Physical Activity: Essential Component in Primary and Secondary Curricula for Lifelong Health

Maril McCord
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PHYSICAL ACTIVITY: ESSENTIAL COMPONENT IN PRIMARY AND SECONDARY CURRICULA FOR LIFELONG HEALTH

by

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Bachelor of Science in Physical Therapy
University of North Dakota, 1999

An Independent Study
Submitted to the Graduate Faculty of the Department of Physical Therapy School of Medicine
University of North Dakota
in partial fulfillment of the requirements for the degree of Master of Physical Therapy

Grand Forks, North Dakota
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This Independent Study, submitted by Maril McCord in partial fulfillment of the requirements for the Degree of Master of Physical Therapy from the University of North Dakota, has been read by the Faculty Preceptor, Advisor, and Chairperson of Physical Therapy under whom the work has been done and is hereby approved.

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Title       Physical Activity: Essential Component in Primary and Secondary Curricula for Lifelong Health

Department  Physical Therapy

Degree      Master of Physical Therapy

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Date  December 16, 1999
# TABLE OF CONTENTS

LIST OF TABLES ........................................................................... v

ACKNOWLEDGMENT ........................................................................ vi

ABSTRACT ....................................................................................... vii

CHAPTER

I INTRODUCTION ................................................................. 1

II PHYSICAL ACTIVITY IN THE ELEMENTARY YEARS ........ 5

III PHYSICAL ACTIVITY IN THE ADOLESCENT YEARS ...... 14

IV THE YOUNG ADULT ........................................................... 25

V PHYSICAL ACTIVITY AND THE COMMUNITY .................. 32

VI CALL TO ACTION ............................................................... 41

   Learning .................................................................................. 42

   Assessment .............................................................................. 49

   Shared Responsibility .............................................................. 53

VII CONCLUSION ......................................................................... 57

APPENDIX A: Healthy People 2000 Objectives Pertaining to Physical Activity .......................... 60

APPENDIX B: Recommendations for School and Community Programs Promoting Physical Activity Among Young People .... 65

REFERENCES .............................................................................. 69
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Changes in Mean Values for Demographic and Physical Fitness Parameters</td>
<td>20</td>
</tr>
<tr>
<td>2.</td>
<td>Trends Related to Physical Activity and Fitness</td>
<td>50</td>
</tr>
<tr>
<td>3.</td>
<td>Continued Trends Related to Physical Activity and Fitness</td>
<td>51</td>
</tr>
</tbody>
</table>
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ABSTRACT

Chronic disease, preventable illness and injury, and growing trends of sedentary behaviors have currently been associated with the American population. It is estimated that 70% of all deaths in America are attributable to chronic disease of a preventable nature. Childhood disease has declined only to be replaced by new waves of social, environmental, and behavioral factors which manifest as health risks. At least 68 million Americans suffer from some form of heart disease while nearly 60% of adults lead sedentary lifestyles. The challenge in the nation is to counter these trends by implementation of policy and programs for healthier habits and lifestyles.

This literature review will identify physical activity as an essential component for improvement in the health, fitness, and well-being of the American population. The research will blend principles of learning, behavior patterns, and physical activity practices at various developmental and social stages with regard to health. The education of individuals in primary and secondary education will be explored as an immediate, easily-implemented, and cost effective avenue for improvement. Positive health practices formulated in youth will be examined with regard to carryover in adulthood and the effects on adult health. The goal is to create greater awareness and initiate action toward improved health habits of American citizens. The information may be used in
initiatives by individuals, families, communities, and public health agencies to promote programs which prepare individuals for a lifetime of physical activity and improved health throughout the American lifestyle and life span.
CHAPTER I
INTRODUCTION

"The health problems facing us today . . . are concerned with individual human behaviors and lifestyles rather than with massive problems of environmental health and infectious disease."\(^1\)

Department of Health and Social Security

The United States Government targets good health as a major goal for its citizenry in the 21\(^{st}\) century.\(^2\) The document *Healthy People 2000: National Health Promotion and Disease Prevention Objectives* provides 298 objectives as a guide towards this goal. Throughout the population and throughout the stages of a human lifespan, good health is promoted as desirable, valuable, and attainable. Yet chronic disease and preventable illness plague our population. It has been estimated that approximately 70% of all deaths in the United States are attributable to chronic disease and another 5% are due to preventable injury.\(^3\) The four leading causes of mortality and the annual death figures are alarming.\(^4\)

- Heart Disease: 726,974
- Cancer: 539,577
There are many factors such as genetics, pathology, accidental injury, and personal habits that contribute to overall health and wellness. Personal choices regarding nutrition, substance use, and physical activity greatly impact the health status of an individual. The focal point of this review is to support the aspect of physical activity as a key component in the health of an individual and the health status of the nation as a whole. A critical strategy to promote physical activity is to employ education and practice of healthy activities in all strata of society. By understanding, adopting, and practicing key concepts of health and fitness as understood by the scientists of this decade, the way will be paved for the country to become the healthy nation heralded as an American goal.²

The scope of education embodies a multitude of concepts, theories, and practices. Much has been learned this century regarding child development and processes of learning. It is generally accepted that the childhood years are most beneficial in acquiring certain knowledge and behaviors that have direct carry-over to lifelong behaviors and preferences.⁵ Prioritizing physical activity as an integral part of childhood education will set the stage for carry-over to healthy lifestyle choices in adulthood. This lifelong training has no better place to begin but in the formative years. Youth then experience the health benefits of physical activity as well as a greater potential for retention of those positive health habits into their adulthood. Those positive health habits then filter to the next generation and are spread and supported through the fabric of the community.
Blair et al\(^6\) present a conceptual model which supports the link between early health habits and adult health habits. This model is depicted below.

![Conceptual Model]

Childhood Exercise \:
Childhood Health

Adult Exercise \:
Adult Health


The Blair et al\(^6\) model indicates several benefits. Childhood exercise has an immediate and favorable impact on childhood health. This, in itself, is positive for the child, family, and community and establishes a more positive platform for daily learning in the home and school settings. Yet it is the longer term benefit which is imperative to the national goal: a healthier population of citizens, of youth and adult alike. Efforts to re-educate adults towards healthier lifestyle choices will deliver only a portion of the health results compared to the benefits seen in a population of individuals who already practice good health habits. By providing facilities and programs which educate early and then support the continuation of healthy lifestyle habits of adults, the health of the population will improve.

Sallis and McKenzie\(^7\) report that one of the goals of public health regarding physical education is specifically to prepare children for a lifetime of regular physical activity. They support ordered, skilled steps in age-appropriate
health education to initiate the trend towards health habits in lifestyles of every age. Though no one strategy alone can carry the success of an improvement in the American health status, good physical activity and practices achieved in the primary and adolescent years will have a sizable impact on the present and future populations. Physical activity, then, can be considered a critical component not only in the curricula of the school system, but in the framework of our society as well.

This review provides support for the provision of regular physical activity and quality health education in the primary and secondary educational levels. A brief examination of the effects of good health habits in the elementary and adolescent years, in the young adult stage, and in the community demonstrates the far-reaching benefits of physical activity and physical activity education. The hope is to encourage the action and support the strategies to employ physical activity in the elementary and secondary school as the most direct, cost-effective, and healthy manner to successfully reach our nation's goal of healthy citizens emerging into the 21st century.
CHAPTER II

PHYSICAL ACTIVITY IN THE ELEMENTARY YEARS

"Children are our most valuable natural resource."

Herbert Hoover

"Our children are currently on a fast track to becoming unhealthy adults."\(^{(p3)}\)

Kenneth Cooper

This chapter examines the health status of children in America. Many factors such as declines in school health requirements, a decrease in physical activity participation, an increase in passive entertainment, and an increase in fast food consumption have contributed to poor health habits in our youth. The challenge of executing change in this generation is imperative.

Nicholas A. DiNubile, M.D., Special Advisor, President's Council of Physical Fitness and Sports, cited the following data in his speech at a health conference in 1993.\(^{9}\)

- 36% of primary and secondary schools offer daily physical education.
- Only one state, Illinois, mandates daily physical education in grades K-12.
• Less than 50% of time in physical education class is spent in physical activity or education which actively develops lifelong physical well-being.

• On an average, children are only active in quality physical education activities in only 25% of the physical education classes offered for youth.

• Less than 50% of the children are involved in physical activity which promotes long-term health protection.

• 30-50% of children are below acceptable cardiovascular standards.

• 50% of females and 30% of male youth are not able to run a 10-minute mile with similar sub-standard results in jogging, sit-up, and toe-touch tests.

• 15-25% of the children, approximately 11 million youth, are considered obese.

Indeed, children in the United States are fatter, slower, weaker, and quickly opting for more sedentary lifestyles than at any other era in history. It will take substantial efforts from school, family, business, and community to address and turn this tide of decline in youth health. National objectives are in print, government programs are in operation, and community institutions are actively addressing the situation. But it is the actual daily, well-planned, quality instruction, instillation of values, and practice that will constitute the real change. This must be forthcoming from schools, families, and legislation while targeting the children at an early age.
By implementing such programs, the health of the children will improve and, equally as important, the health of the children as adults will be positively affected. It must be understood that the early health education gains are exponential: the individual as a child is healthier, the individual as an adult is healthier, the ill or obese or health-impeded child is less likely to occur, and the ill or obese or health-impeded adult is less likely to occur. In general, the healthier child is known to perform better academically than the child in poor health. For a healthy individual, there are other associated benefits such as a decrease in drug use, teen pregnancy, high school drop-out rate, and violence. It is clear that this relationship between health and education is bi-directional with gains in learning and gains in physical growth. Through the ages we have heard the motto, "a sound mind in a sound body" and recognize the advantages of health in each aspect of the individual - mental and physical - while yielding an even greater benefit in unison.

