

# Exercise

## Introduction:

Most people believe that it is important to exercise, yet over the past century the total amount of exercise has actually decreased for most people. Outdoor work has decreased dramatically for most people; fewer people live in the country where there are farms or gardens requiring outdoor activity; and even children are exercising less because of extra schoolwork and the habits of watching too much television or playing indoor electronic games or spending more time on the computer.

## Questions:

### *Why should I exercise? Who needs exercise?*

Health experts believe that all age groups and nearly all persons regardless of their state of health should exercise if at all physically possible. They believe it to be an essential part of a healthy lifestyle, and very beneficial to recovery from illnesses in many cases. Even very elderly people have been shown to improve in strength and tone and even to improve some chronic conditions by regular careful exercise.

### *Are there real advantages to exercising?*

There are a number of real advantages to exercising. Even though you may not be doing everything right with your health habits, exercise often shifts the balance more toward health than any other of the health activities. Five major advantages to exercise include:

- Lower death rates for heart disease & stroke
- Increased energy & muscle strength
- Increased ability to sleep soundly
- Better circulation and maintenance of ideal blood pressure
- Better ability to maintain weight at the ideal range.

### *Are there any health risks to exercising?*

The most important health risks are injury to tendons, and muscles from overexerting without being prepared and without warming up first. Persons who exercise heavily after being out of shape are the ones most likely to suffer injury. There is also an increased risk of cardiac complications in those who exercise heavily in extremely cold or hot weather, or if there is a known or unknown history of heart disease. Heat stroke is also a problem in hot weather, and persons should avoid exercise in the hottest portion of the day without adequate rest, shade, and fluids.

There is evidence that if exercise is too strenuous, the immune system may become less active for some hours or even days. This may cause athletes to be more susceptible to infections in the first few days after excessive strenuous exercise.

In some cases young women athletes who exercise too vigorously may develop amenorrhea. Excessive exercise may also affect fertility in women who are trying to conceive.

Be sure to undertake any major change with careful consideration of the health benefits and risks, and minimize the problems associated with any drastic change by becoming informed and

aware of all the advantages and programs available and by increasing exercise gradually if you have formerly been inactive. Physician clearance should be obtained for persons with known medical conditions including heart disease, diabetes, osteoporosis and joint problems, although most persons can start a walking program and improve their health even though they have these health problems.

All persons should be careful not to walk or bike on roads where drivers may not see them. There is also much more danger in walking at night and in crossing city streets. Pedestrian versus car accidents and deaths account for a high percentage of injuries to people who are biking or walking, and this is more likely in older persons who may have slower reaction times or who may not see approaching cars.

People over 50 are often the ones who need to exercise the most in order to improve their cardiac strength, and to lower their blood pressure. It is important that they do not exercise too strenuously as this may divert more blood to the muscles at the expense of organs that may already be compromised with narrowing of the arteries. All exercise in this age group should begin gradually if not already a lifelong habit.

### ***What are the best exercises for adults?***

Jogging and running are good exercise for those in moderately good shape, but they are not as safe as brisk walking as far as the joints are concerned. It has often been said that walking is the best exercise, and that it is beneficial because it will exercise most of the large muscle groups. Advantages of walking over jogging and running are that it gives you increased strength to your muscles without the risk of injury. Running and jogging puts 3 to 4 times the force on your knees, ankles, and feet. Walking also strengthens the heart without the risk of increasing your chances of a fatal heart attack. Almost all rehabilitation centers stress walking for current and former heart disease patients.

Gardening is an excellent exercise in good weather, and if you are digging as well as just light gardening, it is actually as healthy as walking according to some studies.

### ***Importance of daily exercise: What amount of exercise will be beneficial?***

Evidence continues to accumulate on the benefit of daily exercise. Although years ago this was not a problem for most people, in the 21st century in most developed countries the lack of vigorous physical activity is suspected as one of the largest contributors to the development of chronic illnesses. Even a modest amount of exercise is protective against the development of many chronic conditions. Adults need to exercise at least 30 minutes every day in all kinds of weather. If you cannot exercise that often, you can still get benefit from exercising 3 times per week. Even if you exercise only on weekends that is better than no exercise at all. Even 10 minutes three times per day has been shown to be of benefit if you cannot fit a 30 minute block of time into your schedule.

