

Physical Fitness Disparities in California School Districts

A Practicum Issue Briefer for The City Project

Gabrielle Green, Jordan Henry, Jenny Power
USC Price School of Public Policy, May 2015

California Education Code mandates that all public schools both provide physical education for students and assess students' physical fitness annually through the FITNESSGRAM standardized test. Yet research shows that many schools fail to meet physical education requirements and less than half of all assessed students demonstrate full physical health. This study reports the student, school district, and community characteristics that impact student fitness in California. Findings indicate that there are significant racial, economic, and achievement indicators that impact student fitness across all California school districts. Non-compliance per the California Department of Education physical education audit alone does not have a strong relationship with lower FITNESSGRAM passing rates. Other information about non-compliance may produce different results, including school bell schedules, observational studies, and direct evidence from teachers, parents, and students. Physical education advocates should use demographic and FITNESSGRAM data to inform their advocacy work as a supplement to a district's compliance status. The FITNESSGRAM should also be included as a component in the forthcoming School Quality Improvement Index, which will replace the API score in ten California Office to Reform Education (CORE) school districts.



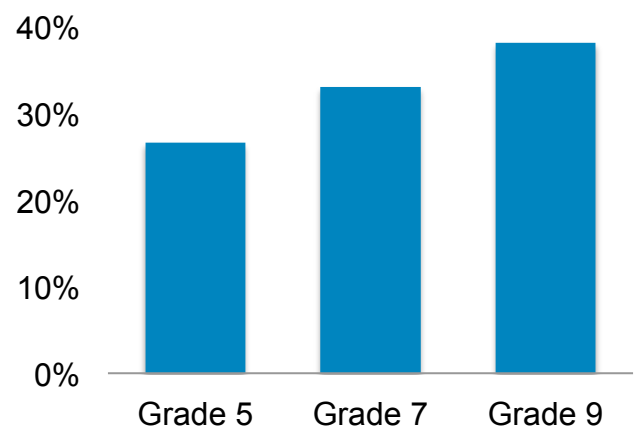
BACKGROUND/PROBLEM

Physical fitness testing is an extension of schools' mandated physical education programs. California Education Code mandates that schools provide elementary students at least 200 minutes and secondary students at least 400 minutes of physical

education instruction every ten days.¹ The code further requires that the FITNESSGRAM be administered annually to fifth, seventh, and ninth grade students at both traditional public schools and charter schools.² The FITNESSGRAM tests six distinct areas— aerobic capacity, body composition, flexibility, and the strength and endurance of abdominals, upper body, and trunk extensor.

But too many California students are not demonstrating adequate physical fitness. In 2014, 1.3 million students took the FITNESSGRAM exam and fewer than forty percent passed all six assessed areas: 26.6% of fifth graders, 33% of seventh graders, and 38.1% of ninth graders.³ CDE audit data from 2004-2006 shows that half of the 55 audited districts were not in compliance regarding required minutes of physical education instruction.⁴

Figure 1: 2013-2014 CA FITNESSGRAM Results



Source: CDE, 2013-2014

CONTEXT

The consequences of California students failing the FITNESSGRAM are concerning. Physically inactive children tend to have inferior cardiovascular and musculoskeletal functioning,⁵ as well as an increased likelihood of becoming overweight or obese.⁶ Higher risk of obesity increases a student's

chance of coronary heart disease and death within twenty years.⁷ Students who are physically active on a consistent basis are more likely to perform better in English and math classes compared to their less physically active peers.⁸

Other factors also predict student health, including race, socioeconomic status, and schools' academic success. High-minority and low-income communities have subpar nutritional resource environments and more limited access to healthy food.⁹ These same communities have fewer park spaces in which to be physically active.¹⁰ The health risks that students face in their communities emphasize the importance of quality physical education programs at local public schools.

OBJECTIVES & METHODOLOGY

This study analyzes the physical fitness of CA students as measured by the FITNESSGRAM through the lens of demographic, socioeconomic, and district indicators. The study adds value to existing research by using updated data to examine FITNESSGRAM results on all non-charter CA districts and analyzing relationships between district FITNESSGRAM and CDE audit results.

