Why Children Need Physical Education

REDUCED RISK OF HEART DISEASE
Physical education can counteract major risk factors of coronary heart disease: obesity, inactivity, and high blood pressure.

IMPROVED PHYSICAL FITNESS
A good program improves children's muscular strength, flexibility, muscular endurance, body composition (fat-to-muscle ratio) and cardiovascular endurance.

STRONGER BONES
Regular physical activity increases bone density to create a sturdier skeleton.

WEIGHT REGULATION
A good program can help children regulate their weight by burning calories, toning their bodies and improving their overall body composition.

HEALTH PROMOTION
Appropriate physical activity prevents the onset of some diseases and postpones the debilitating effects of old age.

IMPROVED JUDGEMENT
Quality physical education can influence moral development. Students have the opportunity to assume leadership, cooperate with others, question actions and regulations, and accept responsibility for their own behavior.

SELF DISCIPLINE
A good program teaches children they are responsible for their own health and fitness.

SKILL DEVELOPMENT
Physical education develops skills which allow for enjoyable and rewarding participation in physical activities. New skills become easier to learn.

EXPERIENCE SETTING GOALS
Physical education gives children the time and encouragement they need to set and strive for, personal, achievable goals.

IMPROVED SELF-CONFIDENCE AND SELF-ESTEEM
Physical education instills a stronger sense of self-worth in children. They can become more confident, assertive, emotionally stable, independent and self-controlled.

STRESS REDUCTION
Physical activity becomes an outlet for releasing tension and anxiety.

STRENGTHENED PEER RELATIONSHIPS
Physical education can be a major force in helping children socialize with others more successfully. Especially during late childhood and adolescence, being able to participate in dances, games and sports is an important part of fitting in.

REDUCED RISK OF DEPRESSION
A good program is effective in the promotion of mental health.

MORE ACTIVE LIFESTYLES
Physical education promotes a more positive attitude toward physical activity.

SPEAK

IMPORTANCE OF PHYSICAL EDUCATION

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A Report of the Surgeon General

Physical Activity and Health

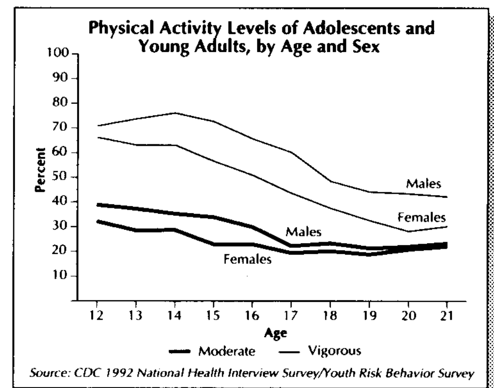
Adolescents and Young Adults

Key Messages

- Adolescents and young adults, both male and female, benefit from physical activity.
- Physical activity need not be strenuous to be beneficial.
- Moderate amounts of daily physical activity are recommended for people of all ages. This amount can be obtained in longer sessions of moderately intense activities, such as brisk walking for 30 minutes, or in shorter sessions of more intense activities, such as jogging or playing basketball for 15–20 minutes.
- Greater amounts of physical activity are even more beneficial, up to a point. Excessive amounts of physical activity can lead to injuries, menstrual abnormalities, and bone weakening.

Facts

- Nearly half of American youths aged 12–21 years are not vigorously active on a regular basis.
- About 14 percent of young people report no recent physical activity. Inactivity is more common among females (14%) than males (7%) and among black females (21%) than white females (12%).
- Participation in all types of physical activity declines strikingly as age or grade in school increases.
- Only 19 percent of all high school students are physically active for 20 minutes or more, five days a week, in physical education classes.



Source: CDC 1992 National Health Interview Survey/Youth Risk Behavior Survey

- Daily enrollment in physical education classes dropped from 42 percent to 25 percent among high school students between 1991 and 1995.
- Well designed school-based interventions directed at increasing physical activity in physical education classes have been shown to be effective.
- Social support from family and friends has been consistently and positively related to regular physical activity.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
The President's Council on Physical Fitness and Sports

The Nation's Prevention Agency
CDC 50
Centers for Disease Control and Prevention

The President's Council on Physical Fitness and Sports

Benefits of Physical Activity

- Helps build and maintain healthy bones, muscles, and joints.
- Helps control weight, build lean muscle, and reduce fat.
- Prevents or delays the development of high blood pressure and helps reduce blood pressure in some adolescents with hypertension.

What Communities Can Do

- Provide quality, preferably daily, K–12 physical education classes and hire physical education specialists to teach them.
- Create opportunities for physical activities that are enjoyable, that promote adolescents' and young adults' confidence in their ability to be physically active, and that involve friends, peers, and parents.
- Provide appropriate physically active role models for youths.
- Provide access to school buildings and community facilities that enable safe participation in physical activity.
- Provide a range of extracurricular programs in schools and community recreation centers to meet the needs and interests of specific adolescent and young adult populations, such as racial and ethnic minority groups, females, persons with disabilities, and low-income groups.
- Encourage health care providers to talk routinely to adolescents and young adults about the importance of incorporating physical activity into their lives.

For more information contact:

Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
Division of Nutrition and Physical Activity, MS K-46
4770 Buford Highway, NE
Atlanta, GA 30341-3724
1-888-CDC-4NRG or 1-888-232-4674 (Toll Free)
http://www.cdc.gov

The President's Council on Physical Fitness and Sports
Box SG
Suite 250
701 Pennsylvania Avenue, NW
Washington, DC 20004

A Report of the Surgeon General

Physical Activity and Health

The Link Between Physical Activity and Morbidity and Mortality

How Physical Activity Impacts Health

Regular physical activity that is performed on most days of the week reduces the risk of developing or dying from some of the leading causes of illness and death in the United States. Regular physical activity improves health in the following ways:

- Reduces the risk of dying prematurely.
- Reduces the risk of dying prematurely from heart disease.
- Reduces the risk of developing diabetes.
- Reduces the risk of developing high blood pressure.
- Helps reduce blood pressure in people who already have high blood pressure.
- Reduces the risk of developing colon cancer.
- Reduces feelings of depression and anxiety.
- Helps control weight.
- Helps build and maintain healthy bones, muscles, and joints.
- Helps older adults become stronger and better able to move about without falling.
- Promotes psychological well-being.

Health Burdens That Could Be Reduced Through Physical Activity

Millions of Americans suffer from illnesses that can be prevented or improved through regular physical activity.

- 13.5 million people have coronary heart disease.
- 1.5 million people suffer from a heart attack in a given year.
- 8 million people have adult-onset (non-insulin–dependent) diabetes.
- 95,000 people are newly diagnosed with colon cancer each year.
- 250,000 people suffer from a hip fractures each year.
- 50 million people have high blood pressure.
- Over 60 million people (a third of the population) are overweight.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
The President's Council on Physical Fitness and Sports

The Nation's Prevention Agency
CDC
Centers for Disease Control and Prevention

The President's Council on Physical Fitness and Sports

Promoting Lifelong Physical Activity

At-A-Glance

Young people can build healthy bodies and establish healthy lifestyles by including physical activity in their daily lives. However, many young people are not physically active on a regular basis, and physical activity declines dramatically during adolescence. School and community programs can help young people get active and stay active.