Many school systems have actually decreased the amount of time devoted to physical education and sports due to a lack of money or time. During the last decade, student enrollment in physical education in schools in the United States has decreased by 30%. There has also developed an epidemic of obesity among children and youth. This prompted a government report to the president in the fall of 2000 from the Secretary of Health and Human Services and the Secretary of Education on "Promoting Better Health for Young People through Physical Activity and Sports." ([www.cdc.gov/nccdphp/dash/presphysactrpt/](http://www.cdc.gov/nccdphp/dash/presphysactrpt/))

As of February 2001, only one state, Illinois, required daily physical activity for K-12 students. All school systems should be encouraged to make physical activity a daily habit for children. Parents should encourage safe and fun activities for children to get more exercise each day and to help them avoid activities where they are mostly indoors or sedentary.

***What types of exercise are safe for children?***

Children should be encouraged to have at least 1 hour or more each day of moderate to heavy exercise.

***The best exercises for children***

- Playing
- Normal outdoor childhood activity such as bicycle riding, running games, and other moderate exercises that are a part of a school activity
- Gardening is also a very good exercise for children in areas where that is possible
- Running and jumping sports are good for growing children, if not overdone

***Avoid these exercises for children***

- Caution should be used in playing team sports to avoid excessive strain on joints and tendons that are in the fast-growth stages. Excessive throwing of baseballs, for instance, may lead to injury of the joints or bones in growing children. During growth spurts, children are at increased risk of fracture of bones.
- Children should not be encouraged to lift weights at too early an age, especially before puberty, so they will not damage or tear tendons.
- Sitting too long, especially watching too much television, has been associated with overweight in children.

**General research regarding exercise**

Over the past several decades, multiple studies have suggested that physical exercise can lead to a lower risk of death from many causes, especially coronary heart disease.

***Health Risks drop in healthy active men and women***

A group of 3,310 women older than 50 who did regular gardening had denser bones than those women who did regular exercise routines such as jogging, swimming, walking and aerobics. The researchers found that gardening was also as good as strength training in preventing osteoporosis.

Men with any leisure activity at all had a 21% lower risk of death from heart disease than sedentary men. Much of this activity was not even on a regular daily basis. Arch Fam Med. 1995; 4:323-329

In a group of 39,372 healthy women over the age of 45, vigorous as well as light to moderate exercise all predicted lower risk for coronary heart disease. Walking was also a predictor of lower risk. JAMA 2001 Mar 21; 285 (11):1447-54

Among 73,029 women in the nurse's health study, ages 40-65, women who were most active had a 40% lower risk of heart attacks and stroke than those that were the least active. *Circulation* 1995; 91 (3) Supp:5

Physical activity has been found to reduce the risk of heart attack in post-menopausal women by as much as 60-75% *NEJM* 332(26) Jun 1995, 1758-66

### ***Cardiac muscle atrophies after prolonged bed rest or lack of exercise***

A study done in Dallas by the Institute for Exercise and Environmental Medicine showed that when healthy sedentary men were put on bed rest for six or twelve weeks their heart muscles became smaller and the left ventricular wall thickness decreased in comparison to men who served as healthy controls. Astronauts were also studied before and after space flight and found to have decreased thickness of heart muscle following weightlessness and lack of exercise. *J. Appl. Physiol* 2001 Aug; 91 (2) 645-53

### ***Decreased blood flow to stomach after only 10 minutes of vigorous exercise may cause problems***

Excessive exercise both in animals and humans has been shown to cause severe shock and damage to the stomach and intestines in occasional cases. In a research study done in the Netherlands and published in August, 2001, healthy volunteers were exercised vigorously on a exercise bicycle for two periods of 10 minutes with a one-hour rest period. Measurements of blood lactate and special studies of the change in stomach pCO<sub>2</sub> were taken by a special measurement called tonometry, that is a known quality measurement of oxygen supply to the lining of the stomach. This study determined that the blood flow to the stomach after only 10 minutes of vigorous exercise was markedly decreased. *J Appl Phys.*, vol. 91, (2) 866-871, Aug, 2001

### ***Excess vigorous exercise reduces the body's ability to fight infection***

Several studies have shown that upper respiratory tract infections are increased after periods of heavy exercise and training of athletes. This decreased resistance may be present anywhere from 3 days to 2 weeks. Animal studies have often confirmed the same findings. *Immunology & Cell Biology*, Vol 78 (5) Oct. 2000 496-501

### ***Regular exercise enhances the body's immune responses and resistance to infections***

Some studies show a negative immune response to heavy exercise. There have been no consistent results showing benefits of nutritional supplements in protecting against the negative effects to the immune system caused by excessive exercise. Many studies, however, show that persons who engage in regular exercise training while avoiding excessive overtraining are protected against upper respiratory illnesses. *Med Sci Sports Exerc*, Vol 32(7) supp. July 2000 S406-2411

