

Increasing Physical Activity as We Age

Endurance

LaVona Traywick, Ph.D.
Assistant Professor -
Gerontology

Katie Cobb, B.S.
County Extension Agent -
Family and Consumer
Sciences

Introduction

Endurance exercise, sometimes referred to as aerobic exercise, is any activity that increases your heart rate and breathing for an extended period of time. Usually, endurance exercises are those in which the body's large muscles move in a rhythmic way for a continuous amount of time. This kind of exercise includes activities such as walking, running, swimming and bicycling.

Adults who are physically active are generally healthier and less likely to develop chronic diseases than adults who are inactive. Exercising senior adults can gain substantial health benefits from regular exercise, and these benefits will continue to occur throughout their lives. This is especially important as we age because most—but not all—senior adults have one or more chronic conditions. Regular endurance exercise is a key aspect in healthy aging.

Why Is Endurance Important?

Endurance exercise improves the health of your heart, lungs and circulatory system. This is referred to as cardiorespiratory health. The benefits of endurance exercise on



cardiorespiratory health are some of the most extensively documented of all the health benefits of exercise. People who meet the recommendations for endurance exercise lower their risk significantly for cardiovascular disease including lower rates of heart disease and stroke, lower blood pressure and increased blood lipid profiles. Endurance exercises may also delay or even prevent other diseases associated with aging, such as diabetes.

Increased endurance keeps you healthier and improves stamina for daily activities. A strong heart and lungs allow you to perform activities more efficiently. For example, a person with a weak heart and lungs is likely to feel winded after walking up a small flight of steps, but a person with a strong cardiorespiratory system wouldn't think twice about walking up a flight of stairs. As a system, the strong heart and lungs work together, allowing you to do things you want to do, such as play with the grandchildren longer, survive an uphill climb and have added energy for gardening.

*Arkansas Is
Our Campus*

Visit our web site at:
<http://www.uaex.edu>

Figure 1: General Guidelines for Exercising Heart Rate

| Age | Target Heart Rate | Average Maximum Heart Rate |
|----------|--------------------------|----------------------------|
| 20 years | 100-170 beats per minute | 200 beats per minute |
| 25 years | 98-166 beats per minute | 195 beats per minute |
| 30 years | 95-162 beats per minute | 190 beats per minute |
| 35 years | 93-157 beats per minute | 185 beats per minute |
| 40 years | 90-153 beats per minute | 180 beats per minute |
| 45 years | 88-149 beats per minute | 175 beats per minute |
| 50 years | 85-145 beats per minute | 170 beats per minute |
| 55 years | 83-140 beats per minute | 165 beats per minute |
| 60 years | 80-136 beats per minute | 160 beats per minute |
| 65 years | 78-132 beats per minute | 155 beats per minute |
| 70 years | 75-128 beats per minute | 150 beats per minute |

Source: American Heart Association

Endurance Recommendations

Endurance exercises are generally thought of as having three components:

Intensity—how hard you have to work to do the endurance activity.

Frequency—how often you do the aerobic endurance activity.

Duration—how long you do the endurance activity at one time.

Intensity of endurance exercise is measured in several ways. One of the most common ways is to use your target heart rate, which is based on age. A person’s maximum heart rate is figured as **220 – your age = Maximum Heart Rate**. The target heart rate is 50 to 85% of the maximum heart rate. See Figure 1: General Guidelines for Exercising Heart Rate.

Another way to determine intensity is to use the Borg Rating of Perceived Exertion Scale (RPE). The intensity levels range from 6 to 20.

While exercising, rate your perception of your total feeling of exertion, combining all sensations and feelings of physical stress, then choose the number on the RPE that best describes your level of exertion while you are exercising. The number on the scale roughly correlates to heart rate by multiplying the RPE number by 10. For example, if you are briskly walking and rate your exertion as a 13, your heart rate would probably be somewhere close to 130 beats per minute. See Figure 2: Borg Rating of Perceived Exertion (RPE) Scale. (For more information on intensity levels, see FSFCS30, *Exercise Recommendations*.)

Figure 2: Borg Rating of Perceived Exertion (RPE) Scale

| RPE | Exertion |
|-----|--------------------|
| 6 | No exertion at all |
| 7 | Extremely light |
| 8 | |
| 9 | Very light |
| 10 | |
| 11 | Light |
| 12 | |
| 13 | Somewhat hard |
| 14 | |
| 15 | Hard (heavy) |
| 16 | |
| 17 | Very hard |
| 18 | |
| 19 | Extremely hard |
| 20 | Maximal exertion |

Borg RPE scale
© Gunnar Borg, 1970, 1985, 1994, 1998

When talking about exercise intensity, the terms “moderate” and “vigorous” are often used. When performing **moderate-intensity** endurance activities, you are working hard enough to raise your heart rate and break a sweat. One way to tell is that you’ll be able to talk but not sing the words to your favorite song. With **vigorous-intensity** aerobic activities, you are breathing hard and fast, and your heart rate has gone up quite a bit. When working at this level, you will not be able to say more than a few words without pausing for a breath. See Figure 3: Examples of Moderate and Vigorous Endurance Exercises.