Benefits of Physical Activity

Regular physical activity in childhood and adolescence

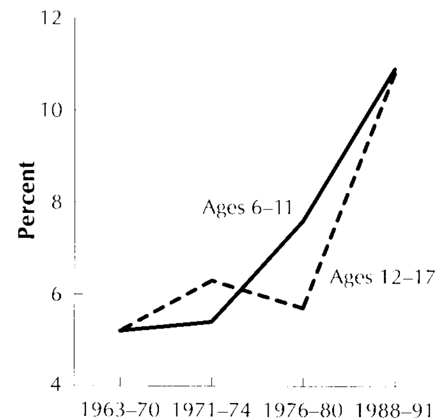
- Improves strength and endurance.
- Helps build healthy bones and muscles.
- Helps control weight.
- Reduces anxiety and stress and increases self-esteem.
- May improve blood pressure and cholesterol levels.

In addition, young people say they like physical activity because it is fun; they do it with friends; and it helps them learn skills, stay in shape, and look better.

Consequences of Physical Inactivity

- The percentage of young people who are overweight has more than doubled in the past 30 years.
- Inactivity and poor diet cause at least 300,000 deaths a year in the United States. Only tobacco use causes more preventable deaths.
- Adults who are less active are at greater risk of dying of heart disease and developing diabetes, colon cancer, and high blood pressure.

Percentage of Young People Who Are Overweight



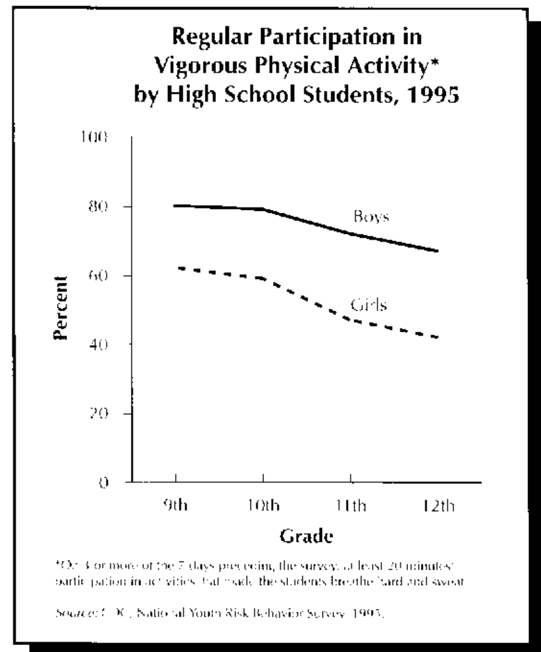
Note: Overweight defined by the age- and sex-specific 95th percentile of body mass index from National Health Examination Surveys II and III (1963–70 data).

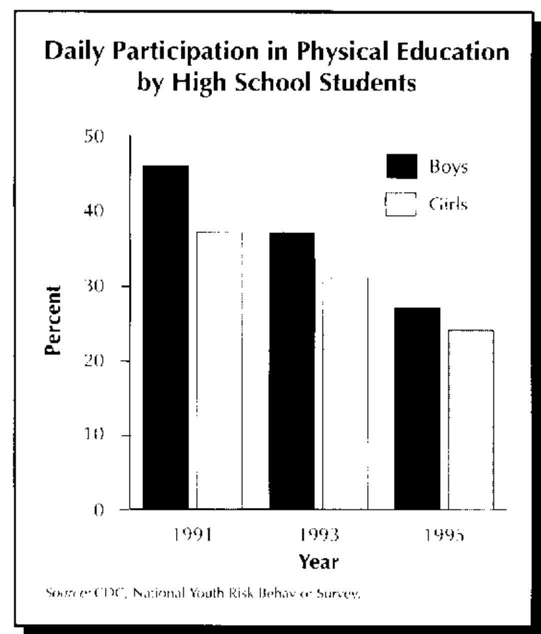
Source: National Center for Health Statistics unpublished data (age adjusted), 1995.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion
March 1997

Physical Activity Among Young People

- Almost half of young people aged 12–21 and more than a third of high school students do not participate in vigorous physical activity on a regular basis.
- Seventy-two percent of 9th graders participate in vigorous physical activity on a regular basis, compared with only 55% of 12th graders.
- Daily participation in physical education classes by high school students dropped from 42% in 1991 to 25% in 1995.
- The time students spend being active in physical education classes is decreasing; among high school students enrolled in a physical education class, the percentage who were active for at least 20 minutes during an average class dropped from 81% in 1991 to 70% in 1995.





How Much Physical Activity Do Young People Need?

Everyone can benefit from a moderate amount of physical activity on most, if not all, days of the week. Young people should select activities they enjoy that fit into their daily lives. Examples of moderate activity include

- Walking 2 miles in 30 minutes or running 1½ miles in 15 minutes.
- Bicycling 5 miles in 30 minutes or 4 miles in 15 minutes.
- Dancing fast for 30 minutes or jumping rope for 15 minutes.
- Playing basketball for 15–20 minutes or volleyball for 45 minutes.

Increasing the frequency, time, or intensity of physical activity can bring even more health benefits—up to a point. Too much physical activity can lead to injuries and other health problems.

CDC's Guidelines for Promoting Lifelong Physical Activity

CDC's Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People *were developed in collaboration with experts from other federal agencies, state agencies, universities, voluntary organizations, and professional associations. They are based on an extensive review of research and practice.*

Key Principles

The guidelines state that physical activity programs for young people are most likely to be effective when they

- Emphasize enjoyable participation in physical activities that are easily done throughout life.
- Offer a diverse range of noncompetitive and competitive activities appropriate for different ages and abilities.
- Give young people the skills and confidence they need to be physically active.
- Promote physical activity through all components of a coordinated school health program and develop links between school and community programs.

Recommendations

The guidelines include 10 recommendations for ensuring quality physical activity programs.

1 Policy

Establish policies that promote enjoyable, lifelong physical activity.

- Schools should require daily physical education and comprehensive health education (including lessons on physical activity) in grades K–12.
- Schools and community organizations should provide adequate funding, equipment, and supervision for programs that meet the needs and interests of all students.

2 Environment

Provide physical and social environments that encourage and enable young people to engage in safe and enjoyable physical activity.

- Provide access to safe spaces and facilities and implement measures to prevent activity-related injuries and illnesses.
- Provide school time, such as recess, for unstructured physical activity, such as jumping rope.
- Discourage the use or withholding of physical activity as punishment.
- Provide health promotion programs for school faculty and staff.

