

# San Francisco Unified School District PE Study Final Report

## Executive Summary

### Rationale

While it has long been known that physical activity is an important part of a healthy lifestyle, recent evidence highlights the importance of physical activity in promoting academic performance and improving classroom behavior.<sup>1</sup> Physical Education (PE) in schools is one place that students from all backgrounds have an opportunity to participate in quality physical activities led by an adult. California law mandates that elementary students receive 200 minutes of scheduled PE every 10 days and that middle and high school students receive 400 minutes of scheduled PE every 10 days. In addition, the national recommendation is for students to spend 50% of PE class time in health-enhancing moderate to vigorous physical activity (MVPA).<sup>2</sup> Despite the importance of PE for youth, it has been shown that schools frequently do not meet the mandated minutes or achieve sufficient time in MVPA, with elementary schools being farther from these goals than middle and high schools.<sup>3</sup>

The San Francisco Unified School District (SFUSD), Shape Up San Francisco, and the University of California San Francisco (UCSF) partnered during the 2010-11 school year, to assess PE in SFUSD. The overarching goal of the collaboration was to provide data to a broad audience on the state of PE in a large urban district that likely represents conditions in other urban districts, and to provide data directly to SFUSD on the current strengths and challenges of its PE program. The study had two primary aims:

- 1) To evaluate the current state of physical education in SFUSD.
- 2) To identify factors associated with a greater quantity of high quality PE.

### Evaluation Overview

Twenty-eight schools participated in this study, including 20 randomly selected elementary schools (10 selected from those with a District-hired PE specialist and 10 selected from those without), 4 middle schools, and 4 high schools. Middle and high schools were selected to be representative of the range of student performance seen on the FITNESSGRAM aerobic capacity test. Study data, which were collected from 5<sup>th</sup>, 7<sup>th</sup> and 9<sup>th</sup> grade students and teachers between February and May of 2011, consisted of:

- PE class observations
- School PE facility inventories
- Student surveys
- Teacher interviews
- Principal interviews
- PTA President surveys

### Major Outcomes

All 8 middle and high schools in this study met the mandated 400 minutes of scheduled PE every 10 days. Yet, on average, PE classes at middle and high schools lost an average of 53 minutes of PE class time per week (106 minutes every 10 days) to before- and after-class transition times, such as changing clothes and locker room procedures.

Only 4 elementary schools (20%) met the mandated 200 minutes of scheduled PE every 10 days. On average, elementary students had 2.2 days (75 minutes) of PE scheduled per week, equivalent to 150 scheduled minutes of PE every 10 days. However, elementary students on average received only 114 minutes of PE every 10 days because classes did not always occur as scheduled.

Across all school types, during observation of PE lessons, students spent 54% of class time in MVPA, which exceeds the national recommendation. When looking at the average percent of *total class time* spent in MVPA,

which includes changing time as well as lesson time, classes spent an average of 45% of class time in MVPA. Unfortunately, MVPA levels differed significantly by gender, with boys spending a greater amount of total class time in MVPA than girls. While boys across school types were more active in free play, girls in high school were more active than boys in yoga and dance. Elementary schools with PE specialists were the only schools in which boys did not spend a statistically significant greater percent of total class time in MVPA.

A key purpose of PE is to promote students' skills and knowledge, in order to improve their enjoyment of and self-efficacy for physical activity throughout life.<sup>4</sup> Overall, elementary students spent only 12.5% of class time in skill development. Students in PE specialist schools spent significantly more time in skills (21%) than students at non-specialist schools (3%). Students in middle and high schools spent only 9% and 4% of class time in skill development, respectively.

Interviews with 51 teachers and 28 school principals suggested that common barriers to quality PE include:

#### ELEMENTARY SCHOOLS

- Not enough time in the school day
- Lack of a PE specialist, and low priority for PE
- Poor or limited indoor facilities

#### MIDDLE AND HIGH SCHOOLS

- Large class sizes
- Limited district support or low priority for PE
- Student behavior

The number one recommendation to improve PE from elementary teachers and principals was to “hire a full-time PE teacher.” At the middle school level, teachers suggested, “improving facilities” and “improving student respect for PE.” Middle school principals offered a variety of suggestions, including “more professional development for teachers,” “smaller class sizes,” and “more collaboration between teachers.” At the high school level, the number one improvement recommended by both teachers and principals was “reduce class sizes.”

No differences existed in number of PE facilities between specialist and non-specialist elementary schools. Only 1 elementary school in the study had a gymnasium and 1 had an outdoor grass field. Elementary school teachers commonly cited inadequate indoor space as a barrier to PE. Middle schools had sufficient outdoor blacktop space, but no grass fields. High schools had access to less blacktop space than middle schools, but had at least one field with grass or turf that was used for PE. Accommodating all PE classes when it rained served as a barrier across all school types.

### **Summary**

Based on these findings, UCSF has four primary recommendations for improving PE in SFUSD:

1. Elementary schools should schedule PE to meet state mandates of 200 minutes every 2 weeks.
2. Elementary schools should adhere to PE schedules in order to increase minutes of PE.
3. Middle and high school PE teachers should include activities like dance and fitness videos, which get girls moving.
4. Teachers at all levels should follow California's Model Content Standards<sup>5</sup> to deliver age-appropriate skills during PE.
5. Reformat SFUSD PE curriculum to make it more relevant and user-friendly.

***\* All data in this report pertain to 5<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup> grade PE classes, teachers, and students.***

***\*\*Findings presented in this report are statistically significant ( $p < 0.05$ ) unless stated otherwise.***

## Table of Contents

Executive Summary .....	1
Table of Contents .....	3
Study School Demographic Data .....	4
PE Observations .....	5
Physical Activity Data .....	6
PE Facilities Data .....	15
Student Survey Data .....	17
Teacher Interview Data .....	18
Principal Data .....	23
PTA President Data .....	24
Summary and Recommendations .....	25
References .....	26

## Study School Demographic Data

Demographic data on SFUSD study schools were obtained from the California Department of Education for the 2009-10 school year.

### Study School Demographic Information, 2009-10 school year

	% of students who qualified for free or reduced price meals	% of students in the Healthy Fitness Zone for aerobic capacity	% of students who are non-White ethnicity	2010 base API score	Total school enrollment
<b>Specialist Elementary Schools</b>					
School E1	28.4	96.7	92.2	947	550
School E2	84.3	19.4	99.6	627	255
School E3	51.7	72.2	85.4	882	513
School E4	69.7	76.7	87.8	835	228
School E5	60.4	76.5	89.5	811	260
School E6	48.4	75.0	69.2	802	182
School E7	70.4	16.2	96.9	655	419
School E8	32.3	55.6	80.7	883	585
School E9	70.6	88.2	94.4	825	214
School E10	49.8	27.5	78.3	768	315
<b>Average</b>	<b>56.6</b>	<b>60.4</b>	<b>87.4</b>	<b>801</b>	<b>352</b>
<b>Non-Specialist Elementary Schools</b>					
School E11	40.3	94.9	83.0	923	528
School E12	44.4	72.7	73.3	836	504
School E13	54.7	96.8	82.7	776	375
School E14	15.7	38.6	69.5	944	566
School E15	69.6	41.9	85.8	718	204
School E16	70.6	41.2	98.6	855	639
School E17	59.9	37.7	87.4	765	364
School E18	76.0	85.0	97.3	804	441
School E19	84.8	100.0	97.3	901	263
School E20	80.2	42.4	98.5	677	268
<b>Average</b>	<b>59.6</b>	<b>65.1</b>	<b>87.3</b>	<b>820</b>	<b>415</b>
<b>Middle Schools</b>					
School M1	74.7	1.6	94.2	607	379
School M2	64.4	48.5	88.9	726	593
School M3	78.1	75.4	95.5	806	904
School M4	44.7	88.6	83.0	871	1187
<b>Average</b>	<b>65.5</b>	<b>53.5</b>	<b>90.4</b>	<b>753</b>	<b>766</b>
<b>High Schools</b>					
School H1	58.0	56.0	98.6	676	820
School H2	35.6	94.5	85.4	955	2593
School H3	59.7	59.2	99.0	601	838
School H4	58.4	29.4	92.4	627	880
<b>Average</b>	<b>52.9</b>	<b>59.8</b>	<b>93.9</b>	<b>715</b>	<b>1283</b>

