

IMPACT

University of Idaho
Extension

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Strong Women, Building Stronger Bones

The Situation

According to a report published in 2004—*Bone Health and Osteoporosis: A Report of the Surgeon General*—10 million Americans over the age of 50, mostly women, have osteoporosis, a dangerous thinning of the bones. Another 34 million have low bone density and are at risk for developing the condition. When you have this disease, your bones become so fragile they could break from a minor fall, from lifting a baby out of a crib, or even from an exuberant hug. To combat and even reverse bone loss, a program combining weight bearing exercises and good nutrition has been found to be effective.

Our Response

The University of Idaho Extension began offering classes in 2006 to address this decrease in muscle and bone mass that occurs in adults as they age, by combining strength-training and nutrition programs. The strength training program is Strong Women, Strong Bones™ developed by Tufts University and the nutrition program was *Osteoporosis Prevention and Treatment: Your Bones, Your Body*, developed by the University of Idaho Extension. The workshops were conducted in Ada and Owyhee counties by a certified Strong Women™ instructor (Marsha Lockard, Owyhee County Extension Educator). Two classes were offered each week per location and the program lasted six weeks.

Each class was approximately one hour, of which 45 minutes was spent on strength training and 15 minutes on information from the osteoporosis

curriculum and other sources. The strength training component consisted of a warm-up, arm and leg exercises, stretching and balance activities and a cool down. Exercises consisted of 2 sets of 10 repetitions of the following exercises using hand and leg weights: biceps curl, overhead press, bent forward fly, wrist curl, chest press, and side leg raise. Topics covered from the osteoporosis curriculum included: incidence, development, and prevention of osteoporosis, foods sources of calcium, vitamin D, planning calcium-rich meals and snacks, and incorporating weight-bearing exercises into their lifestyles.

Two evaluation tools were used to measure program outcomes. The first was a pre- and post-lifestyle survey that contained questions on physical activity and eating habits. The second evaluation tool was a strength training log in which participants recorded the weights they used for the exercises in each class. Twenty women participated in the program in Ada and Owyhee Counties in the spring of 2008.



Program Outcomes

Demographics: Participant age range was between 53 to 71 years old; with an average age of 61 years.

Strength Training Exercises: Between 7 to 18 participants completed the strength training logs at each class. Participants showed an 85% to 207% increase in arm and leg strength from the first class to class 12. Weight used was recorded as the amount of weight lifted with one arm or one leg.

Pre/post arm and leg weight used.

Exercise	Pre (Mean wt)	Post (Mean wt)	% increase
Biceps Curl	2.9 lb	6.5 lb	124%
Overhead Press	2.9 lb	6.5 lb	124%
Bent Forward Fly	2.6 lb	4.8 lb	85%
Wrist Curl	2.5 lb	5.0 lb	100%
Chest Press	2.8 lb	6.3 lb	125%
Side Leg Raise	1.3 lb	4.0 lb	207%

Eating Habits

During the six week class period, participants increased their intake of fruits, vegetables, whole grains, and milk. There was a minimal increase of 8% in whole grain intake. There was a greater (24-26%) increase in fruit, vegetable, and milk consumption. At the pretest 42% of participants were consuming 1% or fat-free milk while at the post test 62% were consuming 1% or fat-free milk.

Physical Activity Habits

At the beginning of the class only 53% of participants were doing any type of stretching or strength training activities. All participants showed an increase in physical activity levels during the classes.

Impact:

Consuming a high calcium diet and participating in strength training exercises can help women maintain or improve their current bone density. All participants showed an increase in strength, making daily activities easier and adding to the

independence level of many. Participants reported improved energy levels and muscle tone, and an increase in flexibility and balance, which has been shown to help women to avoid falls and fractures. Similar studies have shown a 40% reduction in falls due to strength and balance exercises.

Participant Comments:

“I am exercising more now and really enjoying it.”

“I have really enjoyed the class and my husband has commented on my new muscles.”

“I have purchased leg and arm weights and plan to use them at home.”

“I am eating more whole grains, exercising more and feel better.”



For More Information

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