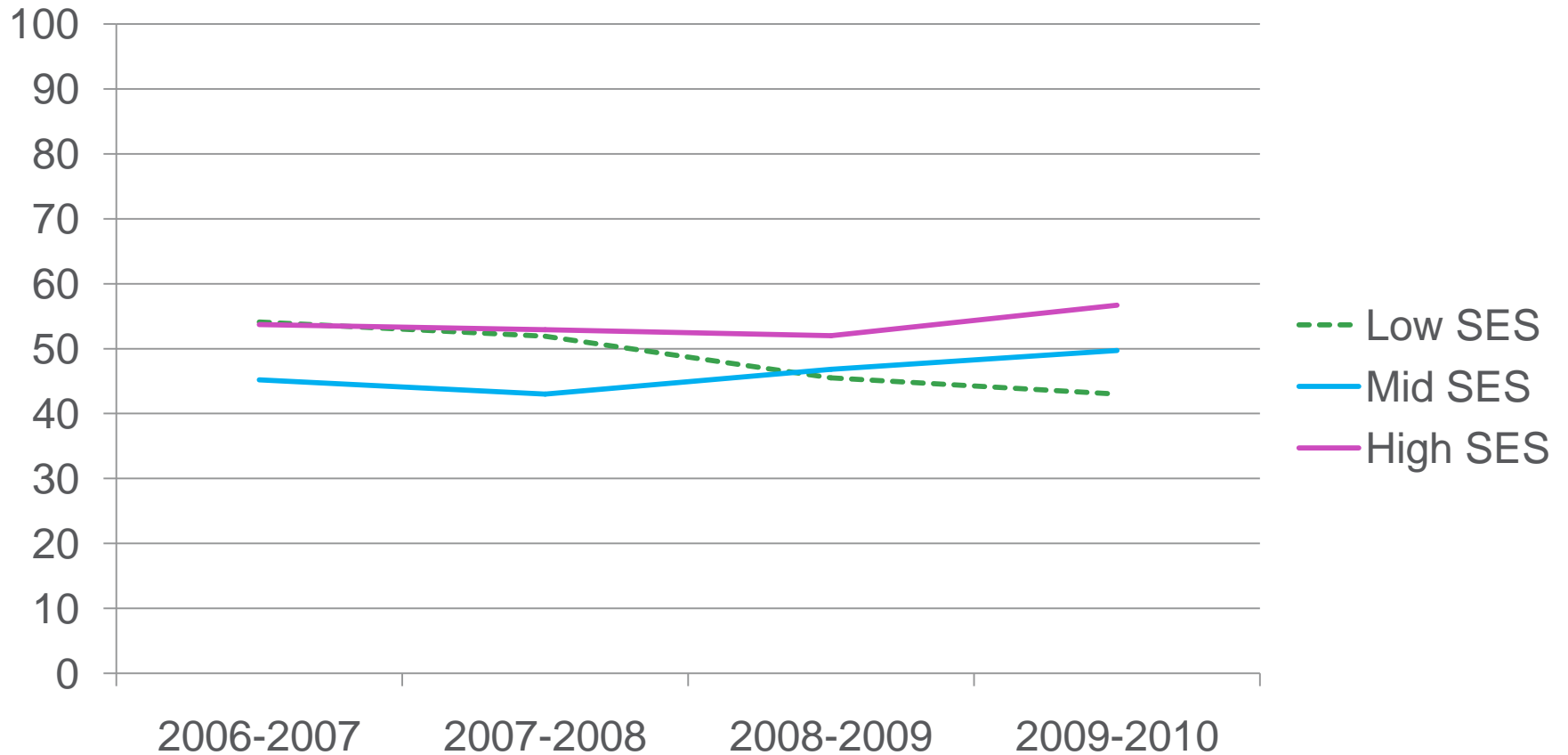
# Percentage of boys and girls who participate in intramural or varsity sports (Principal reported): By School SES in 2009-2010



