

## **Chapter 1: The benefits of strength training for women**

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 women 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. Following are some of the scientifically proven benefits of strength training for middle-aged and older women.

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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 [10].

***Improved Glucose Control***

More than 16 million Americans have type II 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 recent 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.

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**The Gap Between Knowledge and Practice**

Despite solid evidence of the many benefits of strength training, only 7% of older women do this type of exercise [11]. There are many reasons. Women 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 women 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 conjugate 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 women. This is the reason we developed the StrongWomen Program and the Tool Kit.

**Putting Research Into Practice**

The StrongWomen 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 StrongWomen Program will benefit the health of middle-aged and older women across the country and abroad by providing community leaders the tools needed to begin sound exercise programs.

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**Participant Summary Information Sheet**

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

**Address:** \_\_\_\_\_

\_\_\_\_\_

**Phone Number:** \_\_\_\_\_

**Date of Birth:** \_\_\_\_\_ **Age:** \_\_\_\_\_

**Program Site:** \_\_\_\_\_

**Start Date:** \_\_\_\_\_ **End Date:** \_\_\_\_\_

**In case of emergency, please call:**

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

**Relationship:** \_\_\_\_\_

**Phone Number:** \_\_\_\_\_



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**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
Stroke	Yes	No
Surgery	Yes	No



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Terminal Illness	Yes	No
<b>Medical History (continued)</b>		
Vertigo or Lightheadedness	Yes	No
Other:	Yes	No
<b>Current Health - Past month</b>		
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 \_\_\_\_\_



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**Physical Activity Readiness Questionnaire (PAR-Q)**

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 be 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.

Question	Yes	No
Has your doctor ever said that you have a heart condition and that you should only do physical activity recommended by a doctor?		
Do you feel pain in your chest when you do physical activity?		
In the past month have you had chest pain when you were not doing physical activity?		
Do you lose your balance because of dizziness or do you ever lose consciousness?		
Do you have a bone or joint problem that could be made worse by a change in your physical activity?		
Is your doctor currently prescribing drugs for your blood pressure or heart condition? (for example: water pills blood thinners)		
Do you have any other reason why you should not do physical activity?		

**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.

-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 about completing this questionnaire consult your doctor prior to physical activity.



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**If you answered "YES" to one or more questions:**

Talk to 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.

**If you answered "NO" to all of the 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.

**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.

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

• Name: \_\_\_\_\_

• Signature: \_\_\_\_\_

• Date: \_\_\_\_\_

• Witness: \_\_\_\_\_





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**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 StrongWomen 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 \_\_\_\_\_



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**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: \_\_\_\_\_

