



Children's Fitness

Heart Rate Monitors Promote Physical Education for Children

by Jan Tipton and Allan N. Sander

National health and fitness data suggests that a significant percentage of children are not on a pathway to leading healthy, physically active lifestyles (National Center, 2003). Many children are leading sedentary lifestyles due to a lack of opportunity, success, or self-motivation in physical activity. Whatever the reason, it would appear that traditional, skill-focus, or even physical fitness programs in physical education are not inspiring a majority of parents to demand quality daily physical education. Moreover, parents are not inspiring principals to sustain the survival of such programs in the face of a challenging economy.

Programs that highlight the use of heart rate monitors offer a wonderful potential to counteract a lack of support. Cardiovascular fitness education programs in physical education that feature heart rate monitors promote individualized instruction and assessment, resulting in outstanding accountability. Data from heart rate monitors can be sent home on reports to increase communication between parents and physical education specialists. Moreover, physical educators may be alerted to potential health problems. The information is also a wonderful asset for prospective research on the effectiveness of physical education programming. Ultimately, a premier benefit from the use of heart rate monitors is that elementary physical education and classroom teachers can assist students in developing appropriate physical activity habits prior to middle school.

Benefits of Heart Rate Monitors

Being informed about heart rate monitors goes a long way toward strengthening beliefs in their benefits. Among many advantages, monitors assist children in learning aerobic pacing and target heart rate, staying in the zone, comparing the effects of varied physical activities on the heart, visualizing changes in intensity, and being excited about seeing their personal heart rate progress on charts and printouts. Monitors are of equal importance to teachers for enhancing instruction, increasing comprehension about healthy heart concepts, planning for safe progression, and establishing accurate data on programming and testing.

Launching the Alimacani Heart Rate Monitor Program

Alimacani Elementary School (Jacksonville, Florida) currently has a state of the art cardiovascular fitness facility for

children as a result of a collective effort by teachers, administration,

staff, parents, and the community. However, the idea for the project simply arose from a heart rate monitor session at a professional conference several years ago. The presentation greatly affected the lead author: Where had I been, and how could I not know about this technology? Then with both energy and hesitation, an exploratory effort was begun to create the Alimacani fitness lab. The principal offered her best wishes and a promise of an empty room for the lab assuming funding could be acquired.

Since only a small amount of equipment was purchased with school board funds, the necessary funding efforts actually came to fruition from a variety of sources. Perhaps the greatest motivation for the project occurred when a third grader brought in a donation of \$50 to initiate the funding drive. Then four old computers were acquired from the school district technology department. However, to expedite the number of potential sources, the summer was spent developing a proposal for distribution to over 30 area businesses. A classroom teacher even helped design a logo, stationary, and business cards to accompany the proposal. After anxious waiting and unsuccessful replies, money finally started to arrive. Novartis pharmaceuticals donated \$1000; the Professional Golf Association, \$5000; the PTA, \$2000; the Extended Day Program, \$10,000; and \$5000 from selling Jacksonville Jaguar Football posters. Coincidentally, a city councilman provided knowledge about a community grant opportunity with the Jacksonville Community Foundation, and as a result, \$11,000 was received, partially because it was promised that school families would have access to the lab. The largest amount, \$25,000, was acquired from the Florida Tobacco Grant. Of interest is that three other local elementary schools funded similar fitness labs entirely through this grant. Notably, the PEP Grant was not used at either school but would be natural source for funding in any school district. Don't be afraid of grants! There are experienced grant writers in almost every school district to assist teachers with writing grant applications.

The cardiovascular fitness education program actually began with 36 heart rate monitors/chest transmitters, four computers, and four interfaces with software in addition to four treadmills, ten stationary bicycles, 45 aerobic steps, and a set of 45 two pound hand weights in a large classroom. Now nearly all of the equipment items have doubled in number, and a larger area is now used which separates the



Students enjoy Alimacani's heart rate monitor program.

computer room from the exercise room. We've grown! Some might question why this type of equipment is necessary for elementary age children. Therefore, it is important to emphasize that the goal of the Alimacani program is to develop lifelong health-related habits. Further, it is fun to teach students



An exercise room is adjacent to the computer room.

how to use equipment properly, especially since exercising is often a family affair. Parents of students in the Extended Day program are also encouraged to workout with their children after school. In addition, the faculty and staff at Alimacani benefit from the free use of the facility before and after school. However, the foremost reward concerning the equipment is often derived from watching two children in physical education chatting and cycling side by side at the proper pace to keep their hearts beating in the target heart rate zone (THRZ). Similarly, it's also wonderful to watch motivated children work diligently on the outdoor track or with hand weights on aerobic steps (as in the photo below) simply to be in the zone. Alimacani's heart healthy children are now much more concerned about being in the THRZ than caring about the order in which they finish during distance runs.