## PE Observations

Researchers collected data during PE class through structured observations using SOFIT (System for Observing Fitness Instruction Time). SOFIT, which has been validated against accelerometers, involves randomly selecting 4 students from each PE class and recording their activity level every 20 seconds using SOFIT’s protocol: 1=lying down; 2=sitting; 3=standing; 4=walking; and 5=vigorous. Activity at levels 4 and 5 is considered moderate to vigorous physical activity (MVPA), which is the health-enhancing level of physical activity. Per SOFIT protocol, PE class observations began when 50% of students had entered the PE area and lasted until the end of class.

For each elementary school PE observation, UCSF researchers observed: (1) a 5<sup>th</sup> grade classroom teacher (randomly selected if more than one); and (2) a non-classroom PE leader (district-provided PE Specialist, school-hired PE teacher, or Playworks Coach). For middle and high school PE observations, UCSF researchers observed up to 3 PE specialists teaching 7<sup>th</sup> or 9<sup>th</sup> grade at each school. Researchers received spring PE schedules for all classes selected for observation. In order to observe PE as it typically happens, whenever possible, rather than scheduling observation days ahead of time, researchers showed up to observe PE classes without prior notification to teachers. Occasionally, it was necessary to schedule PE observations, either because classes did not have a set PE schedule or because PE was scheduled infrequently.

### Number of teachers participating by teacher type

Teacher Type	Total Number of Teachers	Total Observations Scheduled	Total Observations Completed
Elementary PE Specialists	8*	30	27
Elementary Classroom Teachers	14	42	42
Elementary PE Consultant	4	12	11
Elementary Playworks Coaches	4	12	11
Middle School PE Specialists	12	36	36
High School PE Specialists	9	27	27

\* 10 schools had PE specialists; 2 specialists were observed at 2 different schools.

**Frequent barriers** to observing PE classes as planned included:

- Inclement weather;
- Fitness testing; and
- STAR testing.

## Physical Activity Data

Overall, elementary 5<sup>th</sup> grade students had 2.2 days (75 minutes) of PE scheduled weekly. Only 4 elementary schools in this study (20%) met the mandated 200 minutes of scheduled PE every 10 days, 3 of which were PE specialist schools. On average, elementary schools with PE specialists had 2.3 days (79 minutes) of PE scheduled per week, while schools without PE specialists had 2.1 days (72 minutes). This difference was not statistically significant. Schools with PE specialists had more PE class cancellations (no-shows). The no-show rate for elementary schools without PE specialists may be artificially low because non-specialist schools were less likely to have set PE schedules, so UCSF had to schedule more observations at these schools than at the specialist schools (14 versus 3 scheduled observations, respectively). Overall, elementary students only received a predicted 57 minutes of PE per week; students lost an average of 19 minutes of PE per week due to classes not occurring as scheduled.

### Average Scheduled 5<sup>th</sup> Grade Elementary PE per week during spring 2011

	Scheduled days of PE <sup>A</sup> per week	Scheduled minutes of PE <sup>B</sup> per week	No-show rate <sup>C</sup>	Predicted minutes of PE per week
<b>Specialist Schools</b>				
School E1*	3 – 4	123	63%	46
School E2	1	45	25%	34
School E3*	2 - 3	72	33%	48
School E4	3	120	25%	90
School E5	3	85	25%	64
School E6	2	105	33%	70
School E7	2 – 3	79	25%	59
School E8	1	30	25%	23
School E9	1	35	0%	35
School E10	3	95	33%	64
<b>Specialist Average</b>	<b>2.25</b>	<b>79</b>	<b>29%</b>	<b>56</b>
<b>Non-Specialist Schools</b>				
School E11	3	83	0%	83
School E12*	1 – 3	53	25%	40
School E13	1	35	25%	26
School E14*	2	68	40%	41
School E15	5	175	25%	131
School E16*	2	73	25%	55
School E17*	0 - 1	15	0%	15
School E18*	1 – 2	78	33%	52
School E19*	2	85	0%	85
School E20*	1 – 2	52	20%	42
<b>Non-Specialist Average</b>	<b>2.10</b>	<b>72</b>	<b>19%</b>	<b>58</b>

<sup>A</sup> Days and scheduled minutes varied within school by classroom teacher. Numbers presented are averages across all classrooms.

<sup>B</sup> One specialist and two non-specialist schools had additional non-PE physical activity (dance, drumming, capoeira) scheduled weekly that is not included in this table.

<sup>C</sup> No-shows were when UCSF went to do an observation and the PE class did not happen as scheduled. These do not include classes that did not happen due to Fitness testing, STAR testing, or inclement weather, or observations that were rescheduled with the observer beforehand. Recurrent reasons for no-shows included: school events (field trips, assemblies, walk-a-thons, class pictures etc.), outside (non-PE) programs coming in to work with students, teacher absences, and District PE professional development days.

\* Had to schedule at least one observation at this school, ahead of time, because the teacher either did not have a set PE schedule or because UCSF wanted to get at least 2 observations done and scheduling was the only way to complete observations.

Unlike middle and high schools, elementary schools do not have discrete periods of the day designated by a bell schedule. Therefore, schedules are more flexible and other subjects may cut into time scheduled for PE. The following table describes the number of minutes for which PE classes were *scheduled* versus the number of minutes for which PE *actually occurred*, on average, in elementary schools. (Because there is no changing time or locker room procedures in elementary schools, we designated the number of minutes of PE *observed* as the number of actual minutes spent in PE.) Overall, actual minutes of PE were 86% of scheduled minutes. The actual length of PE class was closest to the scheduled length in classes led by PE Specialists.

**Average minutes of scheduled vs. observed PE in 5<sup>th</sup> grade classes in elementary schools**

	Scheduled length Mean [range] mins	Actual length Mean [range]	Difference (Scheduled minus Actual)
PE specialist	35 [25 to 45]	33 [10 to 43]	2 [-11 to 20]
PE consultant	39 [30 to 55]	34 [22 to 54]	5 [-2 to 10]
Classroom teacher	37 [30 to 55]	30 [12 to 50]	7 [-6 to 21]
Playworks	36 [30 to 45]	30 [24 to 42]	6 [2 to 16]
<b>All teachers</b>	<b>36 [25 to 55]</b>	<b>31 [10 to 54]</b>	<b>5 [-11 to 21]</b>

All middle and high schools in this study met the California state policy of 400 minutes of PE scheduled every 10 days in the 7<sup>th</sup> and 9<sup>th</sup> grades. 7<sup>th</sup> and 9<sup>th</sup> grade PE occurred when scheduled in middle and high schools, with the exception of 1 7<sup>th</sup> grade no-show during the study due to a class field trip.

