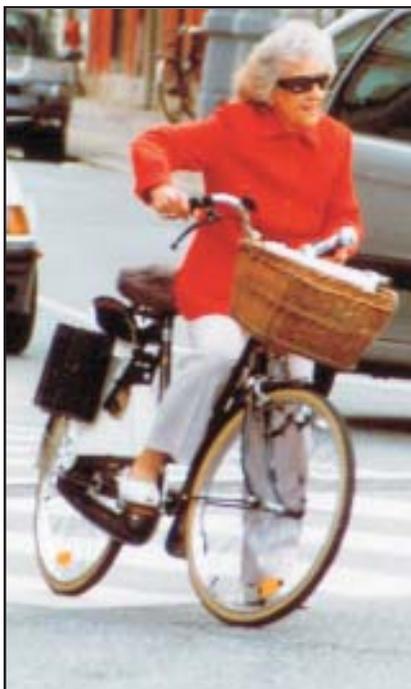


# Colorado Action Plan for Older Adult Wellness: A Public Health Strategy



First Edition 2007



Colorado Department  
of Public Health  
and Environment

back of cover

# **Colorado Action Plan for Older Adult Wellness: A Public Health Strategy**



---

**Colorado Department  
of Public Health  
and Environment**

**Healthy Aging Unit  
Prevention Services Division**

**First Edition 2007**

This publication was supported by Grant Number 5 U58 DP822812-04 from the Centers for Disease Control and Prevention. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the Centers of Disease Control and Prevention.

Suggested citation: *Colorado State Plan for Older Adult Wellness: A Public Health Strategy*, Denver, CO: Colorado Department of Public Health and Environment, 2007.

If you have questions regarding this report, please contact:

Healthy Aging Unit  
Prevention Services Division  
Center for Healthy Living and Chronic Disease Prevention  
Colorado Department of Public Health and Environment  
4300 Cherry Creek Drive South  
Denver, CO 80246-1530

Phone: 303-692-2441

Fax: 303-691-7721

# Table of Contents

<b>Preface</b> .....	<b>1</b>
<b>Executive Summary</b> .....	<b>2</b>
The Facts .....	2
The Challenge .....	4
The Plan .....	4
<b>The Burden of Chronic Disease</b> .....	<b>7</b>
Arthritis .....	8
Cancer .....	11
Cardiovascular Disease .....	15
Hypertension (High Blood Pressure) .....	17
Diabetes .....	19
Falls .....	22
Overweight and Obesity .....	24
Osteoporosis .....	26
<b>Physical Activity for Older Adults with Chronic Disease</b> .....	<b>28</b>
Benefits of Physical Activity for Older Adults .....	28
Advantages of Community-Based Physical Activity Programs .....	31
What is Evidence-Based Intervention? .....	33
What is a Best Practice? .....	33
What is a Self-Management Program? .....	33
Physical Activity and Specific Chronic Diseases .....	35
Nutrition for Older Adults with Chronic Disease .....	41
<b>Actions and Recommendations</b> .....	<b>51</b>
Recommendations for Fall Prevention in Colorado .....	52
Continuum of Care: Part of a National Agenda .....	54
Continuum of Care Model to Action .....	59
Standards of Practice for Professionals Working with Older Adults in Physical Activity in Community-Based Organizations .....	63
Physical Assessment Tools.....	92
<b>Appendix 1 – Healthy People 2010 Objectives</b> .....	<b>95</b>
What are the Objectives and Why are They Important to Wellness in Older Adults in Colorado?	
<b>Appendix 2 – References and Resources</b> .....	<b>98</b>
<b>Appendix 3 – Certification Resources</b> .....	<b>106</b>

# Acknowledgements

We would like to thank the following individuals and organizations for their time and energy in preparing the *Colorado State Plan for Older Adult Wellness: A Public Health Strategy*.

**Kristin Anderson**, *South Suburban Parks and Recreation Center*

**Tonya O’Neil**, *Metro State College*

**Lucinda Bryant, PhD, MSHA**, *University of Colorado at Denver and Health Sciences Center*

**Katy Meng, PhD**, *Colorado Department of Public Health*

**Karon Badalamenti**, *Green Play, LLC*

**Mario Rivera, MS**, *Colorado Department of Public Health and Environment*

**Vicki White Carpenter, MPT**

**Karen Ruiz, MS**, *Wheat Ridge Senior Center*

**Mary Christenson, PT, MS**, *Regis University*

**Sarah Smith, MS**, *Aurora Senior Center*

**Leslie Beckstrom, MS, RD**

**Stephanie Stephans, MS**, *Colorado Parks and Recreation Association*

**Chevon Coronado, Student**, *Metro State College*

**Penny K. Studebaker**, *Colorado Department of Public Health and Environment*

**Heather Driscoll, MBA, RD**, *Colorado Department of Human Services Division of Aging and Adult Services*

**Sally Thoreson, MS**, *Colorado Department of Public Health and Environment*

**Sharry Erzinger, PhD, PA**, *University of Colorado at Denver and Health Sciences Center*

**Ricky Tolliver, MPH**, *Colorado Department of Public Health and Environment*

**Jack Finch, MS**, *Colorado Department of Public Health and Environment*

**Melaine Hendershott, RD**, *Shaw Regional Cancer Center*

**Barbara Gabella, MSPH**, *Colorado Department of Public Health and Environment*

**Kathryn Washington**, *Metro State College*

**Maripat Gallas, MS, CTRS**, *Commerce City Parks and Recreation*

**Gloria K. Vellinga, RD, CDE**, *Colorado Department of Public Health and Environment*

**Dean Bouche, Student**, *Metro State College*

**Holly Hedegaard, MD, MSPH**, *Colorado Department of Public Health and Environment*

**Rachel Oys, JD, MPP**, *Colorado Department of Public Health and Environment*

**Cassandra Hoffman, Student**, *University of Northern Colorado*

**Melissa Pascucci, MS**, *Malley Senior Center*

**Ruthie Horton, TR**, *Life Care Centers of Colorado*

**Normie Morin Voilleque, PhD, MPH**, *Colorado Department of Public Health and Environment*

**Leighanna Konetski, RD**, *Volunteers of America*

**Christine Katzenmeyer, MS, CTRS**, *Consortium for Older Adult Wellness*

**Terry Bryant, MS**, *Colorado Department of Public Health and Environment*

**David Keith, Student**, *Metro State College*

**Sherri Lancton, MA**, *University of Colorado*

**Amy Thygesen, MBA, RD**, *Weld County Nutrition Program*

**Jeanette Hensley**, *Colorado Department of Human Services Division of Aging and Adult Services*

## Preface

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* was conceived by a multi-disciplinary group of dedicated professionals in the fields of aging, physical therapy, nursing, public health, academia, research, gerontology, therapeutic recreation, community resources, family practice, exercise physiology, nutrition, and home health. Together, these professionals envision a future of older adult wellness in Colorado that is reflected in the following statement.

*...We believe that the medical community and community-based organizations, i.e., recreation centers, senior centers, outpatient clinics, churches, assisted living facilities, etc., have a responsibility to the older adults of Colorado to communicate and develop ways in which to deliver continuums of care that include preventive, rehabilitative, acute, and chronic care that are accessible and cost effective for all.*

To help communities implement the vision, The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* provides information to build and sustain a continuum of care, which brings together the community's health and recreational resources to provide accessible, cost-effective services to promote wellness of older adults. Each and every Colorado community can contribute to older adult wellness through programs that offer physical activities and advice about nutrition and fall-prevention—all of which bring quality of life to older adults now and in the future.

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy\** is dedicated to community-based professionals and the older adults they serve.



*Arthritis Foundation Exercise Class<sup>SM</sup> –  
2006 ACADEMY for Older Adult Wellness*

---

\* In this document, the lower age limit for the term “older adult” varies from age 50 to 65. This is dependent on the agency and/or data source referenced.

# Executive Summary

## The Facts

In 2004, the U.S. Census Bureau estimated that 457,187 Colorado residents (9.8 percent of the total state population) were 65 years or older.<sup>1</sup> It is projected that between 2000 and 2030, there will be a 247 percent increase in Colorado's population over the age of 65.<sup>2</sup>

Chronic diseases and conditions, such as diabetes, heart disease, and arthritis, as well as disabilities that result from injuries such as falls, disproportionately affect older adults compared with adults in younger age groups. Together, these conditions account for seven out of every ten deaths and more than three-quarters of all health costs in the United States.<sup>3</sup>

Chronic conditions limit activities for 12 million elderly individuals living in community settings; 25 percent of these individuals are not able to perform basic activities of daily living, such as bathing, shopping, dressing, or eating.<sup>3</sup>

As the "baby boomer" population ages, the number of Coloradans affected by these diseases will increase and will greatly impact the health status of the population and the resultant healthcare needs. Currently, more than 45 percent of Americans suffer from at least one chronic illness. By the year 2030, this number is projected to be more than 50 percent.<sup>4</sup>

Today, total yearly medical costs are two and one-half times greater for people with a chronic illness compared to those without one.<sup>4</sup> In 2000, direct medical expenditures for treating chronic disease amounted to \$510 billion and accounted for approximately 75 percent of all U.S. healthcare costs. By 2020, direct medical costs for treating chronic diseases in the United States are expected to double to \$1.02 trillion.<sup>5</sup>

Medical evidence shows that a healthy diet combined with regular, moderate physical activity and specific interventions for prevention may help prevent, delay, and treat serious health conditions, including diabetes, heart disease, stroke, high blood pressure, and some types of cancer.<sup>6</sup> Also, people who make healthy nutrition choices and who engage in regular physical activity are more able to maintain the activities of daily life, reduce disability, and continue to work and live independently longer.

Older adults who are assisted in remaining independent are likely to experience an improved quality of life, have fewer hospital and physician visits, and lower rates of disability; in addition, the need for costly long-term care can be delayed. Immediate focus must be placed on reducing the risk factors that lead to chronic disease, detecting disease in its earliest stages, and reducing the complications.

## References

1. U.S. Census Bureau, Census 2000, summary file 4 (SF4), generated by Andrea Poniers using American Fact Finder, <http://factfinder.census.gov/>, December 4, 2006.
2. Colorado Department of Labor and Employment, State Demography Office, Population age and gender Web site, <http://www.dola.colorado.gov/demog/widepro1.cfm>
3. U.S. Department of Health and Human Services, Administration on Aging, Empowering older people to take more control of their health through evidence-based prevention programs: A public/private collaboration, Catalog of Federal Domestic Assistance 93.048, Title IV Discretionary Projects, 2006, [http://www.aoa.gov/doingbus/fundopp/announcements/2006/Attachment\\_1399.doc](http://www.aoa.gov/doingbus/fundopp/announcements/2006/Attachment_1399.doc)
4. Chronic conditions: *Making the case for ongoing care* [report]. Baltimore, M.D.: Johns Hopkins University, Partnership for Solutions, September 2004.
5. R. E. Mechanic, *Disease management: A promising approach for health care purchaser*, National Health Care Purchasing Institute [presentation], May 2002.
6. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention Coordinating Center for Health Promotion, *Physical activity and nutrition: Essential elements to prevent chronic diseases and obesity*, 2006.

## The Challenge

Growing research in the areas of nutrition, physical activity, and fall prevention provides a better understanding of healthy aging. The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* represents a combined effort of public and private organizations, governmental agencies, professional associations, and others to provide opportunities for older Coloradans to live better, healthier lives. The goals set forth for older adults in *Healthy People 2010* will serve as the basis for this plan.

The ultimate aim of the *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* is to increase public awareness of healthy aging by emphasizing the need to:

- prevent chronic disease, disability, and complications;
- promote a healthy weight and sound nutrition choices;
- promote further fall-prevention activities;
- guide and support communities in developing and accessing resources needed to provide a continuum of care based on the model; and
- provide evidence-based programs and model best practices to ensure safe and effective programming.

## The Plan

Three major focal areas build a foundation for older adult wellness at the community level: communication and education, programming policies, and development of systems.

### Communication and Education

Promotion of accurate and positive information about healthy aging in each community requires collaboration among service providers, community agencies, and governmental partners to ensure that the most current guidelines are implemented at all levels. Some of the many aspects of communicating and educating the community require a commitment to:

- promoting partnerships to deliver consistent messages to reach special populations;
- increasing awareness throughout Colorado communities;
- integrating older adult wellness into chronic disease prevention, health promotion, and education at all governmental levels;
- improving the knowledge, attitudes, and referral practices of healthcare professionals to become an essential link in the continuum of care; and
- providing professional education to people who work with older adults.

## Programming Policies

In order to integrate innovations that promote wellness in older adults, new information must be available to the many organizations of the community in order to:

- provide evidence-based, model best-practice trainings, and certifications for community-based organizations; and
- use the most current standards of practice for organizations that implement older adult programming.

## Development of Systems

Promotion of older adult wellness at the highest levels of state governance requires an ongoing commitment to:

- build older adult wellness into the public health infrastructure; and
- concentrate efforts at the community level for a continuum of care throughout Colorado.

Effective strategies in the area of increased physical activity, improved nutrition, and fall prevention exist. Given the importance of healthy aging and its impact on quality of life and economic burden, the time for action is now. This plan outlines Colorado's first comprehensive, systematic public health approach for the community professional.

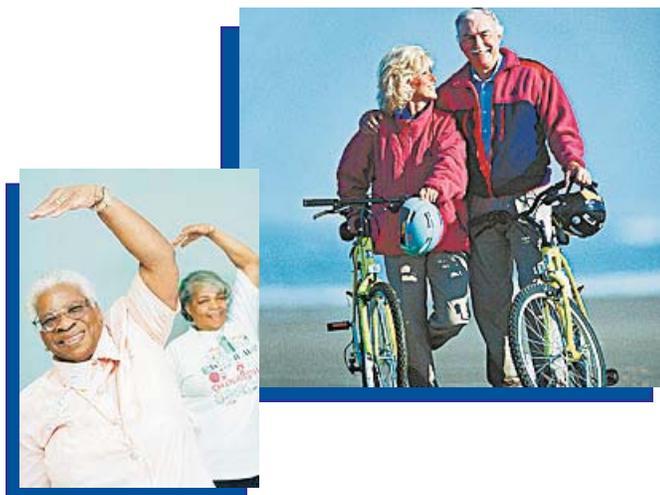


*2006 Pueblo StepUP Exercise Class*





*2006 Outreach ACADEMY for Older Adult Wellness Partners, Instructors and Staff*



*2006 Arthritis Foundation Aquatics Class<sup>SM</sup>, presented by Pueblo StepUP*

# The Burden of Chronic Disease

Chronic diseases are long-term, potentially life-altering and disabling illnesses that result from a combination of health-damaging behaviors and genetic factors. The progression of symptoms and long-term impact of many chronic diseases can be greatly influenced by preventive activities such as improving nutrition and appropriate physical activity.



Seventy percent of all deaths of people over 65 in America are caused by chronic diseases.<sup>1</sup> The prevalence of chronic diseases increases dramatically with age. More than eighty percent of people older than 65 have at least one chronic disease.<sup>2</sup>

The importance of proper nutrition and physical activity in reducing rates of disease and death from chronic diseases has been well established. Poor diet and physical inactivity cause more than 300,000 deaths per year<sup>1</sup> and are major contributors to disabilities that result from arthritis, diabetes, osteoporosis, obesity, cardiovascular disease, and falls.



This action plan specifically addresses conditions that affect a high number of Coloradans:

- arthritis
- cancer
- cardiovascular disease
- hypertension (high blood pressure)
- diabetes
- falls
- overweight and obesity
- osteoporosis

## References

1. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Chronic Disease Overview, <http://www.cdc.gov/nccdphp/overview.htm>
2. *Chronic Conditions: Making the Case for Ongoing Care* [report]. Baltimore, M.D.: Johns Hopkins University, Partnership for Solutions, December 2002, p. 11.

## Resources

- Hahn, R. A., S. M. Teutsch, R. B. Rothenberg, and J. S. Marks. *Excess Deaths from Nine Chronic Diseases in the United States, 1986*. JAMA 1990(264): 2654–9.
- McGinnis, J. M., and W. H. Foege. Actual Causes of Death in the United States, JAMA 1993(270): 2207–12.
- U.S. Department of Health and Human Services, *Physical Activity and Health: A Report of the Surgeon General*. Atlanta: Centers for Disease Control and Prevention, 1996.





## Arthritis

There are more than 100 diseases and conditions collectively known as arthritis. The most common forms include osteoarthritis, rheumatoid arthritis, juvenile rheumatoid arthritis, fibromyalgia, bursitis, lupus, and gout. Although the causes may vary, these diseases often occur in or around one or more joints. Sometimes the problem is in the joints; other times it is in the surrounding ligaments, tendons, or muscles. Some forms of arthritis are systemic and affect the internal organs.

Nearly 43 million people in the United States report that a medical care provider has told them that they have arthritis or another rheumatic disease.<sup>1</sup> Another 23 million people report chronic joint pain but have not been diagnosed with arthritis.<sup>2</sup>

*Arthritis is the leading cause of disability in the United States, limiting the activities of more than 16 million adults.<sup>1</sup>*



The cost of arthritis and other rheumatic conditions in the United States in 2003, the year for which the latest data are available, was \$128 billion. Of this total, \$80.8 billion are direct medical-related costs and \$47 billion are indirect costs or lost wages. This total is 48 percent more than the 1997 figure of \$86.2 billion, mostly because government surveys identified 9 million more cases of arthritis or related conditions.<sup>3</sup>

Almost 800,000 or one-fourth (23 percent) of adults in Colorado have been diagnosed by a healthcare provider with some form of arthritis. An additional 700,000 adults report chronic joint pain although they have not been diagnosed by a healthcare provider. Among adults with arthritis in Colorado, 36.4 percent report physical, emotional, or mental limitations because of symptoms of arthritis.<sup>4</sup>

Adults with arthritis, compared to those without arthritis, are more likely to be physically inactive (22.3 percent versus 15.1 percent) and report the state of their health as fair or poor (23.6 percent versus 9.3 percent).<sup>5</sup> As the population ages in Colorado, it is estimated that increasing numbers of people will be affected by arthritis.<sup>4</sup>



The three most common forms of arthritis are:

**Osteoarthritis**, the most common, is estimated to affect at least 21 million Americans.<sup>6</sup> People sometimes call it “old age” or “wear and tear” arthritis. A slippery material called cartilage covers the end of each bone and acts as a shock-absorbing cushion. In osteoarthritis, cartilage starts to break down. Loss of the rubbery cushion in a joint—where bone meets bone—leads to symptoms of pain, stiffness, and swelling. Osteoarthritis primarily occurs in the knees, hips, spine, feet, thumbs, or fingers.

**Fibromyalgia**, which affects muscles, is characterized by diffuse pain, fatigue, memory difficulties, disturbed sleep, and specific tender points. It occurs more often in women than in men.

**Rheumatoid arthritis** is estimated to affect up to 1.5 percent of the nation's population.<sup>7</sup> Rheumatoid arthritis occurs more often in women. It is frequently first diagnosed during a woman's child-bearing years. Rheumatoid arthritis is a systemic autoimmune disease, the cause of which is unclear. It is characterized by inflammation of the fluid contained in the joints, called synovium. The inflammation causes pain, stiffness, fatigue, redness, swelling, and warmth in the area around the joint. Over time, the inflamed joint lining can damage or deform the joint.

## References

1. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, <http://www.cdc.gov/arthritis/pressroom/index.htm>
2. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics, *Summary Health Statistics for U.S. Adults: United States, 2004*, tables 7,8, Appendix III table VII, [www.cdc.gov/nchs/fastats/arthritis.htm](http://www.cdc.gov/nchs/fastats/arthritis.htm) Atlanta:
3. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, [http://www.cdc.gov/arthritis/data\\_statistics/faqs/cost\\_analysis.htm#1](http://www.cdc.gov/arthritis/data_statistics/faqs/cost_analysis.htm#1)
4. J. Drisko and C. Wells, Prevalence and Effects of Arthritis in Colorado: Results from the Behavioral Risk Factor Surveillance System, 2005, Fact Sheet. Denver: Colorado Department of Public Health and Environment, Health Statistics Section, September 2006.
5. Based on the question, "Have you ever been told by a doctor or other health professional that you have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia?" Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System 2005, Arthritis Module, 2005.
6. S. Stoddard, L. Jans, J. M. Ripple, and L. Krause, *Chartbook on Work and Disability in the United States*. Washington, D.C.: U.S. National Institute on Disability and Rehabilitation Research, 1998.
7. Arthritis foundation. [http://www.arthritis.org/conditions/diseasecenter/RA/ra\\_overview.asp](http://www.arthritis.org/conditions/diseasecenter/RA/ra_overview.asp)

## Resources

Arthritis Resource Center. HealingWell.com. News, articles, and other arthritis resources. <http://www.healingwell.com/arthritis/>

Assess Your Joint Health. Arthritis Foundation. Assess your risk and symptoms. <http://www.arthritis.org>

National Institute of Arthritis and Musculoskeletal and Skin Diseases. National Insti-

- tute of Health. Research and health information about arthritis and other rheumatic diseases. <http://www.niams.nih.gov/>
- U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. Arthritis. Statistics and research. <http://www.CDC.Gov/arthritis>
- U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. [www.CDC.gov/Projected prevalence of self-reported arthritis or chronic joint symptoms among persons aged >65 years—United States, 2005—2030. MMWR 2003;52:489—91](http://www.CDC.gov/Projected%20prevalence%20of%20self-reported%20arthritis%20or%20chronic%20joint%20symptoms%20among%20persons%20aged%20%3E65%20years%20%E2%80%94United%20States%2C%202005%E2%80%942030.MMWR%202003;52:489%E2%80%9491). 2003.
- U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. Arthritis. Statistics and research. <http://www.CDC.Gov/arthritis>

## Cancer

Cancer has been defined as a group of diseases marked by the uncontrolled growth and spread of abnormal cells. These cells may destroy the part of the body in which they originate, and they may move to other parts of the body and begin destroying those parts, too. Types of cancer are identified with the part of the body in which they begin.