3 Physical Education Curricula and Instruction

Implement sequential physical education curricula and instruction in grades K–12 that

- Emphasize enjoyable participation in lifetime physical activities such as walking and dancing, not just competitive sports.
- Help students develop the knowledge, attitudes, and skills they need to adopt and maintain a physically active lifestyle.
- Follow the National Standards for Physical Education.
- Keep students active for most of class time.

4 Health Education Curricula and Instruction

Implement health education curricula that

- Feature active learning strategies and follow the National Health Education Standards.
- Help students develop the knowledge, attitudes, and skills they need to adopt and maintain a healthy lifestyle.

5 Extracurricular Activities

Provide extracurricular physical activity programs that offer diverse, developmentally appropriate activities—both noncompetitive and competitive—for all students.

6 Family Involvement

Encourage parents and guardians to support their children's participation in physical activity, to be physically active role models, and to include physical activity in family events.

7 Training

Provide training to enable teachers, coaches, recreation and health care staff, and other school and community personnel to promote enjoyable, lifelong physical activity to young people.

8 Health Services

Assess the physical activity patterns of young people, refer them to appropriate physical activity programs, and advocate for physical activity instruction and programs for young people.

9 Community Programs

Provide a range of developmentally appropriate community sports and recreation programs that are attractive to all young people.

10 Evaluation

Regularly evaluate physical activity instruction, programs, and facilities.

This brochure and CDC's *Guidelines for School and Community Programs to Promote Lifelong Physical Activity Among Young People* can be reproduced and adapted without permission. Copies of the guidelines can be downloaded from the Internet at *http://www.cdc.gov*. (On the CDC home page, click on *MMWR*, select *Recommendations and Reports*, and then select March 7, 1997.) Print copies are available from: CDC, Division of Adolescent and School Health, ATTN: Resource Room, 4770 Buford Highway, Mailstop K-32, Atlanta, GA 30341-3724; phone: (888) CDC-4NRG. CDC's Division of Adolescent and School Health also distributes guidelines for school health programs on preventing the spread of AIDS, promoting lifelong healthy eating, and preventing tobacco use and addiction.

America's Leaders Support Physical Activity

"In health care reform we are stressing the point that prevention is the best medicine. Improved health through improved physical activity is one of the most readily available methods of achieving fitness. The healthier we are as individuals, the healthier we are as a nation."

—President Bill Clinton

"An investment in health and fitness is just what this country needs right now! We have to encourage every person to take responsibility for his or her own life and that begins with prevention. So that we don't have another generation of couch potatoes, our young people also need to experience a personal sense of pride about learning new skills and respect for their own bodies."

—Donna Shalala
Secretary of Health
and Human Services

"We must teach our children responsibility for their bodies and educate our communities about the value of physical education and fitness. If children aren't physically fit, we aren't going to be able to teach them reading and writing! We have to find a way to get physical education into the schools for all grades because schools are the only institution I know where every child can go."

—Joycelyn Elders, M.D.
Surgeon General
U.S. Public Health Service

"It is my sincere desire that the National Education Standards and Improvement Council certify voluntary national standards on health and physical education and that the National Education Goals Panel monitor this country's progress toward ensuring that all students are healthy and fit."

—Senator William S. Cohen (R-ME)

"Our goal is to encourage all Americans to get more physically active and that begins with children in their school physical education programs. Communities must support quality daily physical education programs for their schools, keep sports a part of the extra curriculum program, and use current physical activity and sport facilities to their fullest. We can think of no better efforts to develop personal health and discipline, create a willingness to work with others, and provide direction for children's dreams."

—Florence Griffith Joyner and Tom McMillen
Co-Chairs, President's Council on
Physical Fitness and Sports

"I support efforts to expand children's awareness of the importance of their physical well-being, which include health and physical education. If we are serious about reducing the burgeoning costs of health care, we must place a greater emphasis on preventive services. Preventive medical care is an important, and ultimately less expensive, mechanism for reducing medical costs."

—Senator George J. Mitchell (D-ME)

"The current physical activity patterns of children are inadequate to protect against the onset of obesity. Our schools should encourage programs that contribute to developing patterns of physical activity that support health-related fitness. A healthy lifestyle is a prerequisite for all learning and a foundation for responsible citizenship, community service, and personal responsibility."

—Representative Donald Payne (D-NJ)

"In the current climate of health care, let me make sure that we emphasize at an early age education and health in our schools. If we do not teach these in school, I am afraid they will never be taught in our society. It is absolutely essential that this be an objective for our students, be an objective for our schools, and be an objective for our future generations."

—Representative Ron Machtley (R-RI)

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OTHER VOICES OF SUPPORT FOR PHYSICAL ACTIVITY

American Medical Association

Unfortunately, current physical education requirements in most states are inadequate. Physical education helps improve a child's overall health by increasing cardiovascular endurance, muscular strength and power, mental alertness, bone development and posture.

National Association of Elementary School Principals

We firmly believe that good health and physical fitness are essential ingredients to the learning process. Our children and youth could benefit immeasurably from quality programs regularly conducted.

National Education Association

In 1991 the NEA Assembly included in its Resolutions Document a statement of support for the provision of a comprehensive pre-K through 12 program of physical education on a daily basis, in or on facilities designed for that purpose. In 1993 the delegates voted to expand the statement, adding: "The Association believes that the following concepts should be included-

- Curriculum emphasis should cover physical fitness; skills of sports, games, dance, and basic movement; and related concepts and knowledge.
- Student assessments should include physical fitness testing at least twice a year.
- Every student should have posture checks, and other health screenings, with follow-up activities provided.
- Programs should include appropriate provisions for the special needs of students with low fitness, physical disabilities, or learning disabilities.
- Teachers of physical education should have appropriate professional preparation in physical education as well as periodic professional growth training."

The NEA Assembly in 1993 also voted to add "the inclusion of physical education and health education in appropriate federal education programs" as one of the items for which NEA will lobby intensively at the national level.

U.S. Department of Education

First Lessons: A Report on Elementary Education in America

- "An orderly program of health and physical education is a must."
- "Such programs belong in elementary schools not only because they promote health and well- -being, but because they contribute tangibly to academic achievement."
- "Maintaining children's good health is a shared responsibility of parents, schools and community. But elementary schools have a special mandate: to provide children with the knowledge, habits, and attitudes that will equip them for a fit and healthy life."
- "Schools have much to contribute to the classic ideal of a sound mind in a sound body. Well-designed programs can affect subsequent student knowledge, attitudes and-most important- behavior."