A change which has occurred in recent history must be understood to appreciate the subtle nature of our youth's situation. Childhood diseases such as polio, diphtheria, whooping cough, measles, pneumonia, and scarlet fever are either nearly eliminated or in drastic decline. Now, a new wave of social, environmental, and behavioral factors have become our youth's major health risks. Unintentional injuries are the leading cause of death in childhood and yet are preventable. Automobile accidents, substance abuse, violence, child abuse, and sedentary lifestyles are the plague of our new generations. Not only are at least 20% of American children significantly overweight, but the foods that are
advertised for youth eateries are increasingly more fatty, fast foods. Leisure time activity often is dictated by the television set with youth watching on an average up to three to four hours daily. The schools contribute to the overall health risk by failing to offer daily, quality physical activity and health education.

Haynes surveys the evolution of schooling, recognizing that schools' purposes in the past were to guide students in specific trades and jobs dictated by the needs of society. Over time, schools have evolved to embrace a new approach to meet the developmental needs of the whole child and prepare him/her for general, good adjustment and success in life. To reach this new, more global goal, Comer advances a theory of education of multiple pathways for children to unfold in their growth and learning. He identifies such pathways as physical, language, ethical, social, psychological, and cognitive. The physical pathway includes good nutrition, access to health and dental education and services, and quality physical education and activities. One critical element in the implementation of these concepts is to offer quality physical activity in the curriculum throughout the span of school years. The President's Council on Physical Fitness and Sports maintains that regular physical activity is as important as reading, writing, and arithmetic.

In the overall picture, promotion of physical activity in the childhood years will promote physical activity outside of school direction and foster the development of lifelong habits in an active vein. Healthy People 2000 Objective 1.9 states: "Increase to at least 50 percent the proportion of school physical education class time that students spend being physically active,"
preferably engaged in lifetime physical activities. (Baseline: Students spent an estimated 27 percent of class time being physically active in 1983.)

Quality physical education classes must promote activities including moderate-to-vigorous physical activity (MVPA) as well as structure class time so students actively participate for the majority of the class period. Simons-Morten et al demonstrate that in a sampling of middle schools, the average time spent at MVPA was 16.1% of the class period. In a random sampling of elementary schools, an average of 8.6% of class time was actually devoted to MVPA. These correlate with other low figures observed in research data. Allotment for instruction, administration tasks, and waiting consumed the remaining class time. Inferior physical education classes for youth will not provide the necessary improvements upon the physical activity and health issues of our youth.

Naturally, in order to change the architecture and outcome of any class, one should investigate the existing factors of the class. Assessment of the physical activity class which offers such a low ratio of actual MVPA to class time may indicate causes such as low student motivation, poor teaching practices or skill, or lack of support in administration, resources, or training. Physical education objectives will also vary according to instructors' personal or administrative goals. An instructor's primary focus can range from physical fitness to motor ability to self-esteem enhancement to disease prevention. This diversity raises questions about national goals, level of instruction, age-guided concepts and, again, causal links between child and adult health. Certainly good self-esteem, high motor ability, and knowledge of disease are assets to an
individual, but the questions remain of exactly how and when to introduce these topics and to exactly what extent. Here is a need for research to pinpoint weaknesses and lay the road for future improvements with guidance towards the ideal mix in the school curriculum. The desire is to reach a level where the instruction and administration is sufficient and the greater time is devoted to actual MVPA. In doing so, the ultimate goal to promote physical activity as a lifelong activity will be supported.\textsuperscript{7,18,19} A broader vision yet is to remember that physical activity is one distinct, and currently endangered, component to a healthier nation.

\textit{Healthy People 2000} furnishes two objectives which support the practice of daily exercise: Objective 1.3 states, \textit{"Increase to at least 30 percent the proportion of people aged 6 and older who engage regularly, preferably daily, in light to moderate physical activity for at least 30 minutes per day. (Baseline: 22 percent of people aged 18 and older were active for at least 30 minutes 5 or more times per week and 12 percent were active 7 or more times per week in 1985.)}\textsuperscript{2(p97)} Objective 1.8 states, \textit{"Increase to at least 50 percent the proportion of children and adolescents in 1st through 12th grade who participate in daily school physical education. (Baseline: 36 percent in 1984-86.)}\textsuperscript{2(101)}

Keeping in mind the issue of quality, participatory school physical education, it is also imperative to mandate physical activity on a daily basis. Again, this improves the short-term health of the child while increasing the chance for improved adult health. A daily program which is well taught for youth
will help establish patterns of health related activities in the adult years. The programs must be enjoyable and target activities which can carry over to adult activity.\textsuperscript{20} A critical component is to develop a positive attitude and confidence in childhood towards physical activity. So often the activities which are offered today are team sports and highly competitive games which tend to exclude many children. Curricula which emphasize skills easily carried on in future years such as dance, swimming, biking, hiking, jogging, strength training, or cross country skiing will equip youth with tools they can employ later in life. These activities can be organized and offered in developmentally appropriate ways to offer sequential learning and practice. Health knowledge underlying the activity can be included in instruction as well. Confidence, pleasure, and good habits are thus emphasized and realized for the individual. Team sports and competition can certainly be offered and encouraged. Yet the basis of physical activity for the majority of youth should be centered on non-competitive activity. The national standards for physical education can be used as guidelines. The National Association for Sport and Physical Education describes the basis for student education concerning physical activity.\textsuperscript{21} The association supports learning skills necessary to perform a variety of physical activities so that the student is physically fit, participates regularly in physical activity, and knows the implications of and benefits from involvement in physical activity and its contribution to a healthful lifestyle. Curricula which incorporate these ideas will instill the value of physical activity in children. Attaining the value and adopting
the regular habits of physical activity in childhood sets the framework for positive, lifelong health styles.

Assisting children in mastery and confidence of physical skills through school physical education may positively affect childhood leisure time. After-school hours and at-home hours may shift from television use to more active games or activities. Community-based programs may have positive results in offering more hands-on, active-participation entertainment such as roller-blading parks, ice-skating rinks, bike and walking paths than passive-entertainment such as movies and video game rooms.

Clearly, the improvement in the American health status will come through multiple pathways. Education at all levels of age and instructional need is imperative. Yet it is in the schools, primarily the elementary and secondary years, where incorporation of the quality physical activity and health education will have the greatest impact. Schools are the "worksite" of 51 million people, one fifth of the U.S. population including students and staff. Lifestyle choices begin in childhood; patterns, values, habits are established then and are more difficult to change later in life. The logic in instituting good training and habits in the primary grades, then, is evident. Schools are highly trusted institutions for the most part and have a central focus in our society. Schools have a far-reaching affect, touching not only the students in attendance, but also the associated families and communities. The activities emanating from a school profoundly impact the larger population.
It is not difficult to see the wisdom of early education in physical health as a promising trigger for an improvement in American health. Increased physical activity in the early years will set the stage for lifelong choices of a healthier nation.
CHAPTER III

PHYSICAL ACTIVITY IN THE ADOLESCENT YEARS

"By the year 2000, United States students will be first in the world in mathematics and science achievement."

National Education Goal 5

"... education about health is as important as education about science and mathematics."

Lloyd Kolbe

In the previous chapter, short-term and long-term benefits of physical activity were discussed and support was laid for the inclusion of physical activity in the primary educational curricula. Now the secondary school students and staff will be examined in relation to physical activity and the proposed national health goals, the nature of adolescent development, and targets for emerging programs. Given the relatively recent national goals and objectives to upgrade the health status of American citizens, the programs by which to execute such goals are still under research and development. To maximize health benefits, there is solid consensus to utilize school programs as one critical avenue for health promotion. It is essential that health education initiated in the elementary schools is expanded upon at the secondary level. Health education programs
endorsing regular physical activity towards lifelong behaviors can be implemented through planned, sequential instruction in grades K-12 for national health improvements.

Haywood points out the dual challenge for physical education programs. One is to offer opportunities of a physically active nature to students; the second is to offer opportunities and instruction in an organized fashion which assist youth to evolve to adulthood and maintain choices of healthy, active lifestyles. Haywood contends that while the first challenge is widely accepted, the second is hardly comprehended. Yet it is this long-term training which must become the educators’ focus in order to manifest the intended health goals.

The above concept is applicable for both the elementary education levels and the secondary levels. It is the secondary programs, though, that must link the good foundation of physical activity laid in the elementary learning years with the adult behaviors for a lifetime. The elementary program cannot stand alone. The next sequential steps at the adolescent stage need to follow the knowledge and experiences leading toward healthy choices of adult behavior. Currently, secondary school programs may be the weakest link in the progression of health education. It is the adolescent who is beginning to have more control over his/her time and schedule and to make independent decisions. The adolescent years are full of change in the physical, mental, and social arenas and these individuals are taking an increasingly more adult perspective toward the world and themselves. They need continued steps in cognitive and experiential learning in health and physical activity. Adolescents benefit from continued
direction in time management and participation in regular, enjoyable physical activity. Individuals of this age will benefit from training in the consumer aspect of health, fitness, and the emerging health industry. These students still require guided experiences in order to incorporate health-promoting choices in their budding adulthood. Proper training in the adolescent years will assist the bridging toward adult behaviors of positive health choices.

It is precisely at this critical junction of high school age that participation in physical education currently decreases.\textsuperscript{7,27} Time spent in physical activity declines rapidly at the high school and college age, leading toward the sedentary adult behavior so prevalent in our society.\textsuperscript{7} Each generation that passes through this decline becomes an adult generation high at risk for chronic disease, continued obesity, preventable morbidity and mortality.\textsuperscript{28} Cardiovascular disease (CVD), which causes more than half the deaths in the United States, has an easily preventable risk factor: minimal physical activity.\textsuperscript{27} The consequence of heart disease in later life is substantial.\textsuperscript{29}

- at least 68 million Americans suffer from heart disease
- one person in four has some form of cardiovascular disease
- almost one of two Americans will die of cardiovascular disease
- cardiovascular disease costs $117 billion annually.

By establishing good health practices in our nation's youth, risk and incidence of CVD and other disease will decrease in the population. Though there is no perfect model established for the physical activity levels of each age or for the physical education program, there is an accepted viewpoint that
physical activity at all ages is beneficial. Sallis and McKenzie\textsuperscript{7} state that improving activity levels and practices of our population could save more lives than changing any other risk factor associated with CVD.