Cancer is the second leading cause of death in Colorado. In 2002, 17,455 Coloradans were diagnosed with cancer. The state as a whole continues to have a lower rate of cancer diagnoses than the nation. In Colorado, the cumulative lifetime risk of cancer is one in two for males and two in five for females. Among men and women, men have a higher incidence of cancer (514.0/100,000) than women (401.6/100,000). Among racial groups, from 1998 to 2002, black men had the highest cancer incidence rate followed in order by white non-Hispanic men, white Hispanic men, white non-Hispanic women, white Hispanic women, and black women.<sup>1</sup>

Lifestyle, genetic and non-genetic factors, independently or in combination, can increase an individual's risk of developing cancer. Changes in lifestyle and modification of the diet to reduce fat and increase fiber consumption, and early detection and intervention can significantly reduce mortality from some cancers. Screening interventions that result in early detection can have a great impact upon cancer mortality, since cancer is more likely to respond to treatment when detected at an early stage.<sup>1</sup>

## Breast

Breast cancer is the single most common life-threatening cancer diagnosed in women in Colorado and the second leading cause of cancer deaths among women in the state. Although it appears that breast cancer rates have risen in Colorado over the past two decades, the increase is partly due to improved detection at earlier stages made possible by mammography screening.<sup>1</sup>

Over the past decade, the breast cancer death rate has declined in Colorado from 27.5 deaths per 100,000 women in 1995 to 21.8 deaths per 100,000 women in 2004. Rates of death resulting from breast cancer increase substantially with age. Among women 55 to 64 years in 2004, the rate of death was 57.4 per 100,000 women, and among women age 65 years and older, the death rate from breast cancer was 96.9 per 100,000 women.<sup>2</sup>

From 1998 to 2002, there were a total of 17,022 breast cancers diagnosed among Colorado women; of these, 61 percent were in women 55 and older. Breast cancer incidence rates increase among women until around 75 years of age, at which point they begin to decline.<sup>3</sup> In Colorado from 1997 to 2001, Hispanic and black women had 27 percent and 31 percent lower incidence of breast cancer than white women, respectively. However, Hispanic and black women were less likely to have an early diagnosis of breast cancer than white women.<sup>4</sup>

## Colorectal

Cancer in the colon or rectum (colorectal cancer) is a condition in which cells that line the colon or rectum mutate in ways that allow them to multiply in an uncontrolled manner and invade other tissues. Colorectal cancer takes many years to develop and advancing age is the biggest risk factor. Several lifestyle factors affect one's risk of forming colorectal cancer, including obesity, inadequate physical activity, and diets high in red meat and low in vegetables.<sup>1</sup>

Between 2000 and 2004, an average of about 630 Coloradans died annually from colorectal cancer. These deaths were nearly equally divided between men and women. Incidence rates were slightly higher for men than for women.<sup>2</sup> In Colorado, less than one-half of all cases are detected at an early stage.<sup>4</sup>

Colorectal cancer death rates have been on the decline in Colorado and in the United States as a whole. Over the past decade, death rates from colorectal cancer have declined by more than 20 percent in Colorado. In part, this decline may be due to changes in the diet during the twentieth century, with fruits and vegetables readily available throughout the year, and to an increase in preventive screening. Death rates from colorectal cancer are lower in Colorado than in the United States as a whole (17.3 versus 20.1 deaths per 100,000 per year in 2001). This lower risk may be due to our lower rates of obesity (16.5 percent in Colorado versus 22.2 percent nationally).<sup>1</sup>

## Lung

Lung cancer is the leading cause of cancer death among men and women in the United States. It is responsible for the deaths of more than 150,000 Americans annually.<sup>5</sup> In Colorado, nearly 1,500 deaths due to lung cancer occur annually; approximately 55 percent of these deaths occur among men. Incidence of lung cancer increases with age until around 75 years. From this age on, the incidence rate of lung cancer remains relatively constant. Among older adults of all ages, both the death rate and the incidence rate are higher for men than for women, although incidence rates for women have increased over the past decade. In Colorado, black males have the highest incidence rate and Hispanic females have the lowest incidence rate. On average, only one in five cases of lung cancer are detected at an early stage.<sup>4</sup>

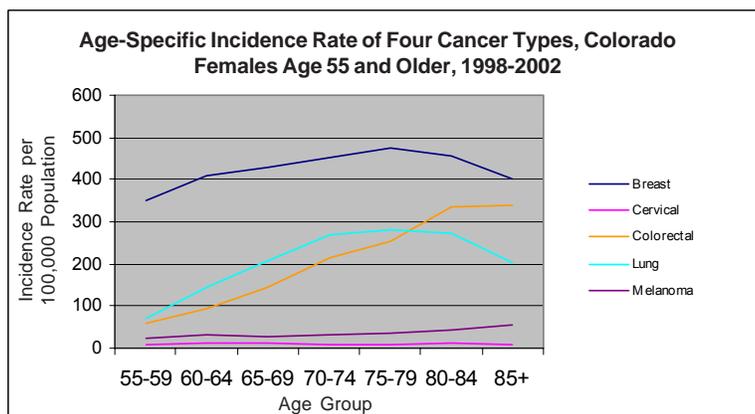
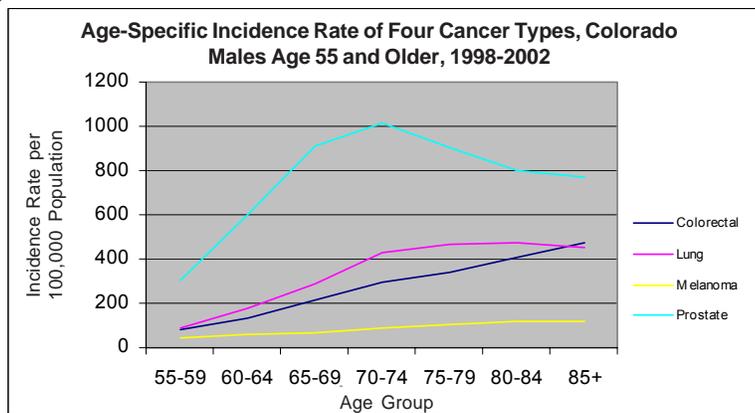
Cigarette smoking is the most important risk factor for lung cancer, accounting for approximately 80 percent of lung cancer deaths in females and 90 percent in males. People who quit smoking for 10 years decrease the risk of lung cancer to 30 to 50 percent compared with those who continue to smoke. Five-year survival rates for lung cancer are about 10 percent. Other risk factors include occupational exposure (e.g., radon, asbestos) and indoor and outdoor pollution (e.g., radon, environmental tobacco smoke). About 1 to 2 percent of lung cancer deaths are attributable to air pollution.<sup>1</sup>

## Prostate

Prostate cancer occurs in the prostate, a gland in the male reproductive system. Nationally, approximately one in six men will develop prostate cancer in their lifetime,<sup>6</sup> whereas in Colorado, one in five men will develop prostate cancer in their lifetime.<sup>4</sup> Prostate cancer is the most commonly diagnosed cancer among men in Colorado and the second leading cause of cancer death among men (after lung cancer).<sup>7</sup> In 2003, the most recent year for which data are available, approximately 30,000 men in the United States died of prostate cancer.<sup>8</sup> From 2000 to 2004, an average of 360 men died from prostate cancer each year in Colorado.<sup>2</sup> Between 1997 and 2001, black men in Colorado had higher rates of incidence and death alike, although these rates were lower in Colorado than for black men in the United States.<sup>4</sup>

Age, race/ethnicity, and family history are factors that affect the risk for prostate cancer. About 80 percent of all men with clinically diagnosed prostate cancer are age 65 years or older. Because prostate cancer usually occurs at an age when conditions such as heart disease and stroke cause death, many more men die with prostate cancer rather than because of it. Fewer than 10 percent of men with prostate cancer die of the disease within five years of diagnosis.<sup>1</sup>

### Age-Specific Incidence Rate of Cancer Types for Men and Woman Ages 55 to 85+ in Colorado, 1998–2002



## References

1. Colorado Cancer Coalition, Colorado Cancer Plan 2005–2010, <http://www.coloradocancercoalition.org/>
2. Statistics generated by Terry Bryant from Colorado Department of Public Health and Environment, using Health Statistics Section, Colorado Health Information Dataset, November 29, 2006. <http://www.cdphe.state.co.us/cohid/>
3. Colorado Department of Public Health and Environment, Colorado Central Cancer Registry, Personal communication with Jack Finch, December 2005.
4. Colorado Department of Public Health and Environment, Colorado Central Cancer Registry, Cancer in Colorado 1992–2002.
5. Statistics generated by Terry Bryant from Colorado Department of Public Health and Environment, using U.S. Department of Health and Human Services, Centers for Disease Control and Prevention Web site, November 29, 2006. <http://www.cdc.gov/cancer/lung/statistics>
6. American Cancer Society, [http://www.cancer.org/docroot/CRI/content/CRI\\_2\\_2\\_1X\\_How\\_many\\_men\\_get\\_prostate\\_cancer\\_36.asp?sitearea](http://www.cancer.org/docroot/CRI/content/CRI_2_2_1X_How_many_men_get_prostate_cancer_36.asp?sitearea)
7. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Cancer Prevention and Control, 2002. [http://www.cdc.gov/cancer/npcr/uscs/2002/facts\\_major\\_findings.htm](http://www.cdc.gov/cancer/npcr/uscs/2002/facts_major_findings.htm)
8. D. L. Hoyert, M. P. Heron, S. L. Murphy, and H. Kung, Deaths: Final Data for 2003. National Vital Statistics Reports, 54(13). Hyattsville, M.D.: National Center for Health Statistics, 2006.

## Resources

- American Cancer Society. <http://www.cancer.org>
- Colorado Department of Public Health and Environment. Comprehensive Cancer Program. <http://www.cdphe.state.co.us/pp/ccpc/ccpchom.asp>
- National Center for Chronic Disease Prevention and Health Promotion. Economic burden, strategies in prevention, research. <http://www.cdc.gov/nccdphp/index.htm>

## Cardiovascular Disease

Cardiovascular disease (CVD) afflicts the heart and blood vessels. Heart disease and stroke are the most common types of cardiovascular disease. Diseases of the heart and blood vessels usually develop over a period of years. They begin when cholesterol and fat build up inside the walls of blood vessels that supply the heart or brain, causing them to narrow. A heart attack results when the walls of the blood vessels that supply the heart muscle are so narrowed that the blood supply is blocked.<sup>1</sup> Angina refers to restricted blood flow but not a total blockage. A stroke results when a blood vessel to the brain is restricted or blocked.

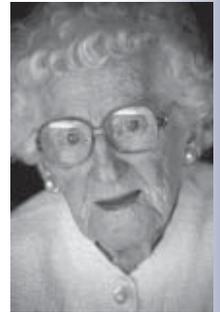
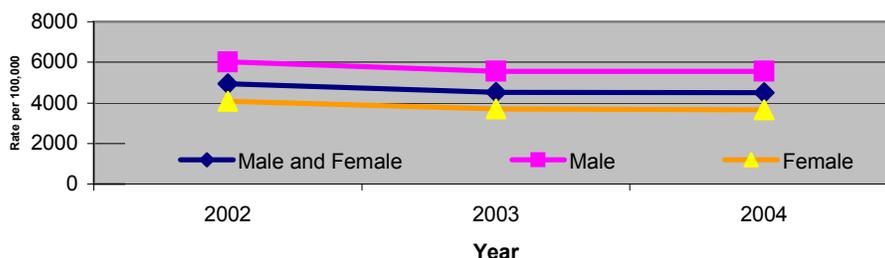
Heart disease and stroke are the first and third leading causes of death for both men and women in the United States, accounting for nearly 40 percent of all deaths. More than 910,000 Americans die from cardiovascular disease each year (1 death every 35 seconds).<sup>2</sup> In Colorado in 2005, 8,845 (30%) of all deaths were due to cardiovascular disease. Of these, 6,282 (about 21%) were due to heart disease and 1,595 (more than 5%) were due to stroke.<sup>3</sup>

More than 70 million Americans live with cardiovascular disease as a chronic condition. Heart disease is a leading cause of premature, permanent disability among American workers and stroke accounts for disability among more than 1 million Americans. More than 6 million hospitalizations each year are due to cardiovascular disease. As the population ages, the economic impact of cardiovascular disease on the healthcare system continues to grow. In the United States, in 2006, the cost of cardiovascular disease, including healthcare expenditures and lost productivity from death and disability, is projected to be \$403 billion.<sup>2</sup> In Colorado in 2005, the total cost for all hospitalizations for which cardiovascular disease was the primary diagnosis was nearly \$2 billion.<sup>4</sup>

In Colorado, in 2005, one in five hospital discharge records had a primary diagnosis of cardiovascular disease among patients age 55 years old and older. Men made up the majority (54%) of these hospital discharges.<sup>4</sup>

Other types of cardiovascular disease include faulty heart valves, heart beat irregularities, and other structural problems.

### Age-Adjusted Rates of Hospital Admissions for Cardiovascular Disease as the Primary Diagnosis, Colorado Adults Age 55 and Older, 2002-2004



*More than 70 million Americans live with cardiovascular disease as a chronic condition.*



*The cost of cardiovascular disease in the United States in 2006 was projected to be \$403 billion.*

## References

1. National Women's Health Resource Center, *What is CVD? 2005*.  
[www.healthywomen.org](http://www.healthywomen.org)
2. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Division for Heart Disease and Stroke Prevention. *Addressing the Nation's Leading Killers 2006: Strategies for a Heart-Healthy and Stroke-Free America*,  
<http://www.cdc.gov/cvh>
3. Colorado Department of Public Health and Environment, Health Statistics Section; Colorado Births and Deaths 2005.
4. Colorado Hospital Association, 2005 Colorado Hospital Discharge Data.

## Resources

American Heart Association. <http://www.Americanheart.org>

Colorado Department of Public Health and Environment. Cardiovascular Program.  
<http://www.cdphe.state.co.us/pp/cvd/cvdhom.html>

U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. *The Burden of Chronic Diseases and Their Risk Factors*.  
<http://www.cdc.gov/nccdphp/burdenbook2004/pdf/>

## Hypertension (High Blood Pressure)

Everyone has blood pressure. It is the force of blood against the walls of the arteries. The heart creates this force as it pumps blood throughout the body. Blood pressure is measured and recorded as two numbers expressed as a fraction. The top, or larger, number (systolic pressure) measures the pressure in arteries when the heart beats. The bottom, or smaller, number (diastolic pressure) measures the pressure in arteries while the heart rests between beats. Normal blood pressure is below 120/80. Blood pressure rises and falls throughout the day, but blood pressure that stays elevated over time is called high blood pressure, or hypertension. If a person's blood pressure is 140/90 or higher, that individual is considered to have high blood pressure. For people with diabetes or kidney disease, a blood pressure measurement above 130/80 is considered high blood pressure.<sup>1</sup>

High blood pressure is more common among African Americans and Hispanics than Caucasians. Other risk factors for developing high blood pressure are increasing age, being overweight, smoking, sensitivity to salt, an inactive lifestyle, heavy alcohol consumption, and the use of oral contraceptives by women.<sup>2</sup> Because most people who have high blood pressure have no symptoms, it is often called the "silent killer."

### \*Blood Pressure Levels for Adults<sup>1</sup>

Category	Systolic Pressure (mmHg)+		Diastolic Pressure (mmHg)+	Result
Normal	Less than 120	And	Less than 80	Good for you!
Pre-hypertension	120-139	Or	80-89	Your blood pressure could be a problem. Make changes in what you eat and drink, be physically active, and lose extra weight. If you also have diabetes, see your doctor.
Hypertension	140 or higher	Or	90 or higher	You have high blood pressure. Ask a health professional how to control it.

<sup>1</sup>The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure; NIH Publication No. 03-5230, National High Blood Pressure Education Program, May 2003.

\* For adults ages 18 and older who are not on medicine for high blood pressure and do not have a short-term serious illness.

+ Millimeters of mercury

High blood pressure adds to the workload of the heart and arteries. The heart must pump (or beat) with more force, and the arteries must carry blood that is moving under greater pressure. When high blood pressure continues untreated for a long time, the heart, arteries, and other body organs are affected and will not function as well. The risk of having a stroke, heart attack, heart failure, and kidney disease increases.<sup>1</sup>

An estimated 50 million adult Americans—nearly half of them women—have high blood pressure. More men than women suffer from high blood pressure until women reach their mid-50s when a woman’s risk for developing high blood pressure is equivalent to a man’s risk. In Colorado in 2005, 20 percent of adults reported that they were told that they had high blood pressure.<sup>3</sup>

### References

1. American Heart Association, *High Blood Pressure* [pamphlet], 2003.
2. National Women’s Health Resource Center, *Know Your Numbers: What’s Your Blood Pressure?* 2005. [www.healthywomen.org](http://www.healthywomen.org)
3. Statistics generated by Mario Rivera from Colorado Department of Public Health and Environment, using data from Health Statistics Section, Behavioral Risk Factor Surveillance System, November 2006.

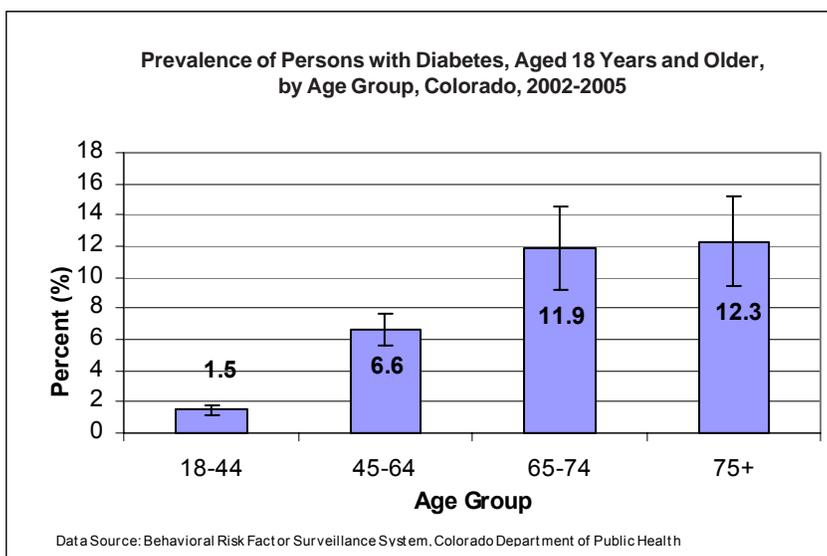
## Diabetes

Diabetes is a chronic disease in which the body does not produce or properly use insulin. Insulin is a hormone that helps to remove sugar from the blood and move it into the body's cells where it provides energy. When the body fails to produce or properly use insulin, chronic excess of glucose (blood sugar) can cause a number of health problems, including heart disease and stroke, and damage to the eyes, kidneys, and nerves in the feet, legs, and fingertips.



There are three major types of diabetes, generally referred to as type 1, type 2, and gestational diabetes. Individuals with type 1 diabetes need to take insulin by injection. Without insulin, a life-threatening coma can result. Type 2 diabetes is most common and usually occurs in adults over age 45. However, in recent years, children and young adults have begun to develop type 2 diabetes as a result of increasing overweight and obesity. Gestational diabetes develops or is recognized during pregnancy; if a woman has a history of gestational diabetes, she has a 20 to 50 percent risk of developing type 2 diabetes within five to ten years after delivery.<sup>1</sup> When an individual's blood glucose levels are higher than normal but not high enough to be classified as diabetes, that person is classified as having pre-diabetes. Pre-diabetes is a condition that raises the risk of developing type 2 diabetes, heart disease, and stroke.

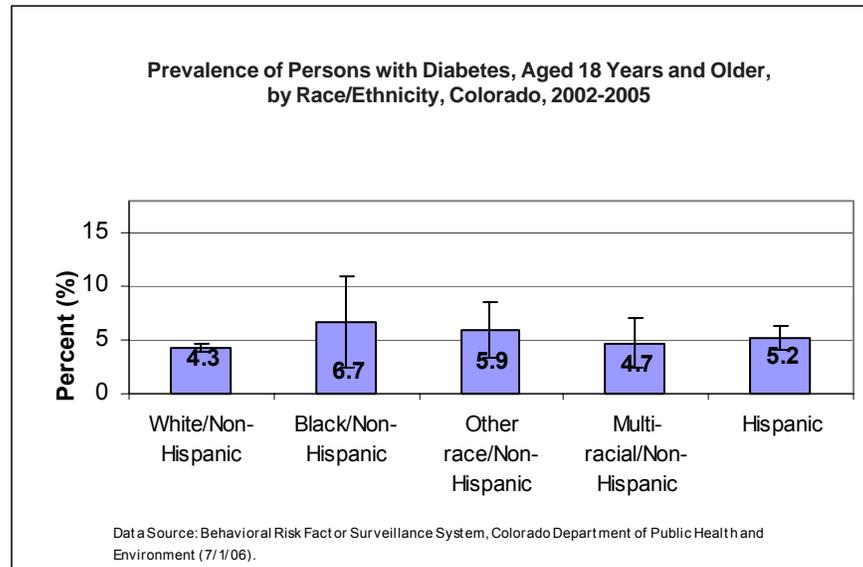
Ninety to 95 percent of individuals with diabetes have type 2 diabetes while only 5 to 10 percent have type 1 diabetes. For all U.S. adults 60 years or older, 10.3 million have diabetes.<sup>1</sup> In Colorado, over 24 percent of adults age 65 and older report that they have diabetes, which is significantly higher than other age groups (18 to 44: 1.5 percent; 45 to 64: 6.6 percent). The figure illustrates the differences in the percentage of people who have diabetes by age.



*Total costs to society from diabetes were estimated to be \$132 billion in 2002.<sup>1</sup>*

In 2002, diabetes was the sixth leading cause of death in the United States, the eighth leading cause in Colorado, and remains a significant contributor to other illnesses. People with diabetes are two to four times as likely to have heart disease or a stroke. The majority of new cases of kidney disease and lower extremity amputations are caused by diabetes.<sup>1, 2</sup>

In 2002, total costs to society from diabetes were estimated to be \$132 billion<sup>1</sup> and in Colorado, total costs were estimated to be \$2.4 billion.<sup>3</sup>



As the figure shows, about 4.3 percent of white non-Hispanics reported having diabetes, compared to 5.2 percent Hispanics and 6.7 percent of black non-Hispanics. The prevalence of diabetes in Hispanics and black non-Hispanics is higher than that of white non-Hispanics.