The Heart Rate Monitor Instructional Program

The Alimacani heart rate monitor program is entitled Heart Health . . . Tomorrow's Wealth and has centered on grades four and five with modified involvement of grade three. Experience has shown that comprehension and motivation were not impacted as well in the primary grades. We have become more successful using heart rate monitors with a lot of trial and error. Teaching the concept of aerobic fitness and time in the THRZ has been developed through borrowing published ideas such as *Lessons From the Heart* (Kirkpatrick & Birnbaum, 1997) and strategies from the American Heart Association Heart Power Kit (1996), and also by creating our own lessons. Children can actually visualize their heart rate while working out in the varied physical activities in physical education. During the activities, they receive immediate feedback and make adjustments to their intensity level and duration on their own. As a result, students learn that independence and a physical activity routine are keys to lifelong fitness. Alimacani students have become so capable with the heart rate monitors, interfaces, and the

software in the computer lab, that it is obvious to us that elementary school is the appropriate starting place to develop aerobic knowledge and habits through technology. For example, students understand



Boys attach the transmitter in the exercise room.

that a consistent exercise program can make the heart stronger and reduce the number of beats per minute. They can explain that their heart rate will return to normal much quicker after exercise as the heart gets stronger. They readily can adjust their walking or jogging pace in order to be in the zone. Moreover, they comprehend that the heart is a pump that increases in strength and efficiency as healthy guidelines and choices are implemented. They can also make heart rate comparisons among different activities and find out the best activities for cardiovascular fitness.

The monitors are preprogrammed for age-related THRZ, and students are taught how to put on the transmitters (boys in the exercise room as seen in the photo above, girls in the computer room). The operation of the watch is learned in just a few lessons. This involves turning it on for a warm-up and pushing the red button just prior to aerobic activity and again at the end of the workout before cooling down. Then a few more steps are followed in the lab before interfacing the watch with the computer, using a pull-down menu and saving/printing a graph of the data. Among several printout choices, one graph shows the percent of time spent in the THRZ, which gives children a personal understanding of their success and their improvement needs for physical activity. Charts, graphs, and health-related testing sheets can be maintained in a student portfolio throughout the year.

You may be wondering if there is ever any time to

teach motor skills and other curriculum areas in physical education considering this fitness education program. Absolutely! However, it has become less important to us than teaching children how to live healthy lives. In effect, it would be rare for a 55-year-old executive to play one-on-one basketball for the purpose of beating a colleague as opposed to walking, jogging, or swimming to strengthen the heart. It is our belief that heart rate monitor programs in elementary schools are a great approach in helping to prevent health problems in America.



Staying in the target heart rate zone during activity is the students' focus.

Classroom Teacher Assistance for Physical Activity

Since elementary students are only engaged in regular physical education in the school district once every five to nine days for 30-45 minute sessions, the physical education specialist has gone to great lengths to influence classroom teachers to incorporate the following supplemental physical activity routine during recess time each day:

- ◆ Warm up—Student leaders or the classroom teacher lead class members in mild locomotion and static stretching for about three minutes.
- ◆ Aerobic time—Students choose among continuous activities performed at their own pace including walking/jogging on the track, versions of jump rope, a continuous basketball dribble, soccer dribble, and similar tasks. After initial sessions of two minutes, students eventually progress to eight minutes in the primary grades and to 10-12 minutes in the intermediate grades.
- ◆ Strength training—Students work for three minutes on modified pull ups, regular pull ups, a ladder climb, or climbing poles based on ability.
- ◆ Physical activity choice time—Having checked out available equipment from storage units in physical education at the beginning of recess, students are then allowed to participate in their chosen fun activity for 12-15 minutes (i.e., soccer, basketball, jump rope, tennis, volleyball, hoop use, and stilt walking).
- ◆ Cool down—Students spend up to five minutes walking slowly and stretching their muscles at the end of the recess.
- ◆ Hydration—Classroom teachers are reminded to provide ample water breaks for students before returning to the classroom after all physical activity episodes.

This team effort helps to achieve our goal of each student making an effort to work out on a daily basis at school.

Community Awareness

As a result of program growth and success, there has been significant publicity throughout the surrounding community. Barely a week goes by without a new person visiting the lab. There have also been representatives from hospitals, the YMCA, several physical trainers, and even the American Heart Association. They typically react with awe that children in elementary school can grasp cardiovascular concepts and be so empowered by a watch! One of the most rewarding comments is that we're teaching 100% of our students, including those who need it the most.

Alimacani also has a positive working relationship with the physical education program at the University of North Florida regarding field experiences for majors. These prospective teachers learn to feel comfortable with the program, have internship opportunities, and can be hired to work in the summer camp based on their knowledge of the program.

Conclusion

Although Alimacani's physical education program was believed to be quite effective before adding heart rate monitors,

it is not a coincidence that physical fitness scores have steadily risen since the onset of the Heart Health program. Children at Alimacani do not mirror the youth fitness problems that are publicized in America today. The team effort has not only enhanced the fitness levels, knowledge, and habits of children, it has promoted the attitude of the surrounding community toward physical activity and physical education. It truly appears that the Heart Health program is a better way to increase student motivation for pursuing lifelong fitness while also providing valuable information on physical education effectiveness. If this article has positively influenced you about heart rate monitors, remember the third grader with the \$50 check—start your program slowly and progress gradually each year.

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