## **Adventist Health Study (AHS) research regarding exercise**

### ***Exercise lowers the incidence of fatal coronary heart disease***

Seventh-day Adventists in California have less coronary heart disease (CHD) than other Californians. In a group of 27,658 males and females whom the AHS followed for 6 years, it was noted that exercise lessened the rate of fatal coronary heart disease. The more the exercise, the less the rate of fatal coronary heart disease (CHD). *Circulation*, 1992 Aug;86 (2): 406-13

## **Seventh-day Adventist contribution to exercise knowledge & physiology**

One of the earliest principles in Adventist teachings regarding health was the principle that many diseases and chronic health conditions could be improved or prevented by moderate and daily exercise. This was stressed for children and youth, women, men, and invalids as well as sedentary workers. A strong emphasis was placed on balancing the mental exercise of students and others whose work was mainly intellectual with physical exercise, in order to improve both the strength and the intellect. Very strong emphasis was placed on the elderly keeping the mind alert by engaging in regular physical exercise. Exercise throughout life was emphasized, especially as one grew older. One of the most important reasons given for exercise was to improve the circulation to all organs of the body, including heart, lungs, muscles, and brain. Very strong emphasis was placed on exercising in fresh air, especially in the mornings. Adventist institutions along with all other health groups continue to stress balanced exercise as part of a healthy lifestyle.

### **Statements on exercise by Ellen G. White, an early Adventist leader and writer**

#### ***Walking is the best exercise***

"There is no exercise that can take the place of walking. By it the circulation of the blood is greatly improved. Walking, in all cases where it is possible, is the best remedy for diseased bodies, because in this exercise all of the organs of the body are brought into use." Healthful Living p186, par 3, 1898

#### ***Exercise outdoors and in fresh air is best***

"Exercise in a gymnasium, however well conducted, cannot supply the place of recreation in the open air." Counsels on Health, p 189, par 2; 1923

"Morning exercise, in walking in the free, invigorating air of heaven, . . . is the surest safeguard against colds, coughs, congestions of the brain and lungs, . . . and a hundred other diseases." Healthful Living, page 204, paragraph 05; 1898

#### ***Outdoor exercise is the best medicine for invalids***

"Nature is God's physician. The pure air, the glad sunshine, the beautiful flowers and trees, the orchards and vineyards, and outdoor exercise amidst these surroundings, are health-giving -- the elixir of life. Outdoor life is the only medicine that many invalids need." Counsels on Health, p 170 par 1; 1923

"The whole system needs the invigorating influence of exercise in the open air. A few hours of manual labor each day would tend to renew the bodily vigor and rest and relax the mind." 4T, p 264,5; 1876

"If those who are sick would exercise their muscles daily, women as well as men, in outdoor work, using brain, bone, and muscle proportionately, weakness and languor would disappear. Health would take the place of disease, and strength the place of feebleness." Medical Ministry p 297, 1932

"If invalids who can would engage in light, useful labor in the open air a portion of each day, they would find physical exercise one of God's appointed agents for the benefit of man." Healthful Living, p 131, par 5; 1898

"Let those who are sick do all in their power, by correct practice in eating, drinking and dressing, and by taking judicious exercise, to secure the recovery of health." TSDF p 84, par 2; compilation, 1926

"When the body is inactive, the blood flows sluggishly, and the muscles decrease in size and strength.... Physical exercise and a free use of air and sunlight -- blessings which Heaven has abundantly bestowed on all -- would give life and strength to many an emaciated invalid." 1MCP, p 121, par 4, compilation, 1977

"Exercise, and a free and abundant use of the air and sunlight,...would give life and strength to the emaciated." Healthful Living, p 230, par 1, 1898

### ***Students and those whose work is mostly mental especially need physical activity***

"Inactivity weakens the system. God made men and women to be active and useful. Nothing can increase the strength of the young like proper exercise of all the muscles in useful labor." Child Guidance, p 340, p 1, compilation, 1954

"The exercise of the brain in study, without corresponding physical exercise, has a tendency to attract the blood to the brain, and the circulation of the blood through the system becomes unbalanced. The brain has too much blood, and the extremities too little. Healthful Living, p 198, par 1, 1898

"Those who are engaged in constant mental labor, whether in study or preaching, need rest and change. The earnest student is constantly taxing the brain, too often while neglecting physical exercise, and as the result the bodily powers are enfeebled, and mental effort is restricted. Thus the student fails of accomplishing the very work that he might have done, had he labored wisely." GW 92, p 173, 1892

## **Development of Adventist sanitariums related to health and exercise**

In the early history of Adventist health, they developed sanitariums. The programs often stressed the importance of exercise in regaining health for any that were physically able. Walking in the open fresh air was especially emphasized. Adventists continue to stress a healthy lifestyle including walking on a daily basis whenever possible.

