The Growing Stronger Program

The Growing Stronger Tool Kit

A Program Leader's Guide to Conducting

Strength Training Programs for Older Adults

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Caution

The Growing Stronger Program is an exercise program based upon extensive scientific research. The Growing Stronger Tool Kit contains instructions and safety precautions for community exercise leaders. It is essential that you read the entire Tool Kit carefully before implementing the program. Some exercises outlined in the program are not appropriate for individuals with unstable medical conditions or serious musculoskeletal problems.

This Tool Kit is not intended to replace the services of a healthcare provider who knows the participants of your program personally. As a fitness professional, never give medical advice to a participant in your program. Always refer the individual to his/her healthcare provider. Individuals who participate in the Growing Stronger Program are strongly encouraged to talk with their doctors before starting this program.

Every effort has been made to ensure that the information contained in this Tool Kit is complete and accurate. However, neither the authors nor Cornell University is engaged in rendering medical advice or services to individual participants in the Growing Stronger Program. The ideas, procedures, and suggestions contained in this Tool Kit are not intended as a substitute for consulting with a physician. All matters regarding a participant's health require medical supervision. Neither the authors nor Cornell University shall be liable or responsible for any loss, injury, or damage allegedly arising from any information or suggestion in this Tool Kit. The opinions expressed in this Tool Kit represent the personal views of the authors and not those of Cornell University.

Foreword

Staying physically active and being properly nourished is one of the most important things we can do to stay healthy for life. For the past twenty years, scientists around the world have gained valuable knowledge about the aging process and how we can maintain strength, dignity, and independence as we approach and enjoy the later years of our lives.

Essential to staying strong and vital during older adulthood is participation in regular strengthening exercises, which help to prevent osteoporosis and frailty by stimulating the growth of muscle and bone. Feeling physically strong also promotes mental and emotional health. Strength training exercises are easy to learn, and they have been proven safe and effective through years of thorough research. It is our goal that this program will help community exercise leaders implement safe and effective strength training programs so that older adults can become stronger, feel better, and maintain their independence throughout life.

Wishing You Health & Strength –
Rebecca A. Seguin, PhD, CSCS

Mission

To increase the number of older adults participating in safe and effective strength training programs throughout the United States and abroad.

Objectives

❖ To provide the necessary educational materials and training to Program Leaders to help them successfully implement and maintain the Growing Stronger Program.

❖ To facilitate the implementation of the Growing Stronger Program in community centers, local health and fitness facilities, hospitals and clinics, cooperative extension services, businesses, and any other place where older adults come together.

❖ To improve the health and well-being of older adults throughout the United States and abroad by increasing access to structured, safe, and effective strength training programs.

Chapter 1: The benefits of strength training for older adults

No group in our society can benefit more from regularly performed exercise than middle-aged and older adults. Scientific research has demonstrated that exercise with weights (strength training) will increase strength, muscle mass, and bone density in middle-aged and older women.[1] Strengthening exercises also reduce the risk for numerous chronic diseases such as diabetes, heart disease, osteoporosis, and arthritis.[2-5] Psychological health is positively affected as well. Strength training has been shown to reduce depression and improve sleep, and it contributes to a sense of well- being among older individuals.[6,7]

Disability and a reduced ability to perform daily activities are primary concerns of many older adults today. The loss of muscle mass combined with chronic disease symptoms can limit their ability to perform daily tasks such as cleaning or shopping, seriously compromising their independence. Strength training is an extremely powerful antidote to the loss of muscle mass (sarcopenia) and the development of chronic diseases that are frequently associated with aging.[8] Research has shown that increasing muscular strength in the elderly through effective strength training programs is both a realistic and a safe mechanism by which to maintain functional status and independence.[9] Following are some of the scientifically proven benefits of strength training for older adults.

Benefits

Arthritis Relief

At Tufts University, we completed a strength training program with older men and women with moderate to severe knee osteoarthritis.[5] The results of this 16-week program showed that strength training decreased pain by 43%, increased muscle strength and general physical performance, improved the clinical signs and symptoms of the disease, and decreased disability. The effectiveness of strength training to ease the pain of osteoarthritis was extremely potent, and we have seen similar effects of strength training in patients with rheumatoid arthritis.

Restoration of Balance and Reduction of Falls

As people age, poor balance and flexibility contribute to falls and broken bones. These fractures can result in significant disability and, in some cases, fatal complications. Strengthening exercises, when done properly and through the full range of motion, increase a person's flexibility and balance, decreasing the likelihood and severity of falls.[10] Multi-component group exercise significantly reduced falls, with balance and strength training being key components of the program.[11,12]

Strengthening of Bone

Post-menopausal women can lose 1-2% of their bone mass annually. Results from a study conducted in our research laboratory, which were published in the *Journal of the American Medical Association* in 1994,

showed that strength training increases bone density and reduces the risk for fractures among women aged 50 to 70.[1]

Proper Weight Maintenance

Strength training is crucial to weight control, because individuals who have more muscle mass have a higher metabolic rate. Muscle is active tissue that consumes calories, whereas stored fat uses very little energy. Strength training can provide up to a 15% increase in metabolic rate, which is enormously helpful for weight loss and long-term weight control.[13]

Improved Glucose Control

More than 16 million Americans have type 2 diabetes—a staggering three-hundred percent increase over the past forty years—and the numbers are climbing steadily. In addition to presenting a greater risk for heart and renal disease, diabetes is also the leading cause of blindness in older adults. Fortunately, studies now show that lifestyle changes such as strength training have a profound impact on helping older adults manage their diabetes. In a study of Hispanic men and women conducted in our laboratory, 16 weeks of strength training produced dramatic improvements in glucose control.[2] Additionally, our study volunteers were stronger, gained muscle, lost body fat, had less depression, and felt much more self-confident.

Healthy State of Mind

Strength training provides significant improvements in depression.[14] Currently, it is not known if this is because people feel better when they are stronger or if strength training produces a helpful biochemical change in the brain. It is most likely a combination of the two. When older adults participate in strength training programs, their self-confidence and self-esteem improve. These improvements have a strong impact on their overall quality of life.

Sleep Improvement

People who exercise regularly enjoy improved sleep quality. They fall asleep more quickly, sleep more deeply, awaken less often, and sleep longer.[7] As with depression, the sleep benefits obtained as a result of strength training are comparable to treatment with medication but without the side effects or the expense.

Healthy Heart Tissue

One study conducted in our laboratory found that cardiac patients gained not only strength and flexibility but also aerobic capacity when they did strength training three times a week as part of their rehabilitation program.[3] This and other studies have prompted the American Heart Association to recommend strength training as a way to reduce risk of heart disease and as a therapy for patients in cardiac rehabilitation programs.

The Gap Between Knowledge and Practice

Despite solid evidence of the many benefits of strength training, only 7% of older adults do this type of exercise.[10] There are many reasons. Older adults are fearful of injuring themselves as a result of strength training; they are worried that they are going to bulk up; they have no experience with lifting weights; they lack access to a trainer who is experienced with middle-aged and older individuals; many fitness centers are not geared towards older adults and strength training; and there are very few community programs available, especially in inner cities and rural settings.

Fitness centers, community centers, rural extension services, employee fitness programs, and congregate housing facilities are just now beginning to offer strength training programs for middle-aged and older adults, but these programs are still few and far between. In addition, these centers may not have experience in developing exercise programs for older adults. Groups are eager to offer programs within their communities, but they need help and guidance to be successful with older adults. This is the reason we developed the Growing Stronger Program and the Tool Kit.

Putting Research Into Practice

The Growing Stronger Program is safe, effective, enjoyable, and affordable for communities and participants alike. It eliminates the primary barriers to exercise participation by enabling a variety of communities to offer a program that is easy to learn and can be performed with low-cost equipment in a variety of settings. The Growing Stronger Program will benefit the health of middle-aged and older adults across the country and abroad by providing community leaders the tools needed to begin sound exercise programs.

Chapter 2: Starting a program

Part A Your formula for success — the right staff

You, the Program Leader, are the most important factor in beginning a successful exercise program in your community. You will influence nearly every aspect of the program, including its safety, execution, and the exercise instruction. You will also serve as a mentor and motivator to participants.

As a Program Leader, you are taking on an important responsibility, and we want to make sure all leaders are qualified and have the tools they need. Below are the qualifications that we strongly encourage you to possess prior to becoming a Program Leader.

Experience and Credentials

We recommend that you, the Program Leader, have the following experience and qualifications in order to safely and effectively run the program:

- Experience in providing exercise instruction. This experience may be in a fitness center, community setting, or outpatient hospital setting or as a personal trainer.
- Educational background in exercise or some aspect of public health. The appropriate educational background might include medicine, nursing, nutrition, exercise physiology, occupational/physical therapy, massage therapy, or community/public health. This educational background will be invaluable when explaining the importance of exercise—and strength training in particular—to participants.

- Certification by a reputable health and fitness organization. Organizations include the National Strength and Conditioning Association (NSCA), the American College of Sports Medicine (ACSM), the American Council on Exercise (ACE), the American Senior Fitness Association, the International Association of Fitness Professionals (IDEA), and the Cooper Institute for Aerobics Research. We realize that this is not a complete list of organizations that certify individuals; you may have a certification from another organization, and along with your education and experience, you may be qualified to become a Program Leader.

Possessing the above three attributes will contribute greatly to your ability to safely and effectively implement the Growing Stronger Program. We recognize that some people who want to become Program Leaders may not have any formal education regarding health and fitness, and they may not possess a fitness-related certification. Ultimately, the decision of who becomes a Program Leader is in the hands of the manager of the facility that is going to run the program. We encourage the manager to strongly consider the recommendations we outline above.

While degrees and certifications provide an excellent foundation for sound exercise instruction, we feel strongly that there is no replacement for hands-on experience – be it with exercise, nutrition, or working with older individuals.

The basic responsibilities of the Program Leader include:

- Contribute to participant screening and complete participant enrollment forms
- Have an understanding of the principles of the Growing Stronger Program.

- ❖ Be timely and organized for scheduled classes
- ❖ Instruct classes using safe and proper exercise technique
- ❖ Provide ongoing feedback, assistance, and support to participants
- ❖ Provide leadership and inspiration to enhance compliance
- ❖ Complete periodic evaluations

Part B Identifying peer leaders

We recommend that you as a Program Leader identify an individual within your community who can take on the responsibility of a Peer Leader. The Peer Leader can be instrumental in helping you with the administrative duties of running the program. He/she can maintain the compliance information, assist in gaining physician approval if needed, contact participants who have been absent, etc. The qualities that a Peer Leader should possess are described in greater detail later in the manual.

Part C Range of sites that are encouraged to implement programs

The Growing Stronger Program is appropriate for urban, suburban, and rural community organizations, such as senior centers, area offices on aging, assisted living facilities, other older adult housing complexes, health and fitness centers, hospital outpatient centers, employee wellness programs, places of worship, or any other community site where middle-aged or older adults live or come together.

Part D Suggested physical space and equipment needs

To safely and effectively implement the Growing Stronger Program, we recommend a minimum of 200 square feet for a class of approximately

eight participants. Ideally, a room the size of a medium to large classroom will be available (400+ square feet) so that more participants can exercise at the same time. The room will need to accommodate chairs, participants, and equipment. There should be enough space between chairs so that participants can hold their arms out to the sides and not be touching one another. Storage space should be available for personal belongings such as jackets, pocketbooks, and bags. In addition, it is essential that:

- ❖ Water is made easily available to participants *or* they are regularly reminded to bring their own
- ❖ Rooms are well lit and large enough for unimpaired movement
- ❖ The parking lot is well lit and safe *or* appropriate public transportation is available
- ❖ There is a secure place for storing the exercise equipment
- ❖ There is confirmation in writing that the room will be available
- ❖ Holidays or days when the site will not be open are clearly noted

Equipment needs

A minimal amount of equipment is needed to run the Growing Stronger Program:

- ✓ Sturdy chairs without arms

  The best chair with which to perform the exercises has a firm seat and back and no arms. The chair should be high enough so that when the participants sit all the way back, their feet barely touch the floor. The back of the chair should be high enough so that participants can hold on to it

while standing behind it. The seat should be long enough to reach the back of their knees. If needed, a pillow can be used to raise the seat up while the knee extension exercise is done. You will need one chair per person.

- ✓ An exercise mat or large towel for exercises that will be done on the floor.
- ✓ Dumbbells
  - o 2-, 3-, 5-, 6-, 8-, 10-, and 12-pound pairs **OR**
  - o 1-, 1.5-, 2-, 2.5-, 3-, 4-, and 5-kilogram pairs

  For a class of approximately 10 participants and one instructor, it is advised to purchase (in pounds **OR** kilograms):

Purchase:	Pounds	Kilograms
3 pairs	2	1
4 pairs	3	1.5
5 pairs	5	2
4 pairs	6	2.5
4 pairs	8	3
2 pairs	10	4
2 pairs	12	5

* Purchase more pairs of higher weight dumbbells when necessary, as class progresses.

- ✓ Ankle weights
  - o Combination of 10-lb and 20-lb adjustable pairs ***or***
  - o Combination of 5-kg and 10-kg adjustable pairs

Each participant and you will need a pair of ankle weights. If the budget does not permit, you can use one ankle weight per participant—but the class will take longer to complete because of the switching of ankle weights from one leg to the other.

In addition, each site should also have:

- ✓ Storage containers
- ✓ Cart or dolly for moving equipment

See the *Resources* section for suggestions on where to order equipment.

Part E Program promotion

One key to program success is effectively announcing and promoting the program in and around the community where the classes will take place. There are several ways to promote your Growing Stronger Program, including posters, fliers, and press releases to the media. Although some of these means can be costly, others are quite affordable and just as effective.

First, take advantage of the media. Create a press release, which will reach potential participants by way of outlets such as radio, newspapers, and community television programming. The goal of the press release—which ideally should be emailed to all local television stations, newspapers, and radio studios—is to elicit interest in the program from the angle of a public interest story. Also, design a small ad for the local newspapers, or if you can grab the attention of a journalist, get him/her to write a brief article about the start of this new community program.

A good way for your Growing Stronger Program to get as much publicity as possible is to announce the start of the program by piggybacking on a related news story or media program. To piggyback on a news story is to release your program when related health news is breaking so that you can connect the two issues and promote your program as part of the problem's solution. One way to announce your program would be to write a letter to the editor of the local newspaper. The letter

should emphasize the strengths of your program and should make several connections to the news story. You want to use the letter to promote the Growing Stronger Program as part of the solution. Possible news topics include stories on osteoporosis, falls/fractures/frailty in older adulthood, arthritis, and diabetes.

Another way to advertise your Growing Stronger Program is to create fliers and post them across town. Make sure that you obtain permission from other businesses to post the fliers on their property. Some ideas on where to post your fliers are at local community centers, libraries, restaurants, grocery stores, houses of worship, and banks. Any place where older adults gather or visit frequently is an appropriate place to hang a flier. The more fliers that you post, the more people are likely to hear about the program.

Once you've solicited interest in your program, you will need to host an informational meeting. In order for the meeting to be as efficient as possible it is important that you have enough time to get everything together. It is important to have copies of the forms for the participants to fill out. It is easiest if each participant can be given his/her own packet at the beginning of the informational meeting. It never hurts to make a few extra packets just in case some additional people show up at the meeting. Finally, order some food for the meeting. Get some finger sandwiches or pizza and a veggie platter. The snacks may be the extra incentive that people need to attend the meeting. Keep the following tips in mind to facilitate this process:

- Meet with and give an information packet to potential participants
- Present the program and give a brief exercise demonstration
- Discuss proper exercise attire
- Explain the need for completed forms

- Allow about 3-4 weeks between the informational meeting and the start date of the program to obtain participant medical clearance

Part F Scheduling the program

Each program site can run the Growing Stronger Program according to the schedule that works best for the community. Generally, the program is offered two days per week, but it can be run three days per week if desired. The only scheduling requirement is that the exercise sessions never meet on consecutive days of the week because participants will need at least one day off between sessions. Session length will be approximately one hour; this should be kept in mind when schedules are being made. We have found that 12-, 14-, and 16-week sessions with scheduled breaks work well for programs in community settings. For instance, you may want to run a 12-week program followed by a 4-week break, and then begin another 12-week program. Another option is a 14-week session with a 2-week break. As the program gets under way, you and the manager of the program site should discuss whether the program schedule is working well and make adjustments at the end of the first session.