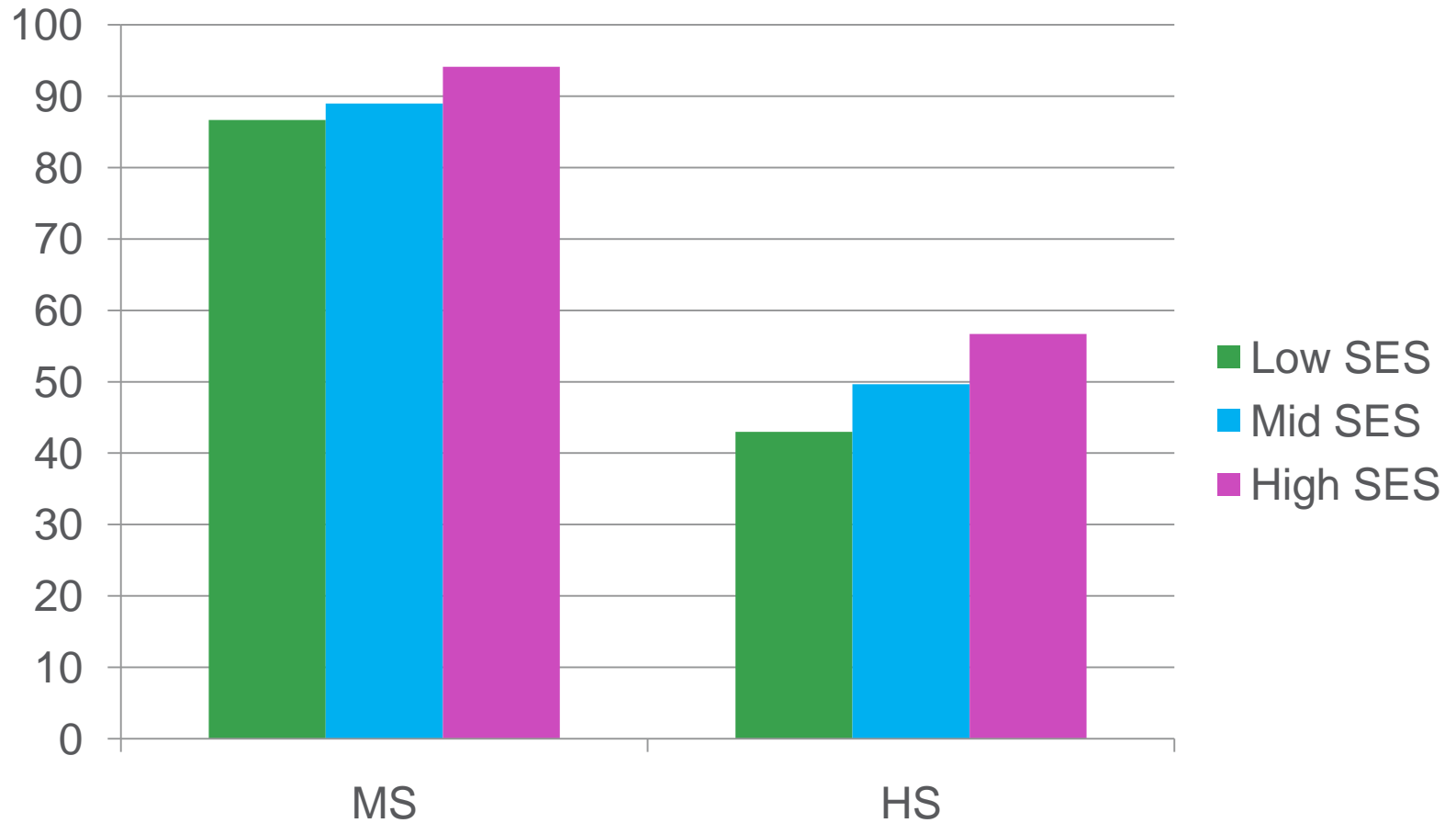
# Percentage of Students who take PE (Principal reported)