Heath et al\textsuperscript{30} provide evidence that only 37\% of students in grades 9 to 12 participate in vigorous physical activity for 20 minutes three or more times a week. This indicates tremendous numbers of students who are falling short of the national goals, losing the benefits of such activity and standing a greater risk for CVD and other illnesses. Adolescence is a time when risk factors such as obesity, high levels of blood lipids, blood pressure, cholesterol, anxiety, and depression become established along with the increasing dissociation from regular physical activity. Adolescents begin to drive more, walk less, work at jobs, and have fewer school physical education requirements while vigorous physical activity diminishes. Even when the fragile nature of adolescent training is known and adult outcomes so poor, physical education in secondary schools is not required throughout the curricula. Students who are not guided in healthy directions through school physical education have increased risk of choosing a physically inactive lifestyle which leads to an adult sedentary lifestyle as well.

A study by Niemi et al\textsuperscript{31} suggests that adult shoulder and neck pain correlate with adolescent behaviors and habits. Shoulder and neck symptoms, such as pain, could stem from a weakening metabolism and muscle fatigue from static loading seen more in the inactive adolescent and adult population. Leisure time physical activity exhibited by adolescents involving dynamic loading of the upper extremities may have preventive effects that inhibit or alleviate such
symptoms. Though this study is small, consisting of 714 students, it is encouraging to find links between adolescent and adult behavior which support the importance of physical activity as a preventive measure against physical ailments. More longitudinal studies are needed in this area.

The ideal physical education program will instruct students in current activities of fitness and methods of continuing such activities well into their future. Physical education class needs to be more than "play time" and broader than just an array of team competitions. Adolescents are intellectually ready for solid concepts and rigorous applications. Omission of a good physical education program and the lack of daily physical activity for students is likely to lead to more pronounced inactivity as the individual ages, a less positive regard for personal physical recreation, and greater health risks. Goldfine contends that high school students are prime for the presentation of conceptual lessons in health and fitness in conjunction with the active physical education classes. Students who have knowledge to support skill activities are more likely to have positive attitudes toward physical activity, make wise decisions about health and fitness, and choose more active lifestyles than those without a good conceptual background. These qualities are more likely to lead to voluntary physical activities which are essential as schools cannot be responsible for such structure beyond graduation. Goldfine makes the point that many high school students do not attend college; thus it is even more important to make this training and experience compulsory in the elementary and high school years.
Healthy People 2000 Objective 1.4 states, "Increases to at least 20 percent the proportion of people aged 18 and older and to at least 75 percent the proportion of children and adolescents aged 6 through 17 who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion. (Baseline: 12 percent for people aged 18 and older in 1985; 66 percent for youth aged 10 through 17 in 1984)." In order to meet this goal, participation in vigorous physical activity by high school students must double. Benefits of cardiovascular and aerobic fitness are gained with vigorous activity. It should be mentioned that levels of light-to-moderate and moderate-to-vigorous exercise are beneficial as well. More effort is being made to collect data regarding the benefit and importance of such exercise. What is immediately evident is that there is a widespread need for people at all ages to be more active in order to meet the nation’s health goals and reap the benefits individually and as a society.

Research with elementary students indicates that an increase in physical activity can be achieved even where there are limitations in time, space, and money. Stephens sought to augment students’ participation in physical activity and to foster an attitude which would lead to future physical recreation choices. His study of 99 urban fourth grade students who engaged in a 15-week program showed results in improving fitness levels without additional physical education programming or equipment. The fitness intervention for the experimental group
included warm-up and stretching movement, 20 minutes of continuous aerobic activity, and repetitive movement of large muscle groups for students while right in the classroom. Significant improvements in heart-rate, flexibility, and body composition were found as depicted in Table 1.

Table 1. Changes in Mean Values for Demographic and Physical Fitness Parameters

<table>
<thead>
<tr>
<th>Fitness Parameters</th>
<th>Experimental Group</th>
<th>Control Group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>Posttest</td>
</tr>
<tr>
<td>Heart rate: resting</td>
<td>78</td>
<td>73</td>
</tr>
<tr>
<td>Heart rate: maximal exercise</td>
<td>140</td>
<td>125</td>
</tr>
<tr>
<td>Heart rate: recovery</td>
<td>108</td>
<td>88</td>
</tr>
<tr>
<td>Sit and reach</td>
<td>+2 cm</td>
<td>+7 cm</td>
</tr>
<tr>
<td>Skinfold thickness</td>
<td>25 mm</td>
<td>23.5 mm</td>
</tr>
</tbody>
</table>

This study provides an example of incorporating more physical activity into the school day which is cost-effective and relatively easy to implement. The commitment to promote and support this type of activity needs to be made in every school, by every teacher, and every parent.

*Code Blue*\(^{34}\) calls for exactly that kind of commitment. The National Association of State Boards of Education and the American Medical Association joined efforts in 1989 to address the health problems and dangerous trends prevalent in the adolescent years. The formation of the National Commission on the Role of the School and the Community in Improving Adolescent Health generated conferences, meetings, and ultimately the document *Code Blue* which
forms the basis of a national dialogue on the current crisis of adolescent health. It was recognized that adolescent attitudes and behaviors directly affect adult health and wellbeing. It also became apparent that quality education for adolescents demanded attention to several areas: the physical, social, and emotional needs of our youth. To effectively offer such education, the resources of individuals, families, health-care providers, teachers, community services, and many others must coordinate and focus on this emergency. The response is ours to shape.

_Code Blue_ states that for the first time in the history of America, young people are less healthy and less prepared to take their places in society than were their parents. In our complex and competitive world, adolescents are likely to have experiences which lead to an adult life of violence, social and emotional problems, substance abuse, and physical health problems. The Commission makes four recommendations as a framework to reverse "the spiral of decline":

- Guarantee that all adolescents have access to health services regardless of their ability to pay.
- Make communities the front line in the battle for adolescent health.
- Organize services around people, not people around services.
- Urge schools to play a stronger role in improving adolescent health.

Each of these recommendations calls upon the families, educators, and health professionals to participate in improved services for the nation's youth. Collaborative private and public attention will help prevent the burden of social and medical costs rendered to an unhealthy society in the future.
Code Blue addresses a spectrum of adolescent risks, behaviors, and needs. The concern of this paper is quality physical activity, and specifically, to its presentation, education, and practice related to the nation's youth. Thus, the material from Code Blue will be limited here to the concerns of physical activity, its education, and the effects on the national health status.

The Commission found that current school programs were not meeting adolescent needs, with health problems already rampant in that age group. The Commission notes that as problems mount without proper services to promote health or prevent ill-health, the more difficult and expensive it becomes to reverse unhealthy behaviors and their consequences. Therefore, early health promotion, primary prevention, and early intervention are best. To minimize fragmentation in the delivery of services, an integrated health care program must be offered at a local level. What better avenue is there than the local school system to initiate a new wave of early health education?

Code Blue notes that "educators and health care providers have not made adolescent health a top priority." Within their four broad recommendations, the Commission suggests complementary actions to improve the adolescent health status. Some of these ideas follow in abbreviated form.

- Establish adolescent health centers in schools
- Expand school health services
- Provide adolescent wellness education
- Increase the number of health care providers in schools
- Expand the use of health educators
Strengthen local leadership

Provide opportunities for healthy recreation

Foster better understanding of healthy adolescent development

Encourage positive health behaviors

Improve collaboration between schools and other organizations (for example, School Health Services and The Department of Health and Human Services).

In their vision for stronger school involvement, the recommendation for "a new kind of health education" is proposed. This includes the focal point of teaching skills and strategies for good decision making, development of positive values, and participation in physical activity which fosters lifelong exercise habits. Their recommendation includes an approach beginning in Kindergarten with age-appropriate, sequential steps through Grade 12. Students, then, more quickly attain positive habits and can more successfully avoid the pressures to engage in risky behaviors.

The Commission recommends that every school retain a health coordinator, invest in staff development, and append additional hours to target health promotion. The costs for such investments are real, but the long-range results will provide national savings. The following statement from Code Blue supports the school as a chief player in students' development.

The Commission recognizes that health is not a current education priority, and that many people will insist that schools limit themselves to promoting better academic achievement - not health.
We further recognize that student health has not traditionally been a school responsibility. We contend, however, that in today’s world, schools can only accomplish their education mission if they attend to students’ emotional, social, and physical problems.³⁴(p38)

To include more substantial physical activity and health education in primary and secondary school programs, it is possible to expand upon current programs, not necessarily forge completely new systems. Funding will likely be an ongoing challenge, so a broad array of strategies for improvements will be important. Implementing physical activity education and practices throughout the school curricula will offer adolescent youth much greater opportunities for developing healthy habits and health knowledge. At the center of our collective effort should be the children and their needs; their current needs and the needs of their future.
CHAPTER IV
THE YOUNG ADULT

Generally speaking, all parts of the body which have a function, if used in moderation and exercised in labors to which each is accustomed, becomes thereby healthy and well developed, and age slowly; but if left unused and left idle, they become liable to disease, defective in growth, and age quickly.

Hippocrates (ca 460-377 BC)

The United States population is presently seeing a trend toward a more sedentary society with increasing chronic illness and preventable disease. Efforts are being made nationwide to improve the health status of the current and future generations. Establishment of healthy physical activity habits through early training in primary and secondary education will provide positive changes toward a healthier society. Emphasis on quality health education with regular, quality physical activity in Grades K-12 will set the foundation for personal health and fitness understanding and healthy habits for a lifetime.