Chapter 3: Participant screening

We highly recommend that each prospective participant complete the required screening and enrollment forms prior to participating in the Growing Stronger Program. This paperwork needs to be given out and completed before any exercise takes place for the safety and best interests of the participants. No exceptions should be made to this requirement. Schedule time with prospective participants so that you can answer any questions and assist in the screening process. The screening forms to be completed include:

- Participant Summary Information Sheet
- Medical History and Current Health Survey
- PAR-Q & You (for people 69 years or younger)
- Participant Consent
- "Dear Doctor" Letter (for older adults who are 70 years or older or for those who answer "yes" to any question on the PAR-Q & You)
- Physician Authorization Form

All potential participants should complete the Participant Summary Information Sheet, Medical History and Current Health Survey, and Informed Consent Form. Potential participants who are 70 years of age or older or who answer "yes" to any question on the PAR-Q & You questionnaire will need to have their physicians or medical providers complete the Physician Authorization forms and provide them to the Program Leader prior to starting the program. It is recommended that all completed forms be stored in a locked cabinet to ensure participants' privacy.

On the basis of the PAR-Q & You **or** the physician's response, the potential participant is given a Green Light, Yellow Light, or Red Light for exercise.

Green Light for Exercise *(Safe To Exercise)*

- Participant is 69 years old or younger and answers "No" to every question on the PAR-Q.
- Participant is 70 years of age or older and gets physician approval for participation with no special consideration or comments. This also applies to individuals who answered "Yes" on the PAR-Q and then received clearance from their physician.

Yellow Light for Exercise *(Special Considerations Exist)*

- Physician approves participation with certain limits or restrictions as indicated on the Physician Consent Form.
- Pending: a participant who has not filled out the PAR-Q or one whose Physician Authorization form has not been received.

Red Light for Exercise *(Exercise is Contraindicated)*

- Physician denies participation in program or potential participant does not obtain a completed Physician Consent form.
- Any other potential participant who is not given a green light or a yellow light.

Part A Participant contact information

Participant Summary Information Sheet

Name: _____

Address: _____

_____

_____

Phone Number: _____

Email address, if available: _____

Date of Birth: _____ **Age:** _____

Program Site: _____

Start Date: _____**End Date:** _____

In case of emergency, please call:

Name: _____

Relationship: _____

Phone Number: _____

Part B Participant's medical history

Medical History and Current Health Survey

Name_____

Please read the following list carefully and circle Yes or No as it applies to your medical history and current health. Please include any additional information and conditions for which you are receiving medical care.

Medical History		
Aneurysm	Yes	No
Arthritis (Rheumatoid or Osteoarthritis)	Yes	No
Asthma	Yes	No
Back Pain	Yes	No
High Blood Pressure (Last reading /)	Yes	No
Low Blood Pressure (Last reading /)	Yes	No
Bone Fractures	Yes	No
Cancer (Please provide type and treatment)	Yes	No
High Cholesterol (Last reading /)	Yes	No
Diabetes (Type I or Type II)	Yes	No
Emphysema	Yes	No
Epilepsy	Yes	No
Heart Disease	Yes	No
Family History of Heart Disease (Mother, Father, Siblings)	Yes	No
Hernia	Yes	No
Joint or Ligament Injuries (Please specify)	Yes	No
Muscle Injuries (Please specify)	Yes	No
Neck Pain or Injury	Yes	No
Osteoporosis	Yes	No
Medical History (continued)		

Surgery	Yes	No
Terminal Illness	Yes	No
Vertigo or Lightheadedness	Yes	No
Other:	Yes	No
Current Health – Past month		
Back Pain	Yes	No
Chest Pain or Tightness	Yes	No
Discomfort from the Waist Up	Yes	No
Heart Palpitations	Yes	No
Indigestion	Yes	No
Jaw Pain	Yes	No
Joint Pain	Yes	No
Lightheadedness	Yes	No
Muscle Pain	Yes	No
Nausea	Yes	No
Neck Pain	Yes	No
New Medication or Dosage Changes	Yes	No
Shortness of Breath	Yes	No
Other:	Yes	No

Signature_____ Date_____

Part C PAR-Q (Physical Activity Readiness Questionnaire)

Physical Activity Readiness Questionnaire - PAR-Q (revised 2002)

PAR-Q & YOU

(A Questionnaire for People Aged 15 to 69)

Regular physical activity is fun and healthy, and increasingly more people are starting to become more active every day. Being more active is very safe for most people. However, some people should check with their doctor before they start becoming much more physically active.

If you are planning to become much more physically active than you are now, start by answering the seven questions in the box below. If you are between the ages of 15 and 69, the PAR-Q will tell you if you should check with your doctor before you start. If you are over 69 years of age, and you are not used to being very active, check with your doctor.

Common sense is your best guide when you answer these questions. Please read the questions carefully and answer each one honestly: check YES or NO.

YES	NO		
☐	☐	1.	**Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?**
☐	☐	2.	**Do you feel pain in your chest when you do physical activity?**
☐	☐	3.	**In the past month, have you had chest pain when you were not doing physical activity?**
☐	☐	4.	**Do you lose your balance because of dizziness or do you ever lose consciousness?**
☐	☐	5.	**Do you have a bone or joint problem (for example, back, knee or hip) that could be made worse by a change in your physical activity?**
☐	☐	6.	**Is your doctor currently prescribing drugs (for example, water pills) for your blood pressure or heart condition?**
☐	☐	7.	**Do you know of any other reason why you should not do physical activity?**

If you answered

YES to one or more questions

Talk with your doctor by phone or in person BEFORE you start becoming much more physically active or BEFORE you have a fitness appraisal. Tell your doctor about the PAR-Q and which questions you answered YES.

- You may be able to do any activity you want — as long as you start slowly and build up gradually. Or, you may need to restrict your activities to those which are safe for you. Talk with your doctor about the kinds of activities you wish to participate in and follow his/her advice.
- Find out which community programs are safe and helpful for you.

NO to all questions

If you answered NO honestly to all PAR-Q questions, you can be reasonably sure that you can:

- start becoming much more physically active – begin slowly and build up gradually. This is the safest and easiest way to go.
- take part in a fitness appraisal – this is an excellent way to determine your basic fitness so that you can plan the best way for you to live actively. It is also highly recommended that you have your blood pressure evaluated. If your reading is over 144/94, talk with your doctor before you start becoming much more physically active.

DELAY BECOMING MUCH MORE ACTIVE:

- if you are not feeling well because of a temporary illness such as a cold or a fever – wait until you feel better; or
- if you are or may be pregnant – talk to your doctor before you start becoming more active.

PLEASE NOTE: If your health changes so that you then answer YES to any of the above questions, tell your fitness or health professional. Ask whether you should change your physical activity plan.

Informed Use of the PAR-Q: The Canadian Society for Exercise Physiology, Health Canada, and their agents assume no liability for persons who undertake physical activity, and if in doubt after completing this questionnaire, consult your doctor prior to physical activity.

No changes permitted. You are encouraged to photocopy the PAR-Q but only if you use the entire form.

NOTE: If the PAR-Q is being given to a person before he or she participates in a physical activity program or a fitness appraisal, this section may be used for legal or administrative purposes.

"I have read, understood and completed this questionnaire. Any questions I had were answered to my full satisfaction."

NAME _____

SIGNATURE _____ DATE _____

SIGNATURE OF PARENT or GUARDIAN (for participants under the age of majority) _____ WITNESS _____

Note: This physical activity clearance is valid for a maximum of 12 months from the date it is completed and becomes invalid if your condition changes so that you would answer YES to any of the seven questions.

Supported by: Health Canada Santé Canada

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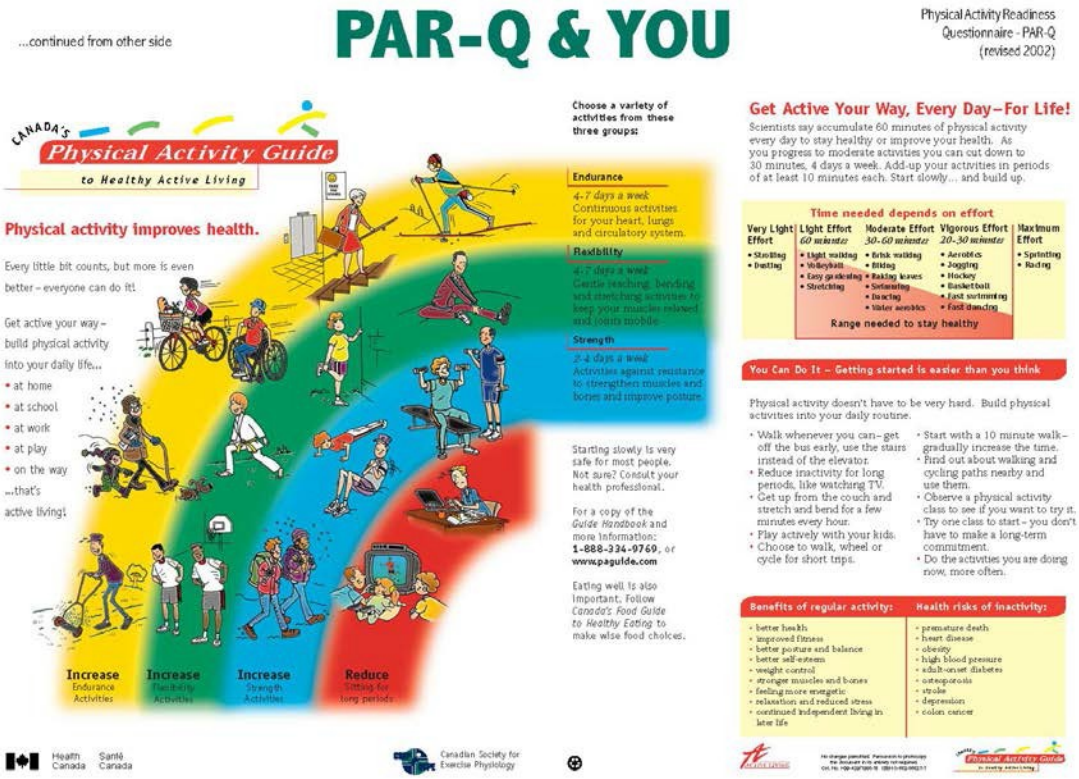
Source: Physical Activity Readiness Questionnaire (PAR-Q), c. 2002. Reprinted with permission from the Canadian Society for Exercise Physiology. http://www.csep.ca/forms.asp



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PAR-Q & YOU

Physical Activity Readiness Questionnaire - PAR-Q (revised 2002)

CANADA'S Physical Activity Guide to Healthy Active Living

Physical activity improves health.

Every little bit counts, but more is even better – everyone can do it!

Get active your way – build physical activity into your daily life...
- at home
- at school
- at work
- at play
- on the way

...that's active living!

Increase Endurance Activities | Increase Flexibility Activities | Increase Strength Activities | Reduce Sitting for long periods

Choose a variety of activities from these three groups:

Endurance
4–7 days a week
Continuous activities for your heart, lungs and circulatory system.

Flexibility
4–7 days a week
Gentle reaching, bending and stretching activities to keep your muscles relaxed and joints mobile.

Strength
2–4 days a week
Activities against resistance to strengthen muscles and bones and improve posture.

Starting slowly is very safe for most people. Not sure? Consult your health professional.

For a copy of the *Guide Handbook* and more information: **1-888-334-9769**, or **www.paguide.com**

Eating well is also important. Follow *Canada's Food Guide to Healthy Eating* to make wise food choices.

Health Canada / Santé Canada

Canadian Society for Exercise Physiology

Get Active Your Way, Every Day – For Life!

Scientists say accumulate 60 minutes of physical activity every day to stay healthy or improve your health. As you progress to moderate activities you can cut down to 30 minutes, 4 days a week. Add-up your activities in periods of at least 10 minutes each. Start slowly... and build up.

Time needed depends on effort

Very Light Effort	Light Effort *60 minutes*	Moderate Effort *30–60 minutes*	Vigorous Effort *20–30 minutes*	Maximum Effort
• Strolling • Dusting	• Light walking • Volleyball • Easy gardening • Stretching	• Brisk walking • Biking • Raking leaves • Swimming • Dancing • Water aerobics	• Aerobics • Jogging • Hockey • Basketball • Fast swimming • Fast dancing	• Sprinting • Racing

Range needed to stay healthy

You Can Do It – Getting started is easier than you think

Physical activity doesn't have to be very hard. Build physical activities into your daily routine.

- Walk whenever you can – get off the bus early, use the stairs instead of the elevator.
- Reduce inactivity for long periods, like watching TV.
- Get up from the couch and stretch and bend for a few minutes every hour.
- Play actively with your kids.
- Choose to walk, wheel or cycle for short trips.
- Start with a 10 minute walk – gradually increase the time.
- Find out about walking and cycling paths nearby and use them.
- Observe a physical activity class to see if you want to try it.
- Try one class to start – you don't have to make a long-term commitment.
- Do the activities you are doing now, more often.

Benefits of regular activity:	Health risks of inactivity:
• better health • improved fitness • better posture and balance • better self-esteem • weight control • stronger muscles and bones • feeling more energetic • relaxation and reduced stress • continued independent living in later life	• premature death • heart disease • obesity • high blood pressure • adult-onset diabetes • osteoporosis • stroke • depression • colon cancer

Source: *Canada's Physical Activity Guide to Healthy Active Living*, Health Canada, 1998 http://www.hc-sc.gc.ca/hppb/paguide/pdf/guideEng.pdf

FITNESS AND HEALTH PROFESSIONALS MAY BE INTERESTED IN THE INFORMATION BELOW:

The following companion forms are available for doctors' use by contacting the Canadian Society for Exercise Physiology (address below):

The **Physical Activity Readiness Medical Examination (PARmed-X)** – to be used by doctors with people who answer YES to one or more questions on the PAR-Q.

The **Physical Activity Readiness Medical Examination for Pregnancy (PARmed-X for Pregnancy)** – to be used by doctors with pregnant patients who wish to become more active.

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Thomas, S., Reading, J., Shephard, R.J. (1992). Revision of the Physical Activity Readiness Questionnaire (PAR-Q). **Can. J. Spt. Sci.** 17:4 338-345.

To order multiple printed copies of the PAR-Q, please contact the:

Canadian Society for Exercise Physiology
202-185 Somerset Street West
Ottawa, ON K2P 0J2
Tel. 1-877-651-3755 • FAX (613) 234-3565
Online: www.csep.ca

The original PAR-Q was developed by the British Columbia Ministry of Health. It has been revised by an Expert Advisory Committee of the Canadian Society for Exercise Physiology chaired by Dr. N. Gledhill (2002).

Disponible en français sous le titre «Questionnaire sur l'aptitude à l'activité physique - Q-AAP (revisé 2002)».