## References

1. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Diabetes Translation. National Diabetes Fact Sheet, United States 2005, [http://www.cdc.gov/diabetes/pubs/pdf/ndfs\\_2005.pdf](http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2005.pdf)
2. Statistics generated by Rickey Tolliver from Colorado Department of Public Health and Environment, using 2005 data from Health Statistics Section, Behavioral Risk Factor Surveillance System, July 1, 2006.
3. *Economic Cost of Diabetes in the U.S. in 2002*. Diabetes Care, 26(3)(March 2003): 917-932.

## **Resources**

American Diabetes Association. <http://www.diabetes.org/home.jsp>

Colorado Department of Public Health and Environment.

<http://www.cdphe.state.co.us/pp/diabetes/index.html>

Colorado Department of Public Health and Environment.

[http://www.cdphe.state.co.us/pp/diabetes/reports/CO Action Plan.pdf](http://www.cdphe.state.co.us/pp/diabetes/reports/CO_Action_Plan.pdf)

## Falls



Although people of all ages fall, among older adults falling can not only result in a loss of independence but can cause serious complications that may lead to injury and to death. In the United States, one out of three adults age 65 and older fall each year. Twenty to thirty percent of those who fall suffer moderate to severe injuries that reduce functional ability.<sup>1</sup>

Several factors common among older adults make it more likely for them to fall, including conditions that affect gait and balance, poor vision, medications, and lower body weakness. Because many older adults have fragile bones, a fall can lead to serious complications and injury.

*Falls are the leading cause of death from injuries and are the most common cause of hospitalization for injuries.*

In 2004, 283 Coloradans 55 and older died from fall-related injuries. Though slightly more than half (156) of these deaths were among women, the death rate due to injuries from falls was higher for men until age 75, at which age the death rate because of falls became similar for both men and women.<sup>2</sup>



In addition to presenting a risk of death, falls hospitalized nearly 10,000 Coloradans age 55 and older in 2004. The average length of stay for older adults hospitalized due to falling was 4.7 days, and the average hospital charge was more than \$23,000. As with fall-related deaths, the fall-related hospitalization rate increases with age. Among adults 55 and older, women are more likely than men to be hospitalized because of falls.<sup>3</sup>

### Fall-Related Death Rate\* Among Coloradans Age 55 and Older, 2004

Age	Male	Female
55 and older**	40.6	32.0
55-64	6.9	1.4
65-74	17.9	3.6
75-84	70.6	68.2
85 and older	239.8	220.9

\*per 100,000 population

\*\*age-adjusted to year 2000 U.S. population

### Fall-Related Hospitalization Rate\* Among Coloradans Age 55 and Older, 2004

Age	Male	Female
55 and older**	930.5	1396.8
55-64	264.7	331.9
65-74	548.1	813.5
75-84	1629.5	2525.0
85 and older	4283.3	6609.4

\*per 100,000 population

\*\*age-adjusted to year 2000 U.S. population

Fractures are one of the most serious results of falling. Among adults 65 and older in the United States, 87 percent of all fractures are due to falls. Fractures of the hip are the most disabling and often require a long hospitalization. Among those 65 and older

hospitalized for a hip fracture, half cannot return home or live independently after their injury.<sup>1</sup> Among Coloradans 55 and older who were hospitalized for fall-related injuries in 2004, more than one-third suffered hip fractures; nearly three out of four of these hip fractures were in women. In addition to sustaining hip fractures, many older adults suffer traumatic brain injury as a result of a fall. In 2004, approximately 11 percent of Coloradans 55 and older who were hospitalized due to fall-related injuries sustained a traumatic brain injury.<sup>3</sup>



Falls affect all older adult populations regardless the person's living arrangements (institutionalized, living independently) or demographics.

## References

1. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control, Falls and Hip Fractures, <http://www.cdc.gov/ncipc/factsheets/falls.htm>
2. Colorado Department of Public Health and Environment, Injury Epidemiology Program (2005), Analysis from 2004 Death Certificate Data.
3. Colorado Hospital Association, 2004 Colorado Hospital Discharge Data.

## Overweight and Obesity

Overweight and obesity are both labels for ranges of weight that are greater than are generally considered healthy for a given height. The terms also identify ranges of weight that have been shown to increase the likelihood of certain diseases and other health problems.

The proportion of overweight and obese adults in the United States has increased steadily over the past 20 years, to the point that obesity is now considered an epidemic. Obesity is being linked to the onset and severity of many chronic diseases. Unhealthy eating and lack of adequate physical activity are primary factors contributing to overweight, obesity, and related health problems, which have a tremendous impact on older adults' physical abilities and their quality of life.



*Obesity increases the risk for four of the ten leading causes of death, including heart disease, diabetes, stroke, and cancer.*

For adults, overweight and obesity ranges are determined by using weight and height to calculate a number called the Body Mass Index (BMI).

BMI categories:

- An adult with a BMI below 18.5 is underweight.
- An adult who has a BMI between 18.5 and 24.9 is normal weight.
- An adult who has a BMI between 25 and 29.9 is considered overweight.
- An adult who has a BMI of 30 or higher is considered obese.

The table shows possible assessments for a person who is 5'9" tall. It is important to remember that although BMI correlates with the amount of body fat, BMI does not directly measure body fat. As a result, some people, such as athletes, may have a BMI that identifies them as overweight even though they do not have excess body fat.

Height	Weight Range	BMI	Considered
5'9"	124 lbs or less	Below 18.5	Underweight
	125 lbs to 168 lbs	18.5 to 24.9	Healthy weight
	169 lbs to 202 lbs	25.0 to 29.9	Overweight
	203 lbs or more	30 or higher	Obese

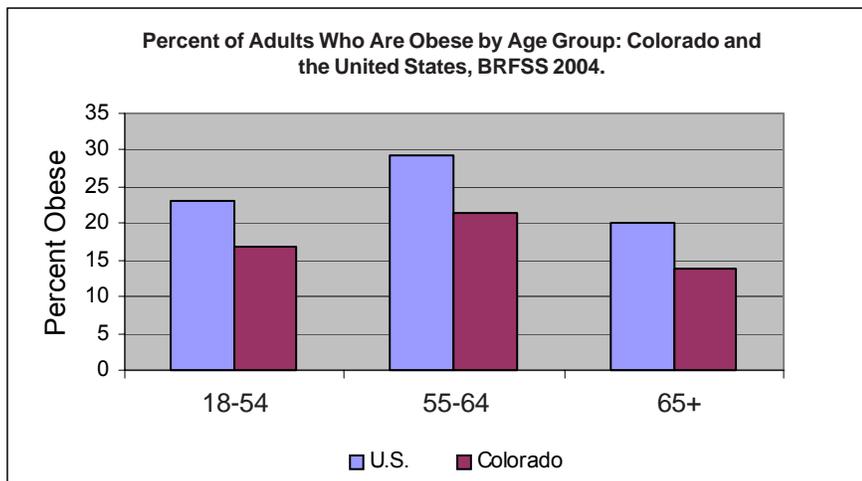
The percent of the U.S. population that is obese has increased dramatically. This increase has occurred among all age groups, including older adults. In the United States in 2004, 23.2 percent of adults 18 and older were obese. Among adults 55 to 64, 29.7 percent of adults were obese, and 20.3 percent of adults 65 and older were obese.<sup>1</sup>

Although the rates of obesity are lower in Colorado than in the nation as a whole, the pattern is similar. In Colorado in 2004, 16.8 percent of adults age 18 and older were obese. Among adults age 55 to 64, 21.6 percent were obese, and 13.9 percent of adults 65 and older were obese. Some groups of older adults have higher rates of obesity than

others. For example, non-Hispanic whites have lower rates of obesity among adults 55 years and older than do adults of the same age of other racial and ethnic backgrounds. Similarly, among adults 55 years and older, obesity rates are lowest for those with higher levels of income or education. Rates of obesity are similar in both men and women.<sup>1</sup>

The likelihood that a person will be obese increases with age until about age 60, when it begins to decline. Though it is unknown exactly why, several factors, including a reduction in energy intake, may play a role. While the makeup of the human body changes naturally with age, with an increase in fat and a decrease in muscle, too much fat puts people at risk for health complications, decreased quality of life, and even early death.<sup>1</sup>

Obesity increases the risk for four of the ten leading causes of death, including heart disease, diabetes, stroke, and cancer.<sup>2</sup> Additionally, older adults who are obese are more likely to be limited in their activities of daily living.<sup>3</sup>



## References

1. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Behavioral Risk Factor Surveillance System, <http://www.cdc.gov/brfss>
2. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Overweight and Obesity, <http://www.cdc.gov/nccdphp/dnpa/obesity>
3. S. L. Reynolds, Y. Saito, and E. M. Crimmins, *The Impact of Obesity on Active Life Expectancy in Older American Men and Women*. *Gerontologist* 45:438–444 (2005).

## Resources

Colorado Department of Public Health and Environment. Colorado Physical Activity and Nutrition (COPAN) Program.

<http://www.cdphe.state.co.us/pp/COPAN/COPAN.html>

## Osteoporosis

Osteoporosis is a disease in which bones become fragile and more likely to break. If not prevented or if left untreated, osteoporosis can progress painlessly until one or more bones break. Broken bones, or fractures, commonly occur in the hip, spine, and wrist. Osteoporosis can lead to dangerous and costly fractures and a poor quality of life that can result in a loss of independence among the elderly. By focusing on prevention and lifestyle changes, including physical activity and fall prevention, as well as early diagnosis and appropriate treatments, Coloradans can avoid much of the damaging impact of this bone disease.



*Each year an estimated 1.5 million people suffer from an osteoporotic-related fracture.*

Although any bone can be affected, of special concern are fractures of the hip and spine. A hip fracture almost always requires hospitalization and major surgery. It can impair a person's ability to walk unassisted and may cause prolonged or permanent disability or even death. Spinal or vertebral fractures also have serious consequences, such as severe back pain and deformity.

Osteoporosis is a public health issue posed by the increased numbers of older people. The costs of osteoporosis in both human and financial terms are high and will grow even higher over time as our population increasingly ages. By 2020, roughly 14 million individuals older than 50 are expected to have osteoporosis and another 47 million likely will have low bone mass.<sup>1</sup>

An estimated 10 million people in the United States over the age of 50 have osteoporosis, while another 34 million are at risk. Each year, an estimated 1.5 million people suffer from an osteoporotic-related fracture. Twenty percent of adults 65 and older who suffer a hip fracture die within one year. One out of every two women older than 50 will have an osteoporotic-related fracture in her lifetime, with risk of fracture increasing with age. Primarily because of the aging of the population and the previous lack of focus on bone health, the number of hip fractures in the United States could double or even triple by the year 2020.<sup>2</sup>

Recent statistics for the state of Colorado indicate:<sup>2</sup>

- 153,300 adults (117,200 women) age 50 and over have osteoporosis.
- 507,500 adults (323,200 women) age 50 and over have low bone mass.
- Non-Hispanic white females are disproportionately afflicted with this disease, but the number of women of other races and ethnic groups is also significant.

Osteopenia is a medical term for bone density that is lower than normal, but not low enough to be called osteoporosis (osteo = bone; penia = below normal). Although it is impossible to predict whether osteopenia will progress to osteoporosis, a diagnosis of osteopenia indicates the need for steps that protect bone health.

The good news is that osteoporosis is preventable and treatable. Scientists have learned that appropriate nutrition and physical activity throughout life can significantly reduce the risk of bone disease and fractures. Although there is no cure for osteoporosis, currently some drugs have been approved by the U.S. Food and Drug Administration for the prevention and/or treatment of osteoporosis.

### References

1. U.S. Department of Health and Human Services. *Bone Health and Osteoporosis: A Report of the Surgeon General*. Washington, D.C.: Office of the Surgeon General, 2004.
2. National Osteoporosis Foundation. *America's Bone Health: The State of Osteoporosis and Low Bone Mass in Our Nation*. Washington, D.C.: National Osteoporosis Foundation, February 2002.

### Resources

National Osteoporosis Foundation. Assess Your Joint Health. Steps to Prevention.  
<http://www.nof.org/prevention/index.htm>

# Physical Activity for Older Adults with Chronic Disease

## Benefits of Physical Activity for Older Adults

Physical activity is an accepted form of maintaining wellness for all age groups, including older adults. Colin Milner, founder and CEO of the International Council on Active Aging, notes:

*The role of physical activity in preventing or improving chronic disease and maintaining function in older adults has been repeatedly proven by research. Managed care health plans and corporate wellness programs have shown how physical activity controls health care costs. Now is the time to take the lessons learned and apply them.<sup>1</sup>*

The cost of health care for all citizens in the nation is becoming a huge burden on all levels of government. According to Laura L. Payne, of the College of Applied Life Studies at the University of Illinois, a “financial catastrophe” awaits the government in the healthcare arena. She also observes, “Increasing the level of physical activity, particularly among older adults, is of crucial importance in restoring and maintaining functional health.”

The broad category of physical activity includes leisure-time physical activity, recreational activity, sports activity, occupational activity, household chores, and exercise. Residents of Colorado are often considered to be among the most active in the nation.<sup>2</sup> The state is noted for its walking and hiking trails, its mountain and city parks, bike paths, and opportunities for outdoor recreation, such as skiing, snowshoeing, biking, and walking. Older adults are using these resources in larger numbers each year. In addition, many community-based organizations and venues support physical activity programs for the elderly.

Physical activity is a protective factor against many chronic diseases, including heart disease, stroke, hypertension, type 2 diabetes, osteoarthritis, and certain cancers. In addition, physical activity helps in the maintenance of healthy weight, contributes to healthy muscles and bones, and can reduce the impact of arthritis and depression.<sup>1</sup> Some of the benefits for older adults that can result from physical activity include:<sup>3-9</sup>

- decreased risk for coronary artery disease
- improved lipid profile
- lowered heart rate and blood pressure at a given sub-maximal workload
- improved glucose control
- improved weight management
- reduced risk of falling and fracturing bones

- decreased risk of osteoporosis through weight-bearing exercises that increase bone density and non-weight-bearing exercises that increase muscle strength
- improved balance, coordination, and flexibility
- improved muscular strength and endurance
- improved immune function
- decreased arthritic symptoms, such as joint swelling and pain
- lowered health costs because of reduced incidence and severity of disabling conditions
- improved recovery rates and decreased length of hospital stays
- increased oxygen to the brain to promote cognitive functioning
- improved mental health and sense of well-being
- reduced feelings of depression and anxiety
- improved ability to manage stress
- increased opportunities for social interaction
- increased energy
- improved self-confidence and a positive self-image
- improved quality of life

Physical activity also allows older adults to improve or extend their independence by being able to take care of themselves. Functional capacity is the ability to perform both activities of daily living, such as bathing, dressing, and grooming, and instrumental activities of daily living, such as cooking, housekeeping, shopping, and managing finances. Life satisfaction has been found to drop dramatically once an individual becomes dependent on others for their activities of daily living. Maintenance of functional capacity is probably the most compelling reason to be physically active. Even a small improvement in physical fitness can mean the difference between independence and dependence.

Older adults experience dramatic increases in endurance after less than a year of moderate regular activity (e.g., walking three to five times a week for at least 30 minutes).<sup>5</sup> When physical activity takes place in group settings, the social and mental health of the older adult may be greatly improved because of the lack of social isolation.

## References

1. American College of Sports Medicine, Active Aging Partnership, *The National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older*, <http://www.agingblueprint.org/viewarticle.cfm?id=193&class=3>
2. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Behavioral Risk Factor Surveillance System, <http://www.cdc.gov/brfss>
3. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promo-

- tion, <http://www.cdc.gov/nccdphp/publications/aag/dnpa.htm>
4. American Family Physician, Promoting and Prescribing Exercise for the Elderly, 65(3)(February 1, 2002), <http://www.aafp.org/afp/20020201/419.html>
  5. C. J. Jones, and D. J. Rose, *Physical Activity Instruction of Older Adults*. Champaign, IL: Human Kinetics, 2005.
  6. E. M. Silveira, M. F. Rodrigues, M. S. Krause, D. R. Vianna et al., Acute Exercise Stimulates Macrophage Function: Possible Role of NF-kappaB Pathways. National Center for Biotechnology Information Jan.-Feb. 2007 25(1):63–73, <http://www.ncbi.nlm.nih.gov/entrez/query.fcgi?CMD=search&DB=pubmed>
  7. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Physical Activity and Health: A Report of the Surgeon General, 1996. [www.cdc.gov/nccdphp/sgr/sgr.htm](http://www.cdc.gov/nccdphp/sgr/sgr.htm)
  8. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Nutrition and Physical Activity, Growing Stronger—Strength Training for Older Adults, [http://www.cdc.gov/nccdphp/dnpa/physical/growing\\_stronger/spotlight.htm](http://www.cdc.gov/nccdphp/dnpa/physical/growing_stronger/spotlight.htm)
  9. American Heart Association, The Benefits of Daily Physical Activity, <http://www.americanheart.org/presenter.jhtml?identifier=764>

### Resources

Rowe, J. W., and R. L. Kahn. *Successful Aging: MacArthur Foundation Study*. New York: Pantheon Books, 1998.

## Advantages of Community-Based Physical Activity Programs

The role of community-based organizations, service providers, and facilities, such as recreation centers, senior centers, congregate meal sites, churches, and assisted living facilities, is changing. Community-based venues are not only the hubs of social activities, they are logical places for education, activities, and services to impact the health of the older adult. Access to transportation is a challenge for many older adults. In communities that have accessible transportation, the destination point becomes the most important (and in some cases the only) place for service.

Nancy Whitelaw of the National Council on Aging notes that the Council “is trying to build on the successful histories of these providers in social services and recreation to enable them to deliver programs that have measurable and reliable health benefits. One of our greatest opportunities is assisting community providers to take evidence-based interventions and implement them in their communities. These providers are already connected to, and trusted by, older adults who can benefit from the programs.” She goes on to say, “The scientific community has provided us with great models of programs that work. We need to take advantage of their efforts by making these effective programs widely available to older adults. The key to success is careful implementation to maintain the features that make the model work, while adapting the programs to the local context.”<sup>1</sup>

*The National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older*, a major planning document for aging and physical activity, sponsored by AARP, the American College of Sports Medicine, the American Geriatrics Society, the Centers for Disease Control, the National Institute on Aging, the National Council on the Aging, and the Robert Wood Johnson Foundation, recommends that those organizations or facilities that provide programs for the elderly:

- establish and disseminate standards for fitness leaders who work with the older adult population;
- increase healthcare professional training on physical activity in older populations. Such training should be available through medical and healthcare professional schools and through continuing education programs for physicians, sports medicine professionals, occupational, physical and recreational therapists, and health educators;
- utilize evidence-based approaches in the delivery of physical activity programs and in disseminating information through healthcare settings; and
- provide professionals with strategies for implementing such initiatives.<sup>2</sup>

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* describes ways in which community-based organizations can deliver evidence-based programs and provide tools and resources to organizations serving the older adult community.

## References

1. Personal communication with Nancy Whitelaw, January 25, 2007.
2. American College of Sports Medicine, Active Aging Partnership, *The National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older*, <http://www.agingblueprint.org/>

## What is Evidence-Based Intervention?

An evidence-based intervention is one that has been determined by research as having a positive health outcome. Evidence-based interventions have been tested in scientific studies and published. When an intervention is implemented exactly as tested, it can be expected to successfully produce positive health outcomes.

To ensure quality control of program delivery (that is, that programs are implemented as tested), the investigators who designed and conducted the research have trademarked many evidence-based programs. Some program interventions have licensing contracts and nearly all have specific training and certification requirements. When an organization meets the training and certification criteria, it is allowed to use the trademarked name of the program.

Safety for older adults who may have physical limitations because of aging and chronic disease is an important component in many evidence-based program interventions. Physical levels of older adults range from frail to elite. The instructor and the organization need to take safety into consideration in order to decrease injuries and potential liability.



*2006 ACADEMY for Older Adult Wellness Instructor's N'Balance™ Class*

## What is a Best Practice?

As defined by the National Council on Aging, “Best practices are processes, practices, or systems widely recognized as improving the performance and efficiency of organizations in a target area, such as health promotion.”<sup>1</sup> Best practices are sometimes used when evidence-based interventions are not available to produce positive health outcomes.

## What is a Self-Management Program?

Self-management programs are education programs that provide tools to assist people in taking control of their own health. Self-management programs can be disease spe-

cific or generalized for a number of chronic diseases and conditions. Self-management programs can be used effectively in the community as a first step for health promotion in older adults. Many self-management programs address diet and exercise as important tools for disease management.

Topics addressed in self-management programs may include:

- how the individual can manage the disease
- how to communicate effectively with healthcare partners
- how to cope with anger, frustration, and other negative emotions
- techniques for improved breathing and hydration
- tips for medication compliance
- suggestions for fighting fatigue
- additional community resources
- ideas to help people perform normal daily tasks
- pain management
- the need for proper nutrition and physical exercise
- continuum of care

## References

1. National Council on Aging, Center for Healthy Aging,  
<http://www.healthyagingprograms.org/content.asp?sectionid=31>

## Physical Activity and Specific Chronic Diseases

### Arthritis

Appropriate regular physical activity improves function and relieves symptoms in people with osteoarthritis and rheumatoid arthritis. Consultation with a physical therapist or other healthcare provider may be indicated to determine appropriate types and levels of physical activity. In many cases, physical activity reduces the need for medications.<sup>1</sup>

Physical activity is a key component of arthritis treatment. Weight-bearing activities can improve function for people with osteoarthritis. Once symptoms have begun, specific exercises can strengthen the muscles around the joints. Stronger muscles stabilize the joints and enhance movement. Moving joints through their full range of motion can reduce stiffness and pain. In addition, losing excess weight may retard the damage to weight-bearing joints (such as knees) and may reduce symptoms.

Aerobic exercise for people with fibromyalgia has been shown to improve muscle fitness, reduce pain, and improve sleep. Low-impact activities, such as walking, bicycling, or swimming, are recommended. Even for people who have been completely inactive and able to exercise only a minute or two, the goal is to slowly work toward aerobic fitness.