Though the human being is capable of learning throughout the lifespan, early learning in childhood and young adult years offers the greatest impact on
the acquisition of lifestyle preference and choices. Therefore, health skills crucial to healthy adulthood are best taught, at age-appropriate levels, to our youth. Upon completion of high school, the young adult should be well equipped with health tools and habits to draw upon as he/she determines lifestyle patterns. As the high school student graduates and chooses to pursue college education, join the work force, or begin a family, there no longer exists the public mandate of educational instruction. Their lives are affected by the choices they make in the present and in their futures. Good, healthy lifestyle choices can be made by the young adult if a positive foundation in health and fitness has been instilled. It is important to keep in mind the national aim of a healthier citizenry, not simply the inclusion of physical activity in the school health programs. One avenue towards that goal is to establish an enjoyment, a desire, and a pleasurable habit of regular physical activity as part of the American child and adult lifestyle.

A study by Reis, et al. points to this value of good health education. They tackle a problem of increasing prevalence in Western civilization, that of low back pain. It is currently estimated that 80% of adults report having low back pain some time in their life span. Lifestyle and occupational changes in the past few decades have contributed to the increased incidence of low back pain. More alarming is that low back pain is now found at early ages, in adolescence and young years. With increasing reliance on technology for activities of daily living, greater incidence of overweight children and adults, and an increase in sedentary lifestyles, the rate of low back pain rises.
With no definitive effective treatment for low back pain, preventive measures are given much attention. Reis et al\textsuperscript{35} evaluated 243 college students on issues concerning back care, exercise habits, and education for the health of the back. Findings show that students have regular habits which place strain on the back, neck, and shoulders and put the back at risk for possible injury. For example, 90% of the participants said they carried book bags over one shoulder. Only 59% with reported back pain indicated they thought about proper lifting procedures when they had to lift objects. Other stresses at this age commonly stem from poor sleeping and studying positions, improper lifting techniques, poor body mechanics, and poor flexibility. Results from the 36-item questionnaire given to all subjects indicated 71% of the subjects reported backache on one to five days of the week. Ten percent of this group reported daily back pain and 23% stated they had had a previous back injury, though the nature of such injury was not specified. A majority of these sampled students reported a concern for the health of the back, yet demonstrated a deficit in knowledge in basic back care. Only one-third of the 243 students sampled reported they had sufficient knowledge for healthy back exercises. Yet a significant association ($p < .05$) was found between these students and their potentially harmful methods of doing back exercises.

These findings point to a need for college age persons to have a greater understanding and improved physical habits to avoid the incidence of personal low back pain. Once again, this supports early training in health education including physical activity.
Cooper et al. demonstrate a positive relationship between childhood growth, lifestyle habits, and peak bone mass in women. The peak bone mass level acquired during skeletal growth and the ensuing bone loss rate contribute to the bone mass of an individual throughout the years of life. The study of 153 women at 21 years of age correlates lifestyle and environmental factors with bone mineral content. Women who engaged in more than 2 hours daily of walking had greater bone mass (1.00g/cm² in the femoral neck) than women who reported no walking (0.89 g/cm² in the femoral neck). The relationship of those women who had regularly participated in school outdoor sports presented with higher mineral density than those women who were not involved in sports (0.96 g/cm² compared to 0.92 g/cm²). In childhood and early adulthood, Cooper et al. state that physical activity is the most definitive environmental factor associated with bone density. The association of exercise and increased bone density is also supported by Bassey and Slemenda. Bassey et al. correlated high-impact exercise with increased femoral trochanteric bone density. Slemenda et al. found a positive association between physical activity of children ages 5-14 and their bone density measurements.

After linear growth has terminated, there is evidence that bone density in females may increase with physical activity. Incorporation of physical activity into the female lifestyle in youth and early adulthood will contribute to potential bone consolidation and maximize skeletal status. This, in turn, helps to decrease the chance of injury and debilitation resulting from osteoporosis.
Physical activity was also found to be a stronger factor in bone density than calcium intake through diet.

Osteoporosis affects as many as 20 million Americans with costs of $7-10 billion annually. Understanding and management of bone formation and maintenance is of great importance to reduce the prevalence and cost of this disease. Although treatment is possible, prevention of osteoporosis is highly recommended. Therefore, preventive strategies are as important an element in health education as treatment strategies are in health and medical services.

It is appropriate here to highlight the three broad national goals stated in Healthy People 2000:

- Increase the span of healthy life for Americans
- Reduce health disparities among Americans
- Achieve access to preventive services for all Americans.

The studies previously mentioned in this chapter embody components of these goals: employ preventive measures to achieve improved health for Americans throughout their life span and endorse early health education for individuals in school. Providing quality and enjoyable experiences with regard to healthy activity helps reduce injury and disease such as low back pain, osteoporosis, and other preventable illnesses. Physical activity, with components of muscular strength, body composition, flexibility, and cardiorespiratory endurance, must become the norm, not the exception, in the daily regime of the school and neighborhood communities.
A study of 140 college women in 1977 by researchers Koff and Bauman\textsuperscript{41} suggests that a more positive, empowered attitude toward personal health and well-being results from individual participation in wellness classes. The more familiar physical benefits such as improved fitness and improved nutritional habits are evident as well. The wellness class used in the study required participants to engage in an independent aerobic activity as well as in health theory class. Comparisons between subjects’ pre-test and post-test responses indicated lifestyle changes including an increase in fitness activities and proactive attitudes toward health. Koff and Bauman\textsuperscript{41} claim that wellness class yields additional psychological benefits such as the conscious promotion of physical and emotional health integration. This is indicated by additional higher personal post-test scores in areas of health evaluation, health orientation, healthy eating, perceived weight, and stress management. More studies like this and longitudinal studies to reflect adherence are necessary to assess the long-term value of such programs.

This post-high school status marks a time, as was noted earlier, where the individual is making a transition between compulsory instruction and the freedom of independent lifestyle choices. All efforts toward assisting in the positive lifestyle choices of young adults are sure to benefit: in the short-term to enhance the present quality of life and in the long-term to enhance the quality of life in the decades of adulthood down the road. Adams and Brynteson\textsuperscript{42} support just this idea. In a survey of college alumni, results showed more positive exercise attitudes and behaviors from those individuals who graduated from the colleges
with the greater requirements of physical education activity (PEA). From the four colleges used in the sampling, college A was recognized as having a PEA course requirement for each full-time semester and a required one credit PE foundations course. Running tests and extracurricular exercise were also mandatory. The other three colleges had from zero PEA requirements up to four credit hour requirements, and no extracurricular exercise. College A, with the highest PEA requirement, demonstrated a significant, positive relationship (p < .002) between the alumni perception of their current knowledge and attitude of fitness, their current exercise habits, and their college PEA programs.

These results suggest that by having the higher requirement, individuals assign importance and value to regular physical activity. The study also suggests that extracurricular exercise requirements assist in the development of positive attitudes of lifetime fitness. One would question, then, the decrease in 1972 of graduation physical education requirements from four hours to two hours.\textsuperscript{43} The decline in required PEA programs began in the 1960s, hitting a low in 1982 with only 60\% of colleges having PEA requirements. This small study cannot be used to widely generalize, yet it gives support for the value of retention of quality PEA programs, even at the college level.
CHAPTER V

PHYSICAL ACTIVITY AND THE COMMUNITY

"... long life, without health, is not sufficient."\(^{44}(p4)\)

U.S. Department of Health and Human Services

The United States of America, at a projected population of 270 million by the year 2000, has adopted a dangerous trend toward sedentary lifestyle, chronic illness, and poor health habits.\(^2\) At stake is the quality of life of individuals, families, communities, ethnic groups, and the nation as a whole. The risk for each entity, individually and collectively, is the unnecessary decrease in vitality and productivity. Risks include an increase in the cost for medical treatments, a general reduction in well-being, and a decrease in the pleasures of life itself. Researchers, health care providers, and public health workers have raised the warning flags regarding these problems. This review supports early physical activity education as a means toward improved health status in America. Sallis and McKenzie\(^7\) signal a paradigm shift toward improved public health principles and suggest ways and means of change. These ideas and others will be discussed in this chapter.

It is useful to examine at the community level the consequences that would follow a commitment to an increased development in health programs. Some recent facts in the United States demand attention.\(^2\) In 1960, 5% of the
Gross National Product (GNP) was allotted for medical services. By 1990, the estimation was to reach 12%, more than doubling. The cost of illness in 1980, including lost economic productivity and early death, was nearly 18% of the GNP. Additional annual, national costs reported in *Healthy People 2000* include over $100 billion for injury, over $70 billion for cancer, and $135 billion for cardiovascular disease. The aspect of financial expenditure could be decreased by changes in lifestyle patterns of our citizens.

Personal lifestyle choices cause a sizeable number of the 2.1 million annual deaths in the U.S. and imply a deficit in knowledge and responsibility in our health care understanding and habits. The communicable diseases of the previous century have been replaced by the self-inflicted, chronic diseases so prevalent and preventable at this century’s end. These preventable conditions have laid a burden on our communities and their members. Technology has seen great advances and given much opportunity in diagnoses and intervention against disease. Yet the cost of this technology, the advanced ages in our society, the population growth, and ecological impact of industrialization create problems not easily or quickly solved by a mechanical device. These new and enlarging issues offer a challenge: each individual, each community, and each public agency must make a commitment to adopting methods of improving the quality of life in this nation. The nation must reach past its outgrown goal of merely saving lives to the new paradigm of increasing the healthy life of each American.
The topics of average life expectancy and average health expectancy are not unique to the American community. Health promotion, health policy for elders, civic and social health activities have international concern as the segment of the elderly accelerates in numbers around the globe. It is estimated that by the year 2000, the segment of people in America over 65 years of age will represent 13% of the population (in 1950 it was 8%) and those over age 85 will have increased by 30%. Communities worldwide recognize that no one process accounts for the general decline of independence and function which generally accompanies aging, but that the parameters of aging can be adjusted to a degree. Globally, societies are focusing attention on functionality rather than disability. Modifying the aging process with healthy choices and preventive measures will offer not only an extended life span, but also a higher quality of life and fewer declines of function in those years. This relates to greater independence of the elderly, longer civic and social participation, fewer burdens on family, decreased medical costs, and protection from early mortality. More specifically, the healthier individual likely has improved circulatory function, greater ability to do work, higher degree of endurance, greater flexibility, better protection of joints, and prevention against postural problems. So, though aging is imminent, progressive, and irreversible, it is a process which occurs at different rates, in part by choices in lifestyle activity.