Young Men's Christian Association

As one of the nation's largest youth serving organizations, the YMCA has found that the health of our nation's children is at risk. Many children are at risk of long term health problems due to the lack of regular physical exercise and poor diet. Compared to other countries, American children are much less fit. When our country is faced with problems such as these, it makes sense to encourage and support efforts that help our young people develop healthy behaviors and enjoy physical fitness. ■

The National School Boards Association Resolution on Comprehensive School Health Programs

NSBA believes that all local school boards should consider adopting a policy that requires K-12 comprehensive school health programs to support the development of students' physical, emotional, and social well being. These programs should include planned, sequential instruction by appropriately trained personnel, health services to address student and public health needs, and a health promoting school environment. School boards must recognize that the schools are but one component of a community-wide effort to address health promotion and disease prevention. School boards should work in consultation with parents, health professionals, and others in the community to plan, implement, and evaluate the comprehensive school health program to assure that specific local needs, such as prevention of childhood pregnancy and sexually transmitted diseases, are emphasized.

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Physical Education—The Facts

From the American Academy of Pediatrics

American Academy of Pediatrics

For every child, school plays a pivotal role in promoting physical fitness and exercise habits. Three of the 1990 national health objectives specifically address children's physical fitness.

SPEAK

INTRODUCTION AND BACKGROUND

THE OBJECTIVES AIM TO:

Increase the number of students who regularly participate in cardiorespiratory fitness activities to over 90 percent;

Increase the proportion of students participating in daily school physical education to over 60 percent;

Assess the physical fitness of at least 70 percent of children and youth.

The following information is adapted from "School Health in America," a publication of the American School Health Association.

In 1989, 40 states had established a legal basis for physical education through educational codes or other state legislation.

Physical education was mandated by law in 36 states in 1989.

In 17 states, state boards of education addressed physical education by issuing policy statements, bylaws, resolutions, and position papers.

Thirty-eight states mandated physical education in the elementary grades in 1989.

Thirty-nine states mandated physical education in both middle schools and secondary schools in 1989.

Most states do not have a state policy on fitness testing, and less than one-fourth of states require a fitness test. Eleven states require periodic fitness testing; 17 states recommend this practice.

In 1989, the average number of physical education hours required in elementary school per year was 54; in secondary schools 51 hours per year were required.

Seven states mandated daily physical education classes for elementary and middle schools in 1989. Five states mandated daily physical education classes for secondary schools.

The inclusion of a national health objective calling for daily physical education classes underscores the importance of frequent physical education. The National Children and Youth Fitness Study II, conducted by the Centers for Disease Control (CDC), found that only 36 percent of students in grades 1 through 12 enrolled in daily physical education classes. ■

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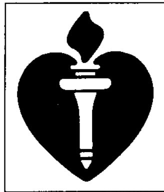
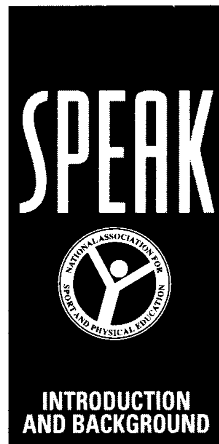
A.H.A. Labels Physical Inactivity as a Fourth Risk Factor for Coronary Heart Disease





New York, July 1, 1992—The American Heart Association today labeled physical inactivity, or lack of exercise, as a fourth risk factor for coronary heart disease, along with cigarette smoke, high blood pressure and high blood cholesterol levels. In a new "position statement" released at a news briefing here, the AHA says that regular aerobic physical activity plays a significant role in preventing heart and blood vessel disease. "There is a relation between physical inactivity and cardiovascular mortality," the statement says, "and inactivity is a risk factor for the development of coronary heart disease."

The revised statement on exercise, also being published in the July issue of the AHA journal *Circulation*, is the association's strongest pronouncement yet on the benefits of aerobic conditioning and the ill effects of physical inactivity on cardiovascular health.

Even modest levels of physical activity are beneficial, say the statement's authors. They point to recent studies showing that "persons who modify their behavior after myocardial infarction [heart attack] to include regular exercise have improved rates of survival."

Until now, the AHA had said the "big three" modifiable risk factors for heart attack are cigarette smoke and high blood pressure and cholesterol levels, notes Gerald F. Fletcher, M.D., chairman of a national committee that wrote the association's new, stronger exercise statement. He is chairman of rehabilitation medicine at Emory University School of Medicine in Atlanta.

Physical inactivity thus gains new importance, but not pre-eminence, in the rankings of coronary disease risk factors, Fletcher says.

"Lack of exercise obviously is not a poison like smoking," he says. "But it is an important modifiable risk factor. I think at this point it is among the 'biggies.' "

Major coronary heart disease risk factors that cannot be modified include increasing age, male gender and family history of the disease. Risk for women is lower than for men at younger ages but rises after menopause to become the leading cause of death among older women.

The experts who serve as volunteers on the AHA's scientific committees "are conservative and realistic about exercise," says Fletcher, now immediate past chairman of AHA's committee on exercise and cardiac rehabilitation, which prepared the report. "So they waited until scientific evidence became available. Some studies of relatively large populations have been published in the last several years, and that evidence gave the new AHA exercise statement more strength than the previous ones," he explains.

AHA position statements are adopted only after extensive and deliberate review and revision, Fletcher emphasizes. In this case the review process included not only exercise experts, he points out, but also ranking leaders in other scientific disciplines.

"The layers of the approval process and the careful review I think make the AHA's statements very strong. We have carefully stated our position. We haven't over-reacted with a personal enthusiasm for exercise. It's the truth, based on the evidence currently available."

The evidence shows that exercise can control blood lipid (cholesterol and fat) abnormalities, diabetes, and obesity, the new statement says, and "aerobic exercise adds an independent, modest blood pressure-lowering effect in certain hypertensive groups."

"Activities such as walking, hiking, stair-climbing, aerobic exercise, calisthenics, jogging, running, bicycling, rowing, and swimming and sports such as tennis, racquetball, soccer, basketball, and touch football are especially beneficial when performed regularly," the statement says.

The scientific data also show that low-intensity exercise such as walking is beneficial, Fletcher points out. "While less strenuous activity may not yield quite as much benefit as a higher-intensity program," he says, "population studies and our experience show that even modest levels of exercise can be helpful, if done regularly and long-term."

Such activities include walking for pleasure, gardening, yard work, house work, dancing, and prescribed home exercise, the statement says. Low-intensity leisure activities like walking, golf, badminton,

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croquet, shuffleboard, lawn bowling, and ping-pong are recommended for the elderly. "Developing endurance, joint flexibility, and muscle strength is important in a comprehensive exercise program, especially as people age," the report says.

Research has not yet provided absolute proof that exercise lowers the risk of heart disease in the elderly, Fletcher says. "There's no real confirmatory data in older people." Future studies should include "adequate numbers of women and the elderly to better meet research objectives," the panel wrote.

Physical activity has risks as well as benefits, the statement says.

"Estimates of sudden cardiac death rates per 100,000 hours of exercise range from zero to two in general populations and within that same range or less for cardiac rehabilitation programs," the committee wrote. "Falls and joint injuries are additional risks associated with physical activity (especially in older women), but most of these are not likely to require medical treatment. The incidence of such complications is less in patients participating in lower-intensity activities like walking."