Exercise may be the most effective and inexpensive intervention to achieve optimal arthritis outcomes. Many exercise programs for arthritis are available through recreation, fitness, and senior centers. A review of interventions shows that exercise is associated with success in therapeutic goals, improved general health, reduction in secondary disability, and modification of risk factors in disease progression.<sup>2</sup>

Evidence-based arthritis programs include:

- Arthritis Foundation Exercise Program<sup>SM</sup>
- Arthritis Foundation Aquatic Program<sup>SM</sup>
- EnhanceFitness Program<sup>TM</sup>

### References

1. D. W. Puett and M. R. Griffin, Published trials of non-medicinal and non-invasive therapies for hip and knee osteoarthritis, *Annals of Internal Medicine* 121: 133–140.
2. U.S. Department of Health and Human Services, Agency for Healthcare Research and Quality, Centers for Disease Control, Physical Activity and Older Americans: Benefits and Strategies, <http://www.ahrq.gov/ppip/activity.htm>

## Cancer

Given that cancer is a group of diseases marked by the uncontrolled growth and spread of abnormal cells and often the result of genetic and non-genetic factors as well as lifestyle and environmental factors—and that cancer treatments are so varied, it is difficult to make general recommendations about physical activities in older adults with cancer.

However, there have been some associations related to physical activity that should be noted. In the United States, 14 to 20 percent of all cancer-related mortality is related to overweight and obesity. Overweight and obesity have been associated with increased risk for developing many cancers, including cancers of the breast in post-menopausal women, colon, endometrium, adenocarcinoma of the esophagus, and kidney. Evidence is highly suggestive that obesity also increases risk for cancers of the pancreas, gallbladder, thyroid, ovary, and cervix, and for multiple myeloma, and aggressive prostate cancer.<sup>1</sup> Thus, all older adults should be aware of the advisability of maintaining a healthy weight and of participating in appropriate physical activities.

There is some evidence that physical activity may protect against breast cancer in women.<sup>1</sup>

*Evidence suggests that one-third of the 500,000 cancer deaths that occur in the United States each year are due to unhealthy diet and insufficient physical activity.<sup>2</sup>*

## References

1. American Cancer Society, [http://www.cancer.org/docroot/PED/content/PED\\_3\\_2X\\_Diet\\_and\\_Activity\\_Factors\\_That\\_Affect\\_Risks.asp](http://www.cancer.org/docroot/PED/content/PED_3_2X_Diet_and_Activity_Factors_That_Affect_Risks.asp)
2. American Cancer Society, Guidelines on Nutrition and Physical Activity for Cancer Prevention: Reducing the Risk of Cancer with Healthy Food Choices and Physical Activity *CA Cancer Journal for Clinicians* 56(2006): 254–281, <http://caonline.amcancersoc.org/content/vol56/issue5/>

## Resources

- Thune, I., T. Brenn, E. Lund, and M. Gaard. Physical activity and the risk of breast cancer. *New England Journal of Medicine* 336(1997): 1269–1275.
- U.S. Department of Health and Human Services. *Physical Activity and Health: A Report of the Surgeon General*. Atlanta: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.

## Cardiovascular Health

Physical inactivity, smoking, high blood pressure, and high blood cholesterol are recognized risk factors for cardiovascular disease. Physical activity strengthens the heart. Exercise can also lower cholesterol and blood pressure.<sup>1</sup> The influence of physical activity on conditions that co-occur with cardiovascular disease, such as obesity and diabetes, further magnifies its importance for older adults.

*The results of pooled studies show that people who modify their behavior and start regular physical activity after a heart attack have better rates of survival and better quality of life.<sup>2</sup>*

## References

1. K. Lorig, H. Holman, D. Sobel, D. Laurent, V. Gonzalez, and M. Minor, *Living a Healthy Life with Chronic Conditions*. Boulder: Bull Publishing Company, 2006.
2. American Heart Association. <http://www.americanheart.org>

## Resources

Butler, R. N., R. Davis, C. B. Lewis, et al. *Physical fitness: Benefits of exercising for the older patient*. *Geriatrics* 53(10)( 1998): 46–62.

American Heart Association. *Heart Disease and Stroke Statistics–2007 Update*. A Report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee.

<http://circ.ahajournals.org/cgi/content/short/CIRCULATIONAHA.106.179918>

## Diabetes<sup>1,2</sup>

Physical activity can assist individuals with the management of their diabetes. Having diabetes means that blood glucose (often called blood sugar) is too high. The body uses glucose for energy but having too much glucose in the blood can be harmful. Exercise alters the metabolism in the muscles and helps to get blood glucose to normal levels. When a person has more muscle and less fat, more calories are burned because muscle burns more calories than fat, even between exercise sessions.

Exercise is not recommended when a person's blood glucose is above 300 because it can go even higher. It is best to wait until the level of blood glucose is lower. In addition, exercise is not recommended if the fasting blood glucose is greater than 250 and if there are ketones in the urine. Sometimes physical activity can lower blood glucose too much and cause hypoglycemia in people who take insulin or certain diabetes pills. Individuals should ask their healthcare provider what time of day is the best for them to exercise.

*The Diabetes Prevention Program Study showed that while some medications may delay the development of diabetes, diet and exercise worked better. Just 30 minutes a day of moderate physical activity, coupled with a 5% to 10% reduction in body weight, produced a 58% reduction in diabetes.<sup>3</sup>*

## References

1. National Diabetes Information Clearinghouse, [http://diabetes.niddk.nih.gov/dm/pubs/physical\\_ez/](http://diabetes.niddk.nih.gov/dm/pubs/physical_ez/)
2. K. Lorig, H. Holman, D. Sobel, D. Laurent, V. Gonzalez, and M. Minor, *Living a Healthy Life with Chronic Conditions*. Boulder: Bull Publishing, 2006.
3. American Diabetes Association, <http://www.diabetes.org/pre-diabetes/what-you-can-do.jsp>

## Resources

- National Heart, Lung, and Blood Institute. *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults*. [www.nhlbi.nih.gov/guidelines/obesity/ob\\_home.htm](http://www.nhlbi.nih.gov/guidelines/obesity/ob_home.htm)
- Partnership for Prevention. Creating communities for active aging. Washington, D.C., 2001. [http://prevent.org/images/stories/Files/publications/Active\\_Aging.pdf](http://prevent.org/images/stories/Files/publications/Active_Aging.pdf)
- Talbot, L. A., C. H. Morrell, J. Metter, et al. *Comparison of cardiorespiratory fitness versus leisure time physical activity as predictors of coronary events in men aged <65 years and >65 years*. *American Journal of Cardiology* 89(2002): 1187–1192.
- U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. *Prevalence of health care providers asking older adults about their physical activity levels—United States, 1998*. *Morbidity and Mortality Weekly*

- Report 2002, 51(19): 412–414. <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5119a2.htm>
- U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. Promoting active lifestyles among older adults. Nutrition and Physical Activity. <http://www.cdc.gov/nccdphp/dnpa/physical/lifestyles.htm>
- U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. National Center for Chronic Disease Prevention and Health Promotion. *Physical Activity and Health: A Report of the Surgeon General*, 1996. [www.cdc.gov/nccdphp/sgr/sgr.htm](http://www.cdc.gov/nccdphp/sgr/sgr.htm)
- U.S. Department of Health and Human Services. *Healthy People 2010*, 2nd edition., with *Understanding and Improving Health and Objectives for Improving Health*, 2 vols. Washington, D.C.: Government Printing Office, November 2000.
- U.S. Department of Health and Human Services. *Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity*. Rockville, MD: Public Health Service, 2001.
- van der Bij A.K., M. G. H. Laurent, and M. Wensing. *Effectiveness of physical activity interventions for older adults: a review*. *American Journal of Preventive Medicine* 22(2)(2002):120–133.

## Osteoporosis

The risk of osteoporosis is reduced through regular physical activity during childhood and adolescence and there also is evidence for maintenance of bone mass through physical activity and calcium supplementation in adulthood.<sup>1</sup>

*Bone is living tissue that responds to exercise by becoming stronger.<sup>2</sup>*

The National Osteoporosis Foundation<sup>2</sup> states that two types of exercises are important for building and maintaining bone mass and density: weight-bearing and resistance exercises. In weight-bearing exercises, your bones and muscles work against gravity. Any exercise in which your feet and legs are bearing your weight is weight bearing. Jogging, walking, stair climbing, dancing, and soccer are examples of weight-bearing exercise with different degrees of impact. Swimming and bicycling are not weight bearing.

Resistance exercises or activities are those that use muscular strength to improve muscle mass and strengthen bone. These activities include weight lifting, such as using free weights and weight machines, which are often found at gyms and health clubs.

Evidence-based osteoporosis programs include:

- Chronic Disease Self-Management Program™
- Strong Women, Strong Bones Program™

## References

1. U.S. Department of Health and Human Services, Office of the Surgeon General. *Bone Health and Osteoporosis: A Report of the Surgeon General*, 2004.
2. National Osteoporosis Foundation, <http://www.nof.org/prevention/exercise.htm>

## Nutrition for Older Adults with Chronic Disease

New, exciting studies present a glimpse of optimum nutrition necessary for healthy aging. Although there are many ways to improve the wellness of an older adult, nutritional intake is of primary importance. The following sections of this document are directed to nutrition for older adults with specific chronic diseases.

### Cardiovascular Health

Cardiovascular disease is a term used to define diseases of the heart and blood vessels. Basic nutritional guidelines for cardiovascular disease focus on maintaining a healthy weight and eating an overall healthy diet with specific recommendations that have been shown to impact blood lipid levels and cardiovascular disease.

A lipid profile is a group of blood tests that measure blood cholesterol levels and is used to assess risk for heart disease. Frequent monitoring of lipid profile levels is routine in the treatment of cardiovascular disease. Diet and lifestyle factors directly correlate with levels of low-density lipoprotein (LDL), high-density lipoprotein (HDL), total cholesterol, and triglycerides. Therefore, it is important that individuals be educated on dietary sources and lifestyle factors that have been shown to have negative and positive impact on lipid levels. The National Cholesterol Education Program Third Adult Treatment Panel (ATP III) Report serves as the standard of treatment for high blood cholesterol levels.<sup>1</sup>

#### LDL Cholesterol – Primary Target of Therapy

<100	Optimal
100-129	Near optimal/above optimal
130-159	Borderline high
160-189	High
≥190	Very high

#### Total Cholesterol

<200	Desirable
200-239	Borderline high
≥240	High

#### HDL Cholesterol

<40	Low
≥60	High

#### Triglycerides

<150	Desirable
150-199	Borderline high
200-499	High
≥500	Very high

Source: National Cholesterol Education Program, Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III).

ATP III emphasizes that lifestyle changes (a diet that is low in saturated fat and in cholesterol, physical activity, and weight control) are the best treatment for lowering cholesterol levels. In fact, for primary prevention therapeutic lifestyle changes are the first line of therapy for older persons.<sup>1</sup>

The American Heart Association (AHA) Scientific Statement, Diet, and Lifestyle Recommendations Revision 2006, gives the following diet and lifestyle recommendations for cardiovascular disease risk reduction.<sup>2</sup>

- Balance caloric intake and physical activity to achieve or maintain a healthy body weight.
- Consume a diet rich in vegetables and fruits.
- Choose whole-grain, high-fiber foods.
- Consume fish, especially oily fish, at least twice each week.
- Limit your intake of saturated fat to less than 7 percent of energy, trans fat to less than 1 percent of energy, and cholesterol to less than 300 mg per day by:
  - choosing lean meats and vegetable alternatives;
  - selecting fat-free (skim), 1 percent fat, and low-fat dairy products; and
  - minimizing intake of partially hydrogenated fats.
- Minimize your intake of beverages and foods with added sugars.
- Choose and prepare foods with little or no salt.
- If you consume alcohol, do so in moderation.
- When you eat food that is prepared outside of the home, follow the 2006 AHA Diet and Lifestyle Recommendations.

Nutrition therapy for chronic heart failure is different from nutrition therapy for other types of cardiovascular disease. In addition to eating an overall healthy diet that enables the person to maintain a healthy weight and energy level, nutrition education focuses on watching the sodium content of foods, identifying high- and low-sodium foods, and reading labels. If the class of chronic heart failure requires fluid restrictions and limitations, the nutrition education incorporates fluid intake, identifying sources of fluids, and developing strategies for minimizing thirst.

Community-based programs that incorporate physical activity and educate older adults on the importance of eating a well-balanced healthy diet, such as Steps to Healthier Aging and Eat Better & Move More, set a foundation for establishing lifestyle changes that foster improved nutritional choices and increased physical activity. These programs teach individuals the basics of nutrition that enable them to make small changes that can be continued, including reading labels and identifying sources of high fiber foods. They also offer education on an overall healthy eating plan specific to older adults using the Dietary Guidelines and MyPyramid, which help them to choose nutrient-dense foods.

## References

1. U.S. Department of Health and Human Services, National Institute of Health, National Cholesterol Education Program, National Heart, Lung and Blood Institute, Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (*Adult Treatment Panel III*), [http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3\\_rpt.htm](http://www.nhlbi.nih.gov/guidelines/cholesterol/atp3_rpt.htm)
2. American Heart Association, <http://www.americanheart.org/presenter.jhtml?identifier=851>

## Resources

American Heart Association, [www.americanheart.org](http://www.americanheart.org).

Lichtenstein, A. H., L. J. Appel, M. Brands, M. Carnethon, S. Daniels, H. A. Franch, B. Franklin, P. Kris-Etherton, W. S. Harris, B. Howard, N. Karanja, M. Lefevre, L. Rudel, F. Sacks, L. Van Horn, M. Winston, and J. Wylie-Rosett. *Diet and Lifestyle Recommendations* Revision 2006, A Scientific Statement from the American Heart Association Nutrition Committee, *Circulation* 2006, 114:82–96.

## Cancer <sup>1,2</sup>

Nutrition influences cancer risk. Dietary factors are related to 30 percent of cancers in industrialized countries and 20 percent of cancers in developing countries. Therefore, diet is an important modifiable risk factor for cancer. It is estimated that excess body weight and physical inactivity account for 20 to 33 percent of cancers of the breast (postmenopausal), colon, endometrium, kidney, and esophagus, The risk of cancers of the head, neck, liver, and breast are increased by alcohol consumption.

The American Cancer Society guidelines include:

- Eat a healthy diet, with an emphasis on plant sources. Choose foods and beverages in amounts that help achieve and maintain a healthy weight.
- Become familiar with standard serving sizes, and read food labels to become more aware of actual servings consumed.
- Eat smaller portions of high-calorie foods. Be aware that “low fat” or “nonfat” does not mean “low calorie” and that low-fat cakes, cookies, and similar foods are often high in calories.
- Substitute vegetables, fruits, and other low-calorie foods and beverages for calorie-dense foods and beverages such as French fries, cheeseburgers, pizza, ice cream, doughnuts and other sweets, and regular sodas.
- When you eat away from home, choose food low in calories, fat, and sugar, and avoid large portion sizes.
- Eat 5 or more servings of vegetables and fruits each day.
  - Include vegetables and fruits at every meal and for snacks.
  - Eat a variety of vegetables and fruits each day.
  - Limit French fries, snack chips, and other fried vegetable products.
  - Choose 100% juice if you drink vegetable or fruit juices.
- Choose whole grains in preference to processed (refined) grains and sugars.
  - Choose whole grain rice, bread, pasta, and cereals.
  - Limit consumption of refined carbohydrates, including pastries, sweetened cereals, and other high-sugar foods.
- Limit consumption of processed and red meats.
  - Choose fish, poultry, or beans as an alternative to beef, pork, and lamb.
  - When you eat meat, select lean cuts and eat smaller portions.
  - Prepare meat by baking, broiling, or poaching, rather than by frying or charbroiling.
- If you drink alcoholic beverages, limit consumption.

The table on page 45 shows the strength of evidence on physical activity and dietary factors. <sup>2</sup>

## Strength of Evidence on Physical Activity and Dietary Factors<sup>2</sup>

Evidence	Decreased risk of cancer	Increased risk of cancer
Convincing	<ul style="list-style-type: none"> <li>● physical activity (colon)</li> </ul>	<ul style="list-style-type: none"> <li>● overweight and obesity (esophagus, colorectal, breast in postmenopausal women, endometrium, kidney)</li> <li>● alcohol (oral cavity, pharynx, larynx, esophagus, liver, breast)</li> <li>● aflatoxin (liver)</li> <li>● Chinese-style salted fish (nasopharynx)</li> </ul>
Probable	<ul style="list-style-type: none"> <li>● fruits and vegetables (oral cavity, esophagus, stomach, colorectum)</li> <li>● physical activity (breast)</li> </ul>	<ul style="list-style-type: none"> <li>● preserved meat (colorectum)</li> <li>● salt-preserved foods and salt (stomach)</li> <li>● very hot (thermally) drinks and food (oral cavity, pharynx, esophagus)</li> </ul>
Possible or insufficient	<ul style="list-style-type: none"> <li>● fibre</li> <li>● soya</li> <li>● fish such as salmon and mackerel</li> <li>● leafy green vegetables, beans, onions, garlic, vegetable oils</li> <li>● yellow/orange fruit, apples</li> <li>● pine bark and grape seed extract</li> <li>● grains, nuts, seeds (especially flaxseeds)</li> </ul>	<ul style="list-style-type: none"> <li>● animal fats</li> <li>● cooked meat and fish</li> <li>● cured meats</li> </ul>



*It has been estimated that excess body weight and physical inactivity account for 20 to 33 percent of cancers of the breast, colon, endometrium, kidney, and esophagus.*

### References

1. American Cancer Society. [http://www.cancer.org/docroot/PED/content/PED\\_3\\_2X\\_Diet\\_and\\_Activity\\_Factors\\_That\\_Affect\\_Risks.asp?sitearea=PED](http://www.cancer.org/docroot/PED/content/PED_3_2X_Diet_and_Activity_Factors_That_Affect_Risks.asp?sitearea=PED)
2. J. Mackay, A. Jemal, N. C. Lee, and D. M. Parkin, Cancer Atlas. American Cancer Society, 2006, [http://www.cancer.org/docroot/AA/content/AA\\_2\\_5\\_9x\\_Cancer\\_Atlas.asp](http://www.cancer.org/docroot/AA/content/AA_2_5_9x_Cancer_Atlas.asp)

### Resources

- Newman, V., C. Thomson, C. Rock, S. Flatt, S. Kealey, W. Bardwell, B. Caan, and J. Pierce. *Achieving substantial changes in eating behavior among women previously treated for breast cancer—An overview of the intervention*. American Dietetic Association 2005, 105: 382–391.
- Prentice, R., B. Caan, and R. Chlebowski, et al. *Low-fat dietary pattern and risk of invasive breast cancer: The women's health initiative randomized controlled dietary modification trial*. JAMA 2006, 295: 629–642.
- Valdes-Ramos, R., N. Solomons, A. Anderson, I. Mendoza, M. Garces, and Beniscasa, L. *Can the degree of concordance with recommendations for a cancer prevention diet and lifestyle be assessed from existing survey information data?* American Journal of Nutrition 2001, 74: 848–851.



1 dairy serving=8 ounces (the size of a container of individual yogurt)



## Diabetes

- Develop an eating routine. Eat about the same time each day.
- Eat three meals daily and space them no more than 4½ or 5 hours apart when awake.
- Do not skip meals. If hungry between meals, eat raw vegetables.
- Control portion sizes and limit second helpings.
- Eat a variety of foods.
- Choose lean meat, fish, and poultry to consume 6–7 ounces per day.
- Limit the following starchy foods to 1 or 2 servings per meal:

½ cup corn	½ cup peas	1 slice of bread
½ cup rice	½ cup white or sweet potatoes	1 roll or biscuit
½ cup winter squash	½ cup cooked cereal	1 6-inch tortilla, corn/flour
½ cup noodles or pasta	½ muffin, bun, bagel	3 graham cracker squares
½ cup dry cereal	6 plain crackers	
½ cup pinto beans		

- Avoid foods high in fat or oil (for example: fried food, bacon, sausage, bologna, mayonnaise, and regular cheese).
- Increase high fiber foods, such as dried beans, whole grains, and raw vegetables to consume 25-35 gm of fiber per day.
- Optional: use sugar substitutes like Equal and Splenda.
- Avoid excessive use of table sugar, sweets, and sodas containing sugar.
- Limit alcoholic beverages. These can interfere with medicines.
- Use sugar-free, calorie-free items as desired (i.e., tea, sugar-free Kool-Aid, diet soda, diet gelatin, sugar-free gum, sugar-free popsicles, sugar-free syrup, sugar-free jelly).

## Resources

American Diabetes Association, <http://www.diabetes.org/>

American Diabetes Association. (2007) *Standards of Medical Care*. Diabetes Care 30(S1): S4–S41.

Brown, A.F., C.M. Mangione, D. Saliba, and C.A. Sarkisian. *Guidelines for improving the care of the older person with diabetes mellitus*. Journal of the American Geriatric Society, 2003, 51: S265–S280.

Colorado Diabetes Prevention and Control Program, <http://www.cdphe.state.co.us/pp/diabetes/index.html>

Colorado Foundation for Medical Care, <http://www.cfmc.org>

Diabetes Control and Complications Trial Research Group. *The effect of intensive treatment of diabetes on the development and progression of long-term complications in insulin-dependent diabetes mellitus*. New England Journal of Medicine, 1993, 329: 977–986.

Live Well, Live Long, <http://www.asaging.org/cdc/module7/home.cfm>

## Hypertension (High Blood Pressure)

Research has shown that modest lifestyle and dietary changes can help treat, delay, or prevent high blood pressure. People trying to prevent or control hypertension are advised to maintain a healthy weight, get regular exercise, reduce salt and sodium intake, drink alcohol in moderation, if at all, and follow the Dietary Approaches to Stop Hypertension (DASH) diet.