Supported by: Health Canada Santé Canada

Source: Physical Activity Readiness Questionnaire (PAR-Q), c. 2002. Reprinted with permission from the Canadian Society for Exercise Physiology. http://www.csep.ca/forms.asp

Part D Participant and physician consent

Participant Consent

I have voluntarily enrolled in a program of progressive exercise. The program is designed to place a gradually increased workload on the heart, lungs, muscles, and bones to help improve their function. I understand that participation in such a program may be associated with some risks. These risks may include but are not limited to muscle soreness, fainting, disorders of heart beat, abnormal blood pressure, and in very rare instances, heart attack. To the best of my knowledge I do not have any limiting physical conditions or disability that would preclude an exercise program. Effort will be made to minimize any risks to me by a pre-exercise assessment and a medical screening. I release everyone who has designed, promoted, or conducted the Growing Stronger Program from all claims or liabilities whatsoever resulting from my participation in this program. I assume all risks and responsibility for any injury, damage, or any other adverse event that may result from my participation in this program.

Before I begin this program I understand that a pre-exercise assessment and physician screening consent form may be required. I understand that each person may react differently to these fitness activities and these reactions cannot be predicted with complete accuracy. I will inform the Program Leader and/or my health care provider if I experience any unusual symptoms.

Signature _____

Printed Name _____

Date _____

"Dear Doctor" Letter

Date: _____

Dear Dr._____,

Your patient_____, is interested in participating in the Growing Stronger Program at _____. This moderate intensity, progressive exercise program includes strength and balance training and is designed to improve muscle strength, dynamic balance, and flexibility.

This program is based upon the results of strength training studies in older adults conducted by scientists at the John Hancock Research Center on Physical Activity, Nutrition, and Obesity Prevention at the Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy at Tufts University, Boston, MA. Scientists and exercise physiologists at Tufts University have designed this exercise program especially for older adults, and Program Leaders in your community are implementing the program. Your patient will be required to complete a Medical History Questionnaire and provide Informed Consent prior to participation in this exercise program.

Please complete and sign the enclosed Physician Authorization Form. If you have any questions or would like to discuss your patient's participation in this program in further detail, please call _____(name) at:_____(phone number).

Sincerely,

_____

Physician Authorization Form

Patient Name:_____

Address:_____

_____

Phone Number:_____Date of Birth:_____

Date of Last Exam:_____

Height:_____Weight:_____Pulse:_____BP:_____ Other:____

_____

Medical Conditions:_____

Medications:_____

_____

Special Considerations: _____

_____

_____

_____Yes, my patient can participate.

_____ No, my patient cannot participate at this time due to his/her medical conditions and health status.

Physician's Signature:

_____

Print Name:

_____

Address:

_____

Phone Number: _____Fax Number: _____

Keeping Track of Participant Screening Forms

Name	Summary Sheet	Medical History	PAR-Q & You	Participant Consent	Doctor Approval	R	Y	G

Chapter 4: The Growing Stronger Exercise Program

Part A General exercise program information

The warm-up prepares the body and mind for exercise. It activates the joints and muscles to become limber by increasing blood flow to the muscles and elevating the body's temperature. The warm-up also helps to bring mental focus and concentration to the task of exercising. A proper warm-up can be done in five to ten minutes and is essential for minimizing exercise-related injuries. In addition to preparing the body for strength training, the warm-up can also improve balance.

Resistance training, strength training, and weight lifting generally refer to exercises in which the muscles in the body move against some type of opposing force that is provided by various types of equipment or the participant's body weight. The benefits of strength training are numerous and include increased strength and muscle mass as well as improved balance, bone and joint health, and sense of well being in adults of all ages. To achieve these results, strength training must be done using appropriate exercises, proper exercise technique, and most importantly, adequate intensity. Intensity is the workload or amount of weight lifted.

Progression of intensity is the key to success with this program. This means that the amount of weight lifted must continually increase as the participant becomes stronger over time. Strength training is challenging, even difficult at times, but it should never hurt or cause pain. Pain is a warning sign to stop immediately and evaluate the situation.

Balance is the ability to maintain equilibrium when disrupted by an internal or external force. Many physical factors that affect balance include vision, hearing, muscle strength, flexibility, and posture. Certain medical conditions that also effect balance are neurological disease, high or low blood pressure, vertigo, and dizziness. Medications such as sleeping pills, diuretics for blood pressure, and barbiturates may also adversely affect balance but should never be discontinued except as directed by the participant's physician.

The current trend in balance training emphasizes proper body awareness, positioning, and posture. Dynamic movements include transferring skills, e.g. moving from a seated to standing position, altering base of support, e.g. foot position, and directional movements. Dynamic movements are included in the Growing Stronger Program.

A cool-down prepares the body to stop exercising by gradually slowing down the heart rate and energy systems of the body to their normal resting state and returning the blood from the muscles to the heart. The cool-down serves a similar but opposite purpose as the warm-up and is equally important. Five to ten minutes of cool-down is essential for minimizing exercise-related injuries. In addition to preparing the body to stop exercising, the cool-down exercises in this program are designed to improve balance and flexibility.

Flexibility is the ability to move a joint through a full range of motion. Good flexibility is associated with enhanced functional capability and reduced injury, whereas poor flexibility is associated with a reduced ability to perform basic activities of daily living. In particular, lack of flexibility in

the lower back and the back of the thigh is thought to contribute to lower back pain.

The best way to improve flexibility is by stretching the muscles of the body. Static stretching is recommended for older adults and the general population, although other types of stretching exercises exist for athletic populations. Static stretching is defined as holding a position that is challenging to maintain, without bouncing, pulsing, or moving back and forth. To improve flexibility, each stretching position must be held for approximately 60 seconds.[15]

Frequency

The Growing Stronger Program should be performed two to three times per week on non-consecutive days, e.g. Monday, Wednesday, Friday. Muscles need at least one day off between training sessions to rest, recover, and ultimately, to become stronger.

Sets and Reps

The number of times an exercise is performed is defined as repetitions, often shortened to “reps.” A pre-determined number of reps is called one (1) set of the exercise. A resistance-training program is based on “reps” and “sets.” Ten repetitions are defined as one set of a given exercise. The Growing Stronger Program is based on “2 sets of 10 repetitions.”

Technique

The strength training exercises are performed slowly. All movements should be performed in a smooth, controlled manner through the full range of motion around the joint(s) of the exercising body part.

To take full advantage of the benefits of strength training, it is important that participants continue to progress, or consistently advance the intensity of workouts to challenge the muscles with heavier weights. This continuous challenge allows the muscles to grow strong and stay strong. Progressing will increase feelings of independence, help avert the fear of falling that often develops as people age, and impart a sense of pride and accomplishment to participants.

How to progress

After the first week or so of strength training, participants should be encouraged to complete each exercise with weights that they can lift at least ten times with only moderate difficulty. If a given exercise seems too difficult, e.g. if 10 repetitions cannot be completed, then the weight is too heavy and should be reduced or participant should engage in lower level exercise (as guided by the video).

After two weeks of strength training, you should encourage individuals to reassess the difficulty of each exercise with the current level of weights. By the end of the second week, the exercise may feel too easy—that is, an individual can easily lift the one-pound dumbbell through the full range of motion and in proper form *more* than twelve times. This is the

point at which you should encourage a small increase in the amount of weight being lifted or encourage participant to engage in higher level activity (as guided by the video).

Intensity

It is imperative for participants to work out at the proper intensity during strength training in order for them to achieve an effective workout. Intensity can be gauged using the Five-Point Strength Training Intensity Scale shown on the following page. This scale ranges from 1-5 points and is used to rate the difficulty or ease of lifting a given weight. The rating is determined for each exercise after completion of the second set of 10 repetitions. After the first few sessions, participants should try to work out at an intensity of 4 on the Five-Point Strength Training Intensity Scale. This level of intensity is appropriate to produce physical changes in muscle and bone.

FIVE-POINT STRENGTH TRAINING INTENSITY SCALE

EXERCISE INTENSITY	DESCRIPTION OF EFFORT
1	***Very easy:*** Too easy to be noticed, like lifting a pencil.
2	***Easy:*** Can be felt but isn't fatiguing, like carrying a book.
3	***Moderate:*** Fatiguing only if prolonged—like carrying a full handbag that seems heavier as the day goes on.
4	***Hard:*** More than moderate at first, and becoming difficult by the time you complete four or five repetitions. You can make the effort ten times in good form, but need to rest afterwards.
5	***Extremely hard:*** Requires all your strength, like lifting a piece of heavy furniture that you can lift only once, if at all.

When to progress—and when not to

If a person is in good health, exercising regularly, and a particular exercise has begun to seem easy—that is, the person can do more than ten or twelve repetitions with the current weights—it's time to encourage increasing the intensity of the workout by adding more weight or participating in higher level activity (as guided by the video).

On the other hand, participants should always be discouraged from progressing if they:

- Have had a cold or flu
- Have an injury or severe muscle soreness
- Are experiencing an acute bout of illness

The following series of questions will assist you in helping participants determine when it is time to increase the amount of weight being lifted for each exercise and change level of exercise.

EXERCISE INTENSITY INDICATOR **Program Leader to ask participants these questions after each Exercise**
1. Were you able to complete two sets of ten repetitions in good form? *No:* Have participant reduce the weight to an amount that s/he can lift ten times in good form; then repeat for a second set. *Yes:* Please continue to question two.
2. After completing ten repetitions, do you need to rest because the weight is too heavy to complete more repetitions in good form? *Yes*: Participant is working at the proper intensity and should not increase weight. *No:* Please continue to questions three and four to determine how to safely increase the intensity of the workout.
3. Could you have done a few more repetitions in good form without a break? *Yes:* If participant can do only a **few** more repetitions (not the entire next set of ten without a break), at his/her next workout he/she should do the first set of repetitions with his/her current weight and his/her second set with the next weight up. For example, if he/she is currently using one-pound dumbbells, have him/her use two- or three-pound dumbbells for the second set.
4. Could you have done all twenty repetitions at one time, without a break? *Yes:* At the next session, have the participant use heavier dumbbells for both sets of repetitions.

Breathing

Participants should breathe through the mouth continuously and regularly throughout the exercises. This can be done in one of two ways. First, participants may count out loud to keep the pace of the exercises. Talking (counting) ensures that participants are not holding their breath. The second method entails inhaling before the lift, exhaling through the mouth while lifting, often referred to as "exhale during the exertion," and inhaling through the nose during the lowering phase. This method is more difficult to master initially but is very effective in reducing the monotony of counting in advanced or long-term groups.

It is important for participants to start out at an easy or moderate level for all of these exercises. When the weight is light, the participant can safely learn the unique moves of each exercise and learn how to breathe properly. After mastering proper exercise technique, then the participants can start to progress and meet the appropriate intensity for an effective workout.

Part B Program safety

With any type of exercise, there is some degree of risk; however, the potential benefits are usually far greater than the chance of adverse events. In fact, the risks are generally lower with strength training than for many other sports and activities.[16] It is extremely important that close attention be paid to the safety of participants at all times. This includes exercise technique and progression safety as well as general equipment safety. You should always be conscious of the technique and progression of each participant—correcting, demonstrating, and guiding proper form whenever

necessary. Discourage sudden or quick movements, particularly when using weight equipment. Movements to avoid include swinging of the legs, swinging out of the arms, and walking around the exercise area while wearing ankle weights.

While encouraging progression is vital, you must always discourage participants from lifting any weight that is too heavy or from doing any exercise that causes pain or discomfort. Take a conservative approach until you have determined the participant's level of ability.

Drinking water should be readily available in the exercise area. Encourage the participants to drink water by taking drinking breaks throughout the exercise session.

Encourage participants to breathe normally through their mouths. This will ensure adequate oxygen consumption and minimize transient increases in blood pressure caused by holding the breath during exertion. Participants may also count out loud to the pace at which the exercises are performed. Counting out loud is an excellent way to ensure that the participants are not holding their breath. This is, however, not necessary if you feel that the participants are breathing properly.

If there are any doubts about whether a participant should exercise, e.g. due to illness or injury, advise him/her conservatively. Recommend a day of rest, a call or visit to a health care provider, and other appropriate steps. Re-evaluate the situation at the next class. Use relatively light weights when introducing a new exercise or resuming weight lifting after a break of two weeks or more by a participant.

As a Program Leader for older adults, it is your job to be the eyes and ears of the physician. If there are any changes in the exercise participant's condition, recommend that he/she consult his/her health care provider.

Unstable medical conditions or severe trauma in the past six months are contraindications for exercise. Be sure that all potential exercisers are under a doctor's care. Every week before beginning to exercise, ask each exercise participant if he/she has had any changes in his/her health or medication.

Medical issues should always be referred to the participant's physician or health care provider. **Program Leaders should never give medical advice to participants.**

Pay particular attention to the back, shoulders, and knees. Emphasize the importance of protecting the lower back by bending down from the knees and not bending at the waist. Participants should be reminded to continually check the position of their knee joints when standing. The knee joints should always be slightly bent or "loose" and "soft," which means not pushed back, locked, or excessively straight. The elbows should always be bent when lifting the arms overhead. If a participant reports arthritis, bursitis, or rotator cuff pain, replace overhead movements with lower movements in the pain-free range.

To ensure general safety throughout the exercise sessions, you should make sure that ankle weights and dumbbells are always properly stored when not in use. It is also important that the exercise room and any adjoining area be well lit and free of clutter or spills. Any defective or damaged equipment – including chairs – should be removed immediately

until repaired. Coats, sweaters, purses, and personal items must be hung up or put in a designated area. They may not be kept underneath or near the participant's chair.

Participants should be encouraged to wear appropriate clothing and shoes. Comfortable clothes that are easy to move around in are recommended. Skirts may be worn; however, pants or shorts are encouraged. Proper footwear is required. Low-heeled, sturdy, comfortable shoes or sneakers should be worn. High-heeled shoes and boots are not acceptable.

Chapter 5: Keeping track & participant assessments

Part A Participant contact sheet

We strongly encourage you to keep track of each participant in your program. This document will allow you to easily track participants as they go through the screening process and to contact participants when needed.

Participant Contact Sheet

Site: _____ Date:_____

Name	Address	Phone	Email	Emergency

Part B Participant attendance sheet

As the Program Leader, you are encouraged to keep a record of participant attendance at each exercise session. This will help you monitor the success of your program.

Participant Attendance Sheet

Program Leader Name_____**Site**_____

Starting date _____

Name	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/

Notes: _____

Part C Exercise logs

Exercise logs will help you to keep track of participants' progress. You should double check that the exercise logs are updated after each workout session. Participants should be encouraged to update the logs if possible and practical. This encourages participants to become more involved in the program and their own fitness by recording and evaluating their efforts. In some cases, you may decide to fill out the logs by asking participants about the exercise intensity scale rating for the given weight lifted. Either way of record keeping is fine; however, you are ultimately responsible for making sure that the logs are properly completed.