People must be careful with exercise, Fletcher cautions. "If someone has a high risk of coronary heart disease—if they have high cholesterol levels, are overweight, etc.—or if they have definite heart disease, they need to have a medical evaluation and perhaps an exercise test. Everybody shouldn't just jump up and start exercising."

Members of the statement-writing committee chaired by Fletcher were Victor F. Froelicher, M.D., Stanford University and VA Medical Center, Palo Alto, California; Erika S. Sivarajan Froelicher, Ph.D., M.P.H., R.N., School of Nursing; University of California-San Francisco; Bernard Chaitman, M.D., St. Louis University; Ileana L. Pina, M.D., Temple University, Philadelphia; Steven N. Blair, P.E.D., Institute for Aerobics Research, Dallas; Carl Caspersen, Ph.D., Centers for Disease Control, Atlanta; James Blumenthal, Ph.D., Duke University School of Medicine, Durham, North Carolina; Harold Falls, Ph.D., Southwest Missouri State University, Springfield; and Stephen Epstein, M.D., National Heart, Lung, and Blood Institute, Bethesda, Maryland.

Victor Froelicher recently succeeded Fletcher as chairman of the AHA's committee on exercise and cardiac rehabilitation. ■

12 Ways to Make Life a Moving Experience

from the American Heart Association

1. Use the stairs—up and down—instead of the elevator. Start with one flight of stairs and gradually build up to more.
2. Park a few blocks from the office or store and walk the rest of the way. Or if you ride on public transportation, get off one or two stops early and walk a few blocks.
3. Take an exercise break—get up from your desk and stretch, walk around and give your muscles and mind a chance to relax. Walk your report over to the next building instead of sending it by interoffice mail.
4. Instead of eating that extra snack, take a brisk stroll around the neighborhood.
5. When traveling, choose a hotel with a good exercise facility. Then use it every day if only for a couple of laps around the pool or indoor track.
6. Walk wherever possible: up stairs, sightseeing, shopping, to a restaurant or meeting.
7. Stand or walk while you talk on the phone. A cordless phone is great for walking around the house or yard.
8. Substitute bowling or miniature golf for going to a movie.
9. Some physical activity can save you money: Pump your own gas. Fire the yard person and mow the lawn yourself. Do your own housework.
10. The next time you walk the dog, try walking a little faster and a little longer. If you don't have a pet, adopt one. This will add activity to your routine.
11. Try "aerobic shopping." Wear your walking shoes and sneak in an extra lap or two around the mall. Stretch to reach items in high places and squat or bend to look at items at floor level. If you try this in the supermarket, it will get you out of the eye-level "impulse buying" zone.
12. Throw away your video remote control. Instead of asking someone to bring you a drink, get off the couch and get it yourself. Focus on moving versus not moving. **You don't have to be a triathlon athlete—keep in mind that once you get moving, your body will feel so much better that you'll look for new ways to move.**

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Statement on Exercise from the American Heart Association

SPEAK

INTRODUCTION AND BACKGROUND

Regular aerobic physical activity increases exercise capacity and plays a role in both primary and secondary prevention of cardiovascular disease.[1,2] The known benefits of regular aerobic exercise and recommendations for implementation of exercise programs are described in this report. Inactivity is recognized as a risk factor for coronary artery disease.

Exercise training increases cardiovascular functional capacity and decreases myocardial oxygen demand at any level of physical activity in apparently healthy persons as well as in most patients with cardiovascular disease. Regular physical activity is required to maintain these training effects. The potential risk of physical activity can be reduced by medical evaluation, supervision, and education.[3]

Exercise can help control blood lipid abnormalities, diabetes, and obesity; in addition, aerobic exercise adds an independent, modest blood pressure-lowering effect in certain hypertensive groups. [4-6]

There is a relation between physical inactivity and cardiovascular mortality, and inactivity is a risk factor for the development of coronary artery disease.[7-9] Modest levels of physical activity are beneficial. Results of pooled studies reveal that persons who modify their behavior after myocardial infarction to include regular exercise have improved rates of survival.[10-12]

BENEFITS OF EXERCISE

Healthy persons as well as many patients with cardiovascular disease can improve their exercise performance with training. This improvement is the result of an increased ability to use oxygen to derive energy for work. Exercise training increases maximal ventilatory oxygen uptake by increasing both maximal cardiac output (the volume of blood ejected by the heart, which determines the amount of blood delivered to the exercising muscles) and the ability to extract oxygen from blood. Beneficial changes in hemodynamic, hormonal, metabolic, neurological, and respiratory function also occur with increased exercise capacity.

Exercise training results in decreased myocardial oxygen demands for the same level of external work performed, as demonstrated by a decrease in the product of heart rate times systolic arterial blood pressure (an index of myocardial oxygen consumption). These changes are also beneficial in patients with coronary artery disease, who after exercise training may attain a higher level of physical work before reaching the level of myocardial oxygen requirement that results in myocardial ischemia.[13]

Exercise training favorably alters lipid and carbohydrate metabolism. The exercise-induced increase in high density lipoproteins is strongly associated with changes in body weight.[14] In addition, regular exercise in overweight women and men enhances the beneficial effect on blood lipoprotein levels of a low-saturated fat and low-cholesterol diet.[15]

Developing endurance, joint flexibility, and muscle strength is important in a comprehensive exercise program, especially as people age. However, static or isometric exercise alone is not known to lower cardiovascular risk. Patients with cardiovascular disease are usually asked to refrain from heavy lifting and forceful isometric exercises, although the use of light weights seems beneficial in developing muscle strength and joint flexibility. Careful isometric training alone or with aerobic training is generally safe and effective in patients with cardiovascular disease who are medically stable and are in a supervised program.[16-19]

Many activities of daily living require arm work more than leg work. Therefore, patients with coronary artery disease are advised to use their arms as well as their legs in exercise training. The arms respond like the legs to exercise training both quantitatively and qualitatively, although ventilatory oxygen uptake is less with arm ergometry and myocardial oxygen consumption may also be less because of decreased heart rate. Therefore, target heart rates are set at 10 beats per minute lower for arm training than for leg training.[20,21] Dynamic arm ergometry is usually well tolerated by patients with coronary artery disease; however, there may be an increased rise in blood pressure that may be of concern in certain subjects.

Maximal ventilatory oxygen uptake drops 5-10% per decade between the ages of 20 and 70,[19] and a lifetime of dynamic exercise maintains an individual's ventilatory oxygen uptake at a level that is higher than expected for any given age. There is some suggestion that the rate of decline of ventilatory oxygen uptake that normally occurs with age is less in persons who exercise compared with those who do not.[22-25]

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This issue requires additional study.