Chronological age is not the critical focal point. It is the biological age, an assessment of one’s functional abilities, which impacts the individual, family, and community. Citizens of many countries now recognize the possibilities of
modifying the aging process by incorporating healthy lifestyle habits. It is the implementation of these habits that is currently our dilemma. To reap the benefits of a healthy elderly population and to decrease their dependence and debility, preventive training and proper teaching of health and fitness must be solidly embedded within our communities. Early education in primary and secondary school programs can lead our nation toward substantial improvement in national health.

There are other associated benefits with regular physical activity which appear in the community realm. A study by the National Aeronautics and Space Administration revealed that a high level of work productivity throughout the day was maintained by those people who exercise regularly.47 Because the employee is a critical resource of business, the increased health and productivity of the employee is reflected as beneficial to business. Fitness programs at the workplace can reduce sick time and absenteeism.46,48 Andersson surveyed workers in Sweden demonstrating that a low degree of physical activity in leisure time was the strongest factor correlating with a high rate of reported sickness and absence from work. Another group of workers in the same study said they participated in no physical activity, dropped out of the study, and had the highest rate of absenteeism, representing a high risk group and implying a need for preventive programs. Implementation of a Dallas police department fitness program revealed that the exercising group reduced sick time by 45% and increased commendations by 39% as compared to a non-exercising group.50 Fitness programs for the Los Angeles fire department personnel helped to
substantially decrease the number of job related injuries. Research from Tsai et al.\textsuperscript{51} suggests that employees who participated in an exercise program had a greater duration of employment, having a possible long-term effect on reduced employee turnover, thus allowing a financial benefit for business. It is known that workers' compensation costs involve a burden, in time and money, to both employees and employers.\textsuperscript{49} These studies all support the concept of early training in health and fitness to reduce the physical, economical, and social strain of illness and injury on individuals and businesses of the community.

Functional capacity and job performance for public safety personnel came under scrutiny in the 1970s.\textsuperscript{48} A pattern of inactivity in the job and lifestyle had invaded fire and police department employees which then resulted in a number of on-the-job injuries and illness. Safety concerns prompted fitness programs, physical entrance testing, and policies for maintenance of fitness/wellness. These efforts exhibit a positive model for all community groups and business. Not only do the public safety personnel benefit from the positive physical activity advantages, but the public benefits as well: greater job efficiency, increased protection of the public, decreased medical claims and costs, decreased disability payments, psychological benefits, and a positive community model.

Beneficial results of regular physical activity are reflected in declines in rates of coronary heart disease, hypertension, obesity, osteoporosis, diabetes, mental disturbances,\textsuperscript{52} cancer high lipid profiles, and other diseases.\textsuperscript{53} These benefits apply to all types of individuals: those who have pre-existing heart disease, those having had a myocardial infarction, those who are sedentary,
those who are irregular or regular in physical activity, and across all age groups. Haglund\textsuperscript{62} also cites a negative correlation of medical service usage and drug consumption in those who exhibit a high degree of physical activity.

Psychological and psychosocial benefits, though difficult to measure, are positive consequences gained from a regular exercise regime.\textsuperscript{48,54} Reduced stress levels, improved morale, enhanced self-image, increased self-confidence, and improved job performance are well recognized as benefits of regular physical activity.

Why do nearly 60\% of American adults lead sedentary lives?\textsuperscript{55} Why do fewer than 7.6\% of the adult population exercise at a sufficient level to actualize cardiorespiratory benefits and offset its risks, debilitation, cost, and suffering?\textsuperscript{56} It is because the healthy choices are not widely valued, instilled, and practiced through our public services, educationally or clinically. A statement from the government document \textit{Healthy People 2000} declares, “Despite their proven effectiveness clinical preventive services are rarely covered under health insurance or delivered as recommended.”\textsuperscript{2(p77)} If communities are to receive the social, physical, financial benefits from healthy members of all ages of our citizenry, healthy habits must prevail. To impact the number of stress disorders, behaviors known to combat stress and bolster self-confidence must be adopted. Initiating regular physical activity into the American lifestyle will offer these benefits. Better yet, if regular physical activity is incorporated early in life, is valued, and active habits are practiced in adulthood, the communities will accrue the benefits without the challenge of initial health education at the adult age and
without attempting to entice the adult individual to change lifestyle patterns. It is well accepted that existing practices and attitudes are resistant to change.\textsuperscript{57} As attitudes and behaviors become fixed, generally at the late teenage years and early 20s, change becomes difficult.\textsuperscript{58} Primary and secondary school physical activity education, if given support locally and nationally, will instill the building blocks so critical to positive health behaviors throughout the lives of all community members.

As an example, imagine an individual of 18 years of age, just out of high school, who has just gained her first job. This young adult has several responsibilities before her. She has physical demands at work and home. Whether the tasks are physically very demanding (such as regularly lifting over 50 pounds) or minimally demanding (such as seated clerical work), there are physical demands which should be properly addressed to avoid immediate or cumulative injury or ailment. Static and dynamic posture is all-important in our everyday, round-the-clock activities. Proper body mechanics in lifting, pushing, and pulling is a must for a person at every age. Good muscular strength, endurance, and flexibility will support the body in performing tasks of work or pleasure.

Now, for this high school graduate, in her busy transformation from student to member of the work force, where is she expected, at this point, to learn of proper health and fitness concepts and practice? The answer is, only a few places. It is not a good time to learn, at least for the first time, about fitness as one begins a job. This young woman should have attained sufficient training
and understanding by this point in her life to execute proper posture, body mechanics, and endurance. The basis of health and physical activity should already be set in place. She should have regular habits which promote fitness to fortify her abilities to do work of all types. Ample time and funds for additional instruction specific to the work task should be available at the work site as additional, job-specific physical tasks demand. Regular physical activity and quality health education offered in the primary and secondary grades, will have supplied such a high school graduate, at this life cornerstone, all the tools for safety, smart choices, and enjoyment in her vocational and recreational life. Expense, illness, and disability are often avoidable with proper training. We must focus on these preventive measures rather than initial health education at the young adult stage and rather than treatment for preventable injury.

Health of an individual or health of a community can be seen in two dimensions. The positive dimension includes health fitness and its many tiers of benefits, both short- and long-term. There is also the negative dimension with its burdens such as functional limitations, pain, and degenerative disease. In envisioning an ideal community, one most likely would include the positive, health and fitness dimension. The benefits spread from the individual, to the family, community, even state and nation in tangible, measurable, desirable ways. Though individual conviction and practice is at the heart of the matter, public policy and legislative initiative must support new strategies for increased physical activity and its education to pervade the citizenry to a greater depth than presently seen. The tide of sedentary habits must be addressed no longer by
concepts and recommendations alone. National and local legislation must effect real change in the physical activity status of its citizens. McGinnis reports in a mid-decade status update that only a small gain of 2% has been made in the proportion of persons regularly exercising. There is no change in the number of persons who lead sedentary lives. There is an 8% increase in those individuals who are overweight. The powerful words of government and clinical institutions are not enough to instigate the needed change. Hands-on, real action must occur to bring about the health improvements in our society. While interventions in adult behavior are helpful, the most effective target is the community school system, where active, high quality programs take place for receptive youth. Educate the child today so that the adult of tomorrow will have positive, healthy values and lifestyle practices regarding physical activity. This will drive the positive dimension of health fitness to a more desirable level and closer to the nation's target.
CHAPTER VI

CALL TO ACTION

"The health of a Nation is measured by the extent to which the gains are accomplished for all the people."²

Department of Health and Human Services

Health promotion, health protection, and preventive services are topics of national interest and are gaining attention in local venues as well.² Individual, family, community, professional, and political groups must share the responsibility of addressing and adopting change toward becoming a healthier nation. Best strategies are sought to make real gains in individual and national health, across all ages, ethnicities, economics, and philosophies. In this chapter, various strategies which target improved health will be discussed. Though there are a multitude of important factors which affect health, such as genetics, nutrition, smoking, and substance abuse, this discussion will focus on physical activity as an immediate, cost-effective, easily-implemented program towards quality health for all, for now and for the future.

Almost two decades ago, in the government document Promoting Health/Preventing Disease: Objectives for the Nation in 1980, objectives were set forth to achieve better health nationally.⁶¹ By 1987, it was apparent that
certain areas were lagging and unlikely to be achieved.\textsuperscript{62} One of these areas was physical fitness and exercise. Simply the idea of a strategy is not enough to bring about the needed change. Mere existence of legislation, policy, and available services are not sufficient to bring about essential reform. \textit{Healthy People 2000} states that the achievement of improved health depends heavily on changes in individual behaviors.\textsuperscript{2} The strategies essential to adopt are ones that touch our lives individually, with value, enjoyment, and regular practice integrated in our daily regime. The following material reviews direction for change in our approach to physical activity; it is education, acceptance and practice, and community support.