The number of repetitions and sets for each component of the program are indicated on the exercise log, and logs should be completed as follows:

Warm-up and Cool-down/Flexibility

Use a check mark for exercises performed

Strength Training

- Record the weight lifted in pounds (LB) or kilograms (KG)
- Record exercise intensity using an Exercise Intensity Scale (EIS) rating from the Five-Point Scale

Date									
Warm Up									
Strength Training – Part I	2sets/10 reps			2 sets/10 reps			2sets/10 reps		
	Wt	EIS	level	Wt	EIS	level	Wt	EIS	level
Squats									
Wall Push-ups									
Toe Stands									
Finger Marching									
Grip Strength									
Cool Down	HOLD 60 secs			HOLD 60 secs			HOLD 60 secs		
Chest Arm Stretch									
Hamstring/Calf Stretch									
Quad Stretch									
Neck/Upper Back Stretch									

Date									
Warm Up									
Strength Training – Part II	2sets/10 reps			2 sets/10 reps			2sets/10 reps		
	Wt	EIS	level	Wt	EIS	level	Wt	EIS	level
Biceps Curl									
Step Ups									
Overhead Press									
Side Hip Raise									
Cool Down	HOLD 60 secs			HOLD 60 secs			HOLD 60 secs		
Chest Arm Stretch									
Hamstring/Calf Stretch									
Quad Stretch									
Neck/Upper Back Stretch									

Date									
Warm Up									
Strength Training – Part III	2sets/10 reps			2 sets/10 reps			2sets/10 reps		
	Wt	EIS	level	Wt	EIS	level	Wt	EIS	level
Knee Extension									
Knee Curl									
Pelvic Tilt									
Floor Back Extension									
Cool Down	HOLD 60 secs			HOLD 60 secs			HOLD 60 secs		
Chest Arm Stretch									
Hamstring/Calf Stretch									
Quad Stretch									
Neck/Upper Back Stretch									

Date									
Warm Up									
Strength Training – Booster Pack	2sets/10 reps			2 sets/10 reps			2sets/10 reps		
	Wt	EIS	level	Wt	EIS	level	Wt	EIS	level
Posture Exercise									
Transverse Abdominus									
Pelvic floor									
Seated Alternate Arm Extension									
Hip Extension									
Sidestepping									
SL Balance									
Step Ups									
Cool Down	HOLD 60 secs			HOLD 60 secs			HOLD 60 secs		
Chest Arm Stretch									
Hamstring/Calf Stretch									
Quad Stretch									
Neck/Upper Back Stretch									

Part D Participant evaluation

At the completion of a 12-week session of a Growing Stronger Program, participants are strongly encouraged to fill out the following evaluation form.

Participant Evaluation

Participant name: _____ Date of birth: _____

Program Leader: _____Site name: _____

Dates of participation: _____

How did you hear about the class? _____

What prompted you to enroll in the class? _____

For the following questions, please answer by circling the most appropriate response on the right. The number 1 corresponds to "not at all," number 3 to "somewhat," and number 5 to "very much." Numbers 2 and 4 are in between.

	Not at all		Somewhat		Very much
Overall, were you satisfied with the class?	1	2	3	4	5
Was your instructor(s) helpful?	1	2	3	4	5
Was the facility safe, clean, and comfortable?	1	2	3	4	5
Do you feel that your health is better because of the program?	1	2	3	4	5
Do you feel physically stronger?	1	2	3	4	5
Do you have more energy?	1	2	3	4	5
Do you sleep better?	1	2	3	4	5
Are your joints any less painful?	1	2	3	4	5
Have you become more active?	1	2	3	4	5

Please comment on the exercise program. Which exercises did you like the best and which ones did you like least?

_____

_____

Participant Evaluation (page 2)

Name: _____

Did you like the equipment that was used for the program?

_____

_____

What was the best aspect of your entire experience during your participation in the program?

_____

_____

_____

What was the worst aspect of your entire experience during your participation in the program?

_____

_____

_____

If you could change any aspect of the program, what would you change?

_____

_____

_____

Additional comments are welcome:

_____

_____

_____

_____

Part E Participant assessment tests

The participant evaluation presented in Part D is important to administer because it gives you a subjective understanding of how the participant perceives his/her enjoyment of the program. To complement this subjective participant evaluation, we are providing the following functional tests to help you evaluate participants' progress more objectively by using benchmarks of strength and fitness. An objective measure of function, strength, and mobility will help participants understand how they compare with their peers and motivate them to become more fit with this program.

The following physical fitness tests were developed by Roberta Rikli, PhD, and Jessie Jones, PhD, at California State University in Fullerton, California. Drs. Rikli and Jones developed this Senior Fitness Test™, and they tested and refined it with hundreds of older adults.

The Senior Fitness Test™ is from the book "Senior Fitness Test Manual" published by Human Kinetics (www.humankinetics.com, ISBN 0-7360-3356-4) and is used with permission. We highly recommend that you read the actual manual, which has more instruction and information regarding physical tests in older adults.

We recommend that you perform the Senior Fitness Test™ at the beginning of the program and every three to four months thereafter. While the test is not mandatory, we highly encourage you to do it, as it is very helpful to participants and to you as a Program Leader for seeing the success of the program.

Following are the items you will need to conduct the physical tests:

- ✓ Sturdy chairs without arms – you can use folding chairs as long as they are sturdy enough.
- ✓ Stop watch

- ✓ Dumbbells – you will need a pair of 5 lb (2-kg) dumbbells
- ✓ Masking tape
- ✓ Tally counter (for 2-min step test)
- ✓ 18” (45.72-cm) ruler
- ✓ Small pencils
- ✓ Name tags
- ✓ 30” (76.2-cm) cord of string
- ✓ 60” (152.4-cm) tape measure

The following are needed if you decide to do the 6-min walk:

- ✓ Long tape measure (≥ 20 yards or 18.28 meters)
- ✓ 3 x 5 cards (optional for marking laps)

Before conducting the physical tests, make sure that the participants are warmed up and wearing safe, comfortable shoes and clothes. Also make sure that participants have had something to eat prior to coming in for testing. As with all testing, clearly explain each test thoroughly to the participants and demonstrate the test when necessary. If you are unsure about the safety of a test for a particular participant, err on the side of safety and don’t have him/her complete it.

The Senior Fitness Test contains the following:

- Chair Stand Test
- Arm Curl Test
- 2-Minute Step Test
- Chair Sit-and-Reach Test
- Back Scratch Test
- 8-Foot Up-and-Go Test
- 6-Minute Walk Test (used if the 2-Minute Step Test is not performed)
- Height and weight (optional)

Chair Stand Test

Purpose:

To measure lower-body strength.

Equipment:

Stopwatch and straight-back or folding chair with a seat height of 17 in (43.18 cm). Chair is placed against a wall to prevent slipping.

Procedure:

Instruct the participant to sit in the middle of the chair with back straight, feet flat on the floor, and arms crossed at the wrists and held against the chest. On the signal "go," the participant rises to a full stand, then returns to a fully seated position. Encourage the participant to complete as many full stands as possible in the 30 seconds. Demonstrate the test slowly to show proper form, then at a faster pace to show that the goal is to do the best you can within safety limits. Before testing, have the participant practice one or two to ensure proper form.

Scoring:

The score is the total number of stands completed in 30 seconds. If a person is more than halfway up at the end of 30 seconds, it counts as a full stand. Administer only one test trial.

Safety tips:

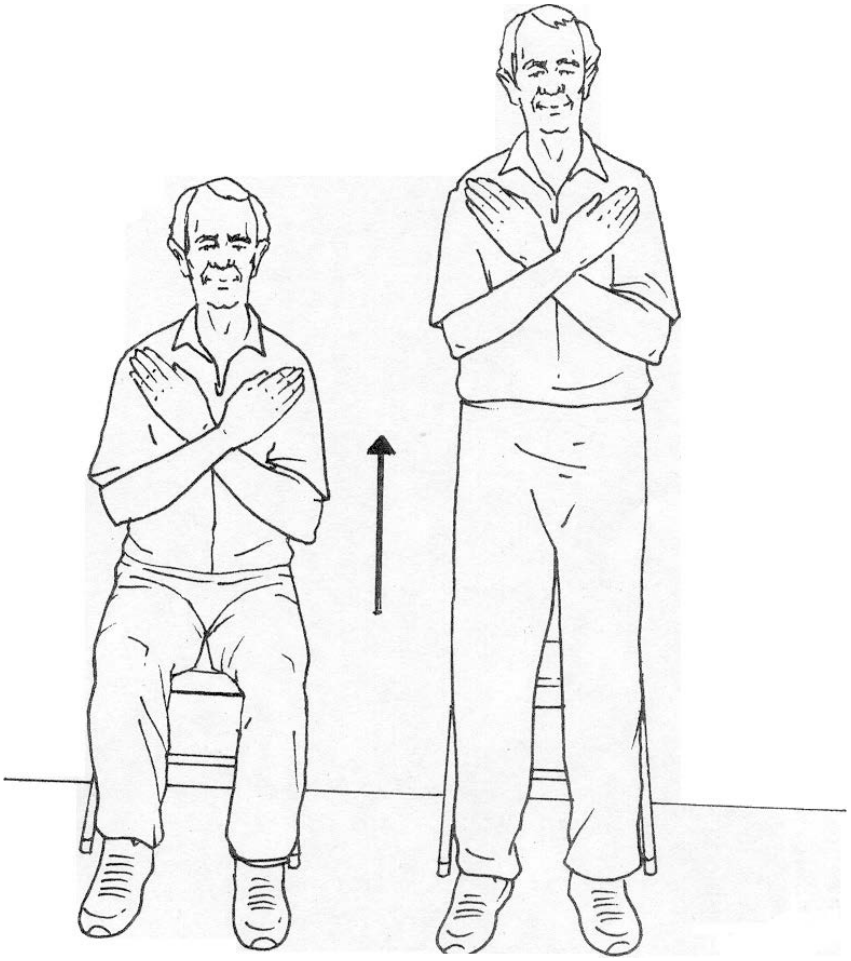
Brace the chair against the wall or have someone hold it steady.

Watch for balance problems. Stop the test immediately if the participant complains of pain.

Adaptations:

If participant can't perform even one stand without using his/her hands, allow him/her to push off his/her legs or the chair, or use a cane or walker. If an adaptation is needed, be sure to describe it on the scorecard. Although the recorded test score is zero for purposes of comparing to a normative standard, also indicate the adapted score so that personal performance can be evaluated from one test time to the next.

Chair Stand Test



Adapted from Rikli & Jones 1999. Reprinted, by permission, from R.E. Rikli & C.J. Jones, 2001, Senior Fitness Test Manual, (Champaign, IL: Human Kinetics), pages 61-74 and 125-131.

Arm Curl Test

Purpose:

To measure upper-body strength.

Equipment:

Stopwatch, straight-back or folding chair with no arms, 5-lb (2-kg) dumbbells.

Procedure:

Have the participant sit on a chair with back straight and feet flat on the floor, and with the dominant side of the body close to the edge of the seat. The weight is held down at the side, perpendicular to the floor, in the dominant hand with a handshake grip. From the down position, the weight is curled up with the palm gradually rotating to a facing-up position during flexion. The weight is then returned to the fully extend down position with the handshake grip. Demonstrate the test slowly to illustrate the form, then at a faster speed to illustrate the pace. Have the participant practice one or two repetitions without the weight to ensure proper form.

On the signal "go," the participant curls the weight through the full range of motion (from full extension to full flexion) as many times as possible in 30 seconds. The upper arm must remain still throughout the test. Bracing the elbow against the body helps stabilize the upper arm. Test only the dominant arm.

Scoring:

The score is the total number of arm curls executed in the 30 seconds. If the arm is more than halfway up at the end of 30 seconds, it counts as a curl. Administer only one trial.

Safety precautions:

Stop the test if the participant complains of pain.

Adaptations:

If a participant can't hold the hand weight because of some type of a health condition such as arthritis, a Velcro wrist weight can be used. If the weight is too heavy for the participant to complete even one repetition using the correct form, a lighter weight can be substituted. Record both the official test score (zero) and the adapted test score. Note the type of adaptation used to complete the test on the comment section of the scorecard.

Arm Curl Test

Adapted from Rikli & Jones 1999. Reprinted, by permission, from R.E. Rikli & C.J. Jones, 2001, Senior Fitness Test Manual, (Champaign, IL: Human Kinetics), pages 61-74 and 125-131.

2-Minute Step Test

Purpose:

To assess aerobic endurance (this test is an alternative to the 6-minute walk test).

Equipment:

Stopwatch, piece of string or cord about 30 in (76.2 cm) long, masking tape, and a tally counter to help count steps.

Set-up:

Begin by setting the minimum knee-stepping height for each participant, which is at a level even with the midway point between the kneecap and the front hip bone (iliac crest). It can be determined by using a tape measure or by simply stretching a piece of cord from the middle of the patella (kneecap) to the iliac crest, then folding it over and marking this point on the thigh with a piece of tape.

Monitoring step height:

You can monitor the correct knee height (stepping height) by moving the participant to the wall, a doorway, or next to a high-back chair and transferring the tape from the thigh to a spot at the same level on the wall or the chair. Step height also can be marked by stacking books on a nearby table.

Procedure:

On the signal "go," the participant begins stepping (not running) in place as many times as possible in the 2-minute period. Although both knees must be raised to the correct height, use your tally counter to count only the number of times the right

knee reaches the target. When the proper knee height cannot be maintained, ask the participant to slow down, or to stop until he/she can regain the proper form, but keep the time running.

Scoring:

The score is the number of full steps in 2 minutes; that is, the number of times the right knee reaches the proper height. Administer only one trial on test day. However, for maximal scoring accuracy, have participant practice the test (stepping in place for 2 minutes) on a day prior to the test.

Safety precautions:

Participants with balance problems should stand next to a wall, doorway, or chair (for support in case of lost balance) and should be spotted carefully. Monitor all participants closely for signs of overexertion. At the end of the test, ask participants to continue walking slowly for a minute to cool down.

Adaptations:

If participants are unable to lift their knees to the proper height or can lift only one to the proper height, allow them to complete the test but indicate the change on the scorecard. If participants are unstable, they can hold onto a table, wall, or chair to complete the test. Note the type of adaptation used to complete the test on the comment section of the scorecard.

2-Minute Step Test

Adapted from Rikli & Jones 1999. Reprinted, by permission, from R.E. Rikli & C.J. Jones, 2001, Senior Fitness Test Manual, (Champaign, IL: Human Kinetics), pages 61-74 and 125-131.

Chair Sit-and-Reach Test

Purpose:

To assess lower body (primarily hamstring) flexibility.

Equipment:

Folding chair with a seat height of 17 in (43.18 cm) and with legs that angle forward to prevent tipping, and an 18-in (45.72-cm) ruler (half a yardstick).

Procedure:

The participant sits on the edge of the chair as shown. The crease between the top of the leg and the buttocks should be even with the front edge of the chair seat. One leg is bent with the foot flat on the floor. The other leg is extended as straight as possible in front of the hip. The heel is placed on the floor, with the foot flexed at approximately 90 degrees.

With arms outstretched, hands overlapping, and middle fingers even, the participant slowly bends forward at the hip joint, reaching as far forward as possible toward or past the toes. If the extended knee starts to bend, ask the participant to move slowly back until the knee is straight. The maximum reach must be held for two seconds.

The participant should practice the test on both legs to see which is preferred (the one resulting in the better score). Only the preferred leg is used for scoring purposes (for comparison to norms). Once the preferred leg is determined, have the participant practice a couple more times for warm-up.

Scoring:

After the participant has had two practice trials on the preferred leg, administer two tests, record both scores, then circle the better one. Measure the distance from the tips of the middle fingers to the top of the shoe to the nearest half-inch (centimeter). The midpoint at the top of the shoe represents the zero point. If the reach is short of this point, record the distance as a minus (-) score; if the middle fingers touch the toes, record a score of zero; and if the reach is past the midpoint of the toes, record the distance as a plus (+) score.

Safety precautions:

Place the chair securely against a wall so it doesn't slip during testing. Remind participants to exhale as they slowly bend forward and to avoid bouncing. Participants should stretch only to the point of slight discomfort, never to the point of pain. Do not administer the test to people with severe osteoporosis or to those who have pain when flexing forward.

Chair Sit-and-Reach Test

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Back Scratch Test

Purpose:

To assess upper-body (shoulder) flexibility.

Equipment:

18-in (45.72-cm) ruler.

Procedure:

Have the participant stand and place his/her preferred hand over the same shoulder, palm down and fingers extended, reaching down the middle of the back as far as possible. Note that the elbow is pointed up. Ask the participant to place the other arm around the back of the waist with the palm up, reaching up the middle of the back as far as possible in an attempt to touch or overlap the extended middle fingers of both hands. The participant should practice the test to determine his/her preferred position (the hand over the shoulder that produces the best score). Two practice trials are given before scoring the best test.

