



Redefining the Course of Obesity Prevention

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Commentary

More than 30 years ago after the escalation of obesity in the mid 1980's, this country continues to struggle with ways to reduce obesity and its associated co-morbidities. It was approximately 20 years ago that just under 5,000 PIMA Indian children were followed longitudinally and found to have premature death rates associated with obesity, hypertension, and glucose intolerance [1].

Since that time more information has emerged to show that low levels of cardiorespiratory fitness are independently associated with cardiovascular disease risk and cancer mortality [2,3]. In fact, evidence suggests that cardiorespiratory fitness is a more powerful predictor of health risk than bodyweight [4] and that the metabolic benefits of aerobic fitness are significant, independent of obesity levels [5,6]. No doubt the increase in computer technology, video games, and cell phones, have all contributed to the substantial drop in physical activity levels observed in this nation and globally.

Data from NHANES in 1999-2002 showed that 33.6% of adolescents and 13.9% of adults possess "low" cardio respiratory fitness levels which are associated with higher coronary risk factors including higher total cholesterol, higher systolic blood pressure, and lower cardio protective HDL cholesterol [7]. Low fitness levels in adolescents are more than twofold greater than in adults. Despite this knowledge, less than 10% of elementary, middle, and high schools provide daily physical education classes for an entire school year [8]. No doubt pressures to perform well in standardized testing combined with time constraints have moved physical education requirements to the back burner. Even after-school programs which can play a vital role in shaping children's physical fitness levels, have reported activity levels well below recommended values [9]. No doubt access to programs, facilities, and the necessary training of staff contribute to the shortfall in exercise participation in many afterschool programs.

The Centers for Disease Control recommends 60 min of daily moderate-intense physical activity for children concomitant with 2-3 days per week of muscle and bone strength training [10]. Based on substantial data, now is the time to bring physical activity and personal fitness to the forefront where math and reading requirements currently reside. Creating a culture of health and fitness more so than focusing on weight reduction and obesity may be the first big step in establishing healthy lifestyle behaviors. Furthermore, this change should be led by experts in the field of exercise physiology, preventative health, and medicine.

In the Reduce Obesity and Diabetes (ROAD) project [11] a multidimensional school-based intervention targeting knowledge, health behaviors, and physical activity was implemented in middle school children of primarily Hispanic descent. Results showed significant reductions in adiposity, insulin resistance, and circulating levels of pro-inflammatory markers such as C-reactive protein and IL-6 as a result of the program. In the Translational Health in Nutrition and Kinesiology (THINK) program [12,13], investigators combined health-related education with hands-on clinical experiences reinforced by structured free-play to create a culture of health and fitness in a YMCA-based afterschool program. Results in predominately Hispanic and Black 8-11 years old children showed improvements in adiposity, physical fitness measures, and cognitive function as a result of their program. Advanced motor skill acquisition is strategic to the development of different components of physical fitness including agility, speed, coordination, balance, strength, and aerobic fitness. Evidence now suggests that physical fitness may also be associated with greater attention and memory in elementary school children [14]. Brain health and cognitive function plays a pivotal role in shaping healthy behaviors and intelligent decision-making in both children and adolescents [15].

Multidimensional programs combining health-related education and structured free-play supervised by experts in the field may be critical for establishing an environment conducive to improving physical fitness and health in our nation's youth. Although such efforts take considerable

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time, money, and infrastructural support to implement, more energy should be spent on the prevention side of health promotion/disease prevention rather than treating obesity and its associated co-morbidities after the fact. Creating a culture of health and fitness in both public, private, and afterschool sectors should no longer be relegated to the back burner and given low priority when it comes to our nation's youth. Since this represents a critical time of significant mental and physical growth in which lifestyle behaviors and characteristics are most amenable to change [16], preventative efforts should be initiated early on to derive maximal health benefits.

It's time to pool our efforts nationwide to support those programs that enlighten, engage, and empower today's youth to adopt positive lifestyle behaviors. The best way to do this is to create a culture of health and fitness using multidimensional programs that combine education, clinical experiences, and physical activity.

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