



Children's Fitness

Using Pedometers in Elementary Physical Education

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Pedometers are quickly becoming a common and valuable tool for physical educators. These small devices offer a valid, reliable, and feasible method to assess children's step counts. Pedometers also provide teachers and students with immediate, concrete feedback about their physical activity levels (Pangrazi, Beighle, & Sidman, 2003). There are three primary uses of pedometers for physical educators: (a) to teach about physical activity, (b) to enhance instruction, and (c) to provide accountability. The remainder of this article will take a closer look at these areas and provide teachers with many practical ideas for using pedometers in physical education.

Using Pedometers to Teach About Physical Activity

When children are asked how active they are, they generally respond with a resounding, "I don't know," a blank stare, or an inaccurate estimate. Much of the confusion for children is due to the abstract nature of physical activity. In fact, recalling physical activity levels can be difficult for many adults. Pedometers offer a concrete and comprehensible measure of physical activity. Using pedometers during physical education, and outside of physical education when possible, lets students begin to think about their physical activity. Once children learn to think about physical activity and learn to measure it, they can learn to monitor and record their physical activity level, set personal physical activity goals, and develop individual interventions to reach those goals. Prior to allowing students to use pedometers, the teacher must briefly introduce pedometers to the class. See the figure below for a list of points to cover when introducing pedometers. Once pedometers have been introduced and an efficient system for retrieving and returning pedometers have been established, the following activities can be implemented. It should be noted that these activities are listed in order of difficulty of implementation.

Key points for pedometer introduction.

- Why is physical activity important? How do pedometers work?
- When will pedometers be worn?
- What are the rules when using pedometers?
- "You shake it, I take it."
- Step counts are private information. You don't have to tell anyone.
- Wearing a pedometer is a privilege.

Physical Education

- Allow children to wear pedometers during physical education and periodically check the number of steps taken. Expose children to estimation by allowing them to estimate the number of steps they will accumulate during a given activity (e.g., 10 minutes of softball, 1 minute of tag, the entire lesson).
- Have children record their step counts with the type of lesson for the day on index cards.
- Calculate the average number of steps taken over the course of several physical education lessons. This is called the "baseline" for steps during physical education. Baseline data can be calculated by the student or teacher. The teacher could also calculate the class average.
- Provide time for children to write one or two sentences pertaining to their physical activity levels (e.g., Why was your step count lower during gymnastics?).
- Teach children to set personal self-referenced goals based on their baseline data.

Outside of Physical Education

- Develop a check-out system to allow student to take pedometers home (coordinate with librarian to check out pedometers in the same manner as a book).
- Provide data sheets for students to record daily step counts for one week.
- Have members of the family wear the pedometer and record data.
- Implement a walk to school program and encourage students and parents to see how many steps they accumulate walking to school. Visit this website to find out more about the Centers for Disease Control's KidsWalk-to-School Program: <http://www.cdc.gov/nccdphp/dnpa/kidswalk/>
- Start physical activity clubs before school, after school, and at recess to allow students more opportunities to wear pedometers at school.
- Organize family activity nights at the school and allow participants to wear pedometers. During these events, provide families with ideas for being active together (e.g., walk the dog, do chores, have family activity night, go on family walks).
- Participate in the "Presidential Active Lifestyle Award" <http://fitness.gov/challenge.html>.
- Encourage classroom teachers to integrate pedometers into math, geography, computer, and/or science lessons.

The above list is a small list of the possible activities that can be used with pedometers. The beauty of pedometers is that all activities are pedometer activities. Pedometers simply offer a method to measure accumulated steps. By using pedometers during physical education, and ultimately outside of physical education, teachers can instruct students about their own physical activity and provide them with the skills and knowledge necessary to self-manage their physical activity levels for a lifetime.

