

# Strength Training Those “Archery Muscles”

by Annette M. Musta

A properly executed archery shot recruits many muscles of the upper and lower body. The muscles of the shoulders and back are the primary draw muscles. The muscles of the arms and chest are accessory muscles. The muscles of the abdomen, lower back, and legs provide stability throughout the draw sequence. Strength training these muscle groups will improve your shot. You will notice an increase in your endurance during long competitions or practice sessions and the ability to perform a proper draw sequence without excess physical stress, thus improving your shot, your groupings, and your score. You will also have a more well-developed physique, so you will look good while you are shooting.

## Strength Training Goals for Archery

The goals of strength training for archery are an increase in muscle strength and endurance. The principle physiological factor behind a strength training program is the *overload principle*. A muscle needs to be properly challenged, or overloaded, to achieve results. Proper strength training programs are designed with specific overloads to cause specific strength gains to specific muscle groups. Some factors are beyond the control of the individual, for example, the type and distribution of fibers in the muscles you target (which are determined genetically). A strength program consists of combinations of resistances and repetitions. Resistance is typically the amount of weight used. Repetitions are the number of times the exercise is performed. A group of repetitions is called a set.

Your body will make several adaptations to strength training. The muscles trained will increase in size (called hypertrophy), their connective tissues will increase in strength, their blood supply will increase to feed the new tissue, and their nerve supply will improve. More important for over-all health and fitness, muscle tissue burns

combined with aerobic conditioning and a sensible diet, will lead to weight loss.

Strength training should always be preceded by a warm-up session of ten to fifteen minutes duration. The ‘warm-up’ should include at least ten minutes of light aerobic activity (walking in place, stair climbing, etc.) and a light stretch of the muscle groups to be worked. Strength training should be performed every other day to allow the muscles and connective tissue adequate recovery time. It is important to perform different exercises for the same muscle groups to completely work the muscles and to postpone the adaptation process. Learn each exercise without weights to perfect your form. Poor form leads to injuries. Perform each exercise using only the target muscle. Do not swing the rest of the body to complete the ‘rep.’ Start with the minimum weight, repetitions, and sets recommended. A little muscle soreness is expected, especially if you are new to strength training. Muscle soreness that lasts for more than a couple of days or is sudden and severe and accompanied by swelling, redness, or bruising indicates a potential injury and should be examined by a doctor.

## A Strength Training Program for the “Archery Muscles”

The primary muscles in a properly executed archery draw are the muscles of the shoulders and the upper back. The archery muscles of the shoulder are the *deltoid* muscles - the *anterior*, the *medial*, and the *posterior*. The archery muscles of the upper back are the *latissimus dorsi*, the *trapezius*, and the *rhomboids*. Accessory muscles are the *teres major* and *minor*, the *scapularis*, the *spinatus*, and the *serratus*. The major opposing muscles are the *pectoralis* (the muscles of the chest). (Whew!)

The following is a basic strength training program for the major archery muscles of the shoulder and back. Each

movement should be practiced without weights to perfect your form. Use the chart below for repetitions and sets. Rest 48 hours in between each weight train-

Repetitions and Sets for Strength Training Exercises		
Level	Repetitions	No. of Sets
Beginner	6-8	1
Intermediate	8-10	2
Advanced	10-14	3+

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ing session.

**Equipment Needed** Two 1 to 3 pound dumbbells (Note: two cans of soup can be substituted for the dumbbells.), an exercise bench or chair

**Exercise Side Raise**

*Muscles worked* medial deltoid

Stand with your legs hip width apart, abdominals (stomach muscles) contracted, your arms at your sides, a dumbbell in each hand. Slowly (count of three) raise the arms straight out to the sides only to the height of the shoulders. Lower slowly. This is one repetition.



**Exercise Front Raise**

*Muscles worked* anterior deltoid, pectorals

Stand with your legs hip width apart, abdominals (stomach muscles) contracted, your arms at your sides, a dumbbell in each hand. Slowly raise the arms straight in front of you to shoulder height. Lower slowly for one repetition.

**Exercise Military Presses**

(Warning – do not perform this exercise if you have high blood pressure or a lower back problem)

*Muscles worked* anterior, medial and posterior deltoids, trapezius, triceps

Stand with your legs hip width apart, abdominals contracted, a dumbbell in each hand. Lift the weights to shoulder height with your palms facing forward. Slowly press the dumbbells to arms length above your head, pause, then slowly lower them to shoulder height to complete one repetition.



**Exercise Upright Row**

*Muscles worked* trapezius, anterior deltoids, triceps

Stand with your legs hip width apart, abdominals contracted, your arms at your sides, a dumbbell in each hand with your palms facing back. Slowly bend elbows and raise



**Exercise Back Raise**

*Muscles worked* posterior deltoid, rhomboids

Sit on the edge of an exercise bench or chair with your feet flat on the floor, bend forward at the waist over your legs, contract your abdominals (stomach muscles), with your arms at your sides, a dumbbell in each hand. Retract the scapula (the shoulder blades). Slowly raise arms out to the sides to shoulder height. Lower slowly to complete one repetition (photo top of next column).

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the dumbbells in front of your body to chest height. Pause. Slowly lower dumbbells back to the starting position to complete one repetition.

**Exercise Shrugs**

*Muscles worked* trapezius, rhomboids

Stand with your legs hip width apart, abdominals contracted, arms at your sides with a dumbbell in each hand. Slowly raise your shoulders, keeping arms at sides. Roll the shoulders back then down to the starting position to complete one repetition (no photo).

**Exercise Single Arm Rows**

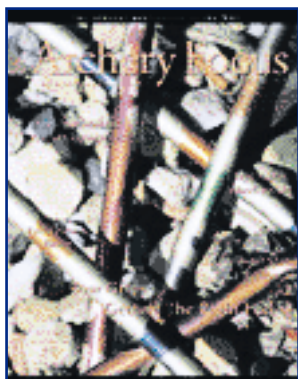
*Muscles worked* latissimus dorsi, biceps

Stand with your left knee and hand on your exercise bench, right arm extended towards the floor, a dumbbell in the right hand. Slowly pull the dumbbell towards your chest, leading with your elbow, keeping your arm close to your body. Pause then lower the



dumbbell back to-ward the ground to arm's length. This is one repetition on the right side. Complete a set on the right side then switch to the left side (right knee and hand on the bench, left arm extended with a dumbbell). Alternate sets on each side.

Annette Musta is a certified personal trainer who owns and operates her own business, ARH Sports and Fitness in Pennsylvania. She has been shooting for 24 years, but not seriously (she says) until the last five years. She has been a professional ballet dancer (which is why she is known around the ARCO Training Center as "the dancer") and is currently a licensed pilot. She is the founder and Executive Director of the Pass the Torch Foundation, which matches school age children with athletes training for international competition.



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