

# ~~Archery Fitness??~~ ~~Archery