

Collecting MVPA Data with FITStep Pro Pedometers

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Professional Accountability

- ▣ The only outcome that all students can achieve regardless of their genetic limitations is physical activity.
- ▣ Our profession has not changed the fitness or skill levels of children over the last 60 years. In addition, U.S. children are more overweight than ever before.
- ▣ Physical activity is much easier to measure accurately than fitness.
- ▣ Focusing on physical activity promotes lifestyle change. More activity requires more time devoted to moving.

Make Physical Activity Your Accountability Measure

- ▣ Regular activity for youth increases the probability of an active adult lifestyle (Raitakari, et al., 1994; Telama, et al., 1997)
- ▣ All youth have the capability to increase their activity levels
- ▣ Activity helps those who need it most - unskilled and obese youth
- ▣ Recommended by CDC and the Institute of Medicine

Institute of Medicine Physical Activity Guidelines

- ▣ District and school administrators, teachers, and parents should advocate for and create a whole-of-school approach to physical activity that fosters and provides access in the school environment to at least 60 minutes per day of **vigorous or moderate-intensity physical activity** more than half (>50 percent) of which should be accomplished during regular school hours.

CDC Physical Activity Guidelines

- **Children and adolescents should do 60 minutes (1 hour) or more of physical activity daily.**
 - **Aerobic Activities:** Most of the 60 or more minutes per day should be either moderate- or vigorous-intensity aerobic physical activity. Include vigorous-intensity physical activity at least 3 days per week.
 - **Muscle-strengthening Activities:** Include muscle-strengthening physical activity on at least 3 days of the week, as part of the 60 or more minutes.
 - **Bone-strengthening Activities:** Include bone-strengthening physical activity on at least 3 days of the week, as part of the 60 or more minutes.
- Activities should be age-appropriate, enjoyable, and offer variety.


What is Moderate to Vigorous Physical Activity?

- In the 2008 Physical Activity Guidelines for Americans (USPAG) physical activity intensities are defined as, **light** <3.0 METs, **moderate** 3.0-5.9 METs, and **vigorous** ≥6.0 METs.

Moderate Activity 3.0 to 5.9 METs	Vigorous Activity >6.0 METs
Walking at a moderate or brisk pace (3 - 4.5 mph) Hiking Roller Skating Bicycling Weight Training Yoga	Race-walking (>5 mph) Jogging Walking briskly uphill Bicycling (>10 mph) Aerobic Dancing Calisthenics Most competitive sports

What Do I Need to Monitor MVPA?

- A set of pedometers
- 6 Data Readers
- A Laptop with software
- A USB hub
- A cart, table, or stage to arrange the docks for uploading
- Access to a printer to print your reports and Physical Activity Letter



Distribution and Storage



A-V Cart for Readers and Pedometers



Uploading Data



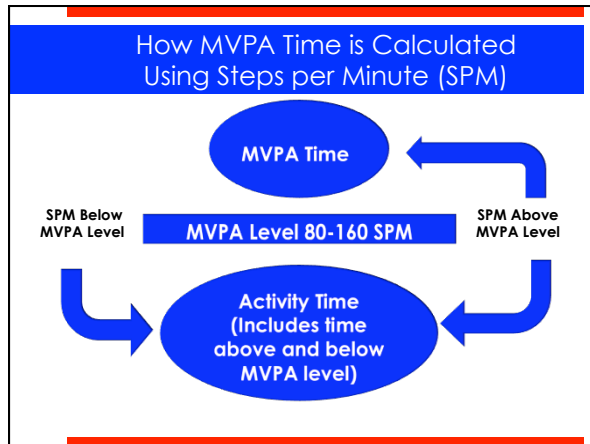
Accurate Measurement: Validity & Reliability

- ▣ Reliability is the consistency of a measure
- ▣ Validity is the extent to which a test measures what it claims to measure.
- ▣ For validity check: Walk & count 30 steps. Stop compare with the pedometer count. If within 10%, it is a valid measure
- ▣ For reliability check: Repeat the validity check a number of times. Same result – reliable measurement

FITstep Pro Pedometers

- ▣ Measure Steps, Activity Time & MVPA
- ▣ Steps is the least accurate measure due to stride length differences
- ▣ Activity Time accurate regardless of size of student
- ▣ MVPA is calculated using steps per minute (SPM). MVPA is identified as a brisk walk with arm movement.