Check to see if the middle fingers are directed toward each other as best as possible. Without moving the participant's hands, direct the middle fingers to the best alignment. Do not allow participants to grab their fingers together and pull.

Scoring:

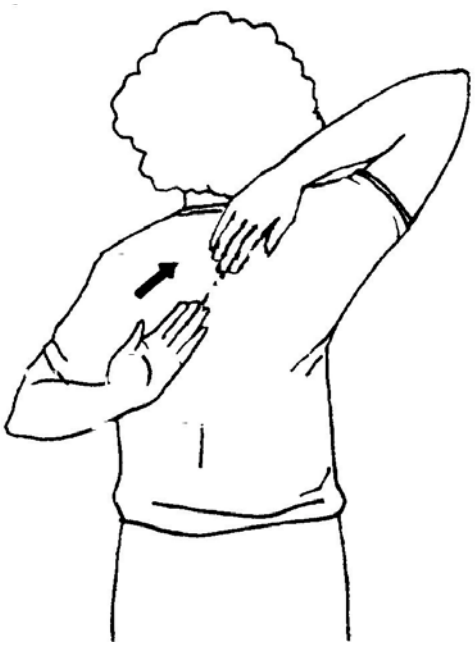
After giving the participant two warm-up practice trials in the preferred position, administer two test trials. Record both scores to the nearest half inch (centimeter), measuring the distance of overlap or distance between the tips of the middle fingers, then circle the best score. Give a minus (-) score if the middle fingers do not touch, a zero score if the middle fingers just barely touch, and a plus (+) score

if the middle fingers overlap. Always measure the distance from the tip of one middle finger to the tip of the other, regardless of their alignment behind the back.

Safety precautions:

Stop the test if the participant experiences pain. Remind participants to continue breathing as they stretch and to avoid any bouncing or rapid movements.

Back Scratch Test



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8-Foot Up-and-Go Test

Purpose:

To assess agility and dynamic balance.

Equipment:

Stopwatch, folding chair with 17-in (43.18-cm) seat height, tape measure, and cone.

Setup:

Place chair against the wall facing a cone marker exactly 8 feet (2.44 meters) away, measured from the back of the cone to a point on the floor even with the front edge of the chair.

Procedure:

Instruct the participant to sit in the middle of the chair with back straight, feet flat on the floor, and hands on the thighs. One foot should be slightly in front of the other foot, with torso slightly leaning forward. On the signal "go," the participant gets up from the chair, walks as quickly as possible around either side of the cone, and sits back down in the chair. Be sure to start the timer on the signal "go" whether or not the participant has started to move and stop the timer at the exact instant the person sits back down on the chair.

Scoring:

After you have demonstrated the proper form and desired pace, have the participant practice the test once and then administer two test trials. Record both times to the nearest tenth of a second, then circle the fastest time.

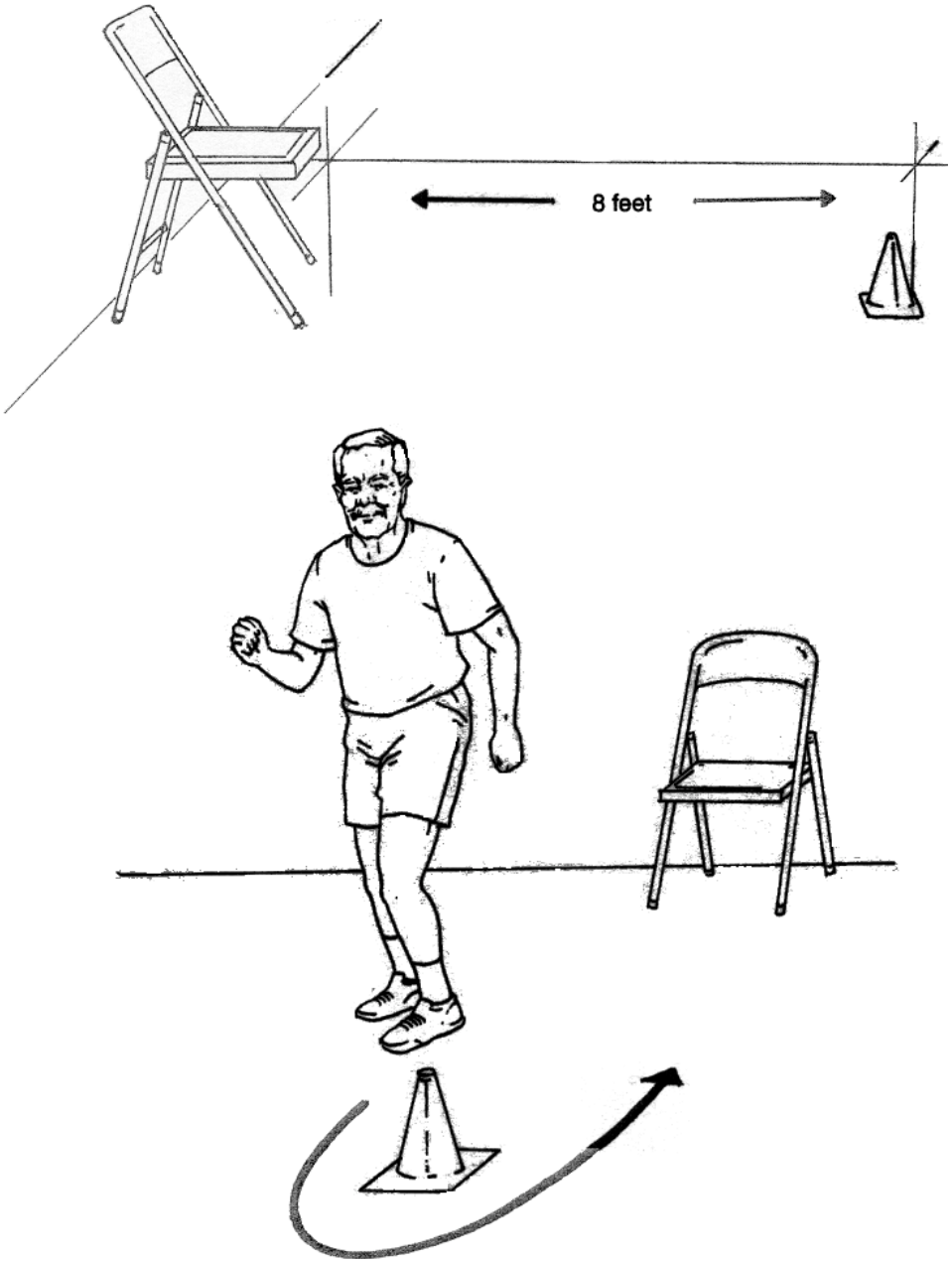
Safety precautions:

When administering the 8-foot up-and-go test, stand between the chair and cone in order to assist the participant in case he/she loses his/her balance. With a more frail person, watch that he/she stands up and sits down slowly.

Adaptations:

If needed, a cane or walker can be used for this test, but the scores should not be compared to the norms. Note on the comment section of the scorecard the type of adaptation used.

8-Foot Up-and-Go Test



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6-Minute Walk Test (to be completed if 2-min step test is not used)

Purpose: To assess aerobic endurance.

Equipment:

Long measuring tape, two stopwatches, four cones (or similar markers), masking tape, magic marker, 12 to 15 Popsicle sticks per person (or index cards and pencils to keep track of laps walked), chairs for waiting partners and for walkers who need to rest, and name tags.

Setup:

Mark off in 5-yard segments a flat, 50-yard rectangle (20 yards by 5 yards). The inside corners of the measured distance should be marked with cones, and the 5-yard lines marked with masking tape or chalk. (In metric units, this is a 45.7-meter course marked off in 4.57-meter segments).

Procedure:

If the 6-minute walk test is selected as the aerobic endurance test, it should be administered after all other tests are completed.

Two or more participants should be tested at a time to standardize motivation. A skilled instructor can test up to 12 people at once, using partners to assist with scoring, but 6 at a time is more manageable. Starting (and stopping) times are staggered 10 seconds apart to encourage participants to walk at their own pace and not in clusters or pairs. Numbers (using name tags) are placed on participants to indicate the order for starting and stopping. On the signal "go" the participant begins walking as fast as possible (not running) around the course covering as much distance as possible in the 6-minute time limit. We recommend using two stop watches to time the test, just in case one stops working. To keep

track of the distance walked, partners give Popsicle sticks (or similar objects) to participants each time they complete a lap. Or partners can mark a scorecard each time a lap is completed, using the "picket fence" system.

The timer should move to the inside of the marked area after everyone has started. To assist with pacing, the remaining time should be called out when walkers are about half done, and when about 2 minutes are left. Participants can stop and rest on the chairs provided, but the time keeps running. The tester should encourage participants a few times by saying, "you're doing well" and "keep up the good work." When a participant's 6 minutes has elapsed, the tester asks him/her to stop, move to the right (across from the nearest 5-yard marker), and slowly step in place for a minute to cool down.

Scoring:

Record the scores when all the walkers have been stopped. Each Popsicle stick (or mark on a card) represents 50 yards. For example, if a person has 8 sticks (representing 8 laps) and was stopped next to the 45-yard marker, the score would be a total of 445 yards. Administer only one trial on test day. However, for improved pacing and maximum scoring accuracy, have participants practice a 6-minute walk on a day prior to the test day.

Safety precautions:

Select a well-lit walking area with a level, nonskid surface. Position chairs at several points along the outside of the walking area. Discontinue the test for any participant who shows signs of overexertion.

Sample scorecard

Scorecard: Senior Fitness Test™
Date_____
Name_____ Age _____ Ht_____Wt_____

Test item	Trial 1	Trial 2	Comments:
1. Chair Stand Test (# in 30 secs)	_____	_____	
2. Arm Curl Test (# in 30 secs)	_____	_____	
3. 2-Minute Step Test* (# of steps)	_____	_____	
4. Chair Sit-and-Reach Test (nearest 1/2 in. +/-)	_____	_____	(L or R leg)
5. Back Scratch Test (nearest 1/2 in. +/-)	_____	_____	(L or R hand up)
6. 8-Foot Up-and-Go Test (nearest 1/2 in. +/-)	_____	_____	
6-Minute Walk Test (# of yards)	_____	_____	

* omit 2-minute step test if 6-minute test is used.

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Normal Values for Participant Assessment

Chair Stand Test (Women)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	21	19	19	19	18	17	16
90	20	18	18	17	17	15	15
85	19	17	17	16	16	14	13
80	18	16	16	16	15	14	12
75	17	16	15	15	14	13	11
70	17	15	15	14	13	12	11
65	16	15	14	14	13	12	10
60	16	14	14	13	12	11	9
55	15	14	13	13	12	11	9
50	15	14	13	12	11	10	8
45	14	13	12	12	11	10	7
40	14	13	12	12	10	9	7
35	13	12	11	11	10	9	6
30	12	12	11	11	9	8	5
25	12	11	10	10	9	8	4
20	11	11	10	9	8	7	4
15	10	10	9	9	7	6	3
10	9	9	8	8	6	5	1
5	8	8	7	6	4	4	0

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Chair Stand Test (Men)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	23	23	21	21	19	19	16
90	22	21	20	20	17	17	15
85	21	20	19	18	16	16	14
80	20	19	18	18	16	15	13
75	19	18	17	17	15	14	12
70	19	18	17	16	14	13	12
65	18	17	16	16	14	13	11
60	17	16	16	15	13	12	11
55	17	16	15	15	13	12	10
50	16	15	14	14	12	11	10
45	16	15	14	13	12	11	9
40	15	14	13	13	11	10	9
35	15	13	13	12	11	9	8
30	14	13	12	12	10	9	8
25	14	12	12	11	10	8	7
20	13	11	11	10	9	7	7
15	12	11	10	10	8	6	6
10	11	9	9	8	7	5	5
5	9	8	8	7	6	4	3

Adapted from Rikli & Jones 1999. Reprinted, by permission, from R.E. Rikli & C.J. Jones, 2013, Senior Fitness Test Manual, (Champaign, IL: Human Kinetics), pages 154.

Arm Curl Test (Women)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	24	22	22	21	20	18	17
90	22	21	20	20	18	17	16
85	21	20	19	19	17	16	15
80	20	19	18	18	16	15	14
75	19	18	17	17	16	15	13
70	18	17	17	16	15	14	13
65	18	17	16	16	15	14	12
60	17	16	16	15	14	13	12
55	17	16	15	15	14	13	11
50	16	15	14	14	13	12	11
45	16	15	14	13	12	12	10
40	15	14	13	13	12	11	10
35	14	14	13	12	11	11	9
30	14	13	12	12	11	10	9
25	13	12	12	11	10	10	8
20	12	12	11	10	10	9	8
15	11	11	10	9	9	8	7
10	10	10	9	8	8	7	6
5	9	8	8	7	6	6	5

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Arm Curl Test (Men)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	27	27	26	24	23	21	18
90	25	25	24	22	22	19	16
85	24	24	23	21	20	18	16
80	23	23	22	20	20	17	15
75	22	21	21	19	19	17	14
70	21	21	20	19	18	16	14
65	21	20	19	18	18	15	13
60	20	20	19	17	17	15	13
55	20	19	18	17	17	14	12
50	19	18	17	16	16	14	12
45	18	18	17	16	15	13	12
40	18	17	16	15	15	13	11
35	17	16	15	14	14	12	11
30	17	16	15	14	14	11	10
25	16	15	14	13	13	11	10
20	15	14	13	12	12	10	9
15	14	13	12	11	2	9	8
10	13	12	11	10	10	8	8
5	11	10	9	9	9	7	6

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2-Minute Step Test (Women)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	130	133	125	123	113	106	92
90	122	123	116	115	104	98	85
85	116	117	110	109	99	93	80
80	111	112	105	104	94	88	76
75	107	107	101	100	90	85	72
70	103	104	97	96	87	81	69
65	100	100	94	93	84	79	66
60	97	96	90	90	81	76	63
55	94	93	87	87	78	73	61
50	91	90	84	84	75	70	58
45	88	87	81	81	72	67	55
40	85	84	78	78	69	64	53
35	82	80	74	75	66	61	50
30	79	76	71	72	63	59	47
25	75	73	68	68	60	55	44
20	71	68	63	64	56	52	40
15	66	63	58	59	51	47	36
10	60	57	52	53	46	42	31
5	52	47	43	45	37	39	24

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2-Minute Step Test (Men)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	135	139	133	135	126	114	112
90	128	130	124	126	118	106	102
85	123	125	119	119	112	100	96
80	119	120	114	114	107	95	91
75	115	116	110	109	103	91	86
70	112	113	107	105	99	87	83
65	109	110	104	102	96	84	79
60	106	107	101	98	93	81	76
55	104	104	98	95	90	78	72
50	101	101	95	91	87	75	69
45	98	98	92	87	84	72	66
40	96	95	89	84	81	69	62
35	93	92	86	80	78	66	59
30	90	89	83	77	75	63	55
25	87	86	80	73	71	59	52
20	83	82	76	68	67	55	47
15	79	77	71	63	62	50	42
10	74	72	66	56	56	44	36
5	67	67	67	47	48	36	26