The DASH diet is very effective at lowering high blood pressure. This diet recommends a specific number of daily servings from various food groups, including fruits, vegetables, and whole grains. The general recommendations include:

- Eat more fruits, vegetables, and low-fat dairy foods;
- Eat smaller amounts of foods that are high in saturated fat and cholesterol, such as fried foods;
- Eat more whole grain products, fish, poultry, and nuts;
- Eat less red meat;
- Eat fewer sweets; and
- Eat foods that are high in potassium, magnesium, and calcium.  
(see chart on following page).

Although the DASH diet is specifically recommended for people with hypertension or pre-hypertension, it is a healthful diet for all people. Single copies of the DASH diet are available online for download or a printed copy is available for a small fee from the National Heart, Lung, and Blood Institute.

## Resources

National Heart, Lung, and Blood Institute, DASH diet,  
<http://www.nhlbi.nih.gov/health/public/heart/hbp/dash>.



**Handful = 1-2 oz.**  
**Example:**  
**1 oz. nuts = 1**  
**handful or 2 oz.**  
**pretzels = 2**  
**handfuls.**



**1 grain= 1 slice**  
**bread, presliced**  
**(about the size of**  
**a cassette tape)**  
**or ½ cup pasta**  
**(about the size of**  
**an adult woman's**  
**palm, stacked 1"**  
**high).**



**1 fruit serving=**  
**½ cup canned or**  
**1 medium fruit**  
**(about the size**  
**of a tennis ball).**

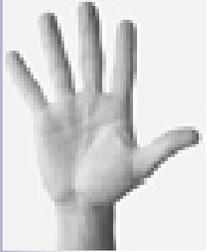


**1 meat, poultry**  
**or fish serving= 3**  
**oz (about the**  
**size of a deck of**  
**cards).**

## DASH Diet Recommendations



**Thumb = 1 oz.**  
**Example: piece of cheese.**



**Palm = 3 oz.**  
**Example: a cooked serving of meat (NOT including your fingers or thumb).**



**Fist = 1 cup**  
**Example: two servings of pasta or oatmeal.**



**1 vegetable serving = 1/2 cup cooked or canned vegetables (about 1/2 a baseball).**

Food or Nutrient	Recommendation	Serving Size
Grains	Eat whole grain foods; 6-8 daily servings	1 slice of bread 1 oz dry cereal 1/2 cup rice, pasta, or cooked cereal
Vegetables	4-5 daily servings	1 cup raw leafy vegetables 1/2 cup cut-up vegetables 1/2 cup 100% vegetable juice
Fruits	4-5 daily servings	1 medium fruit 1/4 cup dried fruit 1/2 cup fresh, frozen, or canned fruit 1/2 cup 100% fruit juice
Low-fat or fat-free dairy	2-3 daily servings	1 cup milk or yogurt 1 1/2 oz cheese
Lean meat, poultry, fish	2 servings or less	3 oz
Nuts, seeds, and dry beans	4-5 servings per week	1/3 cup nuts 2 tbsp peanut butter 2 tbsp seeds 1/2 cup cooked beans or legumes
Fats and oils	2-3 daily servings	1 tsp soft margarine 1 tsp vegetable oil 2 tbsp mayonnaise 2 tbsp salad dressing
Sweets	Limit to fewer than 5 servings per week	1 tbsp sugar 1 tbsp jelly or jam 1/2 cup sorbet or gelatin 1 cup lemonade
Salt	Limit to 2,300 mg per day (~2/3 teaspoon). *	1 tsp salt

\*Note: Less than 1,500 mg per day resulted in greater reductions in blood pressure.

## Osteoporosis<sup>1-3</sup>

The basic principle of nutrition for osteoporosis is adequate calcium and vitamin D intake and the maintenance of a healthy weight through a balanced diet that provides adequate protein, energy, and micronutrients. Although there are many other nutrients and vitamins involved in bone health, more research is required to understand if they play a role in medical nutrition therapy, specifically as a supplement for those being treated for osteoporosis.

### **Daily Recommended Intake**

<i>Calcium</i>	<i>Ages 51-70</i>	<i>1200 mg/day</i>
	<i>&gt;70</i>	<i>1200 mg/day</i>
<i>Vitamin D</i>	<i>Ages 51-70</i>	<i>10mcg/day(400IU)</i>
	<i>&gt;70</i>	<i>15mcg/day (600 IU)</i>

The daily recommended intake for vitamin D increases with age based on research that indicates a deficiency in vitamin D in older adults.

If adequate intake of calcium is not met through food alone, then a calcium supplement containing vitamin D should be administered and monitored. More is not better when it comes to calcium, and the upper tolerable calcium intake is 2,400 mg/day. The total amount of calcium that is ingested each day, both from foods and supplements, should total the daily-recommended intake for calcium of 1,200mg/day or the amount prescribed by the healthcare provider. Because calcium is better absorbed in an acidic environment, calcium supplements should be taken with a meal, unless otherwise directed by the healthcare provider.

When calcium intake is too high in a single dose, the body cannot absorb it. By spreading out intake throughout the day, the body absorbs more of the calcium. If a morning snack is high in calcium, then take a calcium supplement at a different time, either with an afternoon snack or dinner. There are a variety of high-quality calcium supplements available for purchase over-the-counter, including store brands. The American Dietetic Association recommends that individuals purchase a supplement that has the letters “USP” (United States Pharmacopeia) to assure that the supplement is of high quality and will dissolve sufficiently.<sup>3</sup>

Calcium-rich foods include foods from a variety of food groups such as milk, buttermilk, yogurt, most cheeses, dry roasted soybeans, tofu made with calcium sulfate, canned salmon or sardines, cooked collard greens and foods that have been fortified with calcium (such as orange juice, breakfast cereals, snack bars, etc.). Good sources of calcium include milk-based custards, most cheeses, mustard greens, turnip greens, kale, and broccoli. Rhubarb, spinach, beet greens, and chard contain oxalic acid, a substance that prevents calcium absorption.

The body uses calcium best when vitamin D is present, preferably vitamin D3. The best source of vitamin D is from the sun, although there are some foods that are rich sources of vitamin D as well. Foods that are rich in vitamin D include oily fish such as salmon, mackerel, canned sardines and tuna, along with fortified milk and orange juice. Because the best source of vitamin D is from the sun and it is difficult for some individuals to get enough vitamin D through food, people should increase their vitamin D intake with a supplement or multivitamin. The recommended daily intake of vitamin D is between 400 and 800 international units (IU). Vitamin D, when taken in high amounts, has been shown to be harmful. The upper tolerable level for vitamin D from supplemental sources is 2,000 IU.

Community-based programs, such as Steps to Healthy Aging and Eat Better & Move More, that educate older adults on the importance of a well-balanced healthy diet, could be beneficial to those with osteoporosis. Such programs would teach those individuals the basics of nutrition, including sources of calcium-rich foods and label reading to identify calcium-rich foods. The “3 A Day” campaign also would be a helpful tool to increase individuals’ awareness of calcium-rich dairy foods and to show how to incorporate those foods into their current eating plan. Those who work with older adult populations should pay special attention to people who are lactose intolerant and should educate them on alternative sources of calcium.

## References

1. Position Paper of the American Dietetic Association: *Nutrition Across the Spectrum of Aging*. Journal of the American Dietetic Association April 2005, 105: 616–633, [http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/advocacy\\_1735\\_ENU\\_HTML.htm](http://www.eatright.org/cps/rde/xchg/ada/hs.xsl/advocacy_1735_ENU_HTML.htm)
2. B. Dawson-Hughes, Invest in your bones. International Osteoporosis Foundation. [http://www.nof.org/eventsandprograms/WOD/Nutrition\\_reportfinal.pdf](http://www.nof.org/eventsandprograms/WOD/Nutrition_reportfinal.pdf)
3. L. K. Mahan and S. Escott-Stump, Krause’s Food, Nutrition, and Diet Therapy 11th edition. Philadelphia, PA: W B Saunders Publishing Company, 2004.

## Actions and Recommendations

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* recommends that Colorado's communities take action in the following three areas to maximize safety, quality, and breadth of service for older adults. These areas are not necessarily prioritized. It is recognized that a community must start actions and recommendations with its own strategic plan that may already be in place.

### Fall Prevention

**Vision:** Older adults will have fewer falls and fall-related injuries, maximizing their independence and quality of life.

**Goal:** Launch a statewide fall-prevention initiative with specific goals and strategies to effect sustained interventions to reduce the falls among older adults.

### Continuums of Care in Chronic Disease Prevention

**Vision:** Each community in Colorado will link its community-based aging network with the medical community to create continuums of care for older adult health and wellness.

**Goal:** Provide funding and technical support to statewide local communities to solidify partnerships that understand and develop continuums of care.

### Standards of Practice

**Vision:** All community-based programs and organizations that work with older adults in physical activity adopt the Standards of Practice as a risk management tool.

**Goal:** Provide training on the Standards of Practice to all professionals who work with older adults.

## Recommendations for Fall Prevention in Colorado

**Vision:** *Older adults will have fewer falls and fall-related injuries, maximizing their independence and quality of life.*

**Goal:** *Launch a statewide fall-prevention initiative with specific goals and strategies to effect sustained interventions to reduce the falls among older adults.*

Falls and fall-related injuries have enormous personal and economic consequences to individuals, society, and the state's healthcare system. As the number of people who are 65 and older increases in Colorado and our nation, the negative impacts of falls will continue to increase. Yet many falls and fall-related injuries can be prevented.

According to the Centers for Medicare and Medicaid Services, "Falls can have devastating outcomes, including decreased mobility, function and independence, and in some cases death."

- More than one-third of adults 65 and older fall each year.
- Among older adults, falls are the leading cause of injury deaths and the most common cause of injuries and hospital admissions for trauma.
- Older adults are hospitalized for fall-related injuries five times more often than they are for injuries from other causes.
- Of those who fall, 20 to 30 percent suffer moderate to severe injuries that reduce mobility and independence and increase the risk of premature death.

*By 2020, the estimated annual cost for fall-related injuries for people aged 65 and older is expected to reach \$43.8 billion in the United States.*

*Centers for Medicare and Medicaid Services*

Unfortunately, although considerable research aimed at identifying effective preventive strategies has been undertaken, these strategies have not been widely adopted into practice, and falls prevention has been largely ignored outside select settings.

One reason for this neglect is the fact that falls prevention is not yet commonly viewed as an important public health issue; in addition, a prevention strategy requires cooperation among groups that have not traditionally worked together.

Scientific literature cites three major components as being effective in preventing falls among older adults:

1. on-going, community-based, accessible and affordable classes in balance to improve strength, balance, and flexibility;
2. community-based regular medication reviews for older adults to decrease the possibilities of drug interactions causing dizziness or confusion; and
3. affordable and available home assessments and home modifications to reduce environmental hazards.

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* endorses the initiative titled Falls Free: Promoting a National Falls Prevention Action Plan which has been created by the National Council on the Aging, the Archstone Foundation, and the Home Safety Council's initiative.

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* recommends that Colorado begin a statewide falls prevention initiative based on the Falls Free National Action Plan. It is suggested that this initiative be three to five years in length to develop stable sustainability mechanisms.

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* recommends the following steps in the process of creating a Colorado falls free initiative:

- linking the community-based organization/aging service network and the healthcare system;
- integrating interdisciplinary activities for falls prevention and reduction;
- concentrating on communications and marketing of the program; and
- developing policy and recruiting advocates.

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* endorses community awareness and building bridges between the community-based organizations and the healthcare system. Substantial evidence from the National Council on Aging, the Archstone Foundation, and the Centers for Disease Control and Prevention demonstrates that these bridges are the key to the future for falls prevention.

## Continuum of Care: Part of a National Agenda

### **Recommendations:**

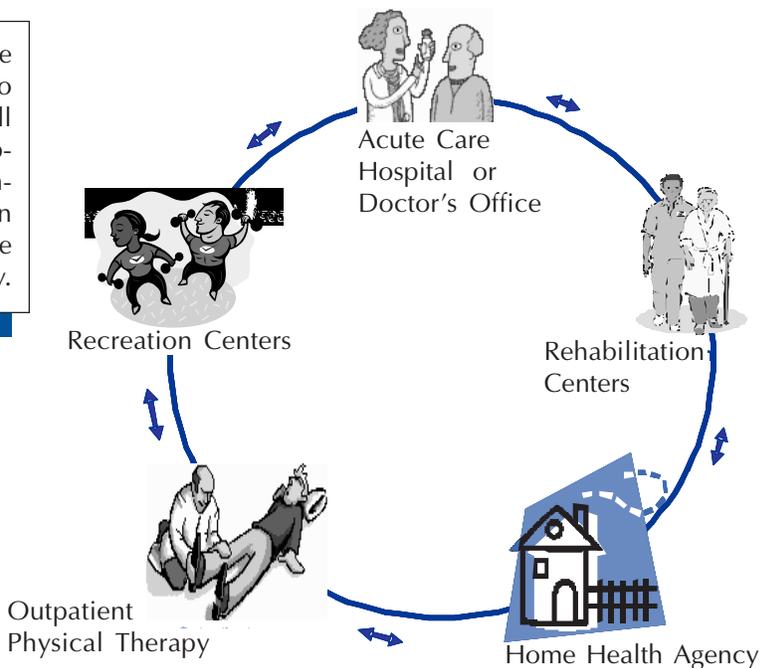
*The Colorado Action Plan for Older Adult Wellness: A Public Health Strategy recommends that community organizations*

- *implement a continuum of care for the health for older adults that includes community-based organizations and the medical community as vital links;*
- *develop partnerships with the medical community to form a network of health and wellness resources for each other;*
- *learn the language and benefits each partner has to offer;*
- *respect each other's roles in promoting health in older adults; and*
- *see each other as vital links to the wellness of the older adult.*

The continuum of care as shown in the following graphic brings together the community's health resources to provide accessible, cost-effective organization services to promote wellness of older adults. The point of the continuum is to provide older adults with a full network of health and wellness resources that does not end at the medical clinic/hospital, in which each partner—medical provider and community-based organization—knows and respects the value of each other's roles. The continuum of care is circular in nature so older adults can enter the system at any point, depending on circumstances.

### **Continuum of Care in Prevention and Rehabilitation for Older Adults**

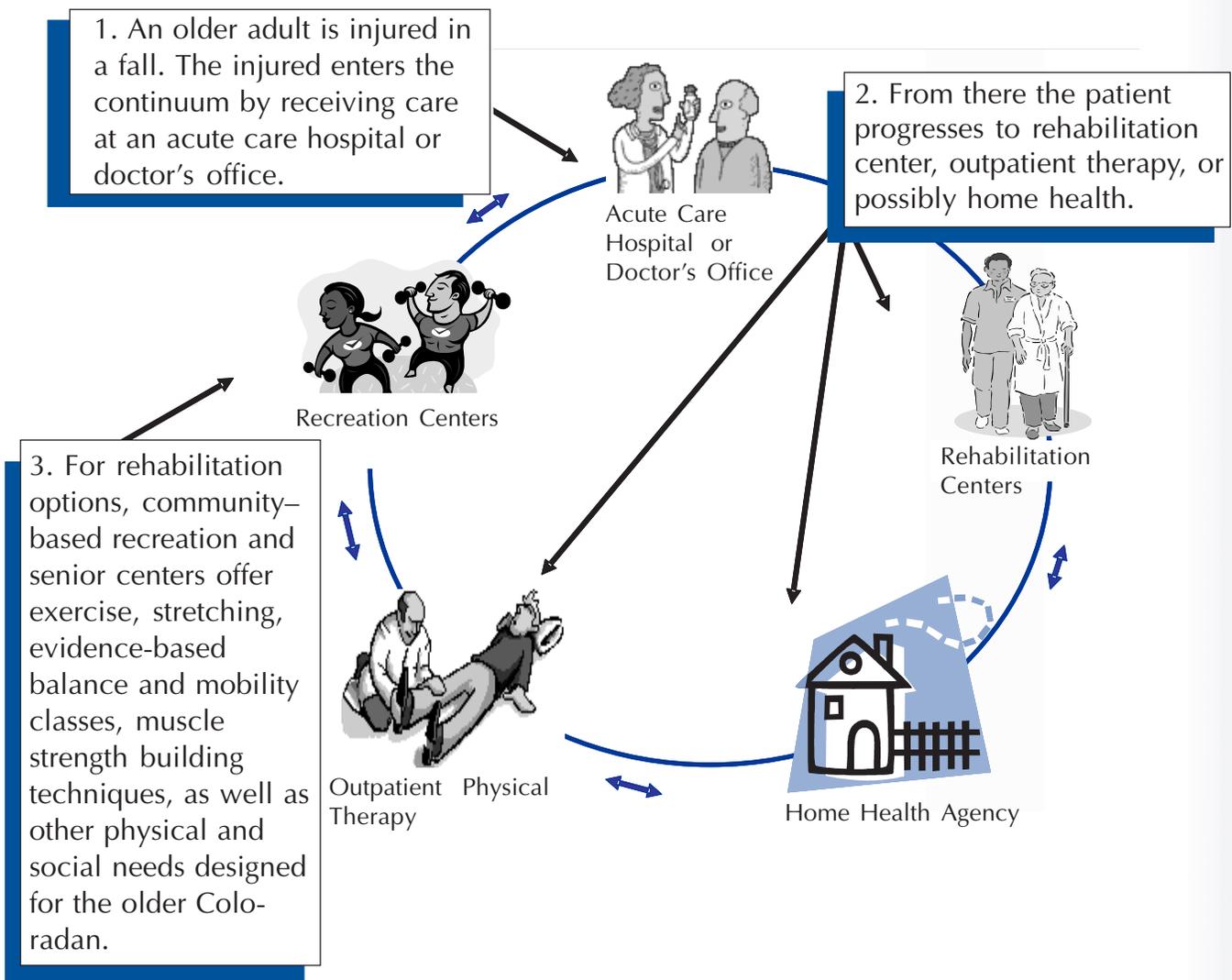
The Continuum of Care Model is designed to illustrate how all organizations contribute toward the prevention and rehabilitation of older adults in the community.



### Example 1

An older adult is injured in a fall. The person might enter the continuum by first receiving care at an acute care hospital. From there, the older adult progresses to a rehabilitation center, outpatient therapy, or possibly home health agency. Once insurance no longer pays for rehabilitation options, the older adult can still get exercise, stretching, evidence-based balance/mobility exercise classes, strengthening and other physical/social needs met at the community-based recreation/senior center.

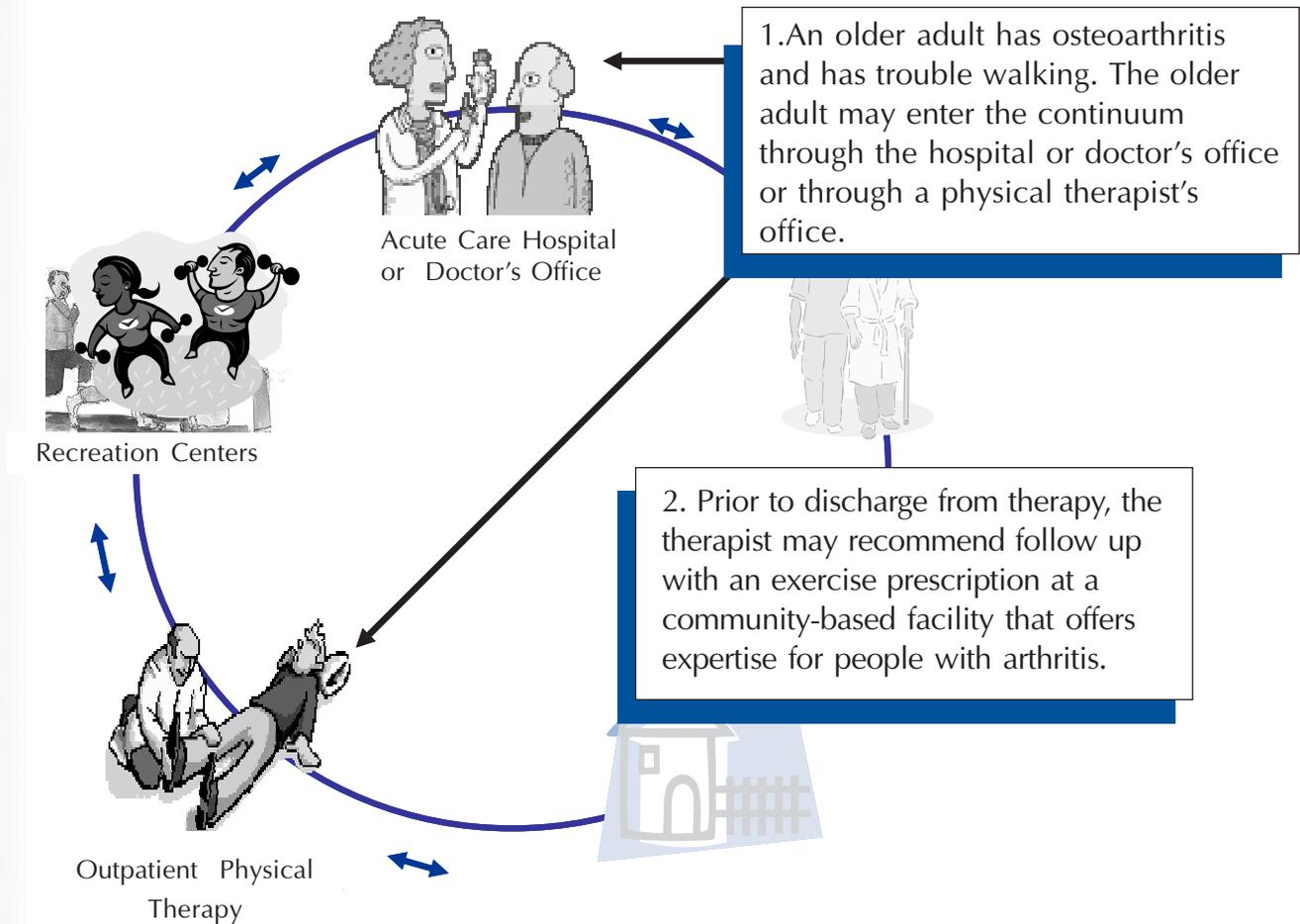
### Continuum of Care in Prevention and Rehabilitation for Older Adults



### Example 2

An older adult has osteoarthritis and has trouble walking. The older adult may enter the continuum at the doctor's or physical therapist's office. The physical therapist can examine the individual and determine a plan of care. Prior to discharge from therapy, the therapist can make a recommendation to follow up with an exercise prescription at a community-based facility that offers expertise and exercises for people with arthritis.

