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Exercise

Michigan State University Extension Service

Fitness 7

Marylou J. Morgan, Dorothy Tate, Home Economics, Alabama Cooperative Extension Service

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# EXERCISE

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## Are you physically fit?

## What can you do about it?

Today, Americans are on the move. They're walking, running, playing tennis, bicycling, swimming, and joining other exercise-minded Americans. They are exercising to keep fit, to lose weight, to firm up their figure, to improve their overall sense of well-being. And, probably most important of all, they believe that physical fitness will prevent or reduce the risk of heart disease, today's major killer.

Being physically fit means feeling good, looking good, and functioning well. When you are physically fit, your muscles are well developed, your joints are limber, your lungs hold large amounts of oxygen, your heart and blood vessels are strong, and you have stamina.

### Benefits of Exercise

The benefits of an exercise program are numerous. Toning of sagging muscles and ridding the body of excess fat improves appearance. Better health, more sleep, improved digestion and disposition, and increased strength and flexibility can generally improve the quality of life. Pressures and stress

of daily living can be lessened with exercise.

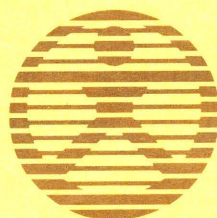
Exercise helps the body use carbohydrates, so less insulin is required for physically active diabetics.

Bones that are not used tend to decalcify (lose calcium); they become brittle and break easily. Exercise reduces the decalcification of bones and possibly slows down the aging process.

Proper exercise may improve posture and reduce backache.

Exercise also lessens some risk factors associated with heart disease. It reduces blood pressure and blood fat levels, particularly triglycerides, but not cholesterol. Apparently, exercise does not retard arteriosclerosis (hardening of the arteries), but certain exercises make the lungs, heart, and circulation more efficient. The clotting power of the blood is also changed so that clotting, or forming of plaques, is less apt to occur in arteries of the heart.

A Purdue University professor found that over a 4-year period, men of 35 to 55 years who led sedentary lives had medical bills averaging \$400 com-



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pared to \$200 for men who exercised three times a week. The active men were also more emotionally stable and less tense.

Research at the University of California by Belloc and Breslow showed that those who participated often in physical activity, including recreation of any type, had better physical health and lived longer than those who did not.

Exercise is one aspect of physical fitness and is a part of this Fitness 7 program. In this program, exercise will be aimed at cardiovascular fitness. Cardiovascular refers to the heart and blood vessels.