**Average Scheduled 7<sup>th</sup> grade (Middle) and 9<sup>th</sup> grade (High) PE per week during spring 2011**

	Scheduled days of PE per week	Scheduled minutes of PE per week	No-show rate <sup>A</sup>	Predicted minutes of PE per week
<b>Middle Schools</b>				
School M1	4.5	225	0%	225
School M2	4.75	242	0%	242
School M3	5	240	10%	216
School M4	5	240	0%	240
<b>Middle School Average</b>	<b>4.8</b>	<b>237</b>	<b>2.5%</b>	<b>231</b>
<b>High Schools</b>				
School H1	4	235	0%	235
School H2	5	225	0%	225
School H3	4	240	0%	240
School H4	3	237	0%	237
<b>High School Average</b>	<b>4</b>	<b>234</b>	<b>0%</b>	<b>234</b>

<sup>A</sup> No-shows were when UCSF went to do an observation and the PE class did not happen as scheduled. These do not include classes that did not happen due to Fitness testing, STAR testing, or inclement weather, or observations that were rescheduled with the observer beforehand.

Across all school types, 5<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup> grade students exceeded the national recommendation that students spend at least 50% of PE class time in MVPA (54% of class time in MVPA, across all school types). When looking at the average estimated percent of *total class time* in MVPA (i.e. the length of time for which a class was officially scheduled), classes did not quite meet the 50% recommendation, but they came close (45% of class time in MVPA, across all school types).

### Average percent of 5<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup> grade class time in MVPA, by school type

	Estimated % of total* class time in MVPA [range]	% of observed** class time in MVPA [range]
All Elementary	47% [17% -72%]	53% [22%-81%]
Specialist Schools	49% [20%-71%]	55% [22%-80%]
Non-Specialist Schools	44% [17%-72%]	53% [25%-81%]
Middle	41% [20%-63%]	51% [27%-76%]
High	47% [1%-81%]	56% [1%-80%]
<b>All Schools</b>	<b>45% [1%-81%]</b>	<b>54% [1%-81%]</b>

\* Total class time: length of time for which class was officially scheduled.

\*\* Observed class time: length of time for which researchers observed PE class. Observation began when 50% of students had arrived at the PE area.

While students across school types received an adequate amount of MVPA during PE class, significant differences existed in the amount of MVPA received by gender. In general, boys spent a greater percent of total class time in MVPA than girls. Elementary schools with PE specialists were the only schools where this disparity did not exist (both girls and boys spent 49% of total class time in MVPA.)

### Average percent of 5<sup>th</sup>, 7<sup>th</sup>, and 9<sup>th</sup> grade class time in MVPA, by school type and gender

	Estimated % of total* class time in MVPA [range]	% of observed** class time in MVPA [range]	Estimated % of total* class time in MVPA [range]	% of observed** class time in MVPA [range]
	BOYS		GIRLS	
All Elementary	48% [20%-90%]	56% [22%-97%]	45% [11%-85%]	52% [13%-92%]
Specialist Schools	49% [21%-79%]	55% [22%-75%]	49% [11%-85%]	56% [13%-92%]
Non-Specialist Schools	48% [20%-90%]	57% [25%-97%]	41% [11%-76%]	49% [16%-86%]
Middle	44% [21%-69%]	56% [28%-92%]	37% [14%-62%]	47% [17%-85%]
High	52% [0%-100%]	63% [0%-88%]	41% [1%-76%]	49% [1%-75%]
<b>All Schools</b>	<b>48% [0%-100%]</b>	<b>57% [0-97%]</b>	<b>42% [1%-84%]</b>	<b>51 [1%-92%]</b>

\* Total class time: length of time for which class was officially scheduled.

\*\* Observed class time: length of time for which researchers observed PE class. Observation began when 50% of students had arrived at the PE area.

Boys in classes led by someone trained in PE (either PE specialists or PE consultants) spent a greater percentage of observed class time in MVPA than did boys in classes led by classroom teachers or Playworks coaches.

### Average percent of observed\* 5<sup>th</sup> grade class time in MVPA in elementary schools, by teacher type and gender

	All students Mean [range]	Boys Mean [range]	Girls Mean [range]
PE specialist	55% [22%-80%]	57% [32%-75%]	53% [13%-92%]
PE consultant	59% [29%-81%]	63% [30%-98%]	56% [24%-86%]
Classroom teacher	54% [24%-79%]	54% [22%-83%]	53% [26%-85%]
Playworks	50% [25%-72%]	56% [31%-79%]	44% [17%-76%]

\* Observed class time: length of time for which researchers observed the PE class. Observation began when 50% of students had arrived at the PE area.

### Teacher-level and school demographic predictors of MVPA

We looked at several of the possible teacher-level and school-level predictors of student MVPA, including teachers':

- Number of years teaching PE;
- Feeling prepared to teach PE;
- Enjoyment of teaching PE; and
- Personal enjoyment of being physically active.



We also looked at school demographic data from the 2009-10 school year, including:

- % of students who qualified for free or reduced price lunch;
- % of students in the Healthy Fitness Zone for aerobic capacity;
- % non-White students
- 2009 base API score and 2010 growth API score; and
- School enrollment.

None of these teacher- or school-level variables predicted the time in MVPA, which makes it difficult to identify factors on which to intervene to improve time spent in MVPA. However, some studies have shown that schools with fewer resources have less or lower quality PE<sup>3</sup>, and it is heartening to know that school-level differences do not predict quality of PE in SFUSD.

No significant differences existed between specialist and non-specialist elementary schools in the average scheduled minutes or average observed minutes, the average estimated percent of total class time or observed class time in MVPA, or the average number of minutes of MVPA per class.

**Average total minutes and observed minutes of 5<sup>th</sup> grade PE in elementary schools during the study**

	Total class time	Estimated % of total class time in MVPA	Observed class time	% of observed class time in MVPA	# of minutes of MVPA per class
<b>Specialist Schools</b>					
School E1	35	42%	30	51%	15
School E2	45	39%	38	47%	18
School E3	29	50%	30	50%	14
School E4	38	58%	36	61%	22
School E5	45	46%	42	48%	20
School E6	35	52%	34	54%	18
School E7	33	50%	27	61%	16
School E8	30	64%	35	55%	19
School E9	35	48%	30	56%	17
School E10	31	43%	22	63%	13
<b>Specialist Average</b>	<b>36</b>	<b>49%</b>	<b>32</b>	<b>55%</b>	<b>17</b>
<b>Non-Specialist Schools</b>					
School E11	30	61%	28	67%	18
School E12	44	35%	35	44%	16
School E13	35	35%	28	45%	12
School E14	33	54%	29	62%	18
School E15	35	39%	25	54%	14
School E16	32	46%	28	51%	14
School E17	37	36%	31	41%	13
School E18	44	40%	32	54%	17
School E19	47	36%	42	43%	16
School E20	36	51%	30	62%	18
<b>Non-Specialist Average</b>	<b>37</b>	<b>44%</b>	<b>31</b>	<b>53%</b>	<b>16</b>

While all middle and high schools in the study achieved the state-mandated 400 minutes of PE scheduled every 10 days for 7<sup>th</sup> and 9<sup>th</sup> graders, on average, PE classes at these schools lost 12 minutes per class period to transition times, such as changing clothes and locker room procedures. In middle schools, classes were scheduled for an average of 50 minutes, but actual instruction/participation time lasted only 38 minutes. In high schools, classes were scheduled for an average of 62 minutes, but actual instruction/participation time lasted only 50 minutes.