\textbf{Learning}

"... sedentary living and bad eating habits have to be learned."\textsuperscript{8(p4)}

Cooper\textsuperscript{8} emphasizes the fundamental nature of children which is to gravitate towards healthy activities for a strong body and mind, activities such as active movement and imaginative play. Yet more passive activities such as television and video games have become prevalent in our youth's leisure time. Cooper states that children ages two to five average more than 22 hours of television viewing per week and children aged 6 to 11 average nearly 20 hours per week. The easy temptation of passive entertainment is pursued, in part by following a dominant role model and partially by participating in the prevalent societal forces such as fast foods, video arcades, and movie entertainment. Choosing unwise activities repeatedly leads to the formation of an unhealthy lifestyle.
Developmental principles lead us to suspect that, in part, physical activity is learned behavior. A 1977 longitudinal study provides valuable information on the effects of daily physical education through the six years of primary school. The school classroom representing the control program received one 40-minute period per week of physical education taught by a classroom teacher. The classes participating in the experimental program received five hours per week of physical education taught by a specialist. Emphasis in the experimental program centered on cardiorespiratory endurance, muscular strength, and maximum classroom participation. Results were observed in various areas. The experimental subjects displayed greater activity on weekends than the control group, indicating a positive attitude toward physical activity and a carry-over of school learning and activity to leisure time choices and activity. This lends support for the premise that physical activity is a learned behavior and is influenced by attitude. Promotion of weekday, school physical activity and practice will positively impact the weekend, voluntary behavior of students. Significant gains in fitness as measured by oxygen uptake, strength, and physical education and recreation tests have been noted. These gains appeared at the three-year mark of the program. This lends credence to the idea of early development of activity habits which can lead to future physical benefits. Academic performance in the last five years of the six-year study was consistently higher in the experimental group compared to the control group. The composite results for this study point to positive health gains by integrating regular physical activity in the primary curricula. Verabioff contends
that physical activity education must be viewed as an “essential and unique service” in order to be accepted as part of the educational curricula. With such positive results as stated above and the health goals written by the U.S. government, American schools have no excuse to omit regular daily physical activity from the curricula. Verabioff encourages the professionals accountable for physical activity to define the goals and demonstrate the relationship between such goals, instruction, and outcomes. He suggests that the research, results, and proposals for implementation be communicated to school principals, administrators, and parents for the adoption of physical activity education to be successful.

Sallis and McKenzie point out that for most children, the physical education received in school is the only preparation they will get to develop the motivation and skills for an active lifestyle in their youth or in their adulthood. The authors contend that school education is the only major institution possible to address health-related physical activity for all children leading to accomplishment of national goals for health improvements. Schools remain the centerpiece for promotion of children’s education of which physical activity plays a critical role. Sallis and McKenzie highlight critical elements for success:

- Adequate time for all children in elementary physical education
- Active involvement by each child during scheduled classes
- Activities offered which prepare children for lifetime physical activity
- Instruction by persons well trained in the physical activity education subject matter.
Haywood\textsuperscript{26} points to the concern not only of the content of physical education but of the methods by which physical education programs are taught. Again, the level of instruction as well as the commitment to the philosophy is crucial to realizing improvement in physical activity education. Maximizing children's participation throughout the curricula will help foster desirable outcomes. Combining an instructor's understanding of the importance for light, moderate, and vigorous activity with his/her honed teaching skills, allows many traditional games to evolve to activities with greater student participation. Simple game playing such as tag, bacon-bacon, jump rope, or dancing can provide the means for enthusiastic activity.

The topic of instruction brings to the forefront may questions about the specifics of teaching tools and outlooks. Sallis and McKenzie\textsuperscript{7} note that historically the teaching efforts have emphasized competitive sports and skills rather than health-related fitness. They contend that a shift in orientation from sports-focused education to health-oriented education will bring about the desired health improvements for persons in the childhood and adult years.

This shift entails employing trained educators who offer health-oriented programs promoting physical activity patterns in childhood which will carry over to adulthood.\textsuperscript{57,66} This is not to say that sports should be omitted; certainly not. But programs must be designed with the user in mind.\textsuperscript{7,26} They must be practical, enjoyable, and aimed at carryover. Program activities must be age-appropriate and varied, preparing students in sequential steps to implement self-directed decision-making for physical activity inclusion in their adult years.
School physical education with this orientation may be viewed as a public health program with the goal to impact positively on the health status of the greater population. Sallis and McKenzie recommend the nation’s physical educators pursue public health goals and become part of a team of public health professionals working toward widespread improvements in American health. The teachers, then, alter their role from teaching health facts to guidance toward the adoption of healthy behaviors.

The American College of Sports Medicine supports school physical education targeting the development of lifetime physical activity. The American Academy of Pediatrics Committees on Sports Medicine and School Health support school physical education to maximize its impact on public health. The Public Health Service furnishes objectives which offer an opportunity for public health and educational physical education communities to join together, developing programs which reach far and wide for improved health.

Centers for Disease Control and Prevention have developed guidelines encouraging physical activity for young people which will assist in adherence of physical activity in adulthood, thus allowing health benefits throughout life. This effort evolved from a collaboration of experts from national, federal, and voluntary organizations which reviewed practices in physical education, exercise science, health education, and public health. The guidelines urged coordinated efforts by schools, communities, families, and businesses to offer instruction and services which promote enjoyable, lifelong physical activity. Ten broad
recommendations, followed by a list of the Commission's more specific, suggested actions are listed in Appendix B. The reader is urged to review these.

No single document or policy can supply the total inspiration and plan for implementation of a needed reform. However, these ten recommendations embody the philosophy and action essential for the positive progress and outcomes in the future of American health. Centers for Disease Control and Prevention call on all levels of intervention to make concerted efforts towards improved national health, at home and across the nation.

Rankin and Mathews\textsuperscript{70} presented a study in 1997 which examines several positive ideas demonstrating school and community action by which health improvements evolve, succeed, and spread. Their work follows one of the Great Potato Health Conferences (GPHC) held annually since 1977. The conference aim is to help educators make positive health behavior changes, become positive role models for students, improve health instruction in schools and, broadly, to improve the health status of the school. Rankin and Mathews surveyed 68 volunteer participants including teachers, administrators, board members, and food service managers from Idaho school personnel. The ages of the participants ranged from 20 to 69 years of age with nearly one-half of the subjects in the 40 to 49 range. Of the total, 76.5\% were female and 70.6\% were teachers.

In this study, a revised Martin's Index of Health Behavior questionnaire was mailed to all the participants: 41 subjects of whom were first time GPHC attendees and 27 subjects who had previously attended one or more
conferences. These 68 subjects completed the questionnaire on the first day of the conference and at three, six, and twelve months following the conference. The dependent variable was the score generated by the questionnaire. The data, measured by a repeated ANOVA, showed a significant difference ($p = .029$). Subjects having previous conference attendance showed initial higher health practice scores than first-time attendees. Results also showed significantly higher health practice mean scores at the three, six, and twelve month periods following the GPHC compared to scores prior to the conference. These results indicate a positive influence on health practices in conference attendees. Such programs as this can have statewide effects not only on the health practices of the participants, but on those students and community members who are influenced by the positive role model achieved by such school personnel. Implementation of health conferences across the nation can contribute a wide-reaching effect toward healthy behavior in the American lifestyle.

New and different health programs may not always be the means to health improvements. At times, the pathway is to give an existent program more support and attention. Williams\textsuperscript{66} promotes a holistic perception of school health education. He advocates a cooperative effort between communities, families, and schools with an appreciation of a term he calls “the hidden agenda.” The formal curricula of schools have great influence on students’ lives, yet a powerful influence emits from the hidden curricula which includes the peer group, school environment, and the teachers as models. He contends that if the concepts
taught in school health education are not supported by what the students experience, see, and feel in the school milieu, then there is a diminished educational effect. With respect to physical activity and physical activity education, there must be a strong value and commitment from the school personnel in order to wholly impart that stimulating influence. Williams promotes teacher training programs, national conferences, and research in health education to pave the way for improvements.

Assessment

Progress toward the nation’s goals as outlined in *Healthy People 2000*\(^2\) has been reported by the National Center for Health Statistics.\(^7\) Four of the 12 Physical Activity and Fitness Objectives show forward progress:

1.1: *Reduction in coronary heart disease deaths*
1.3: *Increase in regular physical activity*
1.4: *Increase in vigorous physical activity for cardiorespiratory fitness*
1.6: *Increase in activities of muscular strength, endurance, and flexibility*

Four objectives have moved away from the target:

1.2: *Reduction of overweight prevalence*
1.7: *Adoption of sound weight loss practices*
1.8: *Participation in daily school physical education*
1.9: *Increase in active physical education and lifetime physical activities.*

There is no change reported for Objective 1.5: *Reduction in sedentary lifestyle.*

No updated data are available for Objective 1.11: *Increase in community fitness*
facilities or Objective 1.12: Increase clinician counseling about physical activity.

Tables 2 and 3 further identify trends from inception through 1994.

Table 2. Trends Related to Physical Activity and Fitness

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<th>Baseline</th>
<th>1992</th>
<th>1993</th>
<th>1994</th>
<th>Target</th>
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<tbody>
<tr>
<td>1.2 Overweight prevalence</td>
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<tr>
<td>Adults 20-74 years</td>
<td>26%</td>
<td>34%</td>
<td></td>
<td>20%</td>
<td></td>
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<tr>
<td>Adolescents 12-19 years</td>
<td>15%</td>
<td>21%</td>
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<td>15%</td>
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<tr>
<td>1.7 Sound weight loss practices among overweight people</td>
<td>25%</td>
<td>19%</td>
<td>17%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>12 years or older</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overweight male 18 years or older</td>
<td>25%</td>
<td>19%</td>
<td>17%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Overweight females 18 years or older</td>
<td>30%</td>
<td>22%</td>
<td>19%</td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>1.8 Daily school physical education</td>
<td>36%</td>
<td></td>
<td></td>
<td></td>
<td>50%</td>
</tr>
<tr>
<td>Students in grade 1-12</td>
<td>36%</td>
<td></td>
<td></td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Students in grades 9-12</td>
<td>42%</td>
<td>34%</td>
<td>25%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.9 Active physical education class time</td>
<td>27%</td>
<td></td>
<td></td>
<td></td>
<td>50%</td>
</tr>
<tr>
<td>All students</td>
<td>27%</td>
<td></td>
<td></td>
<td>50%</td>
<td></td>
</tr>
<tr>
<td>Students in grades 9-12</td>
<td>36.7%</td>
<td>35.3%</td>
<td>33.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 or more minutes, 3-5 times per week</td>
<td>24.2%</td>
<td>24.6%</td>
<td>33.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30 or more minutes, 1 or more times per week</td>
<td></td>
<td></td>
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</tbody>
</table>