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Chair Sit-and-Reach Test (Women)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	8.7	7.9	7.5	7.4	6.6	6.0	4.9
90	7.2	6.6	6.1	6.1	5.2	4.6	3.4
85	6.3	5.7	5.2	5.2	4.3	3.7	2.5
80	5.5	5.0	4.5	4.4	3.6	3.0	1.7
75	4.8	4.4	3.9	3.7	3.0	2.4	1.0
70	4.2	3.9	3.3	3.2	2.4	1.8	0.4
65	3.7	3.4	2.8	2.7	1.9	1.3	-0.1
60	3.1	2.9	2.3	2.1	1.4	0.8	-0.7
55	2.6	2.5	1.9	1.7	1.0	0.4	-1.2
50	2.1	2.0	1.4	1.2	0.5	-0.1	-1.7
45	1.6	1.5	0.9	0.7	0.0	-0.6	-2.2
40	1.1	1.1	0.5	0.2	-0.4	-1.0	-2.7
35	0.5	0.6	0.0	-0.3	-0.9	-1.5	-3.3
30	0.0	0.1	-0.5	-0.8	-1.4	-2.0	-3.8
25	-0.6	-0.4	-1.1	-1.3	-2.0	-2.6	-4.4
20	-1.3	-1.0	-1.7	-2.0	-2.6	-3.2	-5.1
15	-2.1	-1.7	-2.4	-2.8	-3.3	-3.9	-5.9
10	-3.0	-2.6	-3.3	-3.7	-4.2	-4.8	-6.8
5	-4.0	-3.9	-4.7	-5.0	-5.0	-6.3	-7.9

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Chair Sit-and-Reach Test (Men)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	8.5	7.9	7.5	6.6	6.2	4.5	3.5
90	6.7	5.9	5.8	4.9	4.4	3.0	1.9
85	5.6	4.8	4.7	3.8	3.2	2.0	0.9
80	4.6	3.9	3.8	2.8	2.2	1.1	0.0
75	3.8	3.1	3.0	2.0	1.4	0.4	-0.7
70	3.1	2.4	2.4	1.3	0.6	-0.2	-1.4
65	2.5	1.8	1.8	0.7	0.0	-0.8	-1.9
60	1.8	1.1	1.1	0.1	-0.8	-1.3	-2.5
55	1.2	0.6	0.6	-0.5	-1.4	-1.9	-3.0
50	0.6	0.0	0.0	-1.1	-2.0	-2.4	-3.6
45	0.0	-0.6	-0.6	-1.7	-2.6	-2.9	-4.2
40	-0.6	-1.1	-1.2	-2.3	-3.2	-3.5	-4.7
35	-1.3	-1.8	-1.8	-2.9	-4.0	-4.0	-5.3
30	-1.9	-2.4	-2.4	-3.5	-4.6	-4.6	-5.8
25	-2.6	-3.1	-3.1	-4.2	-5.3	-5.2	-6.5
20	-3.4	-3.9	-3.9	-5.0	-6.2	-5.9	-7.2
15	-4.4	-4.8	-4.8	-6.0	-7.2	-6.8	-8.1
10	-5.5	-5.9	-5.9	-701	-8.4	-7.8	-9.1
5	-7.3	-7.5	-7.6	-8.8	-10.2	-9.3	-10.7

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Back Scratch Test (Women)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	5.0	4.9	4.5	4.5	4.3	3.5	3.9
90	3.8	3.5	3.2	3.1	2.8	1.9	2.2
85	2.9	2.6	2.3	2.2	1.8	0.8	0.9
80	2.2	1.9	1.5	1.3	0.9	-0.1	-0.1
75	1.6	1.3	0.8	0.6	0.2	-0.9	-1.0
70	1.1	0.7	0.3	0.0	-0.4	-1.6	-1.8
65	0.7	0.2	-0.2	-0.5	-1.0	-2.1	-2.5
60	0.2	-0.3	-0.8	-1.1	-1.6	-2.8	-3.2
55	-0.2	-0.7	-1.2	-1.6	-2.1	-3.3	-3.8
50	-0.7	-1.2	-1.7	-2.1	-2.6	-3.9	-4.5
45	-1.2	-1.7	-2.2	-2.6	-3.1	-4.5	-5.2
40	-1.6	-2.1	-2.6	-3.1	-3.7	-5.0	-5.8
35	-2.1	-2.6	-3.2	-3.7	-4.2	-5.7	-6.5
30	-2.5	-3.1	-3.7	-4.2	-4.8	-6.2	-7.2
25	-3.0	-3.7	-4.2	-4.8	-5.4	-6.9	-8.0
20	-3.6	-4.3	-4.9	-5.5	-6.1	-7.7	-8.9
15	-4.3	-5.0	-5.7	-6.4	-7.0	-8.6	-9.9
10	-5.2	-5.9	-6.6	-7.3	-8.0	-9.7	-11.2
5	-6.4	-7.3	-7.9	-8.8	-9.5	-11.3	-13.0

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Back Scratch Test (Men)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	4.5	3.9	3.5	2.8	3.2	1.7	.7
90	2.7	2.2	1.8	0.9	1.2	-0.1	-1.1
85	1.6	1.0	0.6	-0.3	-0.1	-1.2	-2.2
80	0.6	0.0	-0.4	-1.3	-1.2	-2.2	-3.2
75	-0.2	-0.8	-1.2	-2.2	-2.1	-3.0	-4.0
70	-0.9	-1.6	-2.0	-2.9	-2.9	-3.7	-4.7
65	-1.5	-2.2	-2.6	-3.6	-3.6	-4.3	-5.3
60	-2.2	-2.9	-3.3	-4.3	-4.3	-5.0	-6.0
55	-2.8	-3.5	-3.9	-4.9	-5.0	-5.6	-6.6
50	-3.4	-4.1	-4.5	-5.6	-5.7	-6.2	-702
45	-4.0	-4.7	-5.1	-6.3	-6.4	-6.8	-7.8
40	-4.6	-5.3	-5.7	-6.9	-7.1	-7.4	-8.4
35	-5.3	-6.0	-6.4	-7.6	-7.8	-8.1	-9.1
30	-5.9	-6.6	-7.0	-8.3	-8.5	-8.7	-9.7
25	-6.6	-7.4	-7.8	-9.0	-9.3	-9.4	-10.4
20	-7.4	-8.2	-8.6	-9.9	-10.2	-10.2	-11.2
15	-8.4	-9.2	-9.6	-10.9	-11.3	-11.2	-12.2
10	-9.5	-10.4	-10.8	-12.1	-12.6	-12.3	-13.3
5	-11.3	-12.1	-12.5	-14.0	-14.6	-14.1	-15.1

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8-Foot Up-and-Go Test (Women)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	3.2	3.6	3.8	4.0	4.0	4.5	5.0
90	3.7	4.1	4.0	4.3	4.4	4.7	5.3
85	4.0	4.4	4.3	4.6	4.9	5.3	6.1
80	4.2	4.6	4.7	5.0	5.4	5.8	6.7
75	4.4	4.8	4.9	5.2	5.7	6.2	7.3
70	4.6	5.0	5.2	5.5	6.1	6.6	7.7
65	4.7	5.1	5.4	5.7	6.3	6.9	8.2
60	4.9	5.3	5.6	5.9	6.7	7.3	8.6
55	5.0	5.4	5.8	6.1	6.9	7.6	9.0
50	5.2	5.6	6.0	6.3	7.2	7.9	9.4
45	5.4	5.8	6.2	6.5	7.5	8.2	9.8
40	5.5	5.9	6.4	6.7	7.8	8.5	10.2
35	5.7	6.1	6.6	6.7	8.1	8.9	10.6
30	5.8	6.2	6.8	7.1	8.3	9.2	11.1
25	6.0	6.4	7.1	7.4	8.7	9.6	11.5
20	6.2	6.6	7.3	7.6	9.0	10.0	12.1
15	6.4	6.8	7.7	8.0	9.5	10.5	12.7
10	6.7	7.1	8.0	8.3	10.0	11.1	13.5
5	7.2	7.6	8.6	8.9	10.8	12.0	14.6

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8-Foot Up-and-Go Test (Men)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	3.0	3.6	3.8	3.3	4.0	4.0	4.3
90	3.0	3.6	3.6	3.5	4.1	4.3	4.5
85	3.3	3.9	3.9	3.9	4.5	4.5	5.1
80	3.6	4.1	4.2	4.3	4.9	5.0	5.7
75	3.8	4.3	4.4	4.6	5.2	5.5	6.2
70	4.0	4.5	4.6	4.9	5.5	5.8	6.6
65	4.2	4.6	4.8	5.2	5.7	6.2	7.0
60	4.4	4.8	5.0	5.4	6.0	6.5	7.4
55	4.5	4.9	5.1	5.7	6.2	6.9	7.7
50	4.7	5.1	5.3	5.9	6.4	7.2	8.1
45	4.9	5.3	5.5	6.1	6.6	7.5	8.5
40	5.0	5.4	5.6	6.4	6.9	7.9	8.8
35	5.2	5.6	5.8	6.6	7.1	8.2	9.2
30	5.4	5.7	6.0	6.9	7.3	8.6	9.6
25	5.6	5.9	6.2	7.2	7.6	8.9	10.0
20	5.8	6.1	6.4	7.5	7.9	9.4	10.5
15	6.1	6.3	6.7	7.9	8.3	9.9	11.1
10	6.4	6.6	7.0	8.3	8.7	10.5	11.8
5	6.8	7.1	7.4	9.0	9.4	11.5	12.9

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6-Minute Walk Test (Women)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	741	734	709	696	654	638	564
90	711	697	673	655	612	591	518
85	690	673	650	628	584	560	488
80	674	653	630	605	560	534	463
75	659	636	614	585	540	512	441
70	647	621	599	568	523	493	423
65	636	607	586	553	508	476	406
60	624	593	572	538	491	458	388
55	614	581	561	524	477	443	373
50	603	568	548	509	462	426	357
45	592	555	535	494	447	409	341
40	582	543	524	480	433	394	326
35	570	529	510	465	416	376	308
30	559	515	497	450	401	359	291
25	547	500	482	433	384	340	273
20	532	483	466	413	364	318	251
15	516	463	446	390	340	292	226
10	495	439	423	363	312	261	196
5	465	402	387	322	270	214	150

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6-Minute Walk Test (Men)

Percentile rank	60-64	65-69	70-74	75-79	80-84	85-89	90-94
95	825	800	779	762	721	710	646
90	792	763	743	716	678	659	592
85	770	738	718	686	649	625	557
80	751	718	698	661	625	596	527
75	736	700	680	639	604	572	502
70	722	685	665	621	586	551	480
65	710	671	652	604	571	532	461
60	697	657	638	586	554	512	440
55	686	644	625	571	540	495	422
50	674	631	612	555	524	477	403
45	662	618	599	539	508	459	384
40	651	605	586	524	494	442	366
35	638	591	572	506	477	422	345
30	626	577	559	489	462	403	326
25	612	562	544	471	444	382	304
20	597	544	526	449	423	358	279
15	578	524	506	424	399	329	249
10	556	499	481	394	370	295	214
5	523	462	445	348	327	244	160

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Chapter 6: Leadership: how to maximize your skills to become the best leader possible

Part A You're already a leader – why should you read this chapter?

Whether you are relatively inexperienced or extremely experienced as a trainer or a leader for an entire group of older adults, we at Growing Stronger believe there are always skills to improve upon, even for the best of leaders. We recommend that you at least skim this chapter, as there are a number of approaches to improving leadership skills and group dynamics that we feel may benefit your Growing Stronger Program. Some of the ways of enhancing skills may seem obvious; others may be new to you.

Part B Personal skills that enhance leadership

Sometimes we encounter people who seem more like dictators than leaders. The individuals under their direction may only perform well enough to avoid criticism. We're confident that as a Growing Stronger Program Leader, your goal is not to command but to help lead and inspire people. We're sure that you have good inter-personal skills and probably have proven yourself to be a good leader in the past. However, the learning process is never over, and we ask that you review the following skills to help you become the most successful leader possible.

Part C Professionalism

One of the most diverse skills of a good Growing Stronger Program Leader is professionalism. Professionalism means taking the job seriously and presenting yourself in a manner that defines your role as a leader respected by the group.

1. Stick to conversational topics appropriate for the class; avoid talking about personal matters; recognize when participants bring up inappropriate topics.
2. Gain knowledge about exercise and nutrition outside of class through reading or talking to professionals, and stay up to date with recent developments in these fields.
3. Do not diagnose medical conditions or problems. Always advise participants to see a doctor if they have any concerns about their health.
4. Do not advocate fad diets or programs. Many times these diets can be unhealthy, and they are not based upon legitimate research. Every participant should always consult his/her doctor before starting a diet that in any way restricts nutrient intake in order to avoid complications or long-term problems.

Part D Courtesy and respect

To run a professional program, the leader should ensure that the group maintains a level of courtesy and respect its members. The following suggestions for displaying courtesy and respect should make you a more effective class leader.

Enthusiasm

As the Program Leader, you should have a strong understanding of health, fitness, nutrition, and exercise technique, and you should be excited about running several classes per week. It is also important that instructors are comfortable with the population they will be training - older adults.

Organization and punctuality

Growing Stronger Program Leaders must be organized and punctual. Ideally, Leaders will have a proven track record of both good organizational skills as well as punctuality.

Dress

As the Program Leader of a strength-training program, please be sure to dress appropriately, and gently encourage others to do the same.

DO WEAR

- ❖ Modest clothing that will not distract from the task at hand or offend anyone. Cotton or synthetic, breathable attire is best.
- ❖ Appropriate clothes for the temperature of the room. Layers are always a good idea if you're not sure, or if you tend to warm up during exercise.
- ❖ A good pair of athletic shoes.
- ❖ A hair-tie if you have long hair to keep it from hanging in your face.

DON'T WEAR

- ❖ Excessive makeup. Makeup can have a tendency to run if you sweat or exercise, and you want to retain a professional demeanor, demonstrating that you are there to exercise.

Smile ☺

It's amazing how simple it seems, but psychologists have proven that people are more likely to listen to, and enjoy being around, those who smile at them. Greet participants as they enter the room with a smile, smile when you can during

the exercises (but don't force it), smile when it's over – GENUINE smiles make people happy, and happy people means healthy people!

Learn names…and more

Knowing a person's name is a good preliminary way to make him/her feel important and to show that you really care. *Fine*, you say, *but what if I'm just really bad with names?* Here are some suggestions for learning names:

- Ask the participants for a current photo when they register, and practice learning their names at home.
- Have them wear nametags the first class, but be careful not to become dependent on the nametag.
- Do an "ice-breaker" the first class, and have everyone go around the room, say their name and something interesting about themselves. Try to associate their facts about themselves with their names – even if you can only remember half, that's a start.
- When someone introduces him/herself to you, repeat his/her name back to him/her as you introduce yourself. (Ex. Molly approaches you and says, "Hi, I'm Molly." You reply, "Hi Molly, I'm Caroline.") Sometimes just saying his/her name that first time will help it stick in your memory.
- The best way to learn someone's name is the "natural" way – by really getting to know that person. Make an effort to ask each of the participants about themselves, particularly about their health and progress. At the same time, be aware of each person's comfort level for personal questions. Be sure not to probe deeper than is appropriate.

Part E Communication

An important group dynamic to foster is that of open, productive communication. When the class is first beginning, ask the participants who have registered how much time and energy they are willing (or expect) to give to the group and the training sessions. Ask them how many times a week they actually plan on coming; perhaps even having them write down their expectations and their goals, either for personal use or for you as the trainer. To know what to expect is a good idea. After they have committed to come a certain number of times a week, even if it is purely a commitment with themselves, they will be more inclined to stick with that goal.

Another important aspect of communication is for you as the Program Leader to ask for the participants' opinions and suggestions about making the program more useful for them. Offer plenty of opportunities for group members to have their voices heard. Listen and take each suggestion to heart; make changes when you can, and if you feel you can't, try to explain why (if it might jeopardize the well- being of the group, or you are very uncomfortable changing a certain aspect of the program). Take time to reflect on suggestions that seem out of the question when someone first voices them; most people have a reflex that makes them not want to accept other people's ideas that contradict their own thoughts. Reflecting overnight on something with an open mind may allow you to see positive aspects of a suggestion that you might not have seen before.