# Percentage of Students who take PE (Principal reported): By School SES in HS



# Percentage of Students who take PE (Principal reported): By School SES in 2009-2010



# Summary of principal reported student behavior

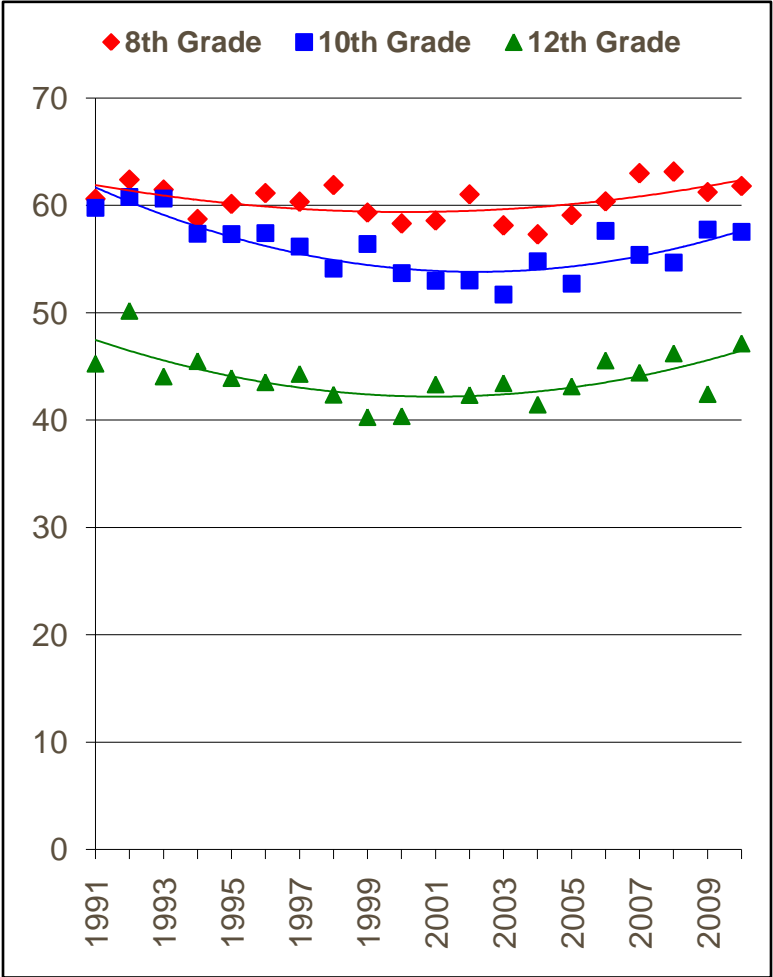
- Percentage of students who walk or bike to school has remained flat from 2007-2010
  - Students in low SES schools walk or bike more than students in mid SES and high SES schools
- The percentage of students participating in intramural or varsity sports has not changed over the past 4 years
  - Participation is higher in higher SES
- Overall the percentage of students who took PE did not change from 2007-2010
  - Students in low SES HS had declines over time
  - Rates are higher in high SES schools relative to low SES schools