### Exercise and the Heart

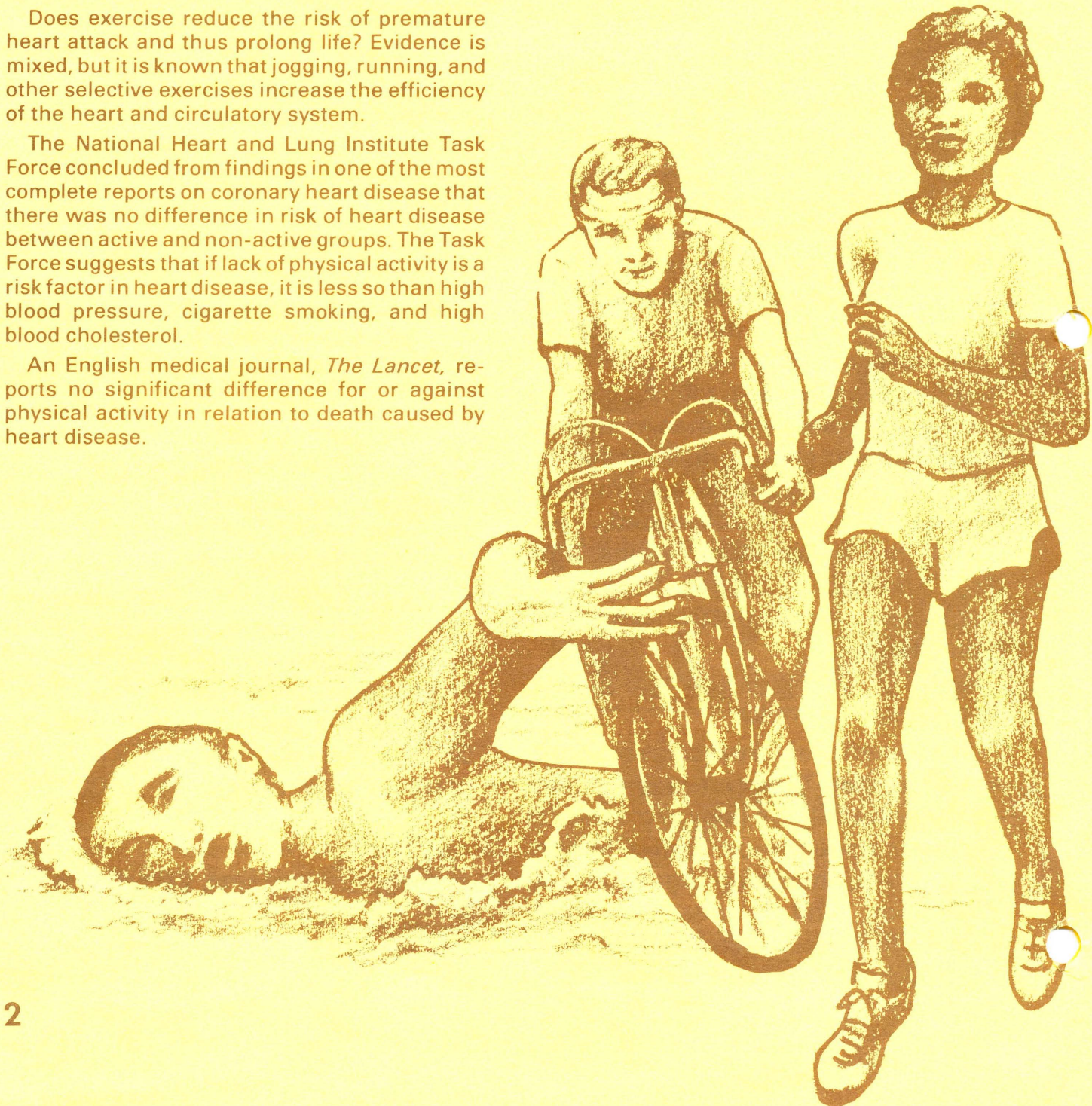
Does exercise reduce the risk of premature heart attack and thus prolong life? Evidence is mixed, but it is known that jogging, running, and other selective exercises increase the efficiency of the heart and circulatory system.

The National Heart and Lung Institute Task Force concluded from findings in one of the most complete reports on coronary heart disease that there was no difference in risk of heart disease between active and non-active groups. The Task Force suggests that if lack of physical activity is a risk factor in heart disease, it is less so than high blood pressure, cigarette smoking, and high blood cholesterol.

An English medical journal, *The Lancet*, reports no significant difference for or against physical activity in relation to death caused by heart disease.

In contrast, recent research at the University of California showed that persons doing strenuous work had a 50-percent reduction in risk of fatal heart attacks and were only one-third as likely to die unexpectedly and rapidly (within an hour) of a heart attack.

Other studies have shown that patients who have had heart attacks and are now in medically supervised exercise programs have few chances of having a fatal heart attack. If a heart attack occurs, it will probably be mild in physically fit persons. It is unclear whether exercise or the overall change of lifestyle, such as dieting and giving up smoking, lessens the severity of heart attacks among the physically fit.



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## *A slower heartbeat gives the heart more time to rest.*

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Only certain types of exercise promote cardiovascular fitness. These are aerobic exercises, such as running, swimming, and bicycling, which force the heart and lungs to work harder. Breathing rate eventually lessens since the lungs can expand and take in more oxygen with each breath. The massaging action of the large working muscles, such as the legs, increase the flow of blood. Thus, the heart and blood vessels enlarge and become stronger. As this occurs, more blood is pumped with each beat, so fewer heartbeats per minute are needed. A slower heartbeat gives the heart more time to rest. Reducing the heartbeat from 80 to 60 beats per minute is equal to 18 days of rest per year for the heart.