How to handle the "difficult" participant or situation

The suggestions so far have been geared toward your regular interactions with the participants in the program. However, it seems that in every program problems arise that challenge our leadership skills. There may be a particularly

"difficult" participant; someone who talks constantly, interrupts as you teach the class, protests the activities, or someone with whom you just have trouble getting along.

The worst-case scenario would be for one person to spoil the class for everyone involved, and as the instructor, you should try to prevent this from happening. Try to use the power you have as a strong leader to hear everyone's voice and encourage everyone to be an active participant in the program. Here are a few suggestions for handling a problem presented by one participant that could damage the effectiveness of the program.

- The first step is simply in remembering to **stay on task**. Try not to get caught up in difficult situations; just move on if possible.
    - If necessary, remind others to stay on task. No one wants to waste time. Hopefully this reminder with be enough to help the group move on.
    - Practice **REDIRECTING** the comment. Redirecting is a technique that allows you to acknowledge what the participant has said and then swiftly move on. Examples would include:
        i. If someone brings up something inappropriate out of the blue: "Well, that's interesting, but let's not any of us talk right now because we're exercising."
        ii. If someone directs a negative comment toward someone else in the class: "Nathalie, I know you're trying to help Sarah, but let's all remember we've decided to only make positive comments to each other." OR "I know you're trying to help Sarah, but why don't we let me be the one to make those

comments?" OR "Remember everyone, right now we're doing stretches."

- If #1 doesn't work, try **changing the subject** in a gentle way.
- If someone is talking about something that is simply inappropriate for the class setting and she doesn't respond to #1 or 2, **tell him/her the comment or subject matter is inappropriate for the class**.
- Have a **private meeting** with the individual.
  - If it seems appropriate, ask him/her what you could do that would make the program more acceptable to him/her. Take his/her advice if it seems feasible, as long as it doesn't decrease the value of the program for the other participants. Explain to him/her in a controlled manner what you perceive to be the problem (is he/she disrupting the class, not participating at all, etc.?) and then suggest ways to go about dealing with the problem.

Part F Identify your leadership style

The first step towards becoming a stronger leader is by understanding your leadership style. The "Leadership Compass" on the next two pages identifies the four major leadership styles. Read the descriptions of each "direction" and select the one that corresponds the most to your personality. Try to select one direction, but if you are truly split between two, you may call yourself a "North-West" or a "South-East," for example.

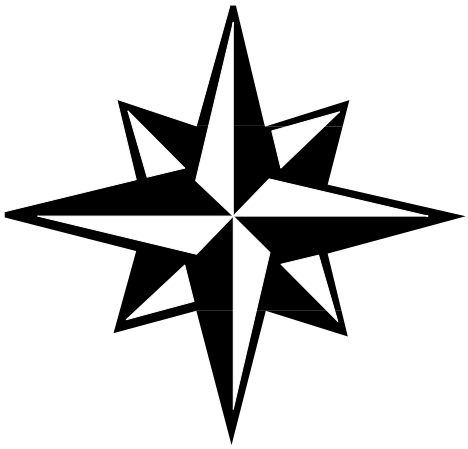
Next, look at the third sheet and read the challenges for that leadership style. Some people find it easier to identify their challenges than their strengths; if you hadn't been able to clearly identify a leadership style before this point, the downfalls or challenges will help you. Reflect on your strengths and weaknesses, as identified by the Leadership Compass. In some cases, simply understanding your leadership style will help when you're faced with difficult situations. For instance, when making decisions or directing others, be aware that if you are a North, you tend to want to make instant decisions (which could sacrifice peoples' feelings); comparatively, if you are a South, you may sacrifice efficiency to avoid feelings being hurt. Once you have identified your leadership style, you can work to maximize the benefits and minimize the weaknesses of your style, while being aware of your compatibility with others.

Leadership Compass

The Leadership Compass helps us to assess and understand our personal style of leadership. Most times, the Compass is used by groups who need to work on projects *together* to accomplish specific goals. The Compass helps them become aware of their similarities and differences, as well as what they need to change to be able to work more effectively with each other. In the case of the Growing Stronger Program, we believe that the Compass can help an individual become a better leader by allowing him/her to look at his/her natural preferences when leading a group, giving orders or suggestions, or listening to feedback and advice. Realizing how you interact with others according to your *style*, or "direction" on the compass, may enable you to think of ways to be a more effective leader, by capitalizing on your strengths and improving your weaknesses.

NORTH
Do you make decisions quickly and like being in control?

WEST
Are you a practical, careful planner?



EAST
Are you a visionary, always coming up with new ideas?

SOUTH
Are you empathetic, supportive, and nurturing?

Understanding Leadership Styles

EAST	**SOUTH**
Visionary who sees the big picture • very ideas oriented, focus on future thought • insight into mission and purpose • looks for overarching themes, ideas • likes to experiment, explore • strong spiritual awareness – attuned to "higher level" • appreciates a lot of information • persuasive • energetic, brainstormer • likes newness • turns resources into new ideas/products • **Values the words "option" and "possibility"**	*Allows others to feel important in determining direction of what's happening* • value driven regarding aspects of professional life • uses professional relationships to accomplish tasks, interaction is primary • empathetic, supportive, nurturing to colleagues and peers • willingness to trust others' statements at face value • feeling-based, trusts own emotions and intuition; intuition regarded as "truth" • team-player, receptive to other's ideas, builds on ideas of others, noncompetitive • able to focus on present moment • **Values the words "right" and "fair"**
WEST	**NORTH**
Seen as practical, dependable, and thorough in task situations • helpful to others by providing planning and resources • moves carefully and follows procedures and guidelines • uses data analysis and logic to make decisions • weighs all sides of an issue, is balanced • introspective, self-analytical • careful, thoroughly examines people's needs in situations • works well with existing resources – gets the most out of what has been in the past • skilled at finding fatal flaws in an idea or project • **Values the words "details" and "objective"**	*Assertive, active, decisive* • likes to be in control of professional relationships and determine course of events • quick to act, expresses sense of urgency for others to act now • enjoys challenges presented by difficult situations and people • thinks in terms of "bottom line" • likes quick pace and fast track • courageous • perseveres, not stopped by hearing "NO," probes and presses to get at hidden resistances • likes variety, novelty, new projects • comfortable being in front • **Values action-oriented phrases such as "do it now!" "I'll do it!" and "what's the bottom line?"**

Potential Pitfalls

You may face these "pitfalls," or personal challenges when teaching the Growing Stronger Program. Pick out those you believe you may face while teaching a Growing Stronger class, and try to be aware of them.

EAST	SOUTH
• can be bogged down by lack of vision or too much emphasis on vision • can lose focus on tasks • poor follow-through on projects • may become easily overwhelmed • not time-bound, may lose track of time • tends to be highly enthusiastic early on, then burnout over the long haul • can develop a reputation for lack of dependability	• can be bogged down if she believes relationships and needs of people are being compromised • has trouble saying no • internalizes difficulty and assumes blame • prone to disappointment when relationship is seen as secondary to task • difficulty confronting and dealing with anger, may be manipulated by anger • easily taken advantage of • immersed in present, loses track of time • may not see long-range view
WEST	**NORTH**
• can be bogged down by information, analysis paralysis • can become stubborn and entrenched in position • can be indecisive, collect unnecessary data, mired in details • may be cold and withdrawn with respect to others' working styles • tendency towards watchfulness, observation • can remain withdrawn, distanced • resists emotional pleas and change	• can be bogged down by need to press ahead and can seem to not care about process • can get defensive quickly, argue, try to challenge you • can lose patience, push for decisions before it is time • may get autocratic, want things his/her way • sees things in terms of black and white, little tolerance for ambiguity • may go beyond limits, get impulsive or disregard practical issues • not heedful of others' feelings, may be perceived as cold • has trouble relinquishing control

Using the Leadership Compass to Understand A Simple Task

1. Setting up the room before every class (taking out chairs and weights for the participants so that the class starts on time.)

North

- GOOD NORTH – Arrives 15-20 minutes before the start of the class, has a desire to take action immediately and sets everything up for the participants.
- BAD NORTH – Arrives 2 minutes before the class and wants to take action immediately; grabs a participant and tells him/her to hurry and help to get the chairs out.
- LESSON FOR THE NORTH – If you're in a stressful situation (like arriving too late to set up yourself), take a deep breath and consider the feelings of the participants for a minute. Don't immediately rush into action. Apologize for not setting up yourself, and ask the other if they would mind helping you.

East

- GOOD EAST – Arrives 15-20 minutes before the start of the class, seeing the 'big picture' (realizing the importance of the 'little things,' like setting up ahead of time, in creating an overall successful programs and having satisfied participants).
- BAD EAST – Doesn't arrive early - only thinks about the overall health of participants and loses track of details. ("The older adults sure are improving their strength and their ability to life weights!" not noticing that the weights aren't set up ahead of time and the classes are always starting and ending late.)
- LESSON FOR THE EAST – Remember that it's very important to balance a long-term vision for the participants' health with attention to detail. A program will not advance without the vision, but it won't even take place if details are forgotten.

West

- GOOD WEST – Arrives 15-20 minutes before the start of the class, sets up the chairs and weights, then uses the desire to pay attention to detail by having a plan laid out for the day and observing and correcting the techniques of each participant.
- BAD WEST – It's unlikely that a West would arrive late, but if he/she did, he/she would probably stick to his/her plan to the "t" – meticulously setting up the chairs and weights his/herself and not considering cutting out any part of the program to keep it on time.
- LESSON FOR THE WEST – Details are incredibly important, but so is flexibility. Allow others to help you even if it wasn't in your original plan, and remember to reassess the schedule or program if for some reason it is not best suited for that day or the participants. Remember the goal of the program: to improve the participants' strength and health.

South

- GOOD SOUTH – Asks for feedback and listens to participants' comments, genuinely caring about their feelings and opinions.
- BAD SOUTH – Spends more time listening to participants than running the exercise program.
- LESSON FOR THE SOUTH – Participants' satisfaction is incredibly important. However, remember that the ultimate goal of the program is to improve the strength and health of the participants. Try to do this while listening to their comments, but do not sacrifice this goal by spending too much time nurturing participants' comments and feelings. Try to do your listening before and after the hour of exercise, if possible.

Part G Selecting a peer leader with the leadership compass

You will probably find it beneficial to have someone help you with your tasks as a Growing Stronger Program Leader. A peer leader could be a participant in the program who is willing to spend some time to help you make the program run smoothly. He/she could help you keep the exercise logs and set up/clean up the room before and after each group session. Potentially, he/she could help arrange transportation for group members who were in need, work with local media to publicize the program, and/or work with you to fundraise for equipment. He/she may help organize a party after the initial program is over to celebrate everyone's progress.

Consider the fourth sheet of the Leadership Compass when selecting a peer leader to assist you. It may seem as though selecting the same type of leader as yourself would be helpful, and this could in fact be true. However, if possible, we suggest you consider selecting a peer leader who best *complements* your leadership style. In other words, select someone with different strengths and weaknesses to help "balance you out." For many people, that means someone adjacent to them on the compass; that is, Norths may work better with Easts and Wests (rather than with Souths), and Wests may work better with Norths and Souths. There are no rules per say; these are simply guidelines to help you select the best peer leader.

Chapter 7: Physical activity

The benefits of living a physically active lifestyle are amazing. As a Program Leader, it is important for you to understand what physical activity is and to be able to express to your participants why it is important for them to incorporate it into their lives. The ultimate goal of every participant's program should be to meet the Physical Activity Guidelines for Americans: to participate in 150 minutes of moderate intensity physical activity or 75 minutes of vigorous intensity physical activity, plus two or more sessions of strength training each week.[17]

What is physical activity?

Physical activity is "any bodily movement produced by skeletal muscles that results in an expenditure of energy." It comes in many forms such as walking, biking, swimming, raking leaves, hand washing a car, and gardening. Many people believe that physical activity needs to be strenuous in order to be effective; however, this is not always the case. All types of physical activity will help to improve the health and fitness of your participants.

Benefits of physical activity

The health benefits that come with participating in regular physical activity not only help older adults live longer, but it also enables them to live more independently. Some of these benefits are readily apparent, such as weight loss and increased muscular strength; others occur internally, such as lower blood pressure and better glucose control. Participation in regular physical activity will help to reduce the risk of cardiovascular disease, as well as other chronic diseases.

The 2008 Physical Activity Guidelines for Americans[17]

Guidelines for Adults:

- All adults should avoid inactivity. Some physical activity is better than none, and adults who participate in any amount of physical activity gain some health benefits.
- For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Aerobic activity should be performed in episodes of at least 10 minutes, and preferably, it should be spread throughout the week.
- For additional and more extensive health benefits, adults should increase their aerobic physical activity to 300 minutes (5 hours) a week of moderate intensity, or 150 minutes a week of vigorous intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity activity. Additional health benefits are gained by engaging in physical activity beyond this amount.
- Adults should also do muscle-strengthening activities that are moderate or high intensity and involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.

The Guidelines for Adults also apply to older adults. In addition, the following Guidelines are just for older adults:

- When older adults cannot do 150 minutes of moderate-intensity aerobic activity a week because of chronic conditions, they should be as physically active as their abilities and conditions allow.
- Older adults should do exercises that maintain or improve balance if they are at risk of falling.
- Older adults should determine their level of effort for physical activity relative to their level of fitness.

- Older adults with chronic conditions should understand whether and how their conditions affect their ability to do regular physical activity safely.

Getting started

There are four things to consider when helping your participants become more physically active: frequency, duration, intensity, and type of activity (also known as "mode"). Understanding these components will allow you to offer your participants sound guidance when they begin a physical activity program.

Regular Physical Activity Has The Power To…

- ❖ Prevent/ameliorate chronic diseases symptoms: arthritis, cardiovascular disease, diabetes, osteoporosis
- ❖ Improve: quality of life, glucose control, weight management, and immune function, balance, coordination, flexibility, strength & endurance
- ❖ Lower heart rate and blood pressure
- ❖ Increase self-efficacy and self-confidence
- ❖ Decrease stress

Frequency and Duration

As outlined in the Guidelines, participants should accumulate 150 minutes of moderate intensity physical activity or 75 minutes of vigorous intensity physical activity or an equivalent combination of the two each week. This can be completed in several longer sessions or it can be broken-up 10-minute sessions. When encouraging participants to begin a program of physical activity, Program Leaders should be aware of each participant's current activity level and health status. If a participant has been sedentary or if he/she has particular health concerns,

he/she should start slowly, with only five to ten minutes of activity, and increase the length of time as he/she adapts to the new activity.

Intensity

Intensity refers to how hard the body is working to perform a given physical activity. Intensity level is determined based on the type and the duration of an activity. Activities can be classified into one of three intensity levels: leisurely, moderate, or vigorous, typically classified by how much energy it takes to complete the activity. Leisurely activities can be described as "unhurried" and feel "easy" for a participant to complete. Leisurely activities typically last for less than 10 minutes. Strolling to the mailbox, golfing with a cart, and light gardening are examples of leisurely activities. Moderate activities consist of movements that use large muscle groups and are usually performed for ten minutes or more. Walking 1 mile in 15 minutes, bicycling 5 miles in 30 minutes, and heavy gardening are examples of moderate activities. Vigorous activities are rhythmic repetitive activities that use larger muscle groups. These activities are more intense and often last for 30 minutes or longer, though one can also complete a short burst of vigorous activity. Examples of vigorous activities are running 3 miles in 30 minutes or swimming one-half mile or more, uninterrupted. The following are some additional examples of leisurely, moderate, and vigorous physical activities:

- **Leisurely activities:** light cleaning, light gardening/yard work, hand washing a car, raking leaves, walking to a destination (less than 10 minutes), taking the stairs, golfing with a cart

- **Moderate activities:** heavy gardening, bicycling 5 miles in 30 minutes, raking leaves for 30 minutes, walking 2 miles in 30 minutes, doing water aerobics for 30 minutes
- **Vigorous activities:** swimming laps for 20 minutes, bicycling 4 miles in 15 minutes, jumping rope for 15 minutes, running 3 miles in 30 minutes, shoveling snow for 15 minutes, stair climbing for 15 minutes

The current level of fitness of each participant will play a role in determining the intensity level of a particular activity as well. A one-mile walk in 20 minutes may be moderate for a participant who has been completely sedentary, but leisurely for one who has been jogging on a regular basis. Therefore, it is important to teach participants to "listen to their body" in order to exercise at an intensity that is appropriate for them. There are three different methods you can use to help your participants determine the intensity level of their activities. They are the "talk test", the rate of perceived exertion (RPE) scale, and measured heart rate.