Setting MVPA Level

- ▣ Define and show class how to move at an MVPA pace
- ▣ Walk at MVPA pace for 1 minute
- ▣ Open pedometer, round the number of steps down to the nearest tens group, i.e., 118 down to 110
- ▣ Go to MVPA screen on pedometer, hold down red button until flashing stops, enter MVPA level
- ▣ MVPA level will not clear – must be changed by repeating the steps above

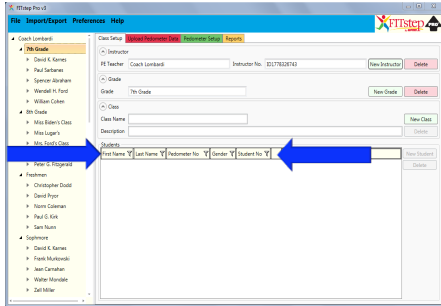
Setting an Accurate MVPA Level

- ▣ Have students walk alone
- ▣ Avoid using music as the rhythm will impact the speed of walking
- ▣ Warm up students for 3-5 minutes
- ▣ Repeat the one-minute walk 3 times and take the median score
- ▣ Periodically repeat the MVPA level check.

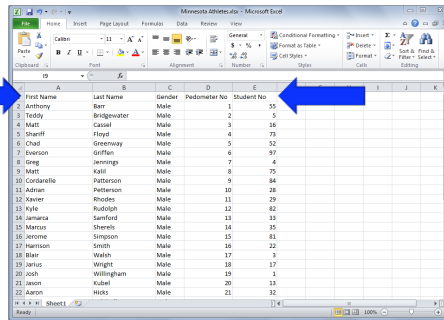
Checking Student MVPA Levels

- ▣ **Problem:** Activity time and MVPA time are similar
- ▣ **Solution:** The MVPA steps per minute level was set too low. Repeat the MVPA steps per minute level sequence described previously
- ▣ **Problem:** Student complains about not accumulating much MVPA time.
- ▣ **Solution:** The MVPA steps per minute level was set too high. Repeat the MVPA steps per minute level sequence described previously

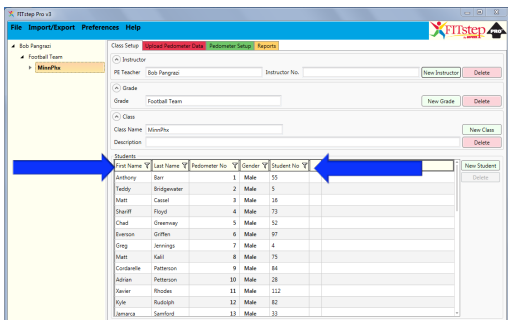
Typing in Your Class Roster



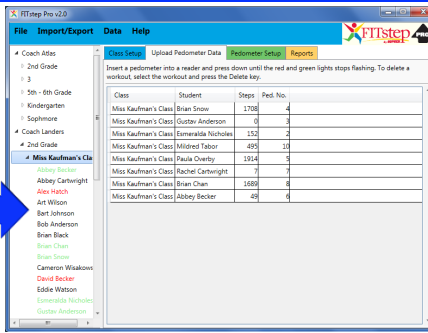
Importing a Class Roll Sheet



Class Setup after Importing Excel Spreadsheet



Upload Pedometer Data



Collecting Valid Data

- To get valid data, collect 4 days of activity for K-6 students and 8 days for 7-12 students
- Data doesn't have to be collected on consecutive days
- Record the data more than once during the day (checkpoints)
- Make sure students are using the most accurate placement for them
- Begin in PE classes, then school day, then 24 hr time period

Workouts Report - Grid View

Workouts Report - Printed View

Weekly Student Report - Grid View

Weekly Student Report - Printed

ReportViewer

Weekly Summary Report

PE Teacher: Coach Lombardi Class: David K. Karnes Grade: 7th Grade

Student	Week Of	Days	Steps	Avg Steps	Activity Time	Avg Activity	MVPA	Avg MVPA
Eddie	8/4/13	5	25,078	5,015	3:02:54	1:00:10	3:20:35	40.07
Eddie	8/11/13	5	29,942	4,788	4:47:18	57:27	3:11:31	38.18
Eddie	8/18/13	5	27,447	5,489	5:29:21	1:05:52	3:39:34	43.54
Eddie Totals	15	78,465	5,097	15:17:33	1:01:10	10:11:40	40.46	
Eric	8/4/13	5	24,864	4,973	4:58:21	59:40	3:18:52	39.46
Eric	8/11/13	5	30,103	6,021	6:01:35	1:12:19	4:01:02	48.12
Eric	8/18/13	5	21,158	4,232	4:13:53	50:46	2:46:15	35.51
Eric Totals	15	76,155	5,077	15:13:49	1:00:55	10:09:09	40.36	
Jennifer	8/4/13	5	25,864	5,173	5:10:21	1:02:04	3:26:54	41.22
Jennifer	8/11/13	5	23,381	4,676	4:48:13	58:02	3:06:48	37.21
Jennifer	8/18/13	5	24,126	4,825	4:49:29	57:53	3:12:59	39.35
Jennifer Totals	15	73,341	4,889	14:40:03	58:40	9:46:41	39.06	
Horton	8/4/13	5	28,163	5,633	5:37:56	1:07:35	3:45:10	45.03
Horton	8/11/13	5	28,762	5,752	5:45:08	1:09:01	3:50:05	45.01