### Your Exercise Program

Aerobic exercises require a greater amount of oxygen than is normally used in day-to-day activity. Aside from choosing the proper exercises, there are three factors required for you to reach cardiovascular fitness: frequency (how often), duration (how long), and intensity (how hard).

**EXERCISE:** Aerobic exercises are probably the most important exercises for good health. They include brisk walking, running (around or in place), bicycling (on a movable or permanent bike), rowing, rope skipping, swimming, and certain forms of dancing. These exercises increase the continuous flow of blood through the heart and large skeletal muscles. Continuous movement of legs and, to some extent, arms results in rhythmic tensing and relaxing of muscles and blood vessels.

Likewise, in the aerobic group are sports such as basketball, handball, squash, skating, hockey, cross-country skiing, soccer, and hiking. In contrast, sports with long pauses and only occasional brisk efforts, such as baseball, softball, golf, or bowling, are inadequate in developing cardiovascular fitness.

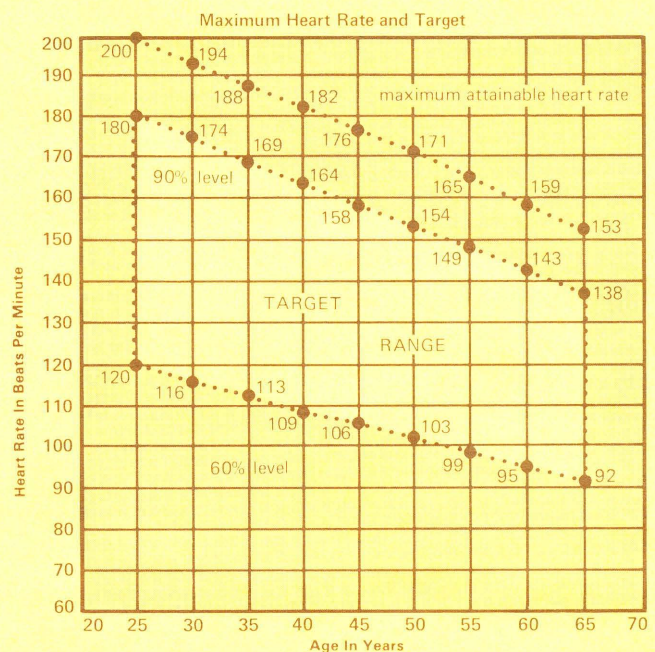
**FREQUENCY:** Exercise at least three times a week, preferably on alternate days, for the first three months to reduce chances of joint or mus-

cle problems. After that, daily exercising can be done. However, three days per week are enough to keep fit.

**DURATION:** Exercise continuously at a suitable level of intensity for 10 to 20 minutes, not including the warm-up and cool-down periods.

**INTENSITY:** Exercise strenuously enough to reach your target range of exertion (see Figure 1). There is a point where the heart and circulation cannot deliver any more oxygen to the tissues or work any faster without exhaustion. This is your maximum heart rate (number of heartbeats per minute). Your target range is about 60 to 90 percent of your maximum heart rate.

**Figure 1.** The greatest heart rate you can reach declines with age and so does the target range for exercise. These are "average" ranges.