Table 1: Research Questions & Methodology

Research Question	Methodology
Are there relevant demographic trends in FITNESSGRAM passing rates across California school districts?	Demographic analysis
What are the key similarities and differences in FITNESSGRAM passing rates and demographics amongst audited and non-audited districts, and audited compliant and non-compliant districts?	Comparative analysis
Which variables, if any, predict FITNESSGRAM passing rates among California schoolchildren?	Multivariate statistical regression

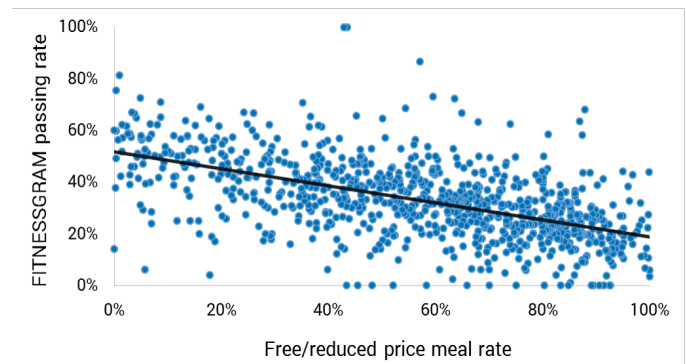
FINDINGS

The data shows that income, district API score, and race are all associated with FITNESSGRAM passing rates. The data also shows that the CDE audit alone does not demonstrate a strong association between

compliance status and FITNESSGRAM passing rates.

FINDING #1. There was an overall negative relationship between FITNESSGRAM passage and free/reduced price meals (FRPM). School districts with higher FRPM rates tended to have lower FITNESSGRAM passing rates. For every ten percent increase in the percent of district students eligible for FRPM, *the overall district passing rate decreased by 1.77% on average, holding all other variables constant.*

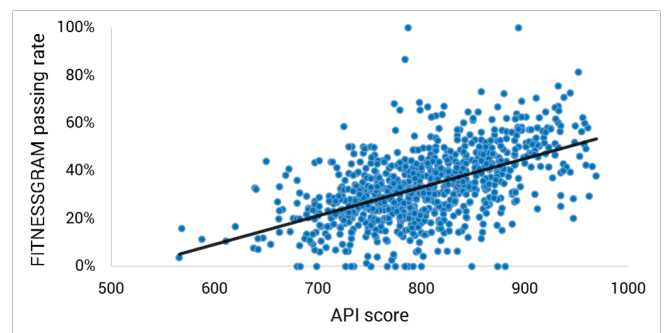
Figure 2: Relationship between FITNESSGRAM and free/reduced price meal rate



Source: CDE, 2013-2014

FINDING #2. API score and FITNESSGRAM passing rates had a positive relationship. A higher API score was associated with a higher FITNESSGRAM passing rate. For every fifty-point increase in district API, *the overall district passing rate increased by 0.03% on average, holding all other variables constant.* While the magnitude of this impact is small, its statistical significance indicates that this positive relationship is reflective of the true population of students and occurring in conjunction with the other findings.

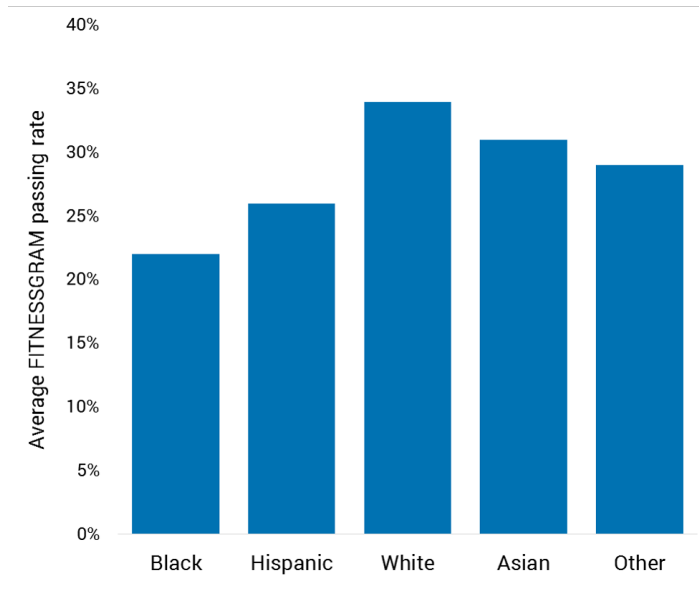
Figure 3: Relationship between FITNESSGRAM passing rate and API score