**Average total minutes and observed minutes of PE in middle and high schools during the study**

	Total class time	Estimated % of total class time in MVPA	Observed class time	% of observed class time in MVPA	Number of minutes of MVPA per class
<b>Middle Schools</b>					
School M1	50	46%	41	56%	23
School M2	50	37%	37	51%	19
School M3	50	40%	40	49%	20
School M4	50	39%	41	48%	20
<b>Middle Average</b>	<b>50</b>	<b>41%</b>	<b>40</b>	<b>51%</b>	<b>20</b>
<b>High Schools</b>					
School H1	63	46%	52	55%	30
School H2	44	47%	37	56%	21
School H3	62	52%	52	61%	32
School H4	79	30%	67	38%	28
<b>High Average</b>	<b>62</b>	<b>47%</b>	<b>52</b>	<b>56%</b>	<b>28</b>

A key purpose of PE is to promote students' skills and knowledge, in order to improve their enjoyment of and self-efficacy for physical activity throughout life. Basic movement skills, like those developed in PE, form the foundation of almost all later sporting and physical activities. Research shows that youth who have developed a strong foundation in movement skills are more likely to be active, both during childhood and later in life.<sup>4</sup> Overall, elementary students spent only 12.5% of class time in skill development. Students in specialist schools spent more time in skills than students at non-specialist schools. Students in middle and high schools spent only 9.1% and 4%, respectively, in skill development. Middle school students spent almost 60% of PE class time in either behavior management or free play. High school students spent approximately 60% of PE class time in fitness or free play. Cutting down on behavior management and transition time, across school types, and increasing skill time could be effective ways to improve PE.

**Average percent of observed 5<sup>th</sup>, 7<sup>th</sup> and 9<sup>th</sup> grade class spent in context type\*, by school type**

	Fitness (calisthenics, running, warm-up/cool-down)	Knowledge (equipment use, game rules, etc.)	Skills (throwing/catching, dribbling, drills etc.)	Games (volleyball, basketball, tag, etc.)	Management (transition, behavior management)	Other (freeplay, waiting for class to begin)
<b>All Elementary</b>	15.3	13.4	12.5	27.7	27.5	3.6
<b>Specialist Schools</b>	14.6	14.7	20.7	19.0	27.8	3.3
<b>Non-Specialist Schools</b>	16.1	11.8	3.0	40.0	27.2	3.9
<b>Middle</b>	13.1	7.7	9.1	12.4	31.1	26.6
<b>High</b>	32.9	3.7	4.0	12.6	18.5	28.3
<b>All Schools</b>	<b>18.9</b>	<b>9.7</b>	<b>9.7</b>	<b>20.3</b>	<b>26.3</b>	<b>15.3</b>

PE Specialists provide more support for students' skills than do other teachers leading PE.

**Average percent of observed 5<sup>th</sup> grade class spent in context type\* in elementary schools, by teacher type**

	<b>Fitness</b> (calisthenics, running, warm-up/cool-down)	<b>Knowledge</b> (equipment use, game rules , etc.)	<b>Skills</b> (drills, learning dance steps, dribbling, etc.)	<b>Games</b> (volleyball, basketball, tag, etc.)	<b>Management</b> (transition, behavioral management)	<b>Other</b> (activities not led by an adult)
<b>PE specialist</b>	14.0	16.2	21.8	19.8	27.0	1.2
<b>PE consultant</b>	13.9	10.0	6.3	33.2	33.6	3.0
<b>Classroom teacher</b>	18.5	10.7	11.1	27.7	26.2	5.8
<b>Playworks</b>	8.1	20.0	0.0	43.1	26.9	1.8

**Activity Level by Activity Type.** The tables on the following pages show student activity levels during various types of activity. SOFIT activity codes are: 1=lying down; 2=sitting; 3=standing; 4=walking; and 5=vigorous. Activity levels coded 4 and 5 are considered MVPA .

UCSF observed 5th grade students participating in more than 50 different activities during PE classes. Similar to what's been seen in national studies<sup>6</sup> boys were more active than girls in almost all activities, particularly during free play and wrestling. Additionally, girls were more active than boys during frisbee and lacrosse and students were equally active during T-ball and Steal the Bacon.

**Elementary school (5<sup>th</sup> grade) activities observed, with activity levels overall and by gender**

Activity Type	Activity Level	Activity Level: Females	Activity Level: Males
Discussion/roll call/ writing	2.00	2.00	2.00
Breathing exercises	2.33	2.43	2.25
Q&A	2.78	2.88	2.65
Stacking cups	2.82	3.33	2.63
Demonstration	2.82	2.74	2.93
Waiting for class to start	2.92	2.97	2.89
Jai alai	3.17	2.87	3.53
Running drill	3.17	4.00	3.00
Behavior management	3.31	3.15	3.47
Stretching	3.34	3.44	3.27
Kickball	3.38	3.38	3.39
Transition	3.43	3.43	3.43
Gymnastics	3.45	-	3.45
Yoga	3.46	3.12	3.74
Whiffle ball	3.48	3.43	3.54
T-ball	3.51	3.50	3.52
Soccer	3.53	3.48	3.59
Fitness stations	3.54	3.71	3.30
Track and Field	3.56	3.50	3.65
Steal the bacon	3.58	3.55	3.61
Frisbee	3.61	3.67	3.33
4 square	3.63	3.43	3.75
Golf	3.64	3.66	3.63
Free play	3.68	3.17	4.15
Throwing/catching	3.75	3.67	3.87
Baseball	3.78	3.63	3.92
Dodgeball	3.81	3.71	3.88
Juggling	3.81	3.76	3.85
Tag	3.84	3.79	3.89
Parachute	3.84	3.90	3.80
Basketball	3.86	3.80	3.91
Capture the flag	3.86	3.90	3.80
Four square	3.87	3.91	3.83
Volleyball	3.87	3.78	3.99
Wrestling	3.88	3.60	4.33
Relay races	3.89	3.89	3.88
Hockey	3.98	3.96	4.00
Walking	4.00	4.00	4.00
Castle ball	4.03	3.85	4.32
Lacrosse	4.08	4.21	3.97
Calisthenics	4.08	4.07	4.10
Running laps	4.20	4.10	4.28
Clean your room	4.20	4.28	4.10
Total	3.54	3.50	3.57

UCSF observed 7th grade students participating in more than 30 different activities during PE classes. Similar to what's been seen in national studies, boys were more active than girls in almost all activities, particularly during free play. UCSF did not observe a single 7<sup>th</sup> grade PE activity in which girls were more active than boys. *Yet, when students were doing running activities, like laps or the PACER, girls and boys had equal activity levels.*