Middle-age men and women who work in physically demanding jobs or perform moderate to strenuous recreational activities have fewer manifestations of coronary artery disease than their less active peers.[7,8] Meta-analysis studies of clinical trials reveal that medically prescribed and supervised exercise can reduce mortality rates of patients with coronary artery disease.[10-12] However, a unifactorial randomized controlled trial of exercise to study the development or progression of coronary artery disease has not been, and may never be, done because of the difficulty of maintaining controls and interventions, the necessity of modifying other risk factors, the confounding therapies known to affect survival, and major logistical and financial constraints.

Compared with the physical benefits of an aerobic training program, indications of psychological benefits are less convincing. However, one study revealed that exercise is associated with a number of psychological benefits, including reduced anxiety and depression and increased feelings of well-being.[26] Relatively few studies on the psychological effects of exercise among cardiac patients have been done, and in those studies conducted, there does not appear to be clear support for the beneficial effects of exercise on psychological functioning.[27] Participation in education and counseling groups as part of cardiac rehabilitation has been shown to improve patients' quality of life in a few well-designed randomized trials.[28-31] However, these studies have documented only modest improvements in psychological functioning. Even though such benefits remain to be more fully documented, one comprehensive review concluded that health professionals are under a general impression that exercise training may improve psychosocial function.[32]

One reason for the failure to find improvement in psychological functioning may be that the majority of cardiac patients function at a relatively high level. For example, in one study only depressed cardiac patients exhibited psychological improvements with exercise training.[33] There is also evidence that physical activity probably alleviates symptoms of mild and moderate depression and provides an alternative to alcoholism and substance abuse.[34]

IMPLEMENTATION OF EXERCISE PROGRAMS

Persons of all ages should include physical activity in a comprehensive program of health promotion and disease prevention, and should increase their habitual physical activity to a level appropriate to their capacities, needs, and interest.

Activities such as walking, hiking, stair-climbing, aerobic exercise, calisthenics, jogging, running, bicycling, rowing, and swimming and sports such as tennis, racquetball, soccer, basketball, and touch football are especially beneficial when performed regularly. Brisk walking is also an excellent choice.[35,36] The training effect of such activities is most apparent at exercise intensities exceeding 50% of a person's exercise capacity. (Exercise capacity is defined as the point of maximal ventilatory oxygen uptake or the highest work intensity that can be achieved.) The evidence also supports the notion that even low-intensity activities performed daily can have some long-term health benefits and lower the risk of cardiovascular disease.[35,37,38] Such activities include walking for pleasure, gardening, yard work, house work, dancing, and prescribed home exercise. Low-intensity leisure activities like walking, golf, badminton, croquet, shuffleboard, lawn bowling, and ping-pong are recommended for the elderly. For health promotion, dynamic exercise of the large muscles for extended periods of time (30-60 minutes, three to four times weekly) is recommended.

Physical activity has risks as well as benefits. Estimates of sudden cardiac death rates per 100,000 hours of exercise range from 0 to 2.0/100,000 in general populations and from 0.13/100,000 to 0.61/100,000 in cardiac rehabilitation programs.[39-41] Falls and joint injuries are additional risks associated with physical activity (especially in older women), but most of these are not likely to require medical treatment. The incidence of such complications is less in patients participating in lower-intensity activities like walking.

Medical Professionals

Preventive services are an important component of the national health agenda. Physicians have the opportunity and responsibility to promote regular exercise as well as the reduction of high blood pressure, management of abnormal blood lipids, and prevention and cessation of smoking.

Many physicians do not have time to add preventive services to their schedules and may delegate the task to other members of the health care team. However, the physician must set the agenda, for staff members under a physicians's supervision cannot deliver preventive services unless the physician defines the services as medically appropriate. The physician must not neglect this responsibility to promote regular exercise and other health promotion strategies.

Nurses, an integral part of the health care team, may assess physical activity habits, prescribe exercise, and monitor responses to exercise in healthy persons and cardiac patients. The services of physical and occupational therapists, exercise scientists, and other health professionals may also be useful.[42]

Patients with known or suspected cardiovascular, respiratory, metabolic, orthopedic, or neurological disorders should consult their personal physicians before beginning or significantly increasing physical activity. Middle-aged or older sedentary individuals with symptoms of cardiovascular disease should also

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seek medical advice. In turn, physicians should give advice according to recommended guidelines for exercise in such patients.[19,41,43,44] In addition, physicians should encourage their more sedentary patients to adopt a more active lifestyle and emphasize the risks associated with inactivity. Walking should be advocated as a form of exercise.[36] Physicians should assess each patient's physical activity pattern and, with the support of other health professionals, prescribe and give advice about physical activity with the individual patient's needs and capabilities in mind, providing systematic follow-up. A medical evaluation, including an exercise test, may be necessary for some persons but not for the apparently healthy subject less than 40 years old who has no coronary risk factors; the exercise test can also be an important basis for appropriate exercise prescription. In some instances it is recommended that patients with known cardiovascular disease undertake a prescribed, medically supervised exercise program to reduce morbidity (myocardial infarction or abnormal cardiac rhythms) and mortality.[44,45] Annual exercise testing is an important part of monitoring many patients with coronary artery disease.

Residency and fellowship training programs should prepare physicians to recommend proper exercise for their patients. An individual's customary physical activity level should be an integral part of a comprehensive medical history.[42,46-48] Professionals with a background in exercise science should work with medical personnel to establish appropriate exercise programs for persons with diagnosed health problems or who are at high risk for developing major health problems.

Parents

Parents should be aware of the health benefits of regular physical activity and of how exercise contributes to quality of life. They should be encouraged to incorporate physical activity into their daily lives and those of all family members. Moreover, parents should teach their children that proper physical activity is a basic component of normal healthy living. This commitment provides an incentive, sets an example, and creates in children a positive attitude toward physical activity. Parents and other family members should be encouraged to support each other's exercise habits by sharing responsibilities such as child care, food preparation, and shopping. Families at high risk for cardiovascular disease may benefit from structured programs aimed at specific health behavior changes.[38]

Schools

Children should be introduced to the principles of regular physical exercise and recreational activities at an early age. Schools at all levels should develop and encourage positive attitudes toward physical exercise, providing opportunities to learn physical skills and to perform physical activities, especially those that can be enjoyed for many years. The school curriculum should not overemphasize sports and activities that selectively eliminate children who are less skilled. Schools should teach the benefits of exercise and the development and maintenance of exercise conditioning throughout life.

Some studies demonstrate that such organized school programs are not only feasible but can also be successful.[49,50] In addition, these programs can be used to promote proper nutrition and cigarette smoking prevention and cessation.

