

IMPACT

University of Idaho
Extension

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Strong Women, Strong Bones Program Increases Arm and Leg Strength and Dairy Intake

The Situation

Strength training (also called resistance training) enables adults to improve their overall health and fitness by increasing muscular strength, endurance, and bone density. The American College of Sports Medicine recommends that adults include strength training as part of a comprehensive physical activity program. This will help prevent the decline in muscle mass that begins at the age of 30. The 2004 National Health Interview Survey revealed that only 21.9% of men and 17.5% of women reported participating in strength training the recommended two or more times per week.

Our Response

The University of Idaho Extension addressed a decrease in muscle and bone mass that occurs in adults as they age, by combining a strength-training program with a nutrition program. The strength training program was 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 14 classes were conducted in Ada and Canyon counties by a certified Strong Women™ instructor (Marsha Lockard, Owyhee County Extension Educator). Two classes were offered each week and the program lasted seven weeks.

Each class lasted approximately one hour of which 45 minutes was spent on strength training and 15

minutes on information from the osteoporosis curriculum. The strength training component consisted of a warm-up, arm and leg exercises, stretching and balance activities and a cool down. Exercises that were completed once a week were the wrist curl, chest press, side leg raise, upward row, and standing leg curl. Exercises completed twice a week were the biceps curl, overhead press, and bent forward fly. Topics covered from the osteoporosis curriculum included: incidence, development, and prevention of osteoporosis, foods sources of calcium, 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 habits and eating habits. The second evaluation tool was a strength training log which had participants recording the weights they used for the exercises in each class. Thirty-five women participated in the Strong Women, Strong Bones project in the spring of 2007.

Program Outcomes

Demographics: Participant age range was between 43 to 82 years-old; 34 were Caucasian and one was Asian.

Eating Habits: During the seven week class period, participants increased their intake of all food groups. There was a minimal increase (5% -22%) in meat, vegetable, fruit, cheese and grain intake. There was a greater (37-48%) increase in whole grain and milk consumption. The greatest increase, 85%, occurred in the percentage of individuals who consumed fat-free dairy products.

Strong Women, Strong Bones, Pre/post-eating habits.

Food Group	Pre (average) N=24	Post (average) N=24	Percent increase
Grains	2.5 serv/d	2.9 serv/d	16%
Whole grains	1.9 serv/d	2.6 serv/d	37%
Vegetables	2.8 cups/d	3.2 cups/d	15%
Fruit	2.3 cups/d	2.8 cups/d	22%
Milk	2.1 cups/d	3.1 cups/d	48%
Cheese	0.7 oz/d	0.8 oz/d	14%
% fat-free	25%	42%	85%
Meat & Beans	3.7 oz/d	3.9 oz/d	5%

Physical Activity Habits: There was a 37% to 273% increase in participants' physical activity habits from the first to the final class. The greatest increase was in the frequency of strength training.

Pre/post physical activity habits.

Physical activity habit	Pre (N=24) Average	Post (N=24) Average	Percent increase
30 min/d exercise	3.0 times/wk	4.1 times/wk	37%
Stretching	1.4 times/wk	2.8 times/wk	100%
Strength training	0.6 times/wk	2.4 times/wk	273%

Strength Training Exercises: Between 6-25 participants completed the strength training logs at each class. Participants had a 15-51.5% increase in four of the five exercises performed once a week and

a 40-44% increase in the three exercises performed twice a week.

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.

Participant Comments:

“This class has made me aware of how important it is to exercise as you grow older.”

“I have increased how much calcium I get each day and have begun exercising at home also.”

“I love this class it is not intimidating like going to a gym, it encourages individual achievement and is a very non-threatening environment.”



For More Information

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