Talk Test

The "talk test" is a simple way to gauge the intensity level of a given activity. The test estimates a person's intensity level by determining how well he/she is able to *talk* while engaged in an activity. If a participant can sing while performing an activity, the activity would be considered leisurely. If he/she can carry on a conversation reasonably well (but not sing), it would be considered moderate. If a participant is too winded to have a conversation during activity, then the activity is vigorous.

Rate of Perceived Exertion (RPE

The RPE scale is another method of gauging the intensity of physical activity. RPE is based on one's perception of effort and is generally an accurate determinate of intensity level. To use the scale, ask your participants to rate how they feel while performing an activity on a scale of 1 to 10. ("1" is equivalent to lying on the couch and "10" is equivalent to working as hard as they possibly can – an absolute all-out effort). You should instruct your participants to work at a level between 5 and 8 on the RPE scale; this will ensure that each person is working at a level that is appropriate to their current level of fitness. Thinking about the RPE scale in terms of an activity, 3-4 is leisurely, 5-6 is moderate, and 7-8 is vigorous.

Heart Rate

Checking heart rate periodically throughout a workout is a great way to gauge the intensity of an activity. The goal of moderate or vigorous physical activity is to raise the heart rate to its target heart rate and keep it there for the duration of a workout. Instructing your participants to exercise within their heart's target heart rate zone will provide the most benefit to them. To teach participants about target heart rate, you should understand the concept and know how to determine your own.

Your target heart rate is based on age. It will fall between 60 and 80 percent of your maximum heart rate. You (and your participants) should work out between 60 to 70 percent most of the time, occasionally reaching 75 to 80 percent. To determine your personal target heart rate you must first determine your maximum heart rate. Previously, your maximum heart rate had been calculated by subtracting your age from the number 220. For example, a 20 year-old woman would have a maximum heart rate of 200 beats per minute. Now, the more accurate

heart rate of 193. To find his/her *target heart rate,* multiply 193 (her *maximum heart rate*) by 0.6 and 0.8 (60 to 80 percent). This shows that she should maintain a heart rate of 116 to 154 beats per minute during exercise, staying between 116 and 135 (70 percent = 193 x 0.7) most of the time. You can measure your heart rate by following these easy steps:

- Find a clock or a watch with a second hand that is easily visible.
- Bend your right arm at the elbow; hold your right hand – palm facing up.
- Hold the forefinger and middle finger of your left hand together; touch them to the base of your right thumb.
- Slide the fingers across your wrist, moving them parallel to the top of your right arm. Your left fingers will cross the bones of your right wrist; you will feel a hollow in your right forearm between the bone on top and the tendons below.
- Press firmly when you are at the hollow. You should be able to feel your *radial pulse.* It may help to bend your right wrist back slightly.
- Watching the clock, count the number of beats you feel for fifteen seconds.
- Multiply this number by four to get your heart rate (number of beats per minute).

Instruct your participants to check their heart rate periodically throughout their exercise sessions to make sure they are maintaining the proper level of intensity. They will have to slow down a little to check their pulse while exercising, which will decrease their heart rate. It may take some practice for them to get the knack of taking the measurement quickly.

♦ *A Word of Caution* ♦

Other factors affect heart rate besides activity. If any of the following situations applies to one of your participants, he/she should NOT use heart rate as a measure of intensity. Instead, he/she should be instructed to use one of the other methods (Talk Test or RPE scale).

- ❖ Use of a pacemaker or drugs will keep the heart rate steady.
- ❖ Use of medications, such as cold remedies, appetite suppressants, or calcium channel blockers for blood pressure, can raise or lower the heart rate.
- ❖ Recent consumption of caffeine can raise the heart rate. Caffeine can be found in coffee and tea as well as some sodas and medications

Type

Type refers to the kind of activity that will be performed (biking, gardening, etc.). A single activity is not best for everyone. Each participant should choose an activity based on what he/she enjoys, what he/she has access to, and what his/her body can handle. Encourage your participants to try a range of different activities.

Staying Active for Life

Once you have given your participants the tools they need to understand why and how they should become physically active, it is important to help them learn how to sustain an active lifestyle. Below are some tips they can use to help them continue the good habits they have learned throughout your program.

S.M.A.R.T. Goals*:* When taking on a challenge, such as staying physically active, it is a good idea to set goals. Having realistic, defined goals helps to keep one focused on and motivated for the challenge that lies ahead. Before starting a new physical activity program, encourage your participants to set both short and long- term goals related to physical activity. These goals should be S-M-A-R-T:

S – specific…M – measurable…A – attainable…R – relevant…T – time-based

For instance: A **specific** short-term goal may be to start a program of physical activity three days per week; the long-term goal may be easing the symptoms of arthritis, improving balance, or controlling weight. This goal is easily **measurable**: Have you or have you not begun the program? Indeed, this is an **attainable** goal, as long as the doctor approves. And this goal is certainly **relevant** to living a long, healthy life. Keep the goal on a schedule: *I will start within the next 2-3 days and continue for one month.*

By setting S.M.A.R.T. goals, your participants will always be in the process of succeeding. These *mini-successes* will keep them excited and motivated to continue with their program of physical activity.

Identify Local Public Facilities

Many fitness and community centers have specific programs geared toward older adults. These programs are often not well advertised, making it difficult for your participants to learn about them. Inquire about these programs for your participants, and keep them informed as you discover new ones.

Encourage your participants to inquire on their own as well. Keeping your participants aware of these programs will help to increase their physical activity levels outside of their participation in their strength training classes. Local public facility options include (but are not limited to):

- Gyms/fitness centers
- YMCA/YWCA
- Senior/community centers
- Church groups
- Assisted living facilities
- Older adult housing facilities

Chapter 8: Frequently asked questions

Q: How often should participants increase their weights?
A: Two important goals of this program are to increase muscle strength and bone strength. To do this, participants should increase the weights whenever they rate less than 4 on the Exercise Intensity Scale. When participants first begin strength training, they will be able to increase the amount of weight that they can lift frequently, either every week or every other week. As they become stronger and come closer to their maximum potential of strength, the increases in weight will happen at a slower rate. For more information please see the sections in Chapter 4, *How to progress* and *Intensity*.

Q: How can a participant tell if an exercise is actually causing pain as opposed to simply straining and pulling the muscles to work at the correct intensity?
A: When muscles are working at the correct intensity, participants will feel tension, "pulling," or a warm sensation within the exercising muscles or even stretching at the opposing muscle. When they stop exercising, this feeling should stop. Exercise should not hurt or be painful. If participants ever feel a sharp pain, they should stop exercising immediately. If the sharp pain persists after they stop, inform the participant that they need to talk with their health care provider.

Q: If a participant hasn't been feeling well (had a cold or flu or is under the weather), should he/she still exercise?

A: No, we suggest that participants take the day off from exercise if they have had flu symptoms or feel sick. Their bodies need time to rest and to recover. A few days off from exercise will not diminish any of the benefits they have gained from exercising.

Q: A participant has missed several exercise sessions. Should he/she use the same amount of weight that he/she was using before?
A: Have him/her start back slowly by decreasing the amount of resistance -- approximately half the weight he/she was lifting before she stopped. He/she will quickly return in a couple of weeks to where he/she left off.

Q: A participant has pain in her right shoulder. Can she just exercise the left arm?
A: First, make sure the participant determines the source of the pain and possible treatments by talking with her health care provider. If she has already done this and has arthritis or bursitis or has had a radical mastectomy or a stroke, have the participant exercise only in a range of motion that does not cause pain, or try substituting a different exercise that uses similar muscles. We are all slightly stronger on one side of our body, called the dominant side. Strength imbalances – when one side is much weaker than the other – can lead to injury. Have the participant try to keep the weights equal or within 1-2 lbs (1 kg) of each other.

Q: After an injury, how long should a participant wait before he/she starts to exercise again?
A: Have the participant check with his/her health care provider, as this may vary depending on the type of injury.

Q: Why isn't it good to strength train two days in a row?
A: This strength training program is more intense than walking or other activities that participants do every day. Their muscles need at least one day off to rest, recover, and get stronger. Training every day can cause over training and this can be detrimental.

Q: As a Program Leader, what should I do about participants who do not want to follow my directions, e.g. who want to exercise at a level that is too difficult, who do not breathe properly, whose attendance is sporadic?
A: You need to take control of your program. Do this by establishing ground rules at the very first session. Regular attendance is recommended for this program to be effective and safe. If your participants want more of other things included in the program, encourage them to express their feelings but do not promise that changes can be made. If participants are not following your directions, take a time-out. Stop what you are doing and remind them of what they should be doing. You might want to speak to specific individuals privately either before or after class.

Chapter 9: RESOURCES

Organizations

American Council on Exercise
4851 Paramount Drive
San Diego, California 92123
(800) 825-3636
www.acefitness.org
A fitness organization where you can locate certified exercise professionals in your area

American Academy of Orthopedic Surgeons
P.O. Box 1998
Des Plaines, IL 60017
(800) 824-BONES
www.aaos.org
An organization that provides information for the public about orthopedic conditions and injury prevention. You can also search for an orthopedic surgeon in your area

American College of Sports Medicine
P.O. Box 1440
Indianapolis, IN 46206
www.acsm.org
An organization that conducts research in the field of exercise science as well as certifies fitness professionals

American Dietetics Association (ADA)
216 West Jackson Boulevard
Chicago, IL 60606-6995
(800) 366-1655
www.eatright.org
Features comprehensive nutrition information for the public, including a database of dieticians in your area

American Physical Therapy Association
1111 North Fairfax Street
Alexandria, VA 22314-1488
www.apta.org
The mission of the American Physical Therapy Association (APTA), the principal membership organization representing and promoting the profession of physical therapy, is to further the profession's role in the prevention, diagnosis, and treatment of movement dysfunctions and the enhancement of the physical health and functional abilities of members of the public.

Arthritis Foundation
PO Box 7669
Atlanta, GA 30357-0669
(800) 283-7800
www.arthritis.org
Comprehensive information for preventing and treating arthritis

Centers for Disease Control and Prevention
National Center for Chronic Disease Prevention and Health Promotion (NCCDPHP)
4770 Buford Hwy, NE
Atlanta, GA 30341-3717
www.cdc.gov/nccdphp
Division of Nutrition and Physical Activity (DNPA)
www.cdc.gov/nccdphp/dnpa
Comprehensive information about nutrition, physical activity, and numerous other health-related topics

Fifty-Plus Fitness Association
Fifty-Plus Fitness Association
2483 E. Bayshore Road, Suite 202
Palo Alto, CA 94303
Phone: (650) 843-1750
Fax: (650) 843-1758
E-mail: info@50plus.org
www.agingblueprint.org/orgs/fpfa.cfm
A national organization whose sole mission is the promotion of physical activity for older adults

Dietary Guidelines for Americans
US Department of Health and Human Services
http://health.gov/dietaryguidelines/
The *Dietary Guidelines for Americans, 2010* provides evidence-based nutrition information and advice for people age 2 and older

Friedman School of Nutrition Science and Policy at Tufts University
150 Harrison Avenue
Boston, MA 02111
Phone: (617) 636-3702
Fax: (617) 636-3727
www.nutrition.tufts.edu
Comprehensive information about nutrition, physical activity, and numerous other health-related topics

MyPlate
US Department of Agriculture
www.choosemyplate.gov/
MyPlate is part of a larger communication initiative based on 2010 Dietary Guidelines for Americans to help consumers make better food choices.

National Strength and Conditioning Association
1640 L St., Suite G Lincoln,
NE 68508
(888) 746-2378
www.nsca-lift.org
An organization where you can locate certified fitness professionals in your geographical area

National Osteoporosis Foundation
1150 17th St. N.W., Suite 500
Washington, DC 20036
(202) 223-2226
www.nof.org
Comprehensive information for preventing and treating osteoporosis

Nutrition Navigator Archives
Tufts University
150 Harrison Avenue
Boston, MA 02111
navigator.tufts.edu/
Tufts University-housed website to help consumers identify reliable, trustworthy nutrition-related websites

Physical Activity Guidelines for Americans
US Department of Health and Human Services
http://www.health.gov/paguidelines/
Guidelines for the types and amounts of physical activity that offer substantial health benefits to Americans

Shape-Up America!
6707 Democracy Boulevard, Suite 306
Bethesda, MD 20817
(301) 493-5368
www.shapeup.org
Comprehensive information about nutrition, physical activity, and numerous other health-related topics

Books, DVDs, and Newsletters

Books
Growing Stronger: Strength Training for Older Adults, Rebecca Seguin, Jacqueline Epping, David Buchner, Rina Bloch, and Miriam Nelson (Tufts/CDC 2004). www.nutrition.tufts.edu/growingstronger

The Social Network Diet: Change Yourself, Change the World.
Miriam E. Nelson, PhD and Jennifer Ackerman
(FastPencil, 2011)

Biomarkers: The 10 Determinants of Aging You Can Control, by William Evans and Irwin Rosenberg with Jaqueline Thompson (Simon & Schuster, 1991)

Senior Fitness Test Manual, by Roberta E. Rikli and C. Jessie Jones (Human Kinetics, 2001)

Strength Training Past 50, by Wayne Wescott (Human Kinetics, 1997)

The Wellness Guide to Lifelong Fitness, by Timothy P. White and the editors of the University of California at Berkley Wellness Letter (REBUS, distributed by Random House, 1993)

Newsletter

Tufts University Health & Nutrition Letter ($28 per year for 12 issues)
Subscriptions: PO Box 420235; Palm Coast, FL 32142-0235; (800) 274-7581.
www.healthletter.tufts.edu

Equipment

All Pro Exercise Products, Inc.
PO Box 8268
Longboat Key, FL 34228
Phone: (800) 735-9287
Fax: (941) 387-7901
www.allproweights.com

Walkability

Pedestrian & Bicycle Information Center
UNC Highway Safety Research Center
730 Airport Road, Suite 300
Campus Box 3430
Chapel Hill, NC 27599-3430
(919) 962-2202
www.walkinginfo.org

Federal Highway Administration
Pedestrian & Bicycle Safety Research Program
HSR – 20
6300 Georgetown Pike
McLean, VA 22101
www.fhwa.dot.gov/environment/bikeped/index.htm

Transportation for Livable Communities
http://www.mtc.ca.gov/planning/smart_growth/tlc/

US Access Board
1331 F Street NW
Suite 1000
Washington, DC 20004-1111
(800) 872-2253
www.access-board.gov

National Highway Traffic Safety Administration
Traffic Safety Programs
400 Seventh Street SW
Washington, DC 20590
(202) 662-0600
www.nhtsa.dot.gov/people/injury/pedbimot/ped

Centers for Disease Control & Prevention
Division of Nutrition & Physical Activity
(888) 232-4674
www.cdc.gov/nccdphp/dnpao/index.html

Partnership for a Walkable America
National Safety Council
1121 Spring Lake Drive
Itasca, IL 60143-3201
(603) 285-1121
www.walkableamerica.org/

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With gratitude and strength,

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Kelly Hawthorne, PT, DPT, GCA, CEEAA

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