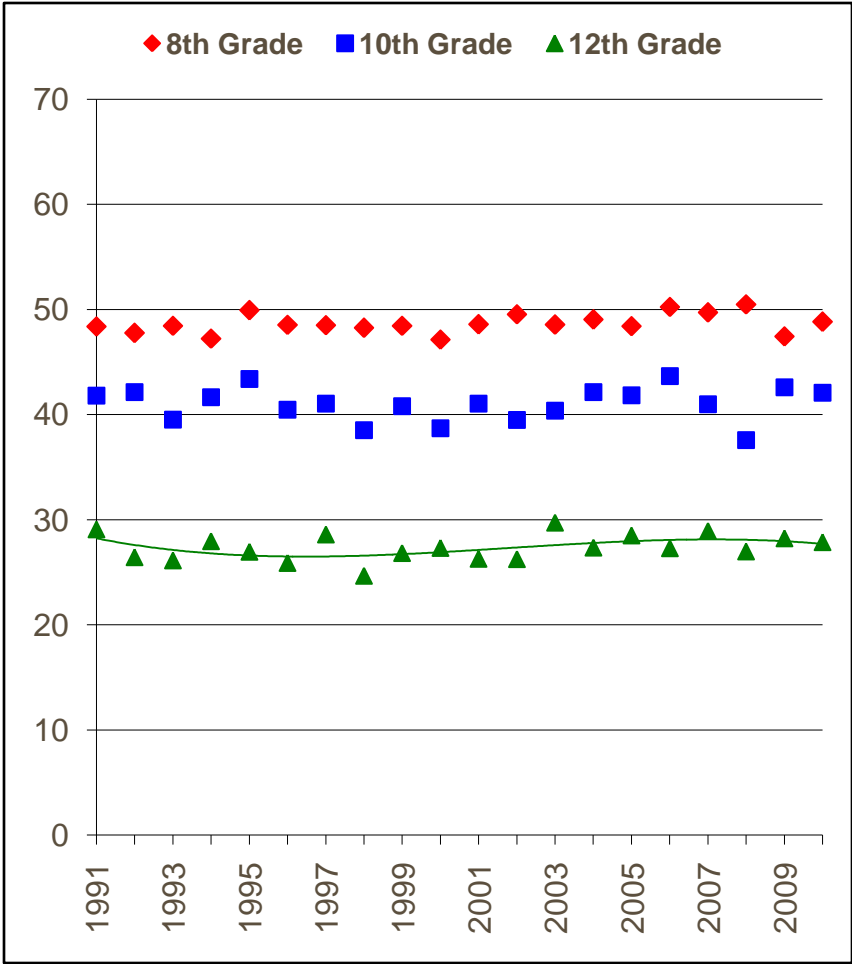
# Student-reported physical activity

# Percentage of students engaging in vigorous exercise every day or nearly every day

## Males

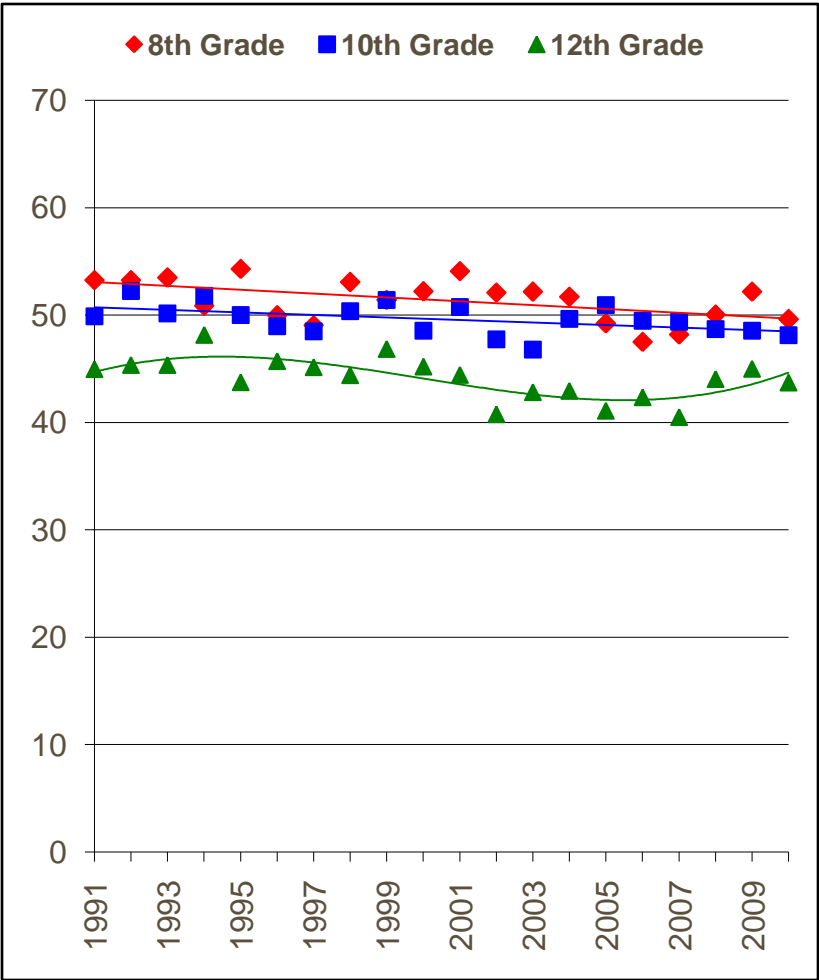


## Females

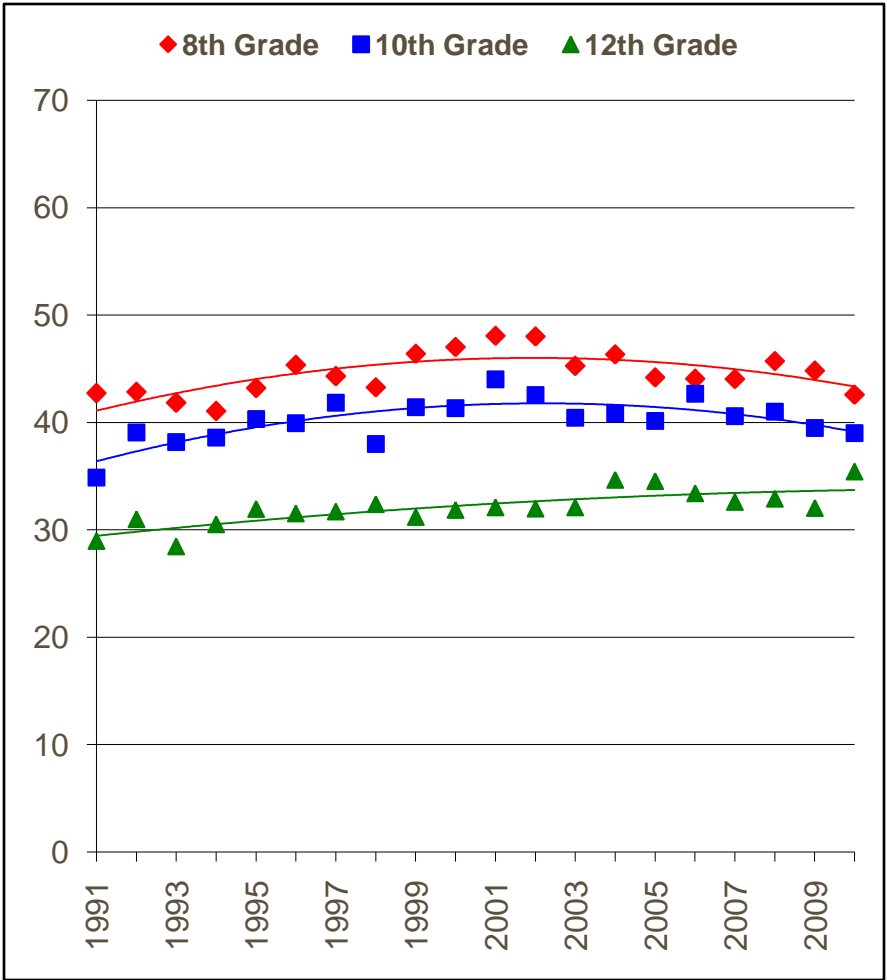


# Percentage of students who participate in athletic teams to a considerable or great extent

## Males

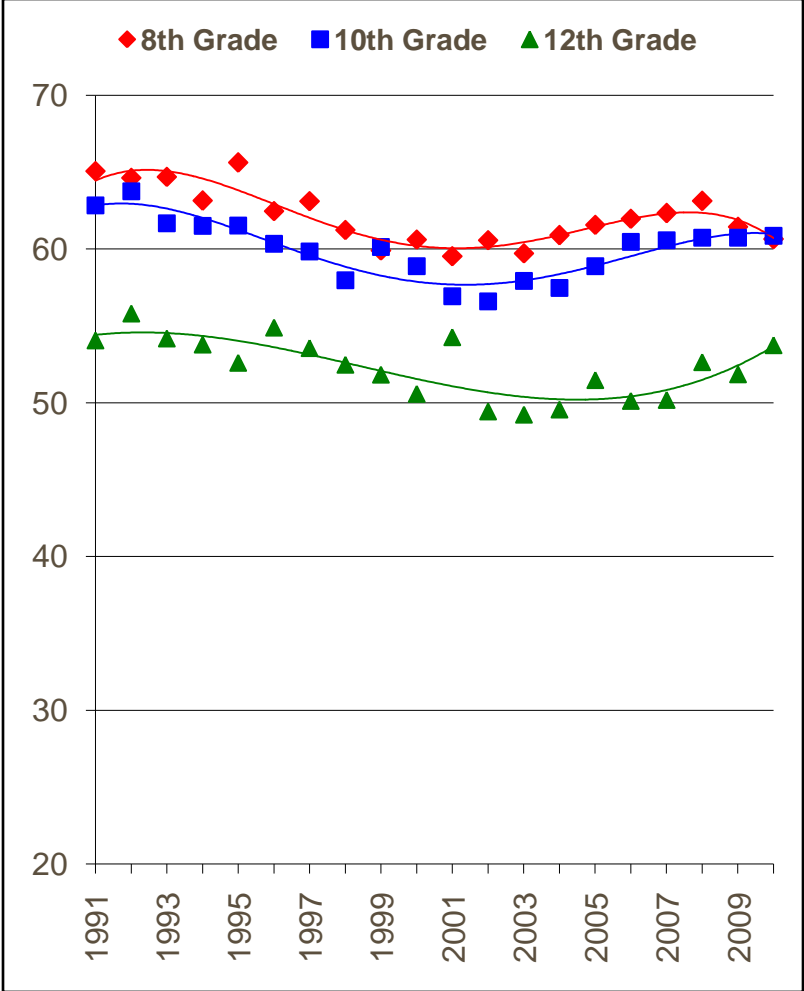


## Females

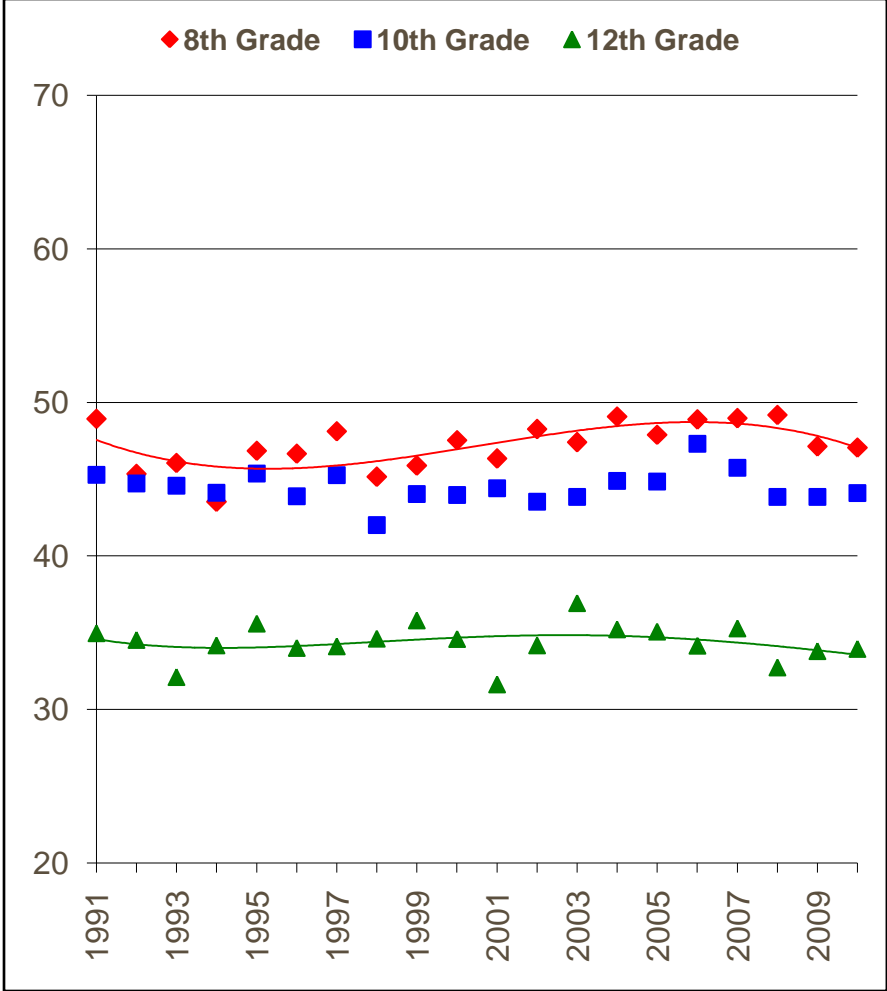


# Percentage of students who participate in sports, athletics or exercise almost every day

## Males

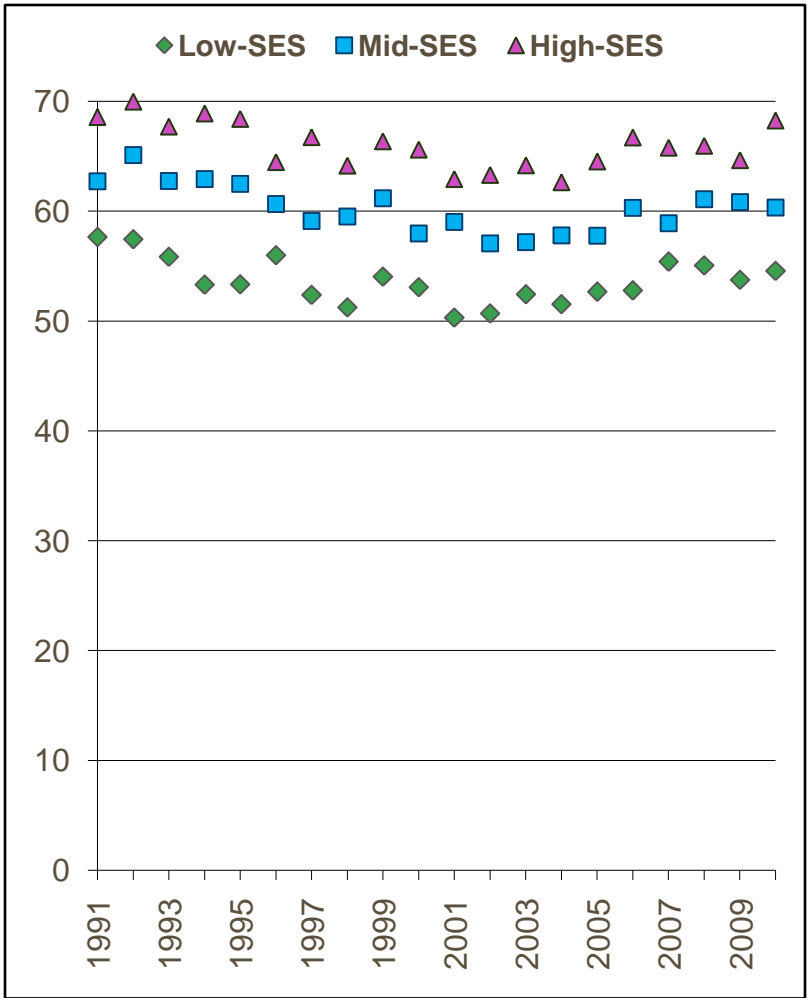