Source: CDE, 2013-14; ACS 5-Year Community Survey, 2009-2013

FINDING #3. FITNESSGRAM passing rates differed noticeably among races. White students had the highest average passing rate of 34%, with Asian students next at 31%, far outpacing Hispanic and Black students at rates of 26% and 22%, respectively. Students identifying as Other had an average passing rate of 29%. For every one percent increase in Asian students taking the FITNESSGRAM in a district, the overall district passing rate decreased by 0.087% on average, holding all other variables constant. For every one percent increase in Hispanic students taking the FITNESSGRAM in a district, the overall district passing rate decreased by 0.067% on average, holding all other variables constant. Black students had the poorest performance of all races, with a FITNESSGRAM passing rate of 10% or lower in nearly 400 school districts.

Figure 4: FITNESSGRAM passing rate by race for all school districts



Source: CDE, 2013-2014

FINDING #4. The CDE audit results do not have a significant relationship with FITNESSGRAM passing rates. During the years 2010-2015, 97 districts, or 73% of those audited, were found by the CDE to be in compliance with physical education requirements, while 27 districts, or 20% of those audited, were found to be non-compliant. Demographic analysis of these cohorts does not support expected relationships between FITNESSGRAM, race, income, and school performance. Regression analysis confirms that

noncompliance according to the CDE audits alone does not have a statistically significant relationship with FITNESSGRAM passing rates.

Table 2: Variables of Interest Across Compliant and Non-Compliant Districts

Variable	Compliant (n=97)	Non-Compliant (n=27)
FITNESSGRAM Passing Rate	26%	29%
API Score	755	766
FRPM	75%	71%
Hispanic	60%	61%
Student Enroll.	9,515	19,383

RECOMMENDATIONS

RECOMMENDATION #1: This study established likely positive relationships between pupil fitness and district academic performance, and likely negative relationships between pupil fitness, Hispanic students, and free/reduced price meal rates. Our research did not establish likely relationships between physical education audit results (compliance and non-compliance) and FITNESSGRAM passage rates. We recommend that analyses of student physical health focus on demographic and FITNESSGRAM data, which is available for all school districts. Audit information is available only for a small subset of districts, and the validity of the information obtained via the audit instrument is questionable.¹¹ Other information about non-compliance may be available, including school bell schedules, observational studies, and direct evidence from teachers, parents, and students.¹²

RECOMMENDATION #2: Using the indicators found to have a significant impact on FITNESSGRAM passing rates, nine schools districts in California with an elevated risk of poor student health were identified (see Table 3). These nine school districts all have below-average FITNESSGRAM passing rates, above-average at-risk demographic characteristics, and demonstrated PE non-compliance between 2010-2015. We recommend that future physical education advocacy efforts include these 9 school districts specifically.

RECOMMENDATION #3: The School Quality Improvement Index (SQII) will replace the API in ten California Office to Reform Education (CORE) districts in 2016. The SQII, which includes social health and emotional health indicators of students, does not currently include physical health indicators. As such, we recommend the inclusion of FITNESSGRAM results in the SQII.