### Continuum of Care in Prevention and Rehabilitation for Older Adults



## Continuum of Care in Colorado

The continuum of care model has been implemented in several community-based organizations in Colorado (mostly recreation centers and senior centers). Because of its success, the continuum of care model was approved in a resolution by the Colorado Parks and Recreation Association. The resolution, brought forward in December 2004, committed the Association's support and political attention in legislative efforts to this model.

Colorado's continuum of care model has since been shared with the members of the National Recreation and Parks Association's Midwest Regional Council in October 2004. In April 2005, at its semi-annual meeting, the Council supported the resolution, adding the combined regional support to the cause and directing that the Association's Public Policy Committee of the Board of Trustees consider endorsing the model as well. In October 2005, at the Association's Annual Congress in San Antonio, Texas, the Public Policy Committee amended the existing policy statement in favor of the Continuum of Care Model.

The National Recreation and Parks Association (NRPA) recognized that high-quality, accessible park and recreation opportunities constitute an important aspect of the quality of life for older citizens. It is therefore the policy of the Association to:

1. emphasize that recreation centers and senior centers serve as recognized sources for prevention programs and wellness promotion in the healthcare continuum of older adults; and
2. emphasize that recreation centers and senior centers are a vital link for chronic disease prevention programming. The NRPA encourages the continued dedication to improving the skill level of personnel to meet the growing demands for quality life through lifelong disease prevention and an active, healthy lifestyle.

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* acknowledges the Colorado Parks and Recreation Association (CPRA) and its leaders, who fully and actively recognize the part that the continuum of care in older adult health will play in the future of their organization and members. CPRA should be given credit for its efforts to advance this continuum of care idea to its national association.

The development of continuums of care in local communities can and will promote health awareness and serve as foundations for full-service health and wellness for older adults. Both medical providers and community-based organizations will have to work on communication with each other, referral strategies, and outcome-sharing mechanisms. Community-based organizations will need to improve their skills in providing evidence-based programming in older adult health and implement uniform standards of practice in older adult physical activity. The medical community will need to gain an understanding of the health benefits that community-based programs can provide. Adopting this continuum of care model is vital, considering the healthcare

economy of Colorado and the increase in the number of people who are 60 and older. The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* recommends establishing a partnership between the community-based organization/aging service network and the healthcare system.

## Continuum of Care Model to Action

### **Recommendation:**

*Communities adopt the Continuum of Care Model to Action in planning programs for older adults.*

When communities develop a strategic plan to promote the health of older adults, the components in the following comprehensive plan are recommended. Since not all communities can financially undertake all components at one time, the model is designed for implementation in pieces. An organization or community can start at any point and expand the plan on a quarterly or yearly basis.



## **Model to Action Steps**

### **Organizational Vision**

Each organization routinely performs a three-year, five-year, and sometimes a ten-year strategic plan to identify and formulate the goal of the organization in that period of time. In this step, an older adult continuum of care model is added to that organizational goal.

### **Needs Assessment**

A needs assessment of the community frequently answers the question: “What is it that our community wants in older adult wellness and will it support a continuum of care with medical communities who want to collaborate?” A needs assessment is usually done by contract with a professional group specializing in community needs assessments or by in-house resources. Be sure to assess the current level of facilities, programs, services, and personnel to see what is already in place.

### **Business Plan Development**

The business plan should provide detail about how business will be conducted. For smaller community-based organizations, it may be a simply written planning document; for recreation centers, it may be a more formal written document. The purpose is to communicate to members of a management team, employees, customers, or financial backers how the continuum of care will be financed. It also is an ideal document for sharing with outside investors and other business collaborators.

### **Implementation Tools (Delivery and Evaluation)**

This step requires the organization to create budgets and work plans, perform evaluations of current programs, encourage and train employees to gain certifications, and review progress. This is the BASIC recommendation for implementation in the Colorado Action Plan for all programs in community-based organizations that work with older adults in physical activity, nutrition, and fall prevention.

#### **Basic Recommendations for Implementation**

- Persons working with older adults in physical activity in community-based organizations receive certification in the Standards of Practice (see Standards of Practice section).
- Persons working with older adults in physical activity hold a national certification, such as certification from the American College of Sports Medicine.
- Instructors certify and keep current certifications in evidence-based programs.
- Program pre/post-assessments are maintained for evidence-based programming.
- An evaluation or review of all program outcomes and business plan strategies is conducted annually.

### **Benefits to the Professional and/or Organization**

- When evidence-based trainings require data from pre/post-testing, the data can be used for continued funding, marketing, participant recruitment, grant requests, and board of director presentations as well as functional information for the participant.
- When evidence-based programs are implemented, the medical community will have greater confidence in referring patients for program participation.
- When instructor certifications are earned and kept current, the liability is reduced for the instructor and the facility.
- When instructor certifications are kept current, the facility may advertise the evidence-based programming.
- Current certifications allow instructors (and facilities) to be eligible for other certified trainings and program implementation.
- When evidence-based programs are implemented, the facility is able to expand participant enrollment in prevention programming.
- When standards of practice are adhered to, the liability to the organization for having a continuum of care will be lowered.
- When national certifications are required of instructors, liability to the organization will be lessened.
- When the above are adhered to, performance measures for the outcomes of a continuum of care program will be accomplished in the normal course of business.



## Standards of Practice for Professionals Working with Older Adults in Physical Activity in Community-Based Organizations

### Colorado Standards of Practice—The Challenge

Many older adults engage in a variety of diverse activities in community-based organizations or settings. These activities can range from having a meal to attending regular exercise and rehabilitation. There has been an upsurge in the past five years in the offering of physical activity and fitness programs. With the demand for these programs increasing and the age of the participants increasing, a number of legal issues may arise that can directly affect the organization and the physical activity/fitness instructor.

Most litigation currently focuses primarily on issues dealing with screening recommendations/prescriptions of activity, supervision of activity, and emergency response. The number of individuals testifying as experts in liability cases has increased and has involved fitness practitioners, exercise physiologists, personal fitness trainers and others, all of whom operate from one perspective or another in liability cases: either they attack the care given or the lack thereof or they defend and support the delivery of service.

It is the recommendation of the *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* that the community-based organization that works directly in physical activity and fitness implement standards, so-called parameters of practice and guidelines, to assist the organization and the instructor in safe delivery of service to consumers. As older adults use community-based facilities more frequently for physical activity and fitness, they will require a higher standard of care.

The Colorado Standards of Practice guidelines on the following pages are the first attempt in Colorado at bringing the parameters of practice to the industry of organizations that work with older adults in the community with physical activity and fitness.

By adopting the guidelines an organization should expect the following results:

- Setting a high value of service that will enhance consumer confidence and improve the long-term viability of the organization;
- Setting a standard of business practice that protects the consumer, organization, and instructor from liability;
- Setting a standard of service that protects the health and well-being of the consumer;
- Being able to bargain reduced insurance rates; and
- Establishing procedures to resolve complaints and establishing a disciplinary process for the defaulting party.

## Resources

- Herbert, David, *Legal Aspects of Preventative, Rehabilitative and Recreational Exercise Programs*, 3rd. edition. Canton, OH: Professional Reports Corp. 2004.
- Jones, C. Jesse, and Debra Rose: *Physical Activity Instruction of Older Adults*. Champaign, IL: Human Kinetics, 2005.
- Rabinoff, Marc A. *Legal Liability for Physical Educators, Coaches and Administrators*. 1996.

## How to Use the Colorado Standards of Practice Modules

The following set of standards or guidelines can be used by community-based organizations, especially in community-based recreation centers and older adult program facilities, to assess and improve the quality of their facility, staff, and programs for older adults.

These guidelines are based on input from directors of model recreation and senior centers as well as the International Society for Aging and for Physical Activity in their 2004 report titled the International *Curriculum Guidelines for Preparing Physical Activity Instructors of Older Adults*.

Facilities that provide programs for older adults should realize that these guidelines could be an effective risk-management tool designed to decrease potential insurance liability by complying with published standards. When the standards of practice are followed, facilities can advertise adherence to improve community standing and be more competitive.

The guidelines are divided into four categories and are meant to be the minimum (but should not be regarded as limits to) standards recommended for facilities that offer programs for older adults in physical activity. Facilities should use the action section to determine how the organization/program will come to meet the standards over time.

### Module 1—Facility Standards of Practice

- Standards of Care
- Facility Design
- Physical Plant Safety
- Staffing Guidelines

### Module 2—Equipment Standards of Practice

- Cardiovascular Equipment
- Strength-Training Equipment

### Module 3—Instructors Standards of Practice

- Instructor Qualifications
- Instructor Training
- Instructor Program Responsibilities

### Module 4—Physical Activity Program Standards of Practice

- Considerations for Programming
- Endurance Activities
- Strength Activities
- Flexibility Activities
- Balance and Posture Activities
- Cardiovascular Activities
- Physical Assessment Tools

The following Standards of Practice Worksheets are self-assessment tools for professionals and organizations. They are designed as checklists to be incorporated into annual reviews of facilities and instructors as well as to be used for yearly evaluations and/or audits.

## Module 1—Facility Standards of Practice Standards of Care

Date:	Yes	No	Action
An appropriate emergency plan that is executed by qualified personnel in a timely manner.			
A pre-activity screening for members that is appropriate to the physical activities to be performed by the member, such as a Senior Fitness Assessment, a health history questionnaire, or PAR-Q.			
Visible signage alerting patrons to the risks involved. Visible signage stating that the facility conforms to all relevant laws, regulations, and published standards.			
The supervisory staff members for specific activities and programs have professional competence in that program or area.			

## Facility Design

\*Refer to the ADAAG Buildings and Facilities Guidelines when constructing a facility.

	Yes	No	Action
<b>Air Circulation</b> Date:			
All facilities have a system that draws external air into the rooms for ventilation.			
<b>Doors/Doorways</b> Date:			
All doors and doorways provide for ease of entrance for people who are weak or have disabilities or special needs.			
<b>Electrical Safety</b> Date:			
All outlets are grounded.			
Ground-fault circuit interrupters are installed to automatically shut down power in the event of a short.			
<b>Fitness Area</b> Date:			
Fitness areas provide adequate space for patrons to maneuver on and off and between machines. Machines that are too crowded make it difficult for older adults to use the equipment. Adequate space is available for stretching and floor exercises with fitness mats available. Guidelines for the fitness equipment are included in the "Equipment Standards of Practice" section.			
<b>Floor Surfaces</b> Date:			
Proper floor surfaces are provided for specific activities to avoid injuries.			
<b>Lighting</b> Date:			
Proper illumination is provided in accordance with governmental and architectural requirements. Consider additional lighting for patrons with limited vision. There is efficient external illumination.			
<b>Locker Rooms</b> Date:			
The locker room/changing area offers privacy and accessibility.			
<b>Temperature</b> Date:			
High-temperature and high-humidity areas have monitoring systems in place to ensure proper temperature control.			
<b>Water Fountains</b> Date:			
Water fountains are available within the facility and have levers or easy-to-push large buttons.			

## Physical Plant Safety

	Yes	No	Action
The facility conducts regular inspections of the physical plant as a part of an overall risk-management practice to enhance the level of safety. Regular fire inspections are conducted.			
<b>External Grounds</b> Date:			
There are proper signs indicating entrance, exits, speed bumps, speed limits, handicapped parking, hazardous locations, walkways, etc. Walking surfaces are inspected and cleared of hazards that could cause trips or falls. Hedges, trees, etc., are trimmed and maintained to avoid hazards caused by proximity to walkways or parking lots.			
<b>Floor Surfaces</b> Date:			
Floors are inspected routinely for repair. Floors in wet areas are slip-resistant. There are no loose rugs at the entrance.			
<b>Signage</b> Date:			
Relevant, legally compliant, communicative, and properly posted signage is used. All signage has a purpose, is explicit, has an appealing appearance, is readable, and is in the proper place.			
<b>Electrical Safety</b> Date:			
Cords are covered to avoid a tripping hazard. Multiple cords plugged into each other are not used to supply power.			
<b>Sharp Objects</b> Date:			
There are no sharp objects protruding into areas that are frequented by patrons.			
<b>Telephones</b> Date:			
Telephones are available for emergency use.			

	Yes	No	Action
<b>Equipment</b>			
Date:			
All equipment is inspected prior to installation.			
Equipment is installed in accordance with manufacturer's instructions.			
Equipment is regularly inspected for wear and tear based on the individual maintenance schedule per manufacturers' requirements.			
Equipment has proper signage posted that describes the mechanical function and provides instructions on how to use the equipment and provides warnings of relevant risks.			
Equipment is taken out of order if it is defective, dangerous, or broken.			

**Resources**

American College of Sports Medicine. *Health/Fitness Facility Standards and Guidelines*, 2nd edition.

Americans with Disabilities Act Accessibility Buildings and Facilities Guidelines (ADAAG). <http://www.access-board.gov/adaag/html/adaag.htm>

Website for International Council on Active Aging. <http://www.icaa.cc/>

## Staffing Guidelines

The following staff members are qualified in their area, have obtained degrees/certifications that are credible and applicable, and have the ability to receive continuing education to keep up with changing standards/guidelines. Continuing education should be provided or have shared funding by the organization's employer.

Date:	Yes	No	Action
<p><b>Individual in charge of daily operations (owner, manager)</b></p> <ol style="list-style-type: none"> <li>has degrees/certification that are credible and applicable;</li> <li>has the ability to receive continuing education. This year's (20__) plan is to:</li> </ol>			
<p><b>Individual responsible for direction of older adult physical activity program (fitness/athletic director)</b></p> <ol style="list-style-type: none"> <li>has degrees/certifications that are credible and applicable; The degrees and certifications are:</li> <li>has the ability to receive continuing education. This year's (20__) plan is to:</li> </ol>			
<b>Fitness/physical activity instructors/leaders:</b>			
<p>Name:</p> <ol style="list-style-type: none"> <li>has degrees/certifications that are credible and applicable;</li> <li>has the ability to receive continuing education. This year's (20__) plan is to:</li> </ol>			
<p>Name:</p> <ol style="list-style-type: none"> <li>has degrees/certifications that are credible and applicable;</li> <li>has the ability to receive continuing education. This year's (20__) plan is to:</li> </ol>			
<p>Name:</p> <ol style="list-style-type: none"> <li>has degrees/certifications that are credible and applicable;</li> <li>has the ability to receive continuing education. This year's (20__) plan is to:</li> </ol>			

Date:	Yes	No	Action
Name: 1. has degrees/certifications that are credible and applicable; 2. has the ability to receive continuing education. This year's (20__) plan is to:			
Name: 1. has degrees/certifications that are credible and applicable; 2. has the ability to receive continuing education. This year's (20__) plan is to:			
Name: 1. has degrees/certifications that are credible and applicable; 2. has the ability to receive continuing education. This year's (20__) plan is to:			
Name: 1. has degrees/certifications that are credible and applicable; 2. has the ability to receive continuing education. This year's (20__) plan is to:			

## Module 2—Equipment Standards of Practice

### Cardiovascular Exercise Equipment

*Use commercial grade equipment only.*

#### Considerations for Purchase

Date:	Yes	No	Notes
<b>General Requirements</b>			
Control panels are easy to read, easy to change, easy to understand, and within easy reach.			
<b>Treadmill Requirements</b>			
easy entrance and exit			
long handrails (for balance issues)			
starting speed should be 1 mph			
low deck entry			
shock-absorbing deck			
low motor housing/casing			
emergency lanyard with belt clip for automatic shutoff in case of falls			
<b>Recumbent Bike Requirements</b>			
easy entrance and exit or swivel seat			
exercise bicycle with higher seats are easier to use			
wide and comfortable seat and armrest with easy to understand adjustments			
<b>Elliptical Machine Requirements</b>			
easy entrance and exit at comfortable seat height			
wide and comfortable foot rest			
easy to access and easy to use arm adjustments			

### Cardiovascular Exercise Equipment Placement

Date:	Yes	No	Notes
Align machines from shortest to tallest, and ensure proper spacing at front, back and sides, to allow for maneuvering on/off/between machines.			
Place equipment around the perimeter of the room to promote maximum visibility.			
Place all cardiovascular equipment together to provide more opportunity for socialization.			
Provide adequate space between machines to allow instructors to assist participants. This spacing is important for exercisers' comfort and safety. <ul style="list-style-type: none"> <li>● 18 inches or more between stationary bikes</li> <li>● 8 inches or more between treadmills, ellipticals, and stair climbers</li> <li>● 4 feet behind bikes, ellipticals, and stair climbers</li> <li>● 6 feet behind treadmills</li> </ul>			
Mount televisions at least 7 to 10 feet away from the user to avoid straining necks/back when viewing or to avoid improper balance.			
Provide window shades that close during sunrise/sunset to avoid glare that might impair patrons' use of the machines.			

## Strength-Training Equipment

*Use commercial grade equipment only.*

### Considerations for Purchase

Date:	Yes	No	Notes
Equipment has clear, simple, easy-to-locate hand, seat, pad positions, and adjustments. Equipment has a clear indication of where to put hands and feet.			
Equipment has non-obstructed entry and exit, especially for individuals with a variety of functional abilities, disabilities, and special needs.			
Equipment has standard adjustments that allow individuals of various body sizes and functional limitations to be in the proper position while exercising to prevent compromising the joints.			
Equipment has clear, simple, easy-to-locate hand, seat, and pad positions and adjustments. Equipment has the ability to change the resistance from a seated position.			
Equipment has the ability to increase resistance in one-pound or smaller increments. Equipment has a low starting resistance (less than five pounds).			
Equipment has range-of-motion adjustments to accommodate joint dysfunction.			
Equipment has pin that is easy to grip (for people with gripping issues, e.g., arthritis, stroke, etc.).			
Equipment has the fewest moving parts for safety and ease of use.			
Equipment has a solid warranty, maintenance schedule, and local service.			
Equipment is from a quality manufacturer, with good workmanship.			
Equipment has stability in welding, paint durability, quality padding material, and reinforced stitching on pads.			
Equipment requires low maintenance.			

### Strength-Training Equipment Placement

Date:	Yes	No	Notes
Muscle-specific units are grouped together for a more even traffic flow and to make the area conducive to circuit training.			
Strength-training equipment is organized by height, with the taller units up against walls and the lower units in front.			
Equipment is spaced properly to allow users room to adjust the resistance (whether it is setting a pin on a weight stack or adding/removing weight plates) and to allow adequate room for the machine's arms and legs to move.			
Mirrors are provided in the free weight area to help exercisers ensure they are maintaining proper form.			
Free-weight equipment is positioned properly for appropriate lighting. For example, weight benches are not directly under a light that could cause glare or distracting light.			
The free-weight area has a level non-slip flooring and an adequate number of weight racks for easy access.			

### Strength-Training Equipment Use

Date:	Yes	No	Notes
Instructional placards are provided with simple diagrams, easy-to-read text and print, and correct usage information.			
Prior to users participating in any use of the strength-training equipment, staff provides a physical walk-through of the equipment and hands-on instruction on how to use each piece of equipment safely.			

### Equipment Maintenance

Date:	Yes	No	Notes
Facility follows manufacturer's guidelines for equipment maintenance.			
Regular preventative maintenance checks are conducted by authorized/trained agent.			
Checkups should include, but not be limited to:			
inspections of chains, rollers, pulleys, cables, bolts, and screws, etc;			
tightening, adjusting, or replacing parts as needed;			
cleaning and lubrication of parts.			

### Resources

American College of Sports Medicine. Health/Fitness Facility Standards and Guidelines, 2nd edition. International Council on Active Aging website, <http://www.ICAA.cc>.

## Module 3—Instructors Standards of Practice

### Qualifications and Training of Instructors

Recommended areas of study include information from the Aerobics and Fitness Association of America, the American Aerobic Association International, the American College of Sports Medicine, the American Council on Exercise, the American Stroke Association, the Arthritis Foundation, the Academy for Older Adult Wellness, the Council on Aging and Adult Development, the International Fitness Professionals of America, the International Society for Aging and Physical Activity, and the National Exercise Trainers Association, as well as the Colorado Physical Activity and Nutrition State Plan.

The following worksheet can be used to develop a training plan for your instructors.

### Instructor Qualifications

Name: \_\_\_\_\_

Date:	Yes	No	Training Needed
Instructor has current certification in cardiopulmonary resuscitation (CPR), automated external defibrillator (AED), and first aid.			
Instructor has a currently recognized fitness instructor certification from a national agency such as: ACE, ACSM, AFAA, IFPA (see Appendix 3).			
Instructor has obtained a national specialized “older adult certification” offered by ACE, ACSM, AFAA, IFPA (see Appendix 3).			
Instructor has additional certifications in age-specific chronic disease physical activity programming. (These certifications can accumulate valuable CEUs: CECs for upkeep of the national certification.) This may include but not be limited to any evidence-based or model best practice training offered at the Academy for Older Adult Wellness or any evidence-based class offered at any location, in fall prevention, diabetes prevention, arthritis prevention, stroke, and heart disease prevention, etc.			
Instructor has a strong understanding of the aging process and the wellness aspects (physical, psychological, spiritual, and social benefits) derived from an active lifestyle.			
Instructor has general understanding of cultural sensitivities for special populations.			

Date:	Yes	No	Training Needed
Instructor has strong knowledge of the common medical conditions and symptoms of older adults.			
Instructor understands the issues facing older adults that may impact their motivation to engage in regular physical activity.			
Instructor has knowledge of the social benefits of a group exercise program.			

## Instructor Training

Instructors should be required to engage in a self-evaluation process. Program coordinators should establish a routine process to observe all instructors in the program.

Instructor Name: \_\_\_\_\_

Date: \_\_\_\_\_

The following items include base-level knowledge that all instructors who work with older adults should have.