The *frequency* and *duration* of endurance exercises are the second and third components

Figure 3: Examples of Moderate and Vigorous Endurance Exercises

| Moderate-Intensity Endurance Exercise | Vigorous-Intensity Endurance Exercise |
|---|---|
| <ul style="list-style-type: none"> • Walking fast • Doing water aerobics • Riding a bike on level ground or with few hills • Playing doubles tennis • Pushing a lawn mower | <ul style="list-style-type: none"> • Jogging or running • Swimming laps • Riding a bike fast or on hills • Playing singles tennis • Playing basketball |

of endurance exercise. The recommendations state that adults and senior adults should get 150 minutes of exercise a week of moderate-intensity physical activity or 75 minutes of vigorous-intensity activity or a combination of both moderate- and vigorous-intensity endurance activity. This activity needs to be in bouts of at least 10 minutes in length. When you break this down, 150 minutes is only (approximately) 20 minutes a day 7 days a week, 30 minutes a day for 5 days a week or 50 minutes a day for 3 days a week. And when you break that down into 10-minute segments, it seems much easier to accomplish. It is recommended to do endurance activities at least 3 days per week, more is even better.



How to Improve Endurance Capacity

You can improve your endurance by working up your aerobic capacity at a gradual pace. You probably won't run a mile the first day if you have never run before. In fact, distance is not as important as time. Choose an activity that you enjoy, remain comfortable and safe and you will get benefits at the same time. It does not matter what you do as long as you do something for a

sustained period of time—a minimum of 10 minutes. You could walk, swim, run, cycle, dance, row—whatever you enjoy doing. You may need to try several activities and in different locations. For instance, walking at the track is quite different than walking at a park or on a trail. Find what works for you and do it. If you want to do more vigorous-level activities, slowly replace those that take moderate effort, like brisk walking, with more vigorous activities, like jogging.

The more endurance exercise you do, the more the health benefits. If you are already performing 150 minutes of exercise a week, strive to reach 300 minutes. If you go beyond 300 minutes a week of moderate-intensity activity or 150 minutes a week of vigorous-intensity activity, you will gain even more health benefits. While you are working on improving your endurance capacity, you can do a combination of both moderate- and vigorous-intensity aerobic activity. A general rule of thumb is that 1 minute of vigorous-intensity activity is about the same as 2 minutes of moderate-intensity activity.

Some people like to do vigorous types of activity because it gives them about the same health benefits in half the time. You need to feel comfortable doing moderate-intensity activities before you move on to more vigorous ones. The important thing is to do the activity that is right for you.

Take It Step by Step

#1 – Choose an activity you enjoy. Do you enjoy walking a treadmill? Or maybe walking at the park? Do you enjoy activities done with other people, such as an aerobics class? Or do you enjoy more solitary pursuits such as swimming laps? Whatever you do, make sure that you enjoy it. You'll be more likely to keep going if you enjoy it!

#2 – Make sure you have the right gear. If you still wear your ten-year-old sneakers, then you might want to invest in a new pair of athletic shoes that fit your feet as well as the activity.

#3 – Set goals for yourself. Try to do more, gradually. If you want to walk at the park for 30 minutes, you may start off by walking for 10 minutes. Then, slowly add more time as you are able until you work up to 30 minutes.

Here are some basic guidelines for healthy endurance exercise:

Guidelines for Healthy Aerobic Activity

- Exercise three or more times a week.
- Warm up before aerobic activity.
- Maintain your intensity.
- Cool down by gradually decreasing your intensity and stretching.
- Exercise on a regular basis—not just when you feel like it.
- Progress—increase your intensity, frequency and duration.

In summary, endurance exercise increases your breathing and heart rate. It improves the health of your heart, lungs and circulatory system. Increased endurance keeps you healthier and improves stamina for daily activities. Endurance exercises may also delay or even prevent many diseases associated with aging, such as heart disease and diabetes.

Endurance exercise can help you feel better and have more energy to do the things that you want to do. Find what activities work for *You*, and get moving!

References

- American Heart Association www.americanheart.org. "Target Heart Rate" <http://www.americanheart.org/presenter.jhtml?identifier=3030999>. Retrieved May April 30, 2009.
- American College of Sports Medicine. (1998). *Fitness Book* (2nd ed.). Champaign, IL: Human Kinetics.
- Ansbaugh, D. J., and G. Ezell. (2007). *Teaching Today's Health* (8th ed.). San Francisco: Pearson Benjamin Cummings.
- Borg, B. (1998). *Borg's Perceived Exertion and Pain Scales*. Human Kinetics ISBN 0880116234, (pp 1- 104).
- Garrick, J. G., and P. Radetsky. (2000). *Anybody's Sport Medicine Book: The Complete Guide to Quick Recovery From Injuries*. Berkley, CA: Ten Speed Press.
- 2008 *Physical Activity Guidelines for Americans: Be Active, Healthy, and Happy!* (2008). Washington, DC: U.S. Department of Health and Human Services; Government Printing Office. ODPHP Publication No. U0036.
- Exercise and Physical Activity: Your Guide From the National Institute on Aging*. (2009). National Institute on Aging and the National Institutes of Health. Government Printing Office. Publication No. 09-4258.

Printed by University of Arkansas Cooperative Extension Service Printing Services.

LAVONA TRAYWICK, Ph.D., is assistant professor - gerontology with the University of Arkansas Division of Agriculture in Little Rock.
KATIE COBB, B.S., is county Extension agent - family and consumer sciences for White County in Searcy.

Issued in furtherance of Cooperative Extension work, Acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Director, Cooperative Extension Service, University of Arkansas. The Arkansas Cooperative Extension Service offers its programs to all eligible persons regardless of race, color, national origin, religion, gender, age, disability, marital or veteran status, or any other legally protected status, and is an Affirmative Action/Equal Opportunity Employer.