Table 3: High Risk Non-Compliant CA Districts

	FITNESSGRAM passing rate: 6/6	FRPM	Hispanic	API
Bakersfield City Elementary	14%	86%	79%	733
Bassett Unified	12%	91%	94%	756
Coachella Valley Unified	24%	87%	97%	691
Fontana Unified	27%	85%	86%	757
Los Angeles Unified	24%	80%	76%	750
Lynwood Unified	24%	92%	94%	723
Montebello Unified	28%	86%	96%	726
Riverbank Unified	18%	83%	82%	726
Washington Unified	25%	65%	44%	701
CA mean	33%	57%	42%	801

¹ California State Board of Education. (1999). California State Board of Education Policy #99-03. Retrieved from www.cde.ca.gov/be/ms/po/policy99-03-june1999.asp.19

² California Department of Education. (2014). CalEd Facts, Physical Fitness Testing. Retrieved from www.cde.ca.gov/ta/tg/pf/cefpft.asp; California Department of Education. (2014). Physical fitness testing (PFT). Retrieved from www.cde.ca.gov/ta/tg/pf/

³ California Department of Education. (2014). State Schools Chief Tom Torlakson Releases Physical Fitness Test Results Showing California Students Becoming More Fit [Press release]. Retrieved from www.cde.ca.gov/nr/ne/yr14/yr14rel110.asp; California Department of Education. (2014a). Attachments for PFT Results. Retrieved from www.cde.ca.gov/nr/ne/yr14/yr14rel110att.asp#tab3

⁴ Sanchez-Vaznaugh, E. V., Sánchez, B. N., Rosas, L. G., Baek, J., & Egerter, S. (2012). Physical education policy compliance and children's physical fitness. *American Journal of Preventive Medicine*, 42(5): 452-459. Retrieved from www.sciencedirect.com/science/article/pii/S0749379712000529

⁵ Cawley, J., Meyerhoefer, C., & Newhouse, D. (2007). The correlation of youth physical activity with state policies. *Contemporary Economic Policy*, 25(4): 506-517; United States Department of Health (1996). *Physical activity and health: a report of the Surgeon General*. DIANE Publishing.

⁶ Hills, A.P., Andersen, L.B., & Byrne, N.M. (2011). Physical Activity and Obesity in Children. *Journal of Sports Medicine* 45(11): 866-70.

⁷ Pratt, C. A., Stevens, J., & Daniels, S. (2008). Childhood obesity prevention and treatment: recommendations for future research. *American Journal of Preventive Medicine*, 35(3): 249-252; Reilly, J. J., Methven, E., McDowell, Z. C., Hacking, B., Alexander, D., Stewart, L., & Kelnar, C. J. (2003). Health consequences of obesity. *Archives of disease in childhood*, 88(9), 748-752.

⁸ Nelson, M., & Gordon-Larson, P. (2006). Physical activity and sedentary behavior patterns are associated with selected adolescent health risk behaviors. *Pediatrics*, 117(4): 1281-1290.

⁹ Treuhaft, S., Karpyn, A. (2010). *The Grocery Gap: Who Has Access to Healthy Food and Why It Matters*. PolicyLink. Retrieved from www.thefoodtrust.org/uploads/media_items/grocerygap.original.pdf

¹⁰ Blanck, H.M., Allen, D., Bashir, Z., Gordon, N., Goodman, A., Merriam, D., & Rutt, C. (2012). Let's Go to the Park Today: The Role of Parks in Obesity Prevention and Improving the Public's Health. *Childhood Obesity* 8(5): 426-431.

¹¹ California Department of Education. (n.d.) Compliance Monitoring. Retrieved from <http://www.cde.ca.gov/ta/cr/>; Sanchez-Vaznaugh, E. V., Sánchez, B. N., Rosas, L. G., Baek, J., & Egerter, S. (2012). Physical education policy compliance and children's physical fitness. *American Journal of Preventive Medicine*, 42(5): 452-459. Retrieved from www.sciencedirect.com/science/article/pii/S0749379712000529; Kohl III, H. W., & Cook, H. D. (Eds.). (2013). *Educating the student body: Taking physical activity and physical education to school*. National Academies Press.

¹² Cal200. (2014). Make a difference. Retrieved from <http://cal200.org/californias-kids-deserve-healthy-bodies-healthy-minds/>; Thompson, H.R., Linchey, J., & Madsen, K.A., (2011). Are physical education policies working? A snapshot from San Francisco, 2011. *Preventing Chronic Disease*, 2013. Retrieved from http://www.cdc.gov/pcd/issues/2013/13_0108.htm