Employers and Community Groups

Employers and community organizations should develop both short-term and long-term plans tailored to the needs of persons in the community and workplace. Communities should develop exercise programs using local club, park, recreational, church, and school facilities. There is increasing evidence that worksite programs with a comprehensive approach to employee health, including prevention and cessation of smoking, dietary intervention, and exercise, whether on-site or nearby, are not only effective in modifying coronary risk factors but can also help reduce absenteeism, accidents, health care costs, hospital admissions, and days of rehabilitation.[48] Baseline assessment of an employee's health status can be performed at a relatively low cost and may include an assessment of physical conditioning. Public health interventions in the workplace have resulted in an increase in vigorous physical activity by participating employees that is associated with increases in objective measurements of physical conditioning.[51] As health care costs continue to increase, these programs will become more attractive to both small and large businesses.

Persons of all ages should include physical activity in a comprehensive program of health promotion and disease prevention, and should increase their habitual physical activity to a level appropriate to their capacities, needs, and interest.

Insurance Industry

The insurance industry and the medical community are encouraged to engage in a collaborative effort to provide policyholders with exercise programs that meet American Heart Association standards.[19]

ADDITIONAL RESEARCH AND FUTURE ISSUES

There is a large body of knowledge on exercise, but data on exercise and its effects on the cardiovascular system and long-term survival are limited. The responsibility for conducting research lies with government, private health agencies, the insurance industry, employers, universities, and medical schools.

Basic knowledge of the anatomic, biochemical, and physiological changes that result from various patterns of physical activity (acute and chronic, sustained and intermittent, isotonic and isometric, low-intensity and high-intensity) in persons of different ages is needed, as is a determination of whether a cer-

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tain minimal-intensity threshold of physical activity is required for benefit. The biomedical and economic impact of participation in specific exercise programs on coronary artery disease, peripheral vascular disease, and hypertension should also be evaluated. The psychosocial functioning of patients with coronary artery disease and the potential value of exercise in enhancing the quality of life of cardiac and other patients warrants further study. Future studies should include adequate numbers of women and the elderly to better meet research objectives.

Furthermore, the presence and extent of coronary risk factors in the disabled and in disadvantaged and minority groups need to be better identified and defined. Consequently, the effect that modifications like increases in physical activity would have on members of these groups should be explored, and large studies should also include a significant number of these persons.

Research should also be continued to establish the cost-effectiveness of physical activity programs for the enhancement of cardiovascular health,[52] with a focus on the type of promotional strategies required for initiating and maintaining physical activity (e.g., insurance incentives, health personnel, and media materials) as well as on the social context of such activity (e.g., industrial and business settings, rural and urban settings, schools, churches, and families).

In summary, future development and study should be not only of the benefits of physical activity, but also of the methods used to facilitate the dissemination of the present and future body of knowledge to all members of society.

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Centers for Disease Control—"Morbidity and Mortality Weekly Report"

Each week, the Centers for Disease Control publish the "Morbidity and Mortality Weekly Report" (MMWR), which documents the benefits of physical activity and the prevalence of inactivity among adults and high school students in the United States. Following are some highlights from the various articles, emphasizing the need for physical activity in the United States today and the poor health that results from a sedentary lifestyle. The first four summaries concern adults and the last three are directed toward high school students.

1. Public Health Focus: Physical Activity and the Prevention of Coronary Heart Disease. MMWR 42 (35): 669-672, 1993 (September 10).

This first report summarizes information about the potential efficacy and cost effectiveness of physical activity promotion as a strategy for preventing coronary heart disease (CHD).

- CHD is the leading cause of mortality in the United States.
- CHD accounts for an estimated $47 billion in direct and indirect health care costs.
- The risk for CHD is nearly two times greater for physically inactive persons compared to active persons.
- The risk for CHD due to inactivity is comparable to the risks for CHD associated with high blood pressure, cigarette smoking, and elevated cholesterol.
- Mild to moderate levels of physical activity can help prevent CHD.
- Based on a 1985 U.S. National survey, 56% of men and 61% of women either never or irregularly engaged in physical activity.

Conclusion: Emphasis should be placed on getting persons involved in a variety of moderate level physical activities, such as gardening, yard work, walking and dancing, for 30 minutes of activity most days of the week (preferably at least 5 days per week). When promoting physical activity public health providers should take into consideration factors associated with why persons are physically inactive. These include:

- lack of social support
- inconvenience of facilities and activities
- aversion to vigorous activities
- cost of activities
- obesity
- lack of self motivation
- low educational attainment
- lack of knowledge about the benefits of exercise
- the perception of poor health
- lack of time
- dislike of activity
- increasing age.

2. Prevalence of Sedentary Lifestyle—Behavioral Risk Factor Surveillance System, United States, 1991. MMWR 42 (29): 576-579, 1993 (July 30).

CDC analyzed data on leisure-time physical activity from the 1991 Behavioral Risk Factor Surveillance System (BRFSS). This report provides estimates of the prevalence of sedentary lifestyles and identifies groups characterized by a high prevalence of physical inactivity.

- Data were available for 87,433 respondents from 47 states and the District of Columbia, over 18 years of age.
- Over 58.1% of these respondents were classified as sedentary, defined as persons reporting no or irregular physical activity (i.e., less than three 20-minute sessions of leisure-time physical activity per week).
- The prevalence of sedentary lifestyle:
  —was higher for other races (63.7%) than for whites (56.7%)
  —was highest in the lowest income category (65.0%) and the lowest in the highest income category (48.3%)
  —was highest among persons with less than a twelfth grade education (71.9%) compared to persons with a college education (50.1%)
  —increased with age (54.6% for respondents aged 18-34; 58.9% for respondents 35-54; and 61.9% for respondents over 55 years of age).
- There was no difference in the prevalence of sedentary lifestyle between men and women aged 18-34. Men were more sedentary than women in the 35-54 age range, and women were more sedentary than men in the over 55 age group.
- Despite increasing evidence of the health benefits

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of physical activity, including reduced risk of CHD mortality, the U.S. remains predominately a sedentary society.

Conclusion: Intensified efforts to increase public awareness of the health benefits of physical activity, and to increase environments in which people can be more active are needed. The Centers for Disease Control and Prevention and the American College of Sports Medicine recommend that all U.S. residents participate in moderate intensity physical activity for 30 minutes or more most days of the week (preferably at least 5 days per week).

3. Behavioral Risk Factor Surveillance, 1986-1990. MMWR 40 (ss-4): 1-23, 1992.

Based on the Behavioral Risk Factor Surveillance System (BRFSS), this report provides state specific estimates of the prevalence of selected health risk behaviors for the years 1986-1990. Trends and progress toward several of the year 2000 objectives, including physical activity, are discussed. BRFSS data show that a substantial proportion of persons in the United States remain sedentary.

■ The median proportion of adults (over 18 years old) who engaged in less than three 20-minute sessions of leisure-time physical activity per week was:

—consistently about 60% throughout the period 1986-1990

—above 60% for adults with income less than $20,000.

—above 60% for persons over 65 years old.

■ Approximately half of the adults in the study reported that they did not participate in any leisure-time physical activity. The median prevalence for adults who engaged in no leisure-time physical activity during the years 1986-1990 ranged from 28.7% to 31.9%.