Using Pedometers to Enhance Instruction

Quality physical education programs seek to promote lifestyle physical activity for students by maximizing student physical activity while maintaining quality, effective instruction. Therefore, quality instruction is a hallmark of a quality physical education program. One technique for evaluating and examining the effectiveness of instruction is to assess the physical activity levels of students during physical education. This can be accomplished by having students record their physical activity levels over the course of several physical education lessons to establish a baseline for the class (see above Physical Education ideas). It is not suggested that pedometers are the only way or the best way to assess instruction. Pedometers are simply one method of examining one variable (student activity time) associated with quality physical education. The following are a few variables that may influence the physical activity levels of students during physical education.

Instruction time. During instruction time students are not typically active. Thus, if instruction time (i.e., amount of time giving directions) is lengthy, the amount of time allotted for physical activity will decrease.

Management time. When possible, students should be managed actively. For example, rather than talking for 5 minutes about the importance of quick stops (freezing), teachers can move students and practice freezing. This alternative not only increases physical activity levels, but also allows children to practice management skills.

Type of activities. Some physical education lessons lend themselves to more activity than others. For example, a typical soccer lesson has much more activity than a typical softball lesson. However, if teachers notice that students accumulate significantly fewer steps during a specific lesson, the lesson can be modified to provide more activity. For example, rather than play traditional softball with a majority of the class sitting out, make modifications to the game to increase activity levels. Pangrazi (2001) offers numerous modified sport lead-up activities designed to increase student activity time.

Teacher activity. Active teachers tend to have active classes. Similarly, lethargic teachers tend to have less active classes. It is important for teachers to find a balance between being active with students, being safe, and maintaining quality instruction.

Using Pedometers to Provide Accountability

Today's teachers are being held to higher levels of accountability. In physical education, accountability can be demonstrated using various methods. One common objective of a quality physical education program is to promote lifelong

physical activity. That is to say, physical educators are charged with turning students on to physical activity. Logically, to use physical education as a vehicle to motivate children to enjoy movement, students must be active during physical education. Thus, one tool for demonstrating accountability is to show that, in fact, students are active.

During physical education, pedometers can be used to demonstrate that students are active and learning. From pilot work, we have discovered that students average approximately 1,500 steps during a 30-minute elementary physical education lesson with quality instruction. The national "daily" recommendation for children is 11,000 steps for girls and 13,000 steps for boys (President's Council on Physical Fitness & Sports, 2003). Therefore, in just 30 minutes of physical education, students can accumulate nearly 15% of the national recommendation. Demonstrating this to administrators can be a very powerful tool.

Beyond physical education, pedometers can be used to examine daily physical activity levels in an effort to promote physical activity outside of physical education. Many factors impact a child's physical activity level; however, assessing the physical activity levels of students will provide feedback to support physical education or useful information for program modification. For example, teachers can have students collect their baseline data for steps per day. After baseline data has been established, individual goal setting can be discussed and time allocated for students to set their own physical activity goals. This can be an effective approach to increasing physical activity levels and promoting physical activity. The following is a series of steps that will aid in examining the effectiveness of the program in promoting physical activity outside of school, especially for older elementary and middle school students.

1. Introduce pedometers and allow students to become familiar with them during physical education.
2. Develop a system to allow children to wear pedometers home. This method should include strategies to track pedometers and minimize pedometer loss.
3. Allow children to check pedometers out for 3-4 days, 6-8 for middle school students. Record pedometer steps each day and calculate an average for the days. This is the "baseline" data for daily steps.
4. Continue with the physical education curriculum.
5. After 2-3 months, repeat Step 3.
6. Examine the averages for increases. Be sure to account for variables such as weather when examining the data.

Pedometers provide many uses for physical education teachers. The ideas presented in this article are basic ideas that are constantly being expanded and modified. The increased popularity of pedometers has many teachers using and developing many innovative "pedometer" ideas. With these continued efforts, pedometers will become increasingly valuable for teachers to teach students about physical activity, improve instruction, demonstrate accountability, and ultimately promote lifestyle physical activity for all youth.

References

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