Date:	Yes	Date	No	Date	Training Needed
<b>Overview knowledge of aging and physical activity.</b> Recommended areas of study include general background information about the aging process and the benefits of an active lifestyle.					
Knowledge on the <b>psychological, socio-cultural, and physiological aspects of physical activity</b> and older adults.					
<b>An understanding of program design.</b> Recommended areas of study include information about using results from screening, assessment, and client goals to make appropriate decisions regarding individual and group physical activity and exercise program design.					
<b>An understanding of program design for older adults with stable medical conditions.</b> Instructors should have some knowledge of signs and symptoms associated with medication-related negative interactions during activity and how to adapt exercise for clients with varying fitness levels, and stable medical conditions, to help prevent injury and other emergency situations.					
<b>Good teaching skills.</b> Recommended areas of study include information about motor learning principles that guide the selection and delivery of effective individualized and group exercises and physical activities, and the construction of safe and effective practice environments.					

Date:	Yes	Date	No	Date	Training Needed
<b>Good leadership, communication, and marketing skills.</b> Recommended areas of study include information on incorporating effective motivational, communication, and leadership skills related to teaching individual and group exercise classes as well as knowledge on how to create effective marketing tools for program and self.					
<b>Client safety knowledge and first aid.</b> Recommended areas of study include information on developing a risk-management plan to promote a safe exercise environment and respond to emergency situations.					
<b>Professional ethics and conduct with all participants.</b> Recommended areas of study include information on legal, ethical, and professional conducts.					
<b>Regular and appropriate continuing education.</b> (instructor qualifications section)					
<b>An understanding of how to screen, assess and set goals for each person taking a physical activity class.</b> Recommended areas of study include information on selection, administration, and interpretation of pre-exercise health and activity screening and fitness and mobility assessments appropriate for older adults. This information will provide the basis for exercise program design and appropriate referrals to other health professionals.					

### Instructor Program Responsibilities

Date:	Yes	No	Training Needed
Instructors must demonstrate the consistent ability to adapt certain exercises for participants with varying fitness levels and chronic medical conditions to prevent injuries, falls, and other emergency situations.			
Instructors should understand the visible signs of exhaustion and always be in a position to observe these signs.			
Instructors must be capable of handling emergency case procedures and have an emergency plan.			

### Resources

Council on Aging and Adult Development. *Guidelines for Exercise Programs for Persons 60 Years and Older*. 1999.

International Society for Aging and Physical Activity. *The International Curriculum Guidelines for Preparing Physical Activity Instructors of Older Adults*. 2004.

## **Module 4—Physical Activity Program Standards of Practice**

All aspects of this module should be adopted. Every instructor working with older adults in physical activity should be familiar with all the demands of all of the six physical activity program categories.

Recommended areas of study include information from the Minnesota Department of Health, the National Council on Aging Program Guidelines, and the Canadian Guidelines of Library and Information Services for Older Adults.

### **Introduction**

Physical activity promotes numerous opportunities to increase an individual's endurance, strength, flexibility, balance, and cardiovascular fitness. The following overview is a guide for promoting best practices in physical activity for older adults. For clarification of these guidelines, the term "older adults" generally means people 60 years or older.

The program must be well rounded, yet geared toward the individual's specific needs and interests. The overall quality of life of the older adult is enhanced through the use of strong communication and motivation techniques when providing programs. Behavioral factors should also be taken into consideration when initiating and maintaining physical activity for older adults. Risk management, both in general programming and for specific chronic conditions, is essential in all older adult physical activity programs.

### **Six Physical Activity Program Categories**

- Endurance activities
- Strength activities
- Flexibility activities
- Balance activities
- Posture activities
- Cardiovascular activities

## Considerations for Programming in Physical Activity for Older Adults

The following recommendations will enhance the effectiveness of programs for older adults.

Does the program do the following?	Yes	No	Notes
Date:			
Include an assessment of each individual's physical ability and goals			
Set realistic goals with a measurable plan of action for reaching these goals			
Recommend a physical exam by a physician or note from the physician prior to any physical activity			
Provide opportunities for peer support, such as "tell a friend," "bring a friend," or an exercise buddy system			
Design a program that reflects the individual's preferences and capabilities (group versus individual activities)			
Educate participants about the actual risks of physical activity and helping individuals self-monitor their exercise intensity levels			
Use recruitment incentives (rewards) for reaching target goals and public recognition for attendance to reinforce participants' success and to achieve a positive response to the programs			
Conduct programs at a time of day that is acceptable to participants			
Conduct programs in a convenient location that is acceptable and accessible to participants with user-friendly facility and equipment			
Provide different activities, props, and activity formations using a variety of upbeat, appropriate music			
Provide group, partner, and/or individual activities			
Create places and times for socialization before, during, and after physical activity			
Create a friendly atmosphere that builds trust and support			

## Communication

Listed below are several tips for assisting older adults who have communication difficulties.

<b>Does the program design include the following?</b>	Yes	No	Notes
Date:			
Avoid higher frequencies in the sound system or loud speakers			
Eliminate background noise, such as fans, other talking, and music playing when instructions are being given			
Adjust volume of music so that it is comfortable and not so loud that instructions cannot be heard			
Encourage instructors to speak distinctly, slowly, and in lower tone frequencies during instruction			
Position participants, particularly those with hearing impairments, so that they face the instructor			
Avoid sudden loud noises			
Take care to avoid blows to the ear or movements that might cause hearing aids to dislodge during an activity			
Use a facility with proper acoustical treatment to walls, floors, and ceiling so sounds do not echo or reverberate unnecessarily			

## Clothing and Footwear

The following suggestions or guidelines are recommended for older adults with regard to clothing and footwear.

Does the program design include the following?	Yes	No	Notes
Date:			
Provide information to participants ahead of time regarding proper clothing and footwear			
Make recommendations to participants to wear loose fitting clothing for comfort, especially breathable material, like cotton, for temperature regulation			
Make recommendations to participants to wear appropriate socks and shoes with good shock-absorbing qualities, along with supportive heel and arch support, adequate toe area, and supportive mid-soles			

### **Conditions Requiring Special Attention/Precautions**

Individuals with the following conditions should consult their healthcare provider to determine appropriate activities based on their conditions. The following list includes examples only and is not an exhaustive list.

**Recommendation:** Physical activity instructors for older adults should obtain training in how to avoid complications during exercise for the following conditions.

- Arthritis
- Diabetes
- Hypertension
- Pacemaker implants
- Joint replacements
- Osteoporosis
- Angina
- Alzheimer's disease
- Parkinson disease
- Multiple Sclerosis
- Obesity
- Significant orthopedic concerns
- Sodium retention, edema, weight gain
- Heart and respiratory problems involving medications that contain histamine (decongestants, bronchodilators) that decrease the heart rate (beta-blockers, calcium blockers), that increase the heart rate (atropine) weight reducers, or blood thinners (Coumadin).
- Weakness or fatigue
- Muscle cramping
- Skeletal muscle pain that keeps the participant awake at night
- Emotional issues
- Severe sunburn
- Poor sight

## Endurance Activities

Endurance activities refer to continuous movements that involve large muscle groups and that continue for a minimum of 10 minutes.

Endurance activities protect against many conditions associated with aging (such as arthritis, osteoporosis, diabetes, cardiovascular disease, obesity, falls).

Common examples of endurance activities include biking, swimming, and walking. Other lifestyle activities that might provide the same benefit include household chores, such as washing windows, vacuuming, sweeping, mopping, mowing the lawn, etc. The major goal for endurance activities for older adults is to enable them to maintain mobility and an independent lifestyle.

Does the program design include the following?	Yes	No	Notes
Date:			
Increase the activity level from low to moderate intensity			
Increase the workload of each physical activity as the participants become more accustomed to the intensity of that particular physical activity			
Enable workload intensity to be increased by increasing duration, speed, and distance			
Enable participants to set realistic goals and update these goals as fitness levels improve			
Evaluate and adjust intensity of activities via use of the talk test or test of perceived exertion			

### Strength Activities

Strength activities refer to increasing muscle strength by moving or lifting some type of resistance (i.e., weights or elastic bands) at a level that requires some physical effort. Strength activities are considered safe for older adults. However, they should be carefully overseen.

Does the program design include the following?	Yes	No	Notes
Date:			
Recommend one to three sets of 10 to 12 repetitions to provide the optimal amount of activity for increasing muscle strength			
Recommend that strength training be done every other day to give muscles time to recover between sessions			
Include as many muscles as possible, involving upper and lower body, neck, and trunk muscles			

### Flexibility Activities

Flexibility activities initiate range of motion around the joints. Throughout the normal aging process, muscles tend to lose elasticity. Most older adults are less flexible because of disuse and inactivity. Maintaining adequate levels of flexibility enhances an individual's functional capabilities (e.g., bending, twisting) and reduces injury potential (e.g., strains, lower back problems).

Does the program design include the following?	Yes	No	Notes
Date:			
Flexibility activities for every major joint in the body at least 2 days per week			
Flexibility activities that involve static stretching (holding the stretch for 10 to 30 seconds)			
Static stretching is used to follow the warm up or workout in each exercise session			

A sample flexibility program can be found online through the National Center of Physical Activity and Disability in the exercise/fitness section.

<http://www.ncpad.org>

## Balance and Posture Activities

Balance refers to the ability to maintain control of the body over the base of support to avoid falling. Balance can be affected by many different factors, including physiological factors, environmental factors, and even chemical factors, such as medications or use of alcohol. Physiological factors may include eyesight, hearing, inner ear disturbances, strength, coordination, and sensory changes. Environmental factors may include the terrain or walking surface, the temperature of the room or area, and the presence of a large number of people or obstacles within the environment. Issues with balance place older adults at risk for falls, which is one of the main causes of injuries and fractures in older adults. There are two types of balance: static and dynamic. Static balance refers to the ability to maintain balance without moving. Dynamic balance refers to the ability to move without losing balance or falling.

Postural activities are those that intermittently focus on how the body is aligned. An awareness of good posture and having good posture helps circulation, balance, and all organ function. Poor posture can decrease the efficiency of the lungs, cause back pain, and increase the risk of falling. Skeletal deformities cannot be changed (i.e., osteoporosis) through postural awareness.

<b>Does the program design include the following?</b>	Yes	No	Notes
Date:			
Demonstrate good posture at the beginning of instruction and point it out during the course of any regular physical activity			
Use both static and dynamic balance activities			
Use static balance activities that focus on challenging the older adult's standing balance by decreasing the base of support (standing toe to heel, balancing on one foot)			
Use dynamic balance activities that challenge the ability to move (obstacle course using cones, switching direction, etc.)			

### Cardiovascular Activities

Cardiovascular fitness occurs best with large-muscle rhythmic activity, resulting in an increased heart rate and increased rate of breathing that continues for a specific length of time. This type of exercise is also known as aerobic exercise. Many of the daily activities of an older adult can be considered aerobic in nature including walking, climbing stairs, carrying groceries, mowing the lawn, and washing windows.

Does the program design include the following?	Yes	No	Notes
Date:			
Recommendation of 30 minutes of moderate intensity activity most days of the week (30 minutes need not be continuous)			
Appropriate warm up activities that gradually increase the heart rate for a minimum of 10 minutes			
A cardiovascular phase that includes 20 to 60 minutes of continuous or intermittent large muscle rhythmic activity			
A "cool down" period that includes stretching activities and lasts at least 10 minutes to allow heart rate and breathing to return to normal			

### Conditions Requiring Trained Health Professional Supervision During Exercise

Individuals with the following conditions should not participate in any physical activity program unless supervised by a trained health professional knowledgeable about the individuals' specific condition.

**Recommendation:** A health history questionnaire (such as a Par-Q for adults 15 to 65; see Resources) should be given to each individual who wants to participate in physical activity programs. If completed, the following conditions will show up on the questionnaire and the instructor can refer the individual to a health professional who is more knowledgeable about that specific condition.

- Acute sprains or strains
- Congestive heart failure
- Recent heart attack
- Recent pulmonary or systemic blood clot
- Severe osteoporosis
- Uncontrolled hypertension
- Severe arthritis
- Pneumonia
- Joint replacements
- Recent stroke
- Severe respiratory conditions
- Unstable angina

### Conditions Requiring Immediate Medical Attention

Individuals with any of the following conditions should stop all physical activity and immediately seek medical attention. *Please note that these are examples but this is not an exhaustive list.*

- Chest pain or discomfort
- Decrease in blood pressure
- Extreme fatigue
- Inappropriate verbal response
- Marked palpitations
- Nausea or vomiting
- Seizures
- Cyanosis (very blue skin)
- Decrease in coordination
- Fainting
- Light-headedness or vertigo
- Muscular exhaustion
- Pallor (very pale skin)
- Very labored breathing

### Resources

Canadian Guidelines of Library and Information Services for Older Adults, [www.cla.ca](http://www.cla.ca)

Canadian Society for Exercise Physiology. PAR-Q: Physical activity and readiness questionnaire, <http://web.missouri.edu/~proste/tool/his/index.htm>

American College of Sports Medicine. Physical activity and readiness questionnaire, [http://www.nnu.edu/fileadmin/content/challenge/35\\_year\\_older\\_Par-Q\\_Form/Release\\_form\\_if\\_over\\_35\\_yrs15.pdf](http://www.nnu.edu/fileadmin/content/challenge/35_year_older_Par-Q_Form/Release_form_if_over_35_yrs15.pdf)

National Council on Aging Program Guidelines, Physical activity programs for older adults, [www.ncoa.org](http://www.ncoa.org)

Physical Activity Program Guidelines for Older Adults. Minnesota Department of Health (Section 4), <http://www.health.state.mn.us/>

## Physical Assessment Tools

Assessments are an important part of multipurpose programs seen in recreation centers and senior centers. Without assessing a participant, the instructor has no means available to know whether the exercise prescription (class) has helped the participant to improve. And more specifically, neither does the participant.

### Senior Fitness Assessment

The *Colorado Action Plan for Older Adult Wellness: A Public Health Strategy* recommends that all professionals working in physical activity with older adults be trained in the evidence-based assessment tool, the Senior Fitness Assessment (SFA). This assessment tool was designed at the Ruby Gerontology Center, University of California, Fullerton, and has high reliability and validity. It is not recommended that assessments be done for all classes, all participants, or all programs. To do so would not be economically feasible. However, it is recommended that each agency choose which classes can/should include assessments and then do the assessments at the beginning of each session and at the end of each session. The results from the Senior Fitness Assessment can be analyzed for group results and individual results, and are perfect for performance measurements.

### Benefits to Professionals

The application of this tool can benefit professionals in the following ways.

1. It assesses the functional health of participants before prescribing specific exercise programs in the areas of upper body and lower body strength, upper body and lower body flexibility, agility, and aerobic capacity.
2. It assesses the functional health of participants after their participation in an exercise prescription (class) to measure functional gain/loss/static.
3. It enables professionals to assess the functional health of a wide range of ages and ability levels in a community setting.
4. It can help participants measure their progress by providing the pre/post information.
5. It can obtain information for research purposes and/or practical application.
6. It increases the skill level of a community-based professional to gain the confidence of the medical community for referrals.

## Benefits to Community-Based Organizations

The application of this tool can benefit the community-based organizations in the following ways.

1. It provides data to determine the outcome of the instructor's performance (i.e., was the instructor effective in helping participants improve?).
2. It provides group data to determine if a class (over time) is financially prudent (i.e., do participants improve enough to warrant paying the instructor to do the class?).
3. It provides data to show collaborating medical partnerships improvement (over time) (i.e., an osteoporosis class shows that 95 percent of all participants improve dramatically in their upper body flexibility without fractures). This is valuable information to demonstrate to local doctors the advantage of referring participants to this program.

## Resources

The Senior Fitness Test Kits are available from Human Kinetics,  
<http://www.human.kinetics.com/> or 1-800-747-4457.

## Checklist for an Effective Partnership

Through its extensive research on collaborations, the Amherst H. Wilder Foundation has identified 19 factors that contribute to a partnership's success. The following checklist can be used to determine if a partnership is feasible. The more of these factors that are in place, the more likely the partnerships will be successful.

*The Colorado Action Plan for Older Adult Wellness: A Public Health Strategy is recommending partnerships with clinical and outpatient therapeutic agencies.*

### Environment

1. Is there a history of collaboration and cooperation?
2. Is the collaborative group seen as leaders in your community?
3. Is the political and social climate favorable to forming a partnership?

### Membership Characteristics

1. Do members share mutual respect, understanding, and trust?
2. Does the partnership include an appropriate cross-section of members?
3. Do people and organizations see the partnership as being in their self-interest?
4. Do participating organizations have the ability to compromise?

### Process/Structure

1. Do members share a stake in both process and outcome?
2. Are multiple layers and levels of decision making in place?
3. Are the process and structure flexible?
4. Are there clear roles and policy guidelines in place?
5. Are the process and structure adaptable to changing needs and situations?

### Communication

1. Is there open and frequent communication among partners?
2. Are there established informal and formal communication links?

### Purpose

1. Does the partnership have concrete, attainable goals and objectives?
2. Does the partnership have a shared vision?
3. Is the purpose of the partnership unique in the community?

### Resources

1. Are sufficient funds available to sustain the partnership?
2. Does the partnership have a skilled convener?

**Remember:** ALL partnerships must have the older adult's interest as a top priority.

# Appendix 1 Healthy People 2010 Objectives

## What are the Objectives and Why are They Important to Wellness in Older Adults in Colorado?

*Healthy People 2010* is a prevention framework developed by the Surgeon General's office in 1979. It contains a set of more than 400 health objectives for the nation to achieve over the first decade of the new century. Specific focus areas important to older adults are arthritis, physical activity and fitness, nutrition and overweight, heart disease and stroke, diabetes, and injury prevention. Objectives that are relevant to these focus areas are listed below.

Individuals, groups, and organizations are encouraged to integrate *Healthy People 2010* into current programs, special events, publications, and meetings. Healthcare providers can encourage their patients to pursue healthier lifestyles and to participate in community-based programs. By selecting from among the national objectives, individuals and organizations can build an agenda for community health improvement and can monitor results over time. (*Healthy People 2010* <http://www.healthypeople.gov>)

The following goals have been selected from *Healthy People 2010* as the basis of the *Colorado Action Plan for Older Adult Wellness*.\*

## 2. Arthritis, Osteoporosis, and Chronic Back Conditions

**Goal:** Prevent illness and disability related to arthritis and other rheumatic conditions, osteoporosis, and chronic back conditions.

### Arthritis

- 2-2. Reduce the proportion of adults with chronic joint symptoms who experience a limitation in activity due to arthritis.
- 2-3. Reduce the proportion of all adults with chronic joint symptoms who have difficulty in performing two or more personal care activities, thereby preserving independence.
- 2-8. Increase the proportion of persons with arthritis who have had effective, evidence-based arthritis education as an integral part of the management of their condition.

### Osteoporosis

- 2-9. Reduce the proportion of adults with osteoporosis.

\*Gaps in numbering result from the selection of items from the complete list of goals.

### 3. Cancer

**Goal:** Reduce the number of new cancer cases as well as the illness, instability, and death caused by cancer.

- 3-15. Increase the proportion of cancer survivors who are living 5 years or longer after diagnosis.

### 5. Diabetes

**Goal:** Through prevention programs, reduce the disease and economic burden of diabetes, and improve the quality of life for all persons who have or are at risk for diabetes.

- 5-1. Increase the proportion of persons with diabetes who receive formal diabetes education.
- 5-2. Prevent diabetes.

### 7. Educational and Community-Based Programs

**Goal:** Increase the quality, availability, and effectiveness of educational and community-based programs designed to prevent disease and improve health and quality of life.

- 7-9. Increase the proportion of hospitals and managed care organizations that provide community disease prevention and health promotion activities that address the priority health needs identified by their community.
- 7-12. Increase the proportion of older adults who have participated during the preceding year in at least one organized health promotion activity.

### 12. Heart Disease and Stroke

**Goal:** Improve cardiovascular health and quality of life through the prevention, detection, and treatment of risk factors; early identification, and treatment of heart attacks and strokes; and prevention of recurrent cardiovascular events.

- 12-6. Reduce hospitalizations of older adults with congestive heart failure as the principal diagnosis.

- 12-9. Reduce the proportion of adults with high blood pressure.
- 12-11. Increase the proportion of adults with high blood pressure who are taking action (for example, losing weight, increasing physical activity, or reducing sodium intake) to help control their blood pressure.

## 15. Injury Prevention\*\*

*Goal: Reduce injuries, disabilities, and deaths due to unintentional injuries.*

- 15-27. Reduce deaths from falls.
- 15-28. Reduce hip fractures among older adults.

## 19. Nutrition and Overweight

*Goal: Promote health and reduce chronic disease associated with diet and weight.*

- 19-1. Increase the proportion of adults who are at a healthy weight.
- 19-2. Reduce the proportion of adults who are obese.

## 22. Physical Activity and Fitness

*Goal: Improve health, fitness, and quality of life through daily physical activity.*

### Physical Activity in Adults

- 22-1. Reduce the proportion of adults who engage in no leisure-time physical activity.
- 22-2. Increase the proportion of adults who engage regularly, preferably daily, in moderate physical activity for at least 30 minutes per day.
- 22-3. Increase the proportion of adults who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness 3 or more days per week for 20 or more minutes per occasion.

### Muscular Strength/Endurance and Flexibility

- 22-4. Increase the proportion of adults who perform physical activities that enhance and maintain muscular strength and endurance.
- 22-5. Increase the proportion of adults who perform physical activities that enhance and maintain flexibility.

---

\*\* The original *Healthy People 2010* objective included violence prevention.