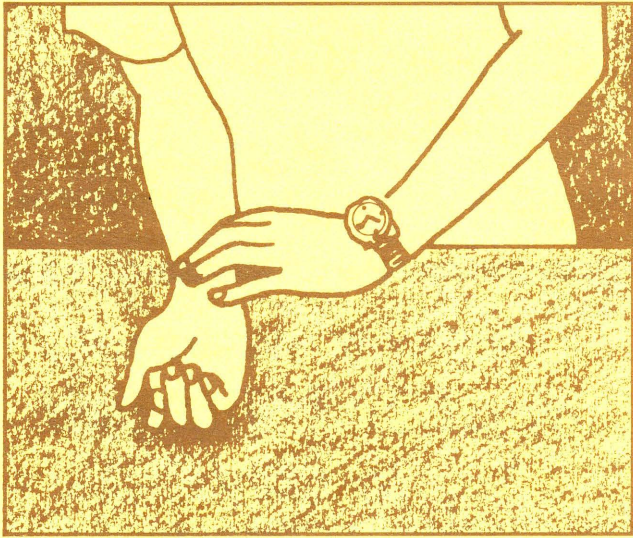
Source: Adapted from *Beyond Diet . . . Exercise Your Way To Fitness and Heart Health*, L. R. Zohman, 1974.

Your normal heart rate is the same as your pulse rate. An average pulse rate is 70 to 80 beats per minute.

To take your pulse, press the index and middle fingers of one hand on the upturned wrist of your other hand at the thumb side. Using a watch with a second hand, count the beats that occur in 10 seconds and multiply that number by 6. That gives you the number of times your heart beats or your pulse rate per minute.

Use the chart in Figure 1 to find your target range. Locate your age at the bottom and move

**Figure 2.** Count the pulse for 10 seconds and multiply by 6 to get heartbeats per minute.



up to the lighter area. However, anyone with a resting heartbeat (pulse rate) under 60 should let a physician determine the appropriate target range.

Check your pulse immediately after exercising to get the peak reading. Do not count for a whole minute since the heart rate drops quickly.

### Medical Checkup And Supervision

Anyone over 35 and not accustomed to frequent exercise or anyone with health problems definitely should have a thorough checkup before starting an exercise program.

A cardiovascular problem does not always rule out exercise. In fact, exercise may be part of the treatment ordered under the doctor's supervision.

Many medical centers, community hospitals, and private organizations now offer medically-supervised exercise programs for heart patients and the general public. Your local chapter of the American Heart Association may know of such services in the community.

### Your Exercise Plan

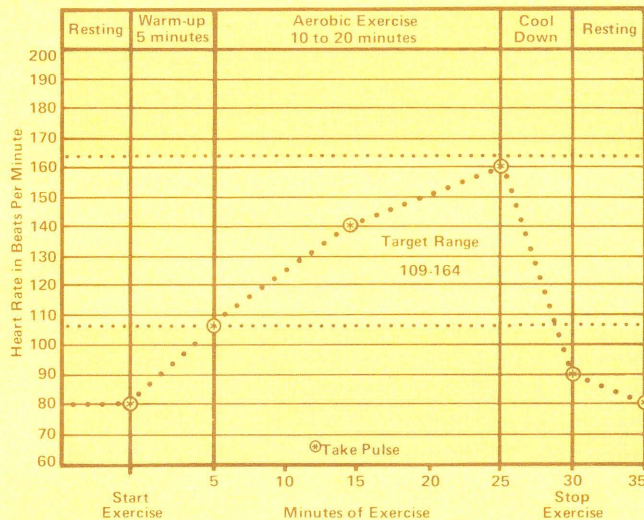
How much exercise is enough? For most adults, staying within the target range during the aerobic exercises provides enough exertion to achieve fitness and still be within safe limits. An exercise plan for cardiovascular fitness should consist of a warm-up, the aerobic exercise, and a cool-down period.

**WARM-UP:** Begin each exercise session with 5 to 10 minutes of bending, twisting, and stretching the trunk, head, arms, shoulders, legs, and

feet. If your exercise is to be a brisk walk, warm up by walking at a normal rate. If planning to bicycle, start leisurely and gradually increase the speed.