## Females

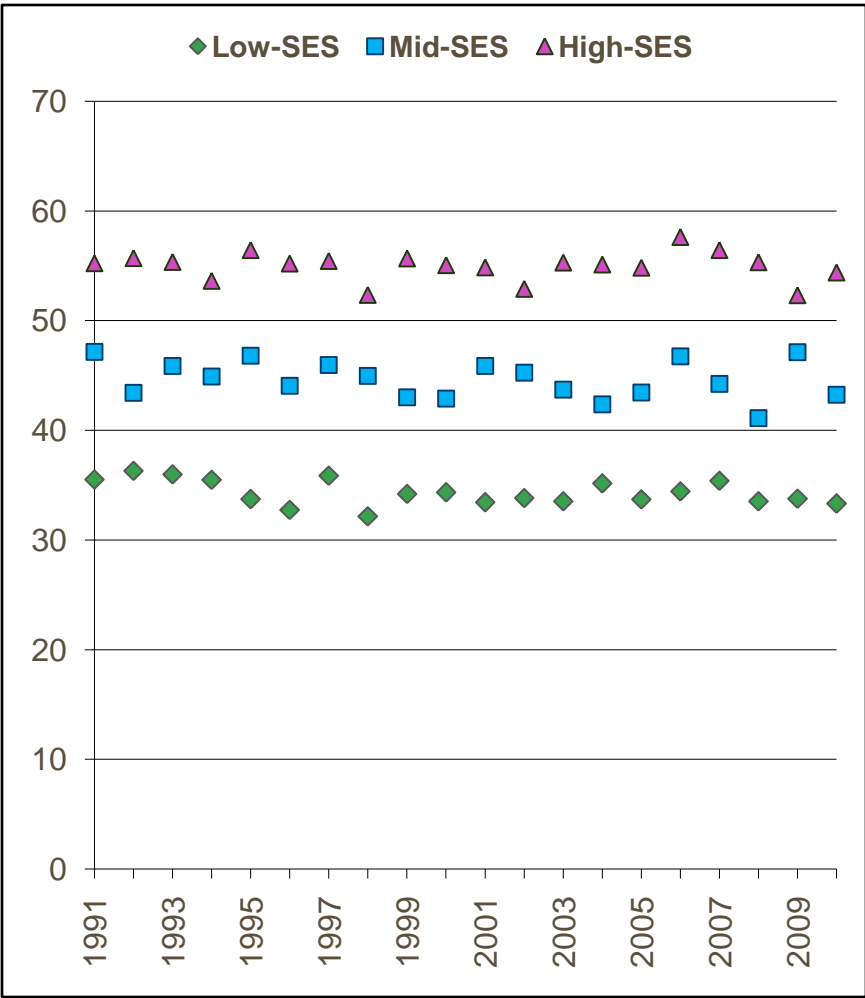


# Percentage of students who participate in sports, athletics or exercise almost every day: By individual SES

## 10<sup>th</sup> grade Males



## 10<sup>th</sup> grade Females



# Summary of student-reported physical activity

- In females, self-reports of physical activity have remained relatively flat over the past 2 decades
- In males, self-reports of physical activity suggest a curvilinear relationship, where activity levels dropped slightly around 2000 but returned to 1990 levels in 2010
- Sports participation in boys suggests a slight decrease over time in 8<sup>th</sup> and 10<sup>th</sup> grades