McGinnis and Lee, in their mid-decade review, confirm that the above goals are viable but strategies to achieve them need corrections. They state that the components which shape our personal health, namely education and incentives related to behavior, need to be strengthened. This encompasses federal, state, and local health infrastructure, social factors, leadership, program
Table 3. Continued Trends Related to Physical Therapy and Fitness

<table>
<thead>
<tr>
<th>Objective</th>
<th>Baseline</th>
<th>1992</th>
<th>1993</th>
<th>1994</th>
<th>Target</th>
</tr>
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<tbody>
<tr>
<td>1.1 Coronary heart disease deaths</td>
<td>135</td>
<td>114</td>
<td>114</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td>1.3 Moderate physical activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People 6 years and over</td>
<td></td>
<td>30%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 or more times per week</td>
<td>22%</td>
<td>24%</td>
<td></td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>7 or more times per week</td>
<td>16%</td>
<td>17%</td>
<td></td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>1.4 Vigorous physical activity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Children and adolescents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-17 years</td>
<td></td>
<td></td>
<td></td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>10-17 years</td>
<td></td>
<td></td>
<td>66%</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>Students in grades 9-12</td>
<td>37%</td>
<td>66%</td>
<td>64%</td>
<td>75%</td>
<td></td>
</tr>
<tr>
<td>People 18 years and over</td>
<td>12%</td>
<td>16%</td>
<td></td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>1.6 Muscular strength, endurance, and feasibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>People 6 years and over</td>
<td></td>
<td></td>
<td></td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>Students in grades 9-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stretching 4 or more times per week</td>
<td>43%</td>
<td>55%</td>
<td>53%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strengthening 4 or more times per week</td>
<td>37%</td>
<td>52%</td>
<td>50%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>People 18-64 years</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight-lifting</td>
<td>11%</td>
<td>16%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stretching</td>
<td>27%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

management, and philosophy. The medical care of our nation also needs to grow in directions to embrace the goal of a healthy nation. This leads to the assessment of Objective 8.1: *Increase the years of healthy life to at least 65 years*. *(Baseline: An estimated 62 years in 1980).* Since the baseline figures in 1990, for three consecutive years, the average number of healthy years of life has seen a decline for the total population. This is reflected by a decline in self-reports regarding health-related quality of life.
Objective 8.4 states, “Increase to at least 75 percent the proportion of the Nation’s elementary and secondary schools that provide planned and sequential kindergarten through 12th grade quality school health education.”

Fundamental information is lacking for this objective, both for assessment purposes and for implementation towards improvements. Previously, there was not a description of a program outlining comprehensive school health education. Centers for Disease Control and Prevention have recently provided a list of elements which help address the issue of criteria for the school program and for assessing and assisting progress for the objective. Five elements are considered essential criteria (bulleted) for comprehensive school health education. Three additional criteria are considered important aspects of a comprehensive school health program.

- A documented, sequential program
- At least one required health education course
- Instruction in six key behavioral areas
- Focus on skill development
- Health education teachers adequately trained
  - Designated health coordinator for health education
  - Involvement of parents, health professionals, and other concerned community members
  - Evaluation of health education program during the past two years.
The Public Health Service progress report indicates that in 1994, only 11% of the nation's schools met these five essential criteria and only 2.3% of the schools included all eight elements.

Evidence of positive efforts and effects, as well as continued need in important health areas, is confirmed by these assessments. The challenges continue and the strategies for improvement are crafted as speedily as possible in order to make forward progress for national health improvement.

Shared Responsibility

The task of improving the health status of the American population requires help from all arenas of our society. This review points to the execution of regular physical activity and physical activity education in the primary and secondary school curricula as the best, immediate route for successful improvement. As recognized in Healthy People 2000, it will take legislation, social sanctions, public and private intervention, professional and lay attention to induce change and effect improvement. The implementation of early training in physical activity will set an excellent foundation to strengthen other tangential concerns. Greater promotion of social and physical environments for healthy activities, attention to unique needs of the communities' local populations, and earlier prevention programs founded in the health professions will gain support.

It has been well established that exercise is beneficial at every age level. The extensive goals and objectives in Healthy People 2000 are, in part, to assist health care practitioners with their patient population. Target issues are to help prevent disease and disability, reduce health care costs, and achieve healthier
and more productive lives in the patient population. Objective 1.12 states, "Increase to at least 50 percent the proportion of primary care providers who routinely assess and counsel their patients regarding the frequency, duration, type, and intensity of each patient’s physical activity practices. (Baseline: Physicians provided exercise counseling for about 30 percent of sedentary patients in 1988.)" 

In a 1996 article, Royals examines the exercise counseling habits of primary care physicians in northern Mississippi. Results of his study indicate that the participating physicians recognized the importance of exercise in a patient’s care plan and discussed exercise with approximately 50% of their patients who were 40 years or older. Yet the length of exercise counsel was two minutes or less. The volume of data indicating that regular physical activity reduces risk of diseases such as hypertension, coronary heart disease, obesity, arthritis, and diabetes probably underlies physicians’ support of exercise in patient care. Yet the short duration of counsel does not adequately cover the topic. Royals concludes his article with two suggestions. One is to increase the amount of time spent by physicians in exercise counsel and the second, to strive to increase to 80% the patients counseled in exercise. Additionally, other health professionals such as exercise physiologists and physical therapists can offer similar information both to patients and to physicians to assist in physician-based exercise counseling. With cooperative efforts such as these among health care professionals, patient care will be impacted positively and there will be an increase in the numbers of citizens who exercise regularly.
McBeath, in a 1990 keynote address to the American Public Health Association, speaks of a dual responsibility for each public health professional to help shape world health. He emphasizes responsibility to both scientific validity and to social advocacy. This includes a society where health care is provided to all, yet also in which the citizenry is educated in basic values and skills needed for healthy living and maintenance of their highest capacities. Health professionals, then, are valued in the educational aspect of promotion and practice of health and fitness activities as well as in the treatment realm of health care. Practitioners can offer health education and information directly to patients and indirectly by assisting teachers, community services, and conferences locally and nationally in health and fitness related subjects.

The World Health Organization has influenced the meaning of health and its promotion in the past years. The organization views health not only in terms of physical capacity but as a resource for daily living accompanied by social and personal components. Raphael comments on the aspect of responsibility in health. He states, “Responsibility for health rests not only with the health sector but goes beyond supporting healthy lifestyles to promoting well being. It occurs by building healthy public policy, creating supportive environments, strengthening community action, developing personal skills, and reorienting health services.”

Health professionals, then, not only provide hands-on practice, but work for health through advocacy. Through shared responsibility, benefits will multiply when a sound level of health education is attained by the population. Though
many citizens will never pursue the health fields for vocation, a firm understanding and practice of healthy habits will assist in guiding health-related public policy and activities. This is reason enough to require the early training of our population in physical activity and its education.
CHAPTER VII

CONCLUSION

The value of health and personal behaviors have become increasingly important at the end of this century. Never before have so many chosen behaviors been assigned the cause of leading trends in disease and disability commonly exhibited in our society today. The many advances of this century in education, medicine, and technology are offset by the growing number of citizens who experience poor health habits and sedentary lifestyles leading to such preventable illness such as heart disease or stroke. It is apparent that interventions be employed to turn the trend toward individual healthy lifestyles, comprehension of basic health concepts, and socially responsible programs and environments for all Americans.

The value of intellectual training is evident by the country's mandatory educational systems for youth. Regular physical activity and physical activity education must now be included as mandatory subject matter to provide the healthy foundations for youth across the nation. Early education promoting skills for positive life-long choices will assist in improved health at every age, avoiding the expenditure and suffering associated with disease.

Childhood is widely regarded as the pivotal stage in development of preferences, values, and habits. Alteration of life choices is more difficult as an
individual ages and often the structure for learning is less apparent and less available to adults. The elementary and secondary grades are the primary targets for learning and practicing the skills which improve and enhance life as individuals and as a society. The early health training will be compatible, then, with the health programs currently arising in the industrial and business realms. Health promotion founded in youth will be further supported and expanded in the adult workplace, with accumulation of health benefits and reduction of disability. Early physical activity practices also will merge with the popular fitness movement which presently only reaches a small segment of the socioeconomic population. The base of individuals who understand and practice healthy activities will broaden as we nurture the nation's children with health education.

Childhood and parenthood are inextricably linked. It is an opportune time, as a child gestates, is born, and develops, for parents to further their commitment to health principles by presenting a good role model to their offspring and constructing family activities around physically active choices such as walking or running in the park, swimming, or cycling. Parental involvement and guidance in health activities will be nourished by school programs promoting the same ideals. As the educational system expands and supports more female sports programs, it is apparent that women's health is also a key target for education and promotion of regular physical activity of varied degrees of intensity and type. Female ability and potential have never before been so well recognized. The time is ripe for gearing more attention to health issues leading from youth to women's health.
Stronger commitment to regular physical activity and health education must be forthcoming for health improvements. Federal, state, community, and family advocacy of regular physical activities will forge the roads toward a healthier nation. It is the responsibility of each individual to assist in reform of policy, funding, and education regarding early promotion and practice of physical activity throughout the life span. This requires the focus of educators, health-care practitioners, and community members to elevate and ensure its position as a critical component in our educational system and society.
Objectives from Healthy People 2000 which pertain to physical activity.

Health Promotion
Physical Activity and Fitness Objectives
Listed in an abbreviated form

1.1 Reduce coronary heart disease deaths to no more than 100 per 100,000 people. (Age-adjusted baseline: 135 per 100,000 in 1987)

1.2 Reduce overweight to a prevalence of no more than 20 percent among people aged 20 and older and no more than 15 percent among adolescents aged 12 through 19. (Baseline: 26 percent for people aged 20 through 74 in 1976-80, 24 percent for men and 27 percent for women; 15 percent for adolescents aged 12 through 19 in 1976-80)

1.3 Increase to at least 30 percent the proportion of people aged 6 and older who engage regularly, preferably daily, in light to moderate physical activity for at least 30 minutes per day. (Baseline: 22 percent of people aged 18 and older were active for at least 30 minutes five or more times per week and 12 percent were active seven or more times per week in 1985)

Note: Light to moderate physical activity requires sustained, rhythmic movements, is at least equivalent to sustained walking, and is performed at less than 60 percent of maximum heart rate for age. Maximum heart rate equals roughly 220 beats per minute minus age. Examples may include walking, swimming, cycling, dancing, gardening and yardwork, various domestic and occupational activities, and games and other childhood pursuits.