## Appendix 2 References and Resources

### General References

- Association of State and Territorial Directors of Health Promotion and Public Health Education. *Journal of Consulting and Clinical Psychology*, 198(51): 390–395.
- Booth, Sarah L. Environmental and Societal Factors Affect Food Choice and Physical Activity: Rationale, Influences, and Leverage Points. *Nutrition Reviews*, 59(3): S21–S39, March 2001.
- Colorado Department of Human Services. *Strengths and Needs Assessment of Older Adults in the State of Colorado*. Division of Aging and Adult Services, September 2004. <http://www.cdhs.state.co.us/aas/PDFs/NeedsAssessment.pdf>
- McElhinney, Judith, RN, GNP, Kenneth J. Koval, MD, and Joseph Zuckerman, MD. Falls and the Elderly *Archives of the American Academy of Orthopaedic Surgeons*, 2(1)(Winter 1998): 60–65.
- Rosmarie, E., P. Franzkowiak, and E. Wenzel. *People Empowerment vs. Social Capital: From Health Promotion to Social Marketing*. [online]. Available: <http://www.ldb.org/perth99.htm> [12 January 2002].
- U.S. Department of Agriculture. *Dietary Guidelines for Americans 2000*. [brochure] Washington, D.C., Center for Human Nutrition Policy and Promotion, 2000.
- U.S. Department of Health and Human Services. *Healthy People 2010: About Healthy People*. Washington, D.C.: U.S. Government Printing Office, 2002.
- U.S. Department of Health and Human Services. *Healthy People 2010 Conference Edition in Two Volumes*. Washington, D.C.: U.S. Department of Health and Human Services, 2000.
- U.S. Department of Health and Human Services. *Leisure-Time Physical Activity Among Adults: United States, 1997–1998*. Atlanta: Centers for Disease Control and Prevention, National Center for Health Statistics, 2002.
- U.S. Department of Health and Human Services. *Physical Activity and Health: A Report of the Surgeon General*. Atlanta: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.
- U.S. Department of Health and Human Services. *Diet Tips for a Healthy Heart*. [brochure] Rockville, MD: U.S. Food and Drug Administration, 2002.
- Velicer, W.F., et al. *Cancer Prevention Center: Transtheoretical Model*. [online]. Available: <http://www.uri.edu/research/cprc/TTM/detailedoverview.htm> [29 July 2002].

## References for Statistics

- American Diabetes Association. *Type 2 Diabetes*. [online]. Available: [http://www.diabetes.org/main/application/commercewf?origin=\\*.jsp&event=link\(D\)](http://www.diabetes.org/main/application/commercewf?origin=*.jsp&event=link(D)) [7 February 2003].
- American Family Physician. *What You Should Know About Type 1 Diabetes*. [online]. <http://www.aafp.org/afp/991101ap/991101a.html>. [7 February 2003].
- Colorado Department of Public Health and Environment. 2001 Colorado Mortality Data. Health Statistics Section, 2002.
- Colorado Department of Public Health and Environment, Health Statistics Section. Health Watch: Adult Obesity in Colorado: Results from the Behavioral Risk Surveillance System, No. 48, November 2002. <http://www.cdphe.state.co.us/hs/Briefs/obesity2002.pdf>
- Colorado Department of Public Health and Environment, Health Statistics Section. Colorado Behavioral Risk Surveillance System. Health Watch: Sociodemographics, General Health Status, and Access to Care Among Colorado Adults With Disability, No. 53, May 2003. <http://www.cdphe.state.co.us/hs/briefs/disability2003.pdf>
- Colorado Department of Public Health and Environment, Health Statistics Section. Colorado Behavioral Risk Surveillance System. Falls Among Older Adults in Colorado Fact Sheet, 2005. <http://www.cdphe.state.co.us/hs/pubs/falls2.pdf>
- Colorado Department of Public Health and Environment, Health Statistics Section. Colorado Behavioral Risk Surveillance System. Arthritis Among Adults in Colorado Fact Sheet, 2004. <http://www.cdphe.state.co.us/hs/factsheets/arthritis2b.pdf>
- Flegal, K.M., et al. Prevalence and Trends in Obesity Among U.S. Adults 1999–2000. *Journal of the American Medical Association*, 288(2002): 1723–1727.
- French, S.A., et al. Environmental Influences on Eating and Physical Activity. *Annual Review of Public Health*, 22(2001): 309–335.
- Petrelli, J.M., et al. Body Mass Index, Height, and Postmenopausal Breast Cancer Mortality in a Prospective Cohort of U.S. Women. *Cancer Causes and Control*, 13(4)(2002): 325–332.
- U.S. Census Bureau. *Tables DP-1, 2, 3*. Washington, D.C.: Census of Population and Housing, 2000.
- U.S. Department of Health and Human Services. *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta: U.S. Centers for Disease Control and Prevention, 2001.
- U.S. Department of Health and Human Services. *Behavioral Risk Factor Surveillance System Survey Data*. Atlanta: Centers for Disease Control and Prevention, 2003.
- U.S. Department of Health and Human Services. *Healthy People 2010 Conference Edition in Two Volumes*. Washington, D.C.: Office of the Surgeon General, 2000.
- U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. Neighborhood Safety and the Prevalence of Physical Inactivity—Selected States. *Morbidity and Mortality Weekly Report*, 48(7)(1999): 143–146.
- U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. Prevalence of disabilities and associated health conditions—United States, 1991–1992. *Morbidity and Mortality Weekly Report*, 43(40)(1994): 730–799.

## Resources

### Consumer Sites

Colorado Health Guide	<a href="http://www.coloradohealthguide.org">www.coloradohealthguide.org</a>
Denver Public Library: Health and Medicine Web Sites	<a href="http://denverlibrary.org/research/health/index.html">http://denverlibrary.org/research/health/index.html</a>
Healthfinder	<a href="http://www.healthfinder.gov">www.healthfinder.gov</a>
Health Hippo	<a href="http://hippo.findlaw.com/hippohome.html">http://hippo.findlaw.com/hippohome.html</a>

### Data Sources

CDC Wonder	<a href="http://wonder.cdc.gov/">http://wonder.cdc.gov/</a>
CDC Wonder Data 2010	<a href="http://wonder.cdc.gov/data2010/">http://wonder.cdc.gov/data2010/</a>
CMS Data Users Reference Guide to Medicare and Medicaid Program Data	<a href="http://www.cms.hhs.gov">www.cms.hhs.gov</a>
Colorado by the Numbers	<a href="http://www.colorado.edu/libraries/govpubs/onlinehtm">www.colorado.edu/libraries/govpubs/onlinehtm</a>
Colorado Department of Local Affairs	<a href="http://www.dola.colorado.gov">www.dola.colorado.gov</a>
Colorado Health Information Dataset	<a href="http://www.cdphe.state.co.us/cohid/index.html">www.cdphe.state.co.us/cohid/index.html</a>
Current Population Survey from the Bureau of Labor Statistics and the Bureau of the Census	<a href="http://www.bls.census.gov/cps/">www.bls.census.gov/cps/</a>
DataWeb	<a href="http://www.thedataweb.org">www.thedataweb.org</a>
Denver Healthy People 2010—Information and Data Population Groups	<a href="http://www.denvergov.org/hp2010">www.denvergov.org/hp2010</a>
Directory of Health and Human Services Data Resources	<a href="http://aspe.hhs.gov/datacncl/DataDir/index.shtml">http://aspe.hhs.gov/datacncl/DataDir/index.shtml</a>
H-CUPnet—Health Statistics and Hospital Stays	<a href="http://hcup.ahrq.gov/HCUPnet.asp">http://hcup.ahrq.gov/HCUPnet.asp</a>
Health Expenditures by State of Residence	<a href="http://www.cms.hhs.gov">www.cms.hhs.gov</a>
Human Mortality Database	<a href="http://www.mortality.org/">www.mortality.org/</a>
Kaiser Family Foundation's State Health Facts Online	<a href="http://www.statehealthfacts.org/cgi-bin/healthfacts.cgi">www.statehealthfacts.org/cgi-bin/healthfacts.cgi</a>
National Behavioral Risk Factor Surveillance System	<a href="http://apps.nccd.cdc.gov/gisbrfss/">http://apps.nccd.cdc.gov/gisbrfss/</a>
National Center for Health Statistics	<a href="http://www.cdc.gov/nchs">www.cdc.gov/nchs</a>
National Center for Health Statistics—Healthy Women: State Trends in Health and Mortality	<a href="http://www.cdc.gov/nchs/healthywomen.htm">www.cdc.gov/nchs/healthywomen.htm</a>

Public Citizen’s Questionable Doctors	<a href="http://www.questionabledoctors.org">www.questionabledoctors.org</a>
Public Citizen’s Questionable Hospitals	<a href="http://www.publiccitizen.org/questionablehospitals/index.html">www.publiccitizen.org/questionablehospitals/index.html</a>
Public Health Data Standards Consortium	<a href="http://www.phdatastandards.info">www.phdatastandards.info</a>
Quality Check (JCAHO)	<a href="http://www.jcaho.org/quality+check/index.htm">www.jcaho.org/quality+check/index.htm</a>
Research Data Assistance Center	<a href="http://www.resdac.umn.edu">www.resdac.umn.edu</a>
State Health Access Data Assistance Center	<a href="http://www.shadac.umn.edu">www.shadac.umn.edu</a>
Substance Abuse and Mental Health Data Archive	<a href="http://www.icpsr.umich.edu/SAMHDA/index.html">www.icpsr.umich.edu/SAMHDA/index.html</a>
U.S. Census Bureau	<a href="http://www.census.gov">www.census.gov</a>
White House Social Statistics Briefing Room	<a href="http://www.whitehouse.gov/fsbr/health.html">www.whitehouse.gov/fsbr/health.html</a>
<b>Foundations</b>	
Caring for Colorado	<a href="http://www.caringforcolorado.org">www.caringforcolorado.org</a>
Changes in Health Care Financing and Organization	<a href="http://www.hcfo.net">www.hcfo.net</a>
Colorado Trust	<a href="http://www.coloradotrust.org">www.coloradotrust.org</a>
Daniels Fund	<a href="http://www.danielsfund.org">www.danielsfund.org</a>
Robert Wood Johnson Foundation	<a href="http://www.rwjf.org">www.rwjf.org</a>
Rose Community Foundation	<a href="http://www.rcfdenver.org/">http://www.rcfdenver.org/</a>
<b>Government Resources</b>	
Administration on Aging	<a href="http://www.aoa.gov">www.aoa.gov</a>
Agency for Healthcare Research and Quality	<a href="http://www.ahrq.gov">www.ahrq.gov</a>
Center for Disease Control and Prevention	<a href="http://www.cdc.gov">www.cdc.gov</a>
Center for Medicare/Medicaid Services	<a href="http://www.cms.hhs.gov">www.cms.hhs.gov</a>
Colorado Department of Health Care Policy and Financing	<a href="http://www.chcpf.state.co.us/">http://www.chcpf.state.co.us/</a>
Colorado Department of Human Services	<a href="http://www.cdhs.state.co.us">www.cdhs.state.co.us</a>
Colorado Department of Public Health & Environment	<a href="http://www.cdphe.state.co.us">www.cdphe.state.co.us</a>
Colorado Division of Insurance— A Division of the Colorado Department of Regulatory Agencies	<a href="http://www.dora.state.co.us/insurance/index.htm">www.dora.state.co.us/insurance/index.htm</a>
Colorado General Assembly	<a href="http://www.leg.state.co.us/">http://www.leg.state.co.us/</a>
Colorado State Website	<a href="http://www.colorado.gov">www.colorado.gov</a>

Library of Congress	<a href="http://www.loc.gov">www.loc.gov</a>
National Institutes of Health	<a href="http://health.nih.gov">http://health.nih.gov</a>
Office of Minority Health	<a href="http://www.omhrc.gov">www.omhrc.gov</a>
Office of Rural Health Policy	<a href="http://ruralhealth.hrsa.gov">http://ruralhealth.hrsa.gov</a>
Office of the Surgeon General	<a href="http://www.surgeongeneral.gov">www.surgeongeneral.gov</a>
Office on Women's Health	<a href="http://www.4woman.gov">www.4woman.gov</a>
U.S. Department of Health and Human Services—Bureau of Primary Health Care	<a href="http://bphc.hrsa.gov">http://bphc.hrsa.gov</a>
U.S. Department of Health and Human Services—Health Resources and Services Administration	<a href="http://www.hrsa.gov">www.hrsa.gov</a>
U.S. House of Representatives Committee on Ways and Means	<a href="http://waysandmeans.house.gov">http://waysandmeans.house.gov</a>
U.S. National Library of Medicine	<a href="http://www.nlm.nih.gov">www.nlm.nih.gov</a>
<b>Journals</b>	
American Journal of Public Health	<a href="http://www.ajph.org">www.ajph.org</a>
Economic Inquiry	<a href="http://ei.oupjournals.org">http://ei.oupjournals.org</a>
Health Affairs	<a href="http://www.healthaffairs.org">www.healthaffairs.org</a>
Journal of Health Services Research	<a href="http://www.hsr.org">www.hsr.org</a>
Journal of the American Medical Association	<a href="http://jama.ama-assn.org">http://jama.ama-assn.org</a>
Medical Care	<a href="http://www.lww-medicalcare.com">www.lww-medicalcare.com</a>
Milbank Quarterly	<a href="http://www.milbank.org/quarterly.html">www.milbank.org/quarterly.html</a>
New England Journal of Medicine	<a href="http://content.nejm.org">http://content.nejm.org</a>
Social Science & Medicine	<a href="http://www.sciencedirect.com/science/journal/02779536">www.sciencedirect.com/science/journal/02779536</a>
<b>National Health Initiatives</b>	
Covering the Uninsured Week	<a href="http://www.covertheuninsuredweek.org">www.covertheuninsuredweek.org</a>
Healthy People 2010	<a href="http://www.healthypeople.gov">www.healthypeople.gov</a>
National Health Information Infrastructure	<a href="http://aspe.hhs.gov/sp/nhii/">http://aspe.hhs.gov/sp/nhii/</a>
Policy and Research Centers	
Alliance for Health Reform	<a href="http://www.allhealth.org">www.allhealth.org</a>
American Enterprise Institute	<a href="http://www.aei.org">www.aei.org</a>
Bell Policy Center	<a href="http://www.thebell.org">www.thebell.org</a>
Bighorn Center for Public Policy	<a href="http://www.bighorncenter.org">www.bighorncenter.org</a>
California Healthcare Foundation	<a href="http://www.chcf.org">www.chcf.org</a>
Cato Institute	<a href="http://www.cato.org">www.cato.org</a>
Center for Healthcare Strategies	<a href="http://www.chcs.org">www.chcs.org</a>
Center for Health Services Research and Policy—George Washington University	<a href="http://www.gwu.edu/~chsrp/">http://www.gwu.edu/~chsrp/</a>

Center for Medicare Education	<a href="http://www.medicareed.org">www.medicareed.org</a>
Center for Policy Alternatives	<a href="http://www.cfpa.org">www.cfpa.org</a>
Center for Studying Health System Change	<a href="http://www.hschange.com">www.hschange.com</a>
Center for the Advancement of Health	<a href="http://www.cfah.org">www.cfah.org</a>
Center on an Aging Society	<a href="http://ihcrp.georgetown.edu/agingsociety/">http://ihcrp.georgetown.edu/agingsociety/</a>
Colorado Center on Law and Policy	<a href="http://www.cclponline.org">www.cclponline.org</a>
Colorado Fiscal Policy Institute	<a href="http://www.cclponline.org/cfpi">www.cclponline.org/cfpi</a>
Commonwealth Fund	<a href="http://www.cmwf.org">www.cmwf.org</a>
Denison Memorial Library	<a href="http://denison.uchsc.edu/">http://denison.uchsc.edu/</a>
Economic & Social Research Institute	<a href="http://www.esresearch.org">www.esresearch.org</a>
Heartland Institute	<a href="http://www.heartland.org">www.heartland.org</a>
Independence Institute	<a href="http://i2i.org">http://i2i.org</a>
Institute of Medicine	<a href="http://www.iom.edu">www.iom.edu</a>
Latino American Research and Service Agency (LARASA)	<a href="http://www.larasa.org">www.larasa.org</a>
Mathematica Policy Research, Inc.	<a href="http://www.mathematica-mpr.com">www.mathematica-mpr.com</a>
Medicine Plus	<a href="http://www.medlineplus.gov">www.medlineplus.gov</a>
National Academy for State Health Policy	<a href="http://www.nashp.org">www.nashp.org</a>
National Center for Policy Analysis	<a href="http://www.ncpa.org">www.ncpa.org</a>
National Committee for Quality Assurance	<a href="http://www.ncqa.org">www.ncqa.org</a>
National Conference of State Legislatures	<a href="http://www.ncsl.org">www.ncsl.org</a>
National Health Policy Forum	<a href="http://www.nhpf.org">www.nhpf.org</a>
National Institute of Health Policy	<a href="http://www.nihp.org">www.nihp.org</a>
National Organization for Research at the University of Chicago	<a href="http://www.norc.org/issues/health.asp">www.norc.org/issues/health.asp</a>
New Hampshire Institute for Health Policy and Practice	<a href="http://www.nhhealthpolicyinstitute.unh.edu/">www.nhhealthpolicyinstitute.unh.edu/</a>
OMNI	<a href="http://www2.omni.org/index.php">http://www2.omni.org/index.php</a>
Pub Med—National Library of Medicine	<a href="http://www.pubmed.gov">www.pubmed.gov</a>
RAND	<a href="http://www.rand.org">www.rand.org</a>
Research America	<a href="http://www.researchamerica.org">www.researchamerica.org</a>
Research Triangle Institute	<a href="http://www.rti.org">www.rti.org</a>
State Coverage Initiatives	<a href="http://www.statecoverage.net">www.statecoverage.net</a>
Stateline	<a href="http://www.stateline.org">www.stateline.org</a>

UCLA Center for Health Policy Research	<a href="http://www.healthpolicy.ucla.edu">www.healthpolicy.ucla.edu</a>
UCSF Institute for Health Policy Studies	<a href="http://ihps.ucsf.edu">http://ihps.ucsf.edu</a>
University of Colorado Health Science Center—Division of Health Care Policy and Research	<a href="http://www.uchsc.edu/hcpr">www.uchsc.edu/hcpr</a>
University of Denver’s Institute for Public Policy Studies	<a href="http://www.du.edu/ipps">www.du.edu/ipps</a>
Urban Institute	<a href="http://www.urban.org">www.urban.org</a>
<b>Professional and Trade Organizations</b>	
Academy Health	<a href="http://www.academyhealth.org">www.academyhealth.org</a>
American Health Care Association	<a href="http://www.ahca.org">www.ahca.org</a>
American Hospital Association	<a href="http://www.aha.org">www.aha.org</a>
American Medical Group Association	<a href="http://www.amga.org">www.amga.org</a>
American Public Health Association	<a href="http://www.apha.org">www.apha.org</a>
America’s Health Insurance Plans	<a href="http://www.ahip.org">www.ahip.org</a>
Colorado Business Group on Health	<a href="http://www.coloradohealthonline.com">www.coloradohealthonline.com</a>
Colorado Health and Hospital Association	<a href="http://www.cha.com">www.cha.com</a>
Colorado Health Care Association	<a href="http://www.cohca.org">www.cohca.org</a>
Colorado Health Information Management Association	<a href="http://www.chima.org">www.chima.org</a>
Colorado Public Health Association	<a href="http://www.coloradopublichealth.com">www.coloradopublichealth.com</a>
Federation of American Hospitals	<a href="http://www.fah.org">www.fah.org</a>
Georgetown Public Policy Institute	<a href="http://gppi.georgetown.edu/">http://gppi.georgetown.edu/</a>
Grantmakers in Health	<a href="http://www.gih.org">www.gih.org</a>
Medical Group Management Association	<a href="http://www.mgma.com">www.mgma.com</a>
Mental Health Association of Colorado	<a href="http://www.mhacolorado.org/">http://www.mhacolorado.org/</a>
National Association for Rural Mental Health	<a href="http://www.narmh.org">www.narmh.org</a>
National Association of Community Health Centers	<a href="http://www.nachc.com">www.nachc.com</a>
National Association of Health Data Organizations	<a href="http://www.nahdo.org/meetings.htm">http://www.nahdo.org/meetings.htm</a>
National Conference of State Legislatures	<a href="http://www.ncsl.org">www.ncsl.org</a>

National Network of Public Health Institutes	<a href="http://www.nnphi.org/default.htm">www.nnphi.org/default.htm</a>
<b>Special Interest</b>	
AARP	<a href="http://www.aarp.org">www.aarp.org</a>
Arc	<a href="http://www.thearc.org">www.thearc.org</a>
Central Colorado Area Health Education Center	<a href="http://www.centralcoahec.org/">www.centralcoahec.org/</a>
Colorado Clinical Guidelines Collaborative	<a href="http://www.coloradoguidelines.org">www.coloradoguidelines.org</a>
Colorado Coalition for the Medically Underserved	<a href="http://www.ccmu.org">www.ccmu.org</a>
Colorado Community Health Network	<a href="http://www.cchn.org">www.cchn.org</a>
Colorado Consumer Health Care Initiative	<a href="http://www.cohealthinitiative.org">www.cohealthinitiative.org</a>
Colorado Cross-Disability Coalition	<a href="http://www.ccdconline.org">www.ccdconline.org</a>
Colorado Foundation for Medical Care	<a href="http://www.cfmc.org">www.cfmc.org</a>
Colorado Minority Health Forum	<a href="http://www.coloradominorityhealthforum.org">www.coloradominorityhealthforum.org</a>
Colorado Rural Health Center	<a href="http://www.coruralhealth.org">www.coruralhealth.org</a>
Health Care for all Colorado	<a href="http://www.healthcareforallcolorado.org">www.healthcareforallcolorado.org</a>
Healthcare Leadership Council	<a href="http://www.hlc.org">www.hlc.org</a>
Medicare Rights Center	<a href="http://www.medicarerights.org">www.medicarerights.org</a>
National Alliance for the Mentally Ill	<a href="http://www.nami.org">www.nami.org</a>
National Coalition on Health Care	<a href="http://www.nchc.org">www.nchc.org</a>
National Council on the Aging	<a href="http://www.ncoa.org">www.ncoa.org</a>
National Rural Health Association	<a href="http://www.nrharural.org">www.nrharural.org</a>
National Women's Health Network	<a href="http://www.nwhn.org">www.nwhn.org</a>
Society for Women's Health Research	<a href="http://www.womens-health.org/">http://www.womens-health.org/</a>

## Appendix 3 Certification Resources

The following national agencies have instructor certification to begin working with older adults in physical activity.

American College of Sports Medicine (ACSM)

<http://www.acsm.org>

American Council on Exercise (ACE)

<http://www.acefitness.org>

Aerobics and Fitness Association of America (AFAA)

<http://www.afa.org>

International Fitness Professionals Association (IFPA)

<http://www.ifpa-fitness.com>