- Sports participation in girls suggests a slight increase in 12<sup>th</sup> grade girls but a curvilinear relationship in 8<sup>th</sup> and 10<sup>th</sup> graders with the highest levels seen around early 2000
- Rates of PA across all measures varies by SES with the highest SES students reporting the highest levels of PA

# Associations between school practices and student behavior

# School practices and student physical activity

- Conducting BMI and fitness assessments was not associated with vigorous activity or exercise
- Having programs in place to promote physical activity was not associated with vigorous activity or exercise
- Requiring PE in the target grade was highly associated with principal reported percentage of students taking PE
  - Across all grades, requiring PE generally resulted in 50% more students taking PE
  - Linear trend by grade, where this effect is greater as the grade increases



# Conclusions

- Multiple measures of PA suggest that levels of PA have remained flat
- Trends in school-level practices (e.g., requiring PE, measuring BMI) showed mixed results
- Of the four school practices we examined, only requiring PE was associated with physical activity
- The finding that there was a decline in programs intended to increase physical activity needs further examination

## Next Steps

- Examine school practices in more detail
  - E.g., time in PE
- Explore alternative measure of PA, which were implemented in 2010
- Examine other schools practices that might facilitate physical activity
- Develop composite measures of school practices as predictors of PA
- Integrate school practice data with policy and community data and understand their collective influence on student PA

# Thanks!

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