1.4 Increase to at least 20 percent the proportion of people aged 18 and older and to at least 75 percent the proportion of children and adolescents aged 6 through 17 who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness three or more days per week for 20 or more minutes per occasion. (Baseline: 12 percent for people aged 18 and older in 1985; 66 percent for youth aged 10 through 17 in 1984)

Note: Vigorous physical activities are rhythmic, repetitive physical activities that use large muscle groups at 60 percent or more of maximum heart rate for age. An exercise heart rate of 60 percent of maximum heart rate for age is about 50 percent of maximal cardiorespiratory capacity and is sufficient for cardiorespiratory conditioning. Maximum heart rate equals roughly 220 beats per minute minus age.
1.5 Reduce to no more than 15 percent the proportion of people aged six and older who engage in no leisure-time physical activity. (Baseline: 24 percent for people aged 18 and older in 1985)

1.6 Increase to at least 40 percent the proportion of people aged six and older who regularly perform physical activities that enhance and maintain muscular strength, muscular endurance, and flexibility.

1.7 Increase to at least 50 percent the proportion of overweight people aged 12 and older who have adopted sound dietary practices combined with regular physical activity to attain an appropriate body weight. (Baseline: 30 percent of overweight women and 25 percent of overweight men for people aged 18 and older in 1985)

1.8 Increase to at least 50 percent the proportion of children and adolescents in 1st through 12th grade who participate in daily school physical education. (Baseline: 36 percent in 1984-86)

1.9 Increase to at least 50 percent the proportion of school physical education class time that students spend being physically active, preferably engaged in lifetime physical activities. (Baseline: Students spent an estimated 27 percent of class time being physically active in 1983)

Note: Lifetime activities are activities that may be readily carried into adulthood because they generally need only one or two people. Examples include swimming, bicycling, jogging, and racquet sports. Also counted as lifetime activities are vigorous social activities such as dancing. Competitive group sports and activities typically played only by young children such as group games are excluded.

1.10 Increase the proportion of work sites offering employer-sponsored physical activity and fitness programs.

1.11 Increase community availability and accessibility of physical activity and fitness facilities as follows:
Facility | 1986 Baseline | 2000 Target
--- | --- | ---
Hiking, biking and fitness trail miles | 1 per 71,000 people | 1 per 10,000 people
Public swimming pools | 1 per 53,000 people | 1 per 25,000 people
Acres of park and recreation open space | 1.8 per 1,000 people (533 people per managed acre) | 4 per 1,000 people (250 people per managed acre)

1.12 Increase to at least 50 percent the proportion of primary care providers who routinely assess and counsel their patients regarding the frequency, duration, type, and intensity of each patient’s physical activity practices. (Baseline: Physicians provided exercise counseling for about 30 percent of sedentary patients in 1988)

**Health Promotion**

**Educational and Community-Based Programs Objectives**

Partial list in an abbreviated form

8.1 Increase years of healthy life to at least 65 years. (Baseline: An estimated 62 years in 1980)

*Note: Years of healthy life (also referred to as quality-adjusted life years) is a summary of health that combines mortality (quantity of life) and morbidity and disability (quality of life) into a single measure. For people aged 65 and older, active life-expectancy, a related summary measure, also will be tracked.*

8.4 Increase to at least 75 percent the proportion of the nation’s elementary and secondary schools that provide planned and sequential kindergarten through 12th grade quality school health education

8.5 Increase to at least 50 percent the proportion of postsecondary institutions with institution wide health promotion programs for students, faculty, and staff. (Baseline: At least 20 percent of higher education institutions offered health promotion activities for students in 1989-90)

8.6 Increase to at least 85 percent the proportion of workplaces with 50 or more employees that offer health promotion activities for their employees, preferably as part of a comprehensive employee health promotion
program. (Baseline: 65 percent of work sites with 50 or more employees offered at least one health promotion activity in 1985; 63 percent of medium and large companies had a wellness program in 1987)

8.7 Increase to at least 20 percent the proportion of hourly workers who participate regularly in employee-sponsored health promotion activities

8.9 Increase to at least 75 percent of people aged 10 and older who have discussed issues related to nutrition, physical activity, sexual behavior, tobacco, alcohol, other drugs, or safety with family members on at least one occasion during the preceding month

Note: This objective, which supports family communication on a range of vital personal health issues, will be tracked using the National Health Interview Survey, a continuing, voluntary, national survey of adults who report on household characteristics including such items as illnesses, injuries, use of health services and demographic characteristics.
APPENDIX B
Recommendations for school and community programs promoting physical activity among young people.\textsuperscript{20}

**Recommendation 1. Policy**
- Establish policy that promotes enjoyable, lifelong, physical activity among young people.
- Require comprehensive, daily physical education for students in K-12 grades.
- Require comprehensive health education for students in K-12 grades.
- Require that adequate resources, including budget and facilities, be committed for physical activity instruction and programs.
- Require the hiring of physical education specialists to teach physical education in K-12 grades, elementary school teachers trained to teach health education, health education specialists to teach health education in middle and senior high schools, and qualified people to direct school and community physical activity programs and to coach young people in sports and recreation programs.
- Requirement that physical activity instruction and programs meet the needs and interests of all students.

**Recommendation 2. Environment**
- Provide physical and social environments that encourage and enable safe and enjoyable physical activity.
- Provide access to safe spaces and facilities for physical activity in the school and the community.
- Establish and enforce measures to prevent physical activity-related injuries and illness.
- Provide time within the school day for unstructured physical activity.
- Discourage the use or withholding of physical activity as punishment.
- Provide health promotion programs for school faculty and staff.

**Recommendation 3. Physical Education**
- Implement physical education curricula and instruction that emphasize enjoyable participation in physical activity and that help students develop the knowledge, attitudes, motor skills, behavioral skills, and confidence needed to adopt and maintain physically active lifestyles.
- Provide planned and sequential physical education curricula from K-12 grades that promote enjoyable, lifelong physical activity.
- Use physical education curricula consistent with the national standards for physical education.
- Use active learning strategies and emphasize enjoyable participation in physical education class.
- Develop students' knowledge of and positive attitudes toward physical activity.
- Develop students' mastery of and confidence in motor and behavioral skills for participating in physical activity.
• Provide a substantial percentage of each student’s recommended weekly amount of physical activity in physical education classes.
• Promote participation in enjoyable physical activity in the school, community, and home.

Recommendation 4. Health Education
• Implement health education curricula and instruction that help students develop the knowledge, attitudes, behavioral skills, and confidence needed to adopt and maintain physically active lifestyles.
• Provide planned and sequential health education curricula from K-12 grades that promote lifelong participation in physical activity.
• Use active learning strategies to emphasize enjoyable participation in physical activity in the school, community, and home.
• Promote collaboration among physical education, health education, and classroom teachers as well as teachers in related disciplines who plan and implement physical activity instruction.
• Use active learning strategies to emphasize enjoyable participation in physical activity in the school, community, and home.
• Develop students’ knowledge of and positive attitudes towards healthy behaviors, particularly physical activity.
• Develop students’ mastery of and confidence in the behavioral skills needed to adopt and maintain a healthy lifestyle that includes regular physical activity.

Recommendation 5. Extracurricular Activities
• Provide extracurricular physical activity programs that meet the needs and interests of all students.
• Provide a diversity of developmentally appropriate competitive and noncompetitive physical activity programs for all students.
• Link students to community physical activity programs, and use community resources to support extracurricular physical activity programs.

Recommendation 6. Parental Involvement
• Include parents and guardians in physical activity instruction and in extracurricular and community physical activity programs, and encourage them to support their children’s participation in enjoyable physical activities.
• Encourage parents to advocate for quality physical activity instruction and programs for their children.
• Encourage parents to support their children’s participation in appropriate, enjoyable physical activities.
• Encourage parents to be physically active role models and to plan and participate in family activities that include physical activity.

Recommendation 7. Personnel Training
• Provide training for education, coaching, recreation, health-care, and other school and community personnel that imparts the knowledge and skills needed to effectively promote enjoyable, lifelong physical activities among young people.
• Train teachers to deliver physical education that provides a substantial percentage of each student's recommended weekly amount of physical activity.
• Train teachers to use active learning strategies needed to develop students' knowledge about attitudes toward, skills in, and confidence in engaging in physical activity.
• Train school and community personnel how to create psychosocial environments that enable young people to enjoy physical activity instruction and programs.
• Train school and community personnel how to involve parents and the community in physical activity instruction and programs.
• Train volunteers who coach sports and recreation programs for young people.

Recommendation 8. Health Services
• Assess physical activity patterns among young people, counsel them about physical activity among active young people, counsel inactive young people about physical activity, and refer young people to appropriate physical activity programs.
• Advocate for school and community physical activity instruction and programs that meet the needs of young people.

Recommendation 9. Community Programs
• Provide a range of developmentally appropriate community sports and recreation programs that are attractive to all young people.
• Provide a diversity of developmentally appropriate community sports and recreation programs for all young people.
• Provide access to community sports and recreation programs for young people.

Recommendation 10. Evaluation
• Regularly evaluate school and community physical activity instruction, programs, and facilities.
• Evaluate the implementation and quality of physical activity policies, curricula, instruction, programs, and personnel training.
• Measure students' attainment of physical activity knowledge, achievement of motor skills and behavioral skills, and adoption of healthy behaviors.
REFERENCES


29. The North Broward Hospital District Cardiac Services Statistics. Available at: http://www.nlohd.org/services/cardiac/stats.htm.