**AEROBIC EXERCISE:** As a beginner, plan to exercise for 2 to 3 minutes and then to rest 2 minutes, repeating three or four times. Even more rest periods may be needed during the first week or so. At the start of rest periods, check your pulse immediately since this is the trial period. Exercise more or less intensely to reach the target range and rest frequently. The idea is to increase the heart rate and circulation gradually without putting too sudden a strain on the cardiovascular system or working muscles. Limit intense periods of exercise to 10 to 12 minutes for the first month or two.

**Figure 3.** An exercise plan for a 40-year-old with maximum heart rate of 182 beats per minute.



Source: Adapted from Beyond Diet . . . Exercise Your Way To Fitness And Heart Health, L. R. Zohman, 1974.

After 2 to 3 weeks of regular exercise, physical fitness begins to improve for most persons. After 4 to 6 weeks, there should be a measurable improvement. You'll find it easier to exercise; you'll sleep better and be less tired at the end of the day. You may miss this new invigorating feeling if exercise is skipped.

***It usually takes  
3 to 6 months to reach  
cardiovascular fitness.***

Every 4 to 6 weeks the exercise program should be evaluated and upgraded. Keep an exercise plan for a guide.

Even though most people reach a state of fitness in 3 to 6 months, regular workouts must be continued to stay physically fit. If you cut back to exercising only once a week, half of the fitness increase will be lost within 10 weeks. If discontinued completely, all gains will be lost within 5 weeks.

If illness or unavoidable circumstances prevent your exercising for a few days or weeks, resume the program at a lower level, taking about as much time as you missed to work back up to the previous level.

**COOL DOWN:** After intense exercise, you need a cooling down period of 5 to 10 minutes. Cooling down can be done by walking around, stretching and reaching, arching and sagging, or bending and shaking. These activities relax the muscles, slow down the heart, and move blood away from the leg muscles. Unless cooling down is done, the blood will pool in the legs and arms, reducing the blood supply to the brain. This can cause dizziness or fainting.

### **Warning**

The heart rate may climb faster than suspected during hot weather or under stressful situations. If this happens, cool down and stop exercising. Evaluate what you have done and adjust the exercise. Warnings may occur during the exercise or from 2 to 24 hours later.

It is better not to exercise in the middle of a hot and humid day. Exercising at bedtime is also not recommended since it tends to increase all body activities.

### **Exercise and Eating**

Most people are comfortable if they wait at least 2 hours after eating before exercising.

Exercise burns calories but, contrary to common thought, it does not necessarily increase appetite or food intake. Likewise, a decrease in physical activity does not mean a decrease in food intake.

Moderate amounts of exercise before meals may actually decrease the appetite. Enjoyable exercise on a routine basis can relieve tension and boredom which frequently stimulate eating.

A balanced diet provides the necessary energy, protein, fat, carbohydrates, vitamins, and minerals needed for exercise. No additional protein is needed with increased activity. Drink enough fluids though, particularly on hot, humid days.

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### **Summary**

Technical advances have changed our way of living. We have succumbed to easy living. Yet the needs of the human body have not changed. Muscles need to be used, particularly the lungs, heart, and blood vessels. When not used enough, they deteriorate. Thus, selective exercise must be a part of this easy life style if cardiovascular fitness is to be achieved. This requires time and discipline.

For healthy adults to develop and maintain cardiovascular fitness, they must perform aerobic exercises in the target range for 10- to 20-minute sessions three times a week. It usually takes 3 to 6 months to reach cardiovascular fitness.

As yet, research is not conclusive on whether exercise reduces the risk of heart attacks. It is recognized, however, that if you have a heart attack and go on a medically supervised exercise program, you are less likely to have a second attack. In case another attack did occur, it would probably be less severe if you are physically fit.

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**Marylou J. Morgan**  
Extension Health Educator

and

**Dorothy Tate**

State Leader—Home Economics  
Alabama Cooperative Extension Service  
Auburn University, AL 36849

Michigan State University Contact: Doris Richardson,  
Program Leader, Extension Family Living Education

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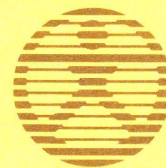
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