Conclusion: Substantial behavior change will be necessary to meet the year 2000 objectives.

4. Coronary Heart Disease Attributable to Sedentary Lifestyle—Selected States, 1988. MMWR 39 (32): 541-544, 1990 (August 17).

This report uses data from the 1988 BRFSS of 13 states to estimate the number of persons at risk for CHD due to sedentary lifestyle and to compare the prevalence of this risk factor with other risk factors for CHD.

■ The prevalence of sedentary lifestyle ranged from 45% (Washington) to 74% (New York) and the percentage of CHD deaths attributable to sedentary lifestyle ranged from 29% (Washington) to 40% (New York).

■ The percentage of CHD deaths attributable to sedentary lifestyle ranged from 29% (Washington) to 40% (New York).

■ The results include the fact that, after a sedentary lifestyle, cigarette smoking, obesity, hypertension, and diabetes were the most modifiable risk factors.

■ Regular physical activity also reduces the incidence of, or is otherwise beneficial to, hyperlipidemia, obesity, noninsulin-dependent diabetes, osteoporosis, psychologic impairment, colon cancer, and back injury.

■ These data should be viewed with caution since the relative risk for each CHD risk factor was not adjusted for the presence or absence of the other factors in estimating the number of preventable deaths.

Conclusion: Sedentary lifestyle needs to be targeted to reduce the risk for CHD and other chronic diseases associated with physical inactivity.

Much of the information in the last three summaries can be found in NASPE's book Shape of the Nation.

5. Participation in School Physical Education and Selected Dietary Patterns Among High School Students-United States, 1991. MMWR 41 (33): 597-601 and 607, 1992 (August 21).

The 1991 National Youth Risk Behavior Survey (YRBS) had two components: a national survey and a state/local survey. The statistics generated from the YRBS were for students in grades nine through twelve. The findings included:

■ National YRBS; 42% enrolled in daily PE

■ State/local YRBS; 2-74% (median 35%) enrolled in daily PE class

■ Male adolescents were more likely to be enrolled in PE class, attend PE class daily, and spend a minimum of 20 minutes exercising during the average PE class than were females.

Conclusion: Although the year 2000 health objectives are to increase to at least one-half the adolescents who participate in daily physical education, the national YRBS data show that this objective is not being met.

6. Vigorous Physical Activity Among High School Students—United States, 1990. MMWR 41 (3): 33-37, 1992 (January 24).

This study reports on vigorous physical activity and is based on the 1990 National YRBS and, as in #5, looks at high school students in grades nine through twelve.

The results of this study included:

■ 37% reported being vigorously active at least three times a week

■ Whites and Hispanics were more likely to report being vigorously active compared with blacks (39% and 34% versus 29%)

■ 9th grade girls were more likely to be vigorously active than 11th or 12th grade girls (31% vs. 23% and 17%).

■ Girls and boys who were more vigorously active were more likely to participate in sports teams and at a community center

Conclusion: The year 2000 health objective 1.4 to increase to at least three-quarters of the adolescents who engage in vigorous physical activity at least 3 times a week for a minimum of 20 minutes is not being met. School physical education, sports teams, and community recreation centers should be used to help promote lifelong physical activity.

7. Participation of High School Students in School Physical Education—United States, 1990. MMWR 40 (35): 607 and 613-615, 1991 (September 6).

These findings are based on the 1990 national YRBS for students in grades nine through twelve and included:

- 44% of males and 52% of females were not enrolled in any physical education class
- 22% of the students reported attending physical education daily
- Daily attendance decreased as grade level increased from grade nine through twelve; 9th grade, 34%; 10th grade, 26%; 11th grade, 15% and 12th grade 11%)

Conclusion: Less than one-fourth of the students were participating in physical activity on a daily basis; therefore, the year 2000 health objective 1.8 to increase to at least one-half the adolescents who participate in daily physical education is not being met. ■

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Bonnie Mohnsen

Cooperative Learning in Physical Education
Steve Grineski

Cowstails and Cobras II
Karl Rohnke

Developmental Physical Education for Today's Elementary School Children
David Gallahue

Developmental Appropriate Physical Education Practices for Children
NASPE

Dynamic Physical Education
Dauer & Pangrazi

Fitness for Children
Curt Hinson

Fitness Fun
Foster, Hartinger & Smith

Funn Stuff
Karl Rohnke

Goals and Strategies for Teaching Physical Education
Don Hellison

Heart Power
American Heart Association

How to Teach Today's Dances with Christy Lane
Christy Lane

Human Kinetics Catalog (1-800-747-4457)

Learn the Dances of the 50's and 60's
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Learn the Dances of the 70's
Christy Lane

Learn the Dances of the 80's
Christy Lane

Lessons from the Heart
Beth Kirkpatrick

Moving into the Future: National Standards for Physical Education
AAHPERD

Multicultural Folk Dance (Christy Lane)
Human Kinetics

Physical Best Activity Guide
AAHPERD

Positive Behavior Management Strategies for Physical Educators
Lavay, French, Henderson

Professional and Student Portfolios for Physical Education
Vincent Melograno

Quality Lesson Plans for Secondary Education
Zakrajsek, Carnes, Pettigrew

Quicksilver
Karl Rohnke & Steve Butler

Sport and Physical Education Advocacy Kit
NASPE

Teaching Children Dance
Theresa Purcell

Teaching Children Fitness
Thomas Ratliffe

Teaching Children Games
David Belka

Teaching Children Gymnastics
Peter Werner

Teaching Children Movement Concepts & Skills
Craig Buschner

Teaching Children Physical Education
George Graham

Teaching Elementary Physical Education
Human Kinetics Publ.

Teaching for Outcomes in Elementary Physical Education
Christine Hopple

Teaching Middle School Physical Education
Bonnie Mohnsen

You Stay Active
AAHPERD

Websites to Visit

Organization	Website
American Academy of Pediatrics	http://www.aap.org
American Alliance for Health, Physical Education, Recreation and Dance	http://www.aahperd.org
American College of Sports Medicine	http://www.acsm.org/sportsmed
Amercian Council on Exercise	http://www.acefitness.org
American Heart Association	http://www.amhrt.org
Cooper Institute for Aerobics (Fitness Gram)	http://www.cooperinst.org
Fitness Link	http://www.fitnesslink.com
Fitness World	http://www.fitnessworld.com
KidsHealth	http://www.KidsHealth.org
National Association of Governor's Councils on Physical Fitness and Sports	http://www.fitnesslink.com/Govcouncil
National Coalition for Promoting Physical Activity	http://www.a1.com/ncppa
PE Central	http://pe.central.vt.edu/
Physical Education Advocacy Site	http://www.csuchico.edu/phed/casper
Shape Up America	http://www.shapeup.org
The Physician and Sports Medicine	http://www.physsportsmed.com
Wellness Councils of America	http://www.welcoa.org/about.htm
World Health Organization	http://www.who.org