Monthly Student Report - Grid View

ReportViewer

Monthly Summary Report

PE Teacher: Coach Lombardi Class: David K. Karnes Grade: 7th Grade

Student	Month	Days	Steps	Avg Steps	Activity Time	Avg Activity	MVPA	Avg MVPA
David K. Karnes	Aug-2013	20	112,968	5,649	22:35:50	1:07:47	16:00:50	45.11
David K. Karnes	Sep-2013	21	100,238	4,773	20:02:47	57:16	13:21:49	38.10
David K. Karnes	Oct-2013	3	16,201	5,400	3:15:08	1:05:00	2:50:04	43.21
David K. Karnes Totals	44	229,407	5,215	45:53:45	1:02:35	30:35:43	41.43	
Olivia	Aug-2013	20	106,870	5,344	21:22:21	1:04:07	14:14:50	42.44
Olivia	Sep-2013	21	95,895	4,565	19:10:21	54:46	12:40:53	36.31
Olivia	Oct-2013	3	19,437	6,478	3:53:15	1:17:45	2:35:29	51.89
Olivia Totals	44	222,172	5,049	44:25:57	1:00:35	29:37:12	40.23	
Paul	Aug-2013	20	99,456	4,973	19:53:23	59:40	13:51:31	39.46
Paul	Sep-2013	21	106,751	5,083	21:20:58	1:00:59	14:13:52	40.39
Paul	Oct-2013	3	13,069	4,356	2:30:40	52:36	1:44:32	34.50
Paul Totals	44	219,276	4,983	43:51:09	59:47	29:15:55	39.51	
Rochelle	Aug-2013	20	101,507	5,075	21:42:03	1:05:00	14:27:57	43.23
Rochelle	Sep-2013	21	101,032	4,811	20:12:19	57:43	13:28:10	38.29
Rochelle	Oct-2013	3	19,576	6,525	3:54:55	1:19:18	2:36:38	52.12

Monthly Student Report - Printed

ReportViewer

Monthly Summary Report

PE Teacher: Coach Lombardi Class: Peter G. Fitzgerald Grade: 8th Grade

Student	Month	Days	Steps	Avg Steps	Activity Time	Avg Activity	MVPA	Avg MVPA
Matthew	Aug-2013	20	112,968	5,649	22:35:50	1:07:47	16:00:50	45.11
Matthew	Sep-2013	21	100,238	4,773	20:02:47	57:16	13:21:49	38.10
Matthew	Oct-2013	3	16,201	5,400	3:15:08	1:05:00	2:50:04	43.21
Matthew Totals	44	229,407	5,215	45:53:45	1:02:35	30:35:43	41.43	
Olivia	Aug-2013	20	106,870	5,344	21:22:21	1:04:07	14:14:50	42.44
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Personal Report for Student

My Physical Activity Report

Our school collects physical activity (PA) data using pedometers. Pedometers accurately monitor the amount of activity students collect in three different settings. First, we collect activity data in physical education classes. When students are combing using the pedometers during physical education, they wear them throughout the school day. In the future, those students who demonstrate responsible care of the pedometers may be allowed to take the pedometer home to see how much activity they accumulate daily (24-hour period). Typically, four days of full-day data is gathered for elementary school students and eight days for secondary students. The days do not have to be consecutive as the time period during which the data is collected may be greater than 4 - 8 days.

Student: Demaria A Teacher: Core Grade: 9-12

Data Gathered: 1/12/2014 to 2/12/2014

Total MVPA Time: 2:29:47 Average Daily MVPA: 10:41
 Total Steps: 29,715 Average Daily Steps: 2,125
 Total Activity Time: 3:38:10 Average Daily Activity Time: 15:35
 Days Measured: 14

Steps: The number of steps accumulated during the time period listed above.

Activity Time: The total number of minutes accumulated regardless of how fast or intense the physical activity is.

MVPA: An acronym for Moderate to Vigorous Physical Activity that is defined by various educational agencies as a brisk walk at 3 to 4.5 miles per hour. Students receive more health benefits from MVPA.