### ***Adventist lifestyle health centers focus on prevention, health and exercise***

All of the Adventist lifestyle centers and programs emphasize exercise through their live-in programs, running/walking clinics or exercise clubs. In these centers, exercise has been shown to improve overall general health, decrease the need for hypertensive medicines, decrease need for insulin in diabetics, and to assist in weight loss.

Many people may not be able to afford to attend a live-in program due either to cost or time constraints. Some join a gym or health club but do not find the time to attend. However, nearly everyone can benefit from 30-60 minutes a day of exercise such as walking in the fresh air. It is free, open 24 hours, and you do not have to make a reservation.

## **Conclusions**

Beginning a regular exercise program is an important adjunct to losing weight, becoming more fit and improving cardiovascular health. The benefits are frequently seen in improvement in all aspects of health, including improvement of circulation, appetite, control of obesity, and

improvement in mental health and immunity. It is important, however, to avoid overexertion in order to avoid the negative effects of excessive strain or overtraining on the immune system.

## **Practical Applications**

### ***How to get started:***

1. Start by deciding what types of exercise are right for you or that you would like to try.
1. If you are over forty, or have health concerns at any age, do not begin a vigorous exercise program without consulting your physician.
1. Start with walking or doing outdoor activities which have the added benefit of helping you get more fresh air.
1. If you plan activities that involve very strenuous exercise, work up to it gradually.
1. Avoid risk-taking behavior as much as possible. If engaging in sports or dangerous activities, prepare by equipping yourself with the best possible safety features of the sport and participating with those who can help in case of emergencies.
1. Include strength training as well as aerobic exercise in your plan for exercising. Your local health gym can help you in this area, but much of the exercise can be done at home with simple equipment. Many books and sports magazines as well as stores that sell equipment for strength training can give you information on safety and on how to begin a safe regimen for strength training.

### ***Finding time to exercise:***

1. Arise 30 minutes earlier than usual to take a walk before breakfast - this will also increase your appetite for breakfast.
1. Exercise while waiting for an appointment.
1. Take 20 minutes after lunch to walk around the block or near your work or school.
1. Give up one-half to one hour of television per day.
1. Go to bed earlier so that you will be rested enough to get up early each morning.
1. Walk instead of taking a coffee break. Carry bottled water with you for your break.
1. Plan what to take to work or school for the next day and place it in a convenient location to save time in the morning. This will save valuable time for exercising in the morning or may allow more time for exercise in the afternoon or early evening by allowing you to arrive at work earlier and finish earlier.
1. Leave for work and from work during non-rush hours to gain an additional half hour.
1. Schedule time for exercise instead of leaving it to chance, "if I have time".
1. Join a team for a sport that you enjoy.
1. Determine to exercise for one hour instead of watching sports for one hour, at least 2 times per week.
1. If you can only find 10 minutes at a time, even those 10 minutes, 2 or 3 times a day, will improve your health.

### ***Making exercise fun:***

1. Try exercising with someone you enjoy being with.
1. Join a walking club or group.

2. Engage in exercise that builds strength and muscle while doing a project for someone who really needs your help. Join a program such as Habitat for Humanity and help to build a house for a deserving family.
3. Give yourself a reward at the end of the week for every mile or every 30 minutes you exercise.
4. Use a pedometer to keep track of the miles you walk each day or week, and have a contest with a friend or family member or a friend or group at work.
5. Make a weekly or monthly chart for yourself or children with a place to put "a star" or other mark for each mile, (or hour, or other time period) you walk.
6. Set a weekly goal of number of minutes, hours, or distance for walking/running, or for hours exercised at other sports/activities.
7. If you have a small area for gardening, work outdoors during the sunny hours for at least 30 minutes each day.

***Whether you are an avid athlete in training for an event, or you just like to exercise heavily:***

1. Get plenty of sleep before a heavy workout, and afterwards as well.
2. Avoid excessive overtraining and tiredness.
3. Avoid crowds and illness exposure before and after the event.
4. If you are competing or exercising heavily in the winter, it is suggested that you get your flu vaccine.
5. Eat well-balanced meals, avoiding high-sugar foods and pastries with increased sugar and fats.
6. As much as possible avoid other stress factors that contribute to decreased immunity.
7. Avoid rubbing your eyes or touching your nose a lot. Wash your hands frequently if you do.
8. Drink plenty of fluids.
9. Eat plenty of fresh fruits, vegetables and simple carbohydrates. A vegetarian diet is preferable.
10. Sleep with fresh air circulating in your room.

*[Last revised: 8/13/02]*