**Middle school (7<sup>th</sup> grade) activities observed, with activity levels overall and by gender**

Activity Type	Activity Level	Activity Level: Females	Activity Level: Males
Homework	2.00	2.00	2.00
Q&A	2.00	2.00	2.00
Steal the bacon	2.00	-	2.00
Sitting out	2.11	2.00	2.23
Roll call	2.24	2.35	2.14
Demonstration	2.28	2.37	2.19
Teacher talking	2.52	2.49	2.55
Behavior management	2.60	2.58	2.67
Waiting for class to start	2.62	2.42	2.76
Bicycle riding	3.31	3.34	3.29
Stretching	3.32	3.35	3.26
Transition	3.34	3.28	3.40
Gymnastics	3.40	3.25	3.57
Relay races	3.41	3.33	3.47
Baseball	3.59	3.43	3.75
Free play	3.66	3.30	3.77
Whiffle ball	3.70	3.43	4.17
Rugby	3.81	3.62	4.08
Capture the flag	3.84	3.75	4.00
Badminton	3.85	3.85	-
Flag football	3.88	3.88	-
Hockey	3.88	3.86	3.90
Tennis	3.98	4.00	3.96
Tag	4.00	4.00	4.00
Walking	4.00	4.00	4.00
Weight room	4.05	3.95	4.15
Ping pong	4.06	3.88	4.13
Soccer	4.07	3.94	4.23
Calisthenics	4.11	4.02	4.20
Fitness stations	4.28	3.92	4.67
Other game	4.32	3.78	4.69
Throwing/catching	4.35	4.36	4.35
Running laps	4.38	4.25	4.54
Total	3.35	3.27	3.44

UCSF observed 9th grade students participating in more than 20 different activities during PE classes. Similar to what's been seen in national studies, boys were more active than girls in almost all activities. We found boys' MVPA was noticeably higher during free play and in the weight room. However, girls were more active than boys doing yoga and the fitness video "Insanity." Additionally, when students were doing running based activities (like running laps, running drills, or the PACER test), girls and boys had equal activity levels.

**Table: High school (9<sup>th</sup> grade) activities observed, with activity levels overall and by gender**

Activity Type	Activity Level	Activity Level: Females	Activity Level: Males
Writing in journals	1.82	1.68	2.00
Demonstration	2.10	2.00	2.14
Roll call	2.24	2.16	2.33
Behavior management	2.36	2.00	2.57
Teacher talking	2.65	2.49	2.81
Stretching	2.77	2.63	2.93
Relay races	2.86	2.63	3.05
Soccer	3.03	2.88	3.18
Kickball	3.17	3.33	3.00
Archery	3.25	3.15	3.36
Waiting for class to start	3.28	3.14	3.47
Weight room	3.39	3.25	3.50
Transition	3.45	3.28	3.66
Yoga	3.47	3.63	3.33
Free play	3.53	3.38	3.69
Basketball	3.65	-	3.65
Badminton	3.72	3.61	3.82
Walking	3.92	4.00	3.89
Throwing/catching	4.00	4.00	-
Calisthenics	4.03	3.95	4.11
Running laps	4.10	4.08	4.12
Fitness video	4.32	4.41	4.22
Running drill	4.42	4.44	4.39
Biking	4.63	4.62	4.65
Pacer test	4.77	4.75	4.79
<b>Total</b>	<b>3.51</b>	<b>3.40</b>	<b>3.63</b>

## PE Facilities Data

UCSF performed a visual survey of all PE facilities at each study school. No differences existed in facilities between specialist and non-specialist schools. Only 1 elementary school in the study, School E2, had a gymnasium. 75% of the elementary schools had some indoor space available for PE (classroom, cafeteria, auditorium, multi-purpose room), but most of these indoor facilities were not regularly available because their primary use was not for PE (i.e. lunch took place in the cafeteria for several periods at most schools, and thus was not available for PE during this time). Elementary school teachers commonly cited inadequate indoor space as a barrier to PE.

### Elementary School PE Facilities - Number of:

	Full basketball court-sized blacktops	Basketball hoops	Gyms	Multi-purpose rooms	Stationary playground equipment	Any indoor space available for PE?
<b>Specialist Elementary Schools</b>						
School E1	3	6	0	0	1	Yes
School E2	4	9	1	0	2	Yes
School E3	3	2	0	0	1	Yes
School E4	1.5	2	0	0	1	Yes
School E5	3.5	2	0	0	1	Yes
School E6	3	4	0	0	1	Yes
School E7	3	4	0	0	0	No
School E8	2	6	0	0	0	Yes
School E9	3	2	0	0	1	Yes
School E10	2.5	4	0	0	1	Yes
<b>Specialist Average</b>	<b>3</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>N/A</b>
<b>Non-Specialist Elementary Schools</b>						
School E11	2	2	0	0	1	Yes
School E12	3	4	0	1	1	No
School E13	2	2	0	0	1	Yes
School E14	3	8	0	0	1	Yes
School E15	2	2	0	0	1	No
School E16	3	2	0	0	1	No
School E17	5	6	0	0	1	Yes
School E18	4	2	0	0	2	Yes
School E19	1.5	0	0	0	2	Yes
School E20	2.5	2	0	0	1	Yes
<b>Non-Specialist Average</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>N/A</b>

Middle schools had ample outdoor blacktop space (equivalent to 9 full-sized basketball courts, on average). On average, middle schools had 2 gyms, but the gyms did not provide sufficient space to conduct PE with all classes during inclement weather. (At one school, for example, when it rained two classes shared the gym and the third class used the cafeteria or a classroom to do a writing activity). None of the middle schools had grass fields available on school grounds. One school, School M3, had access to an SF Parks and Rec grass field located next to the school. High schools had access to less blacktop space but more field space than middle schools. All high schools had at least one field with grass or turf that was used for PE. Accommodating all PE classes when it rained served as a barrier to PE at high schools, as well.

**Middle and High School PE Facilities - Number of:**

	Full basketball court-sized blacktops	Basketball hoops	Fields (soccer or football)	Tracks	Tennis courts	Volleyball courts	Dance Studios	Gyms	Weight Rooms
<b>Middle Schools</b>									
School M1	8	27	0	0	0	0	0	2	0
School M2	9	19	0	0	0	0	1	1	1
School M3	12	22	4	0	3	5	0	2	1
School M4	7	24	0	0	0	3	1	2	1
<b>Middle Average</b>	<b>9</b>	<b>23</b>	<b>1</b>	<b>0</b>	<b>1</b>	<b>2</b>	<b>.5</b>	<b>2</b>	<b>1</b>
<b>High Schools</b>									
School H1	3	22	1	1	4	0	1	1	2
School H2	4	26	3	1	10	3	1	1	1
School H3	1.5	16	1	1	0	0	0	1	1
School H4	1	23	1	0	0	0	0	2	1
<b>High Average</b>	<b>2</b>	<b>22</b>	<b>1.5</b>	<b>1</b>	<b>3.5</b>	<b>1</b>	<b>.5</b>	<b>1</b>	<b>1</b>



## Student Survey Data

A total of 2,806 students (1,056 5<sup>th</sup> graders, 871 7<sup>th</sup> graders, and 879 9<sup>th</sup> graders) filled out a student survey on their opinions about PE and physical activity during and after-school.

At the elementary school level, no differences existed in student survey responses between specialist and non-specialist schools. Elementary students reported liking PE more than middle and high school students. Middle and high school students reported exercising or moving after school for fewer minutes than did elementary students, but this difference was not statistically significant. No significant correlation existed between how much students reported exercising or moving around in PE and the amount of total class time or observed class time in MVPA.

### Select Student Survey Responses

	Elementary (5 <sup>th</sup> grade)			Middle (7 <sup>th</sup> grade)	High (9 <sup>th</sup> grade)
	Specialist	Non-Specialist	All		
How much do you like PE at your school? (0 = Not at all; 1 = Not very much; 2 = A little bit; 3 = A lot)	2.5	2.6	2.6	2.3	2.2
During PE class, how many minutes do you usually spend exercising or moving around? (0 = 0 -10 minutes; 1 = 10-20 minutes; 2 = 20-30 minutes; 3 = More than 30 minutes)	1.8	1.8	1.8	1.7	2.1
Participating in PE class helped to improve my physical skills (such as kicking, swinging, running, throwing, catching). (0 = Strongly disagree; 1 = Disagree; 2 = Agree; 3 = Strongly agree)	2.1	2.1	2.1	1.9	1.9
After-school, how many minutes do you usually spend exercising or moving around? (0 = 0 -10 minutes; 1 = 10-20 minutes; 2 = 20-30 minutes; 3 = More than 30 minutes)	1.9	1.8	1.9	1.5	1.6

## Teacher Interview Data

UCSF interviewed all teachers whose PE classes were observed: 30 elementary school teachers who teach 5<sup>th</sup> grade PE, 12 middle school PE specialists who teach 7<sup>th</sup> grade, and 9 high school PE specialists who teach 9<sup>th</sup> grade. All responses are on a 1 to 5 scale, with 1 being the lowest and 5 being the highest.

Elementary classroom teachers listed financial incentives, including salary step credit and payment for weekend attendance or conference fees, among their top motivators to participate in PE professional development. Overall, classroom teachers reported being *less motivated* to participate in PE professional development than PE specialists, PE consultants, and Playworks coaches.

### Elementary school teachers' response to: How influential would the following factors be in motivating you to participate in PE professional development?

	Classroom Teachers (n=14)	PE Specialists (n=8)	PE Consultants (n=4)	Playworks (n=4)
Salary step credit	3.9	4.6	4.3	4.8
Increased knowledge	3.9	4.9	4.5	5.0
Payment for weekend attendance	3.8	4.6	4.3	5.0
Payment or workshop or conference fees	3.8	4.6	4.3	4.5
Summer training stipend	3.7	3.6	2.3	4.8
Improvement in PE teaching	3.7	5.0	4.5	4.8
Release Time	3.6	3.2	4.3	3.8
Books or materials	3.0	4.1	5.0	4.5
Travel reimbursement	2.9	3.5	4.3	3.5
Academic credits	2.6	3.7	3.0	3.3
Certificates of training in personnel file	2.3	2.8	3.4	3.5
Tuition payment	2.0	4.7	4.3	4.8

Overall, middle school PE specialists reported greater motivation to participate in PE professional development than did high school PE specialists. Middle school PE specialists were most motivated by salary step credits, while high school PE specialists were most motivated by improvement in PE teaching and increased knowledge. Academic credits and certificates of training in personnel files would least motivate both middle and high school teachers.

**Middle and high school teachers' response to: How influential would the following factors be in motivating you to participate in PE professional development?**

	<b>Middle school PE specialists (n=12)</b>	<b>High school PE specialists (n=9)</b>
Salary step credit	5.0	3.1
Improvement in PE teaching	4.8	4.8
Payment for weekend attendance	4.7	3.0
Increased knowledge	4.5	4.8
Payment or workshop or conference fees	4.3	4.0
Summer training stipend	3.8	3.0
Tuition payment	3.8	3.1
Books or materials	3.7	4.0
Travel reimbursement	3.6	3.2
Release Time	3.5	2.6
Certificates of training in personnel file	3.3	2.0
Academic credits	3.0	1.8

Teachers in non-specialist elementary schools found the District to be significantly less supportive of PE than teachers in Specialist PE elementary, middle, or high schools. Elementary and high school teachers found other teachers to be most supportive, while middle school teachers found the administration to be most supportive.

**Average teachers' response to: How supportive of PE are these groups at your school?**

	<b>Elementary</b>			<b>Middle</b>	<b>High</b>
	Specialist*	Non-Specialist	All		
The administration	3.8	3.8	3.8	3.8	2.7
Other teachers	4.1	4.0	4.1	3.4	3.9
The District	3.3	2.1	2.7	3.4	3.2

\* The two specialists who were observed in 2 different study schools gave separate answers for each school.

Across all school types, top barriers to quality PE were:

- Low priority for PE, Limited District support for PE, and large class sizes

The smallest barriers were:

- Outdoor facilities and equipment and supplies.

In elementary schools, top barriers were:

- Time in the school day, and the number of PE specialists as top barriers to quality PE.

In middle schools, top barriers were:

- Large class sizes, limited District support for PE, and low priority for PE.

In high schools, top barriers were:

- Large class sizes, number of PE specialists, and low priority for PE.

**Average teachers' response to: How much are these factors a barrier to quality PE at your school?  
(Responses ranged from 1 - "not a barrier," to 5 - "an extreme barrier.")**

	Elementary			Middle	High
	Specialist*	Non-Specialist	All		
Indoor facilities	2.7	4.1	3.4	2.1	2.7
Outdoor facilities	1.9	2.0	2.0	2.3	1.4
Equipment and supplies	1.7	2.4	2.0	2.3	1.6
Financial Resources	2.1	3.2	2.6	2.2	1.8
Time in the school day	3.1	3.7	3.4	1.8	1.7
Number of PE specialists	3.5	3.1	3.3	2.3	3.4
Large class sizes	2.5	2.5	2.5	3.3	3.8
Low priority for PE	3.3	2.8	3.0	2.9	3.2
Limited District support for PE	2.7	3.8	3.2	2.9	2.8

\* The two specialists who were observed in 2 different study schools gave separate answers for each school.

During teacher interviews, when asked the open-ended question, **"What do you think is the greatest strength of the PE program at your school?"**

- Elementary teachers' most common responses were:
  - Having a PE Specialist or Consultant
- Middle school teachers' most common responses were:
  - PE teachers work well together and creativity/variety of PE lessons
- High school teachers' most common responses were:
  - Creativity/variety of PE lessons and PE specialists

When asked the open-ended question, **"What do you think is the biggest barrier to providing quality PE at your school?"**

- Elementary teachers' most common responses were:
  - Not enough time in the school day; facilities; and no full-time PE teacher
- Middle school teachers' most common responses were:
  - Facilities and student behavior
- High school teachers' most common responses were:
  - Prioritization of academics over PE and lack of support from administration and other teachers

When asked the open-ended question, **"What is the number one thing that could be done to improve PE at your school?"**

- Elementary teachers' most common response was, overwhelmingly:
  - Hire a full-time PE teacher
- Middle school teachers' most common responses were:
  - Reduce class sizes and improve facilities
- High school teachers' most common responses were:
  - Improve facilities; increase students' respect for PE; and more support from the administration

## Elementary PE Curriculum

All elementary PE specialists reported using the SFUSD curriculum. Two of the eight specialists said the curriculum was “dated” such that many of the lessons needed to be adapted for current use. Seven classroom teachers said they do not use any curriculum to teach PE, 4 use the District curriculum, and 3 use some other curriculum (SPARK, Fitness for Life, or self-written curriculum). One classroom teacher said, “There is a big binder from the district but it’s not user-friendly at all. Lessons are so far out there. Kids would never do it.”

## Middle and High PE Curriculum

The majority of the middle and high school PE teachers (18) said they do not use a curriculum when teaching PE. Six teachers said that they use parts of the SPARK curriculum or pull lessons from other curricula (including the District curriculum). Many middle and high school teachers preferred their own time-tested lessons and activities to following a specific curriculum. One middle school teacher said that their PE curriculum is “anything and everything that works. Huge combination of everything.”

## Elementary PE Best Practices

In interviews, teachers also described methods and systems that allowed them to teach PE successfully. Methods and quotes from elementary PE teachers include:

- **Classroom Teacher Team Teaching:** Three classroom teachers described combining classes as a way to improve PE delivery. Often one teacher could warm students up and the other could do equipment set up. This solved the problem of losing time to set-up and also increased accountability; teachers said that they were more likely to do PE if they had already scheduled it with another teacher.
  - “And then Tuesdays and Wednesdays, I pretty much lead, but the other’s teacher’s there with me... I’ll get them set up, she starts them on their warm-ups and stretches and then I’ll get the lesson ready... It’s very rare to be able to have PE with another teacher so you’re able to do that set-up. PE would not be half as good as it is this year if it weren’t for the other class, the other teacher. We have about 30 or 40 kids out there when we go together. It’s the biggest PE class. But it works because that teacher and I work together and we have a good system. Other than that I would say its pretty non-existent that you can have it flow like that.”
  - “Another teacher and I decided that a way to integrate our classes in a meaningful way was to do PE together. So we don’t have extensive meetings, but we do talk about lesson plans and we share students so we know what each other is doing. It is someone that I talk about PE with. And it’s been a very good model. ... This year a key reason I’ve actually done PE is because I partner with my partner. Someone else is dependent on me. If it were only my class, it would be a lot easier for me to just say, ‘Oh, we’re not doing PE today.’ But since I am in a relationship with someone else, we are more likely to stick to our schedule.”
- **PE workshops with classroom teachers:** As part of the PE specialist model, PE specialists give school-based workshops on PE activities that classroom teachers can lead with their students, as well as methods for setting up lessons. Two teachers talked about the benefit of workshops:
  - “I’ve gotten nothing but positive feedback from my workshops...I answer questions they have, like, ‘What should my kids do while I’m setting up?’ The teachers say that once they get into a routine – where they have set-up, warm-up and students know how to be active while I’m getting things ready – they know how to play tag games or other activities that don’t require equipment – then class is so much better.”

- **Student Participation in Lesson Planning:** One teacher had 5<sup>th</sup> grade students create their own PE lessons, which she used throughout the year. Students were very excited to participate in PE when they had helped contribute to lesson planning:
  - “I talk to children. They have great ideas. I do the 5th grade challenge every year where the kids have a make up a lesson. I’ve got some great games from that. Fantastic. They’ve got good ideas. You just have to listen to them.”
- **Building FITNESSGRAM into Lesson Plans:** One teacher described using FITNESSGRAM as a component of lesson plans and also as a way to build a school-culture around fitness and physical activity:
  - One that thing that helps motive them is the FITNESSGRAM. We used to only go to the park once a year. Now we go three to four times a year just to practice ... And there’s no pressure. It’s the best time because we use the concepts of being courteous on the track, running, pacing, all those things. We’ve had a sports day also, where the whole school goes to the park and we plan stations, activities ... It’s become a part of the school culture.”

### Middle and High School PE Best Practices

In interviews, teachers described methods and systems that allowed them to teach PE successfully. Methods and quotes from middle and high school PE teachers include:

- **Strong Collaboration Within PE Department:** Four teachers cited a strong working relationship within the PE department as a critical component of a successful PE program:
  - “The teachers. We coordinate really well. We’re really flexible. We’re always working on ways to help each other.”
  - “I think the cohesiveness of the department. The kids benefit from that because they see that all the PE teachers are on the same page, so the rules are all the same no matter whose class they’re in. Everyone has to dress properly in order to participate... all the teachers are [held accountable]. It makes a huge difference. You know, we have subs that come in from other schools and they say ‘You have no idea what PE looks like at other schools, in comparison with your department.’ And I feel like it’s greatly enlarged due to the fact that the men and women can work together. You can go to some run down schools that have maybe one really good PE teacher and all the others are not on the same page. I think that hurts the whole school.”
- **On-site Professional Development:** Two teachers from the same school independently described bringing professional development to the school site (or leaving the school, as a group) as a way to introduce and learn new PE activities.
  - “Once in a while for our department meeting we will go check out like Frisbee-golf at Golden Gate Park or check out a new game. We wanted to do archery, so we brought in someone to help teach archery. So we fit our own professional development into our schedule.”
- **School-wide Inter-class Sports Competitions:** One high school set up inter-class competitions to motivate the students to participate in PE.
  - “Students love the competition. That’s because we give the rewards. And we do interclass, interclass competition on the hour. We do the championship games.”

## Principal Data

UCSF interviewed all 28 principals in the study schools.

- 35% of elementary principals believe that PE is not given the same priority as academic subjects at their school; 40% believe it is given the same priority; and 25% responded that they did not know.
- 75% of middle and high school principals believe that PE is given the same priority as academic subjects at their school; 25% responded that they did not know.
- 85% of principals said their students like PE a lot.

Elementary school principals at schools with PE specialists find the District to be more supportive of PE than principals at elementary schools without PE specialists. At the middle school level, principals believe that the teachers and the school site council were the least supportive of PE. At the high school level, principals find the PTA to be the least supportive of PE.

**Average principals' response to: How supportive of PE are the following groups at your school, with 1 being "very unsupportive" and 5 being "very supportive."**

	Elementary			Middle	High
	Specialist	Non-Specialist	All		
The administration	4.6	4.6	4.6	4.5	5.0
The teachers	4.4	4.2	4.3	4.0	5.0
The school site council	4.6	4.3	4.5	4.0	4.3
The PTA	4.6	4.6	4.6	4.3	3.3
The District	4.1	3.0	3.6	4.5	4.3

Across all elementary schools, principals identified time in the school day and indoor facilities as the biggest barriers to PE. Overall, principals at non-specialist elementary schools reported greater PE barriers than principals at specialist schools. Middle school principals identified financial resources as the biggest barrier to quality PE, while high school principals identified large class sizes and the number of PE specialists as the biggest barriers.

**Average principals' response to: How much are the following factors a barrier to quality PE at your school, with 1 being "not a barrier" and 5 being "an extreme barrier."**

	Elementary			Middle	High
	Specialist	Non-Specialist	All		
Indoor facilities	3.5	3.8	3.7	2.0	2.0
Outdoor facilities	2.3	2.2	2.3	2.0	1.5
Equipment and supplies	1.2	1.6	1.4	1.5	2.0
Financial Resources	2.6	3.1	2.9	2.8	2.3
Time in the school day	3.7	3.9	3.8	1.0	1.3
Number of PE specialists	2.9	3.8	3.4	1.0	3.8
Large class sizes	1.9	1.6	1.8	1.0	4.0
Low priority for PE	2.5	3.2	2.9	1.8	2.5
Limited District support for PE	2.6	3.4	3.0	1.0	3.0

When asked the open-ended question, **"What is the number one thing that could be done to improve PE at your school?"**

- Elementary principals' most common response was:
  - Hire a full-time PE teacher
- Middle and High school principals' most common response was:
  - Reduce class sizes

## PTA President Data

These data are based on surveys of 26 of the 28 PTA Presidents in the study schools. PTA presidents at School H1 and School H3 did not fill out surveys.

- 100% of PTA presidents agree or strongly agree that PE is important to a child’s overall health.
- 96% of PTA presidents agree or strongly agree that PE is important to a child’s academic performance.
- 12% of PTA presidents believe that PE is given the same priority as other academic subjects at their school.
- 77% of PTA presidents believe that PE should have at least as much priority as other academic subjects at their school.

Across elementary and middle schools, PTA presidents rated the District as the least supportive of PE. High school PTA presidents rated the PTA as least supportive of PE.

**Average PTA President response to: How supportive of PE is X at your school, with 1 being “very unsupportive” and 5 being “very supportive.”**

	Elementary			Middle	High
	Specialist	Non-Specialist	All		
The administration	4.4	4.0	4.2	4.8	4.5
Other teachers	4.3	4.1	4.2	4.3	4.0
The school site council	4.1	3.9	4.0	4.3	4.0
The PTA	4.2	3.8	4.0	4.3	3.0
The District	3.3	2.4	2.9	3.8	4.0

PTA presidents at non-specialist schools viewed all of the above factors as greater barriers to quality PE than the PTA presidents at specialist schools. Specialist PTA presidents identified limited District support as the greatest barrier to quality PE. Non-specialist PTA presidents and middle school PTA presidents believed that financial resources served as the greatest barrier to PE. High school PTA presidents viewed outdoor facilities as the greatest barrier.

**Average PTA President response to” “How much is X a barrier to quality PE at your school, with 1 being “not a barrier” and 5 being “an extreme.”**

	Elementary			Middle	High
	Specialist	Non-Specialist	All		
Indoor facilities	3.4	4.0	3.8	1.5	3.0
Outdoor facilities	2.3	2.4	2.4	2.0	5.0
Equipment and supplies	2.4	2.6	2.5	2.5	3.0
Financial Resources	3.4	4.6	4.0	3.0	4.0
Time in the school day	3.1	3.9	3.6	1.3	1.0
Number of PE specialists	3.1	3.6	3.4	1.0	2.0
Large class sizes	2.4	2.7	2.6	1.7	3.0
Low priority for PE	1.4	2.6	2.0	1.0	1.5
Limited District support for PE	3.9	4.1	4.0	1.3	2.0



## Summary and Recommendations

In all 20 elementary schools, when PE occurred, 5<sup>th</sup> grade students engaged in a high amount of MVPA. However, elementary schools were far below the mandate for number of scheduled minutes of PE per week. It is very difficult for students to get the recommended health-enhancing 60 minutes of MVPA per day without sufficient time for PE scheduled in the school day.

- **Recommendation 1: Elementary schools should schedule PE to meet state mandates of 200 minutes every 2 weeks.** While only 4 of the 20 schools met the mandate, those 4 schools can serve as case studies for how to make this happen.

About 25% of scheduled PE classes in elementary school did not occur, and the actual minutes of time spent in PE were 86% of scheduled minutes.

- **Recommendation 2: Elementary schools should adhere to PE schedules in order to increase minutes of PE.** Actual minutes of PE time were closest to scheduled minutes of PE in classes taught by PE Specialists, which might provide insight into how to promote adherence. An additional strategy is to have teachers team-up to teach PE, which may increase accountability and adherence to PE schedules.

Overall, 7<sup>th</sup> and 9<sup>th</sup> grade students engaged in MVPA close to 50% of total class time (41% and 47%, respectively). However, in both middle and high school classes, girls spent significantly less time in MVPA than boys. Data from high school observations and other studies suggest that fitness videos (like “Insanity”) and dance produce high activity levels among girls.<sup>7</sup>

- **Recommendation 3: Middle and high school PE teachers should include activities like dance and fitness videos, which get girls moving.** Pure aerobic activities, like running, are also “equalizers” when it comes to getting boys and girls to participate in MVPA.

Middle and high school 7<sup>th</sup> and 9<sup>th</sup> graders spent a small percent of class time learning and developing new PE skills. Teachers should focus on spending more class time in skill development, which has been show to improve students’ enjoyment of and confidence for physical activity throughout life.

- **Recommendation 4: Teachers at all levels should follow California’s Model Content Standards to deliver age-appropriate skills during PE.** The Model Content Standards<sup>5</sup> provide guidance on the skills that should be taught and reinforced at each grade level.

The majority of elementary classroom teachers did not use the SFUSD PE curriculum and PE specialists said the curriculum was not easy to use.

- **Recommendation 5: Reformat SFUSD PE curriculum to make it more relevant and user-friendly.** Research shows that PE programs using curricula designed to improve the quality of PE have a positive impact on student MVPA levels.<sup>8</sup> Based on the input of both classroom teachers and PE specialists, the SFUSD curriculum should be modified so that it is tailored to an urban setting (with limited indoor and outdoor space, with no fields) and is a shorter length so that teachers don’t find it overwhelming. It should include Model Content Standard-based activities with simple directions that are easy for teachers to pick up and implement.

Suggested citation: Thompson HR, Linchey JK, Madsen KA. San Francisco Unified School District PE Study Final Report. Funded by The California Obesity Prevention Program. UCSF Department of Pediatrics: San Francisco, CA, October 2011.

## References

1. Rasberry CN, Lee SM, Robin L, et al. The association between school-based physical activity, including physical education, and academic performance: a systematic review of the literature. *Prev Med* 2011;52 Suppl 1:S10-20.
2. Woodward-Lopez G, Diaz H, Cox L. Physical Education Research for Kids (PERK): A Study of the California Task Force on Youth and Workplace Wellness: Public Health Institute; 2010.
3. Failing Fitness: Physical activity and Physical Education in Schools. In: UCLA Center to Eliminate Health Disparities and Samuels & Associates. Los Angeles: Funded by The California Endowment.; 2007.
4. Bailey R. Physical education and sport in schools: A review of benefits and outcomes. *Journal of School Health* 2006;76:397-401.
5. California Department of Education. Physical education model content standards for California public schools: Kindergarten through grade twelve. 2005:1-65. Available at: <http://www.cde.ca.gov/be/st/ss/documents/pestandards.pdf>.
6. Trost S, Pate R, Sallis J, et al. Age and gender differences in objectively measured physical activity in youth. *Medicine & Science in Sports and Exercise* 2002;34.
7. Flores R. Dance for health: improving fitness in African American and Hispanic adolescents. *Public Health Reports* 1995;110:189-93.
8. US Department of Health and Human Services (Centers for Disease Control and Prevention). Strategies to improve the quality of physical education. National Center for Chronic Disease Prevention and Health Promotion, Division of Adolescent and School Health 2010:1-3. Accessed at: [http://www.cdc.gov/healthyyouth/physicalactivity/pdf/quality\\_pe.pdf](http://www.cdc.gov/healthyyouth/physicalactivity/pdf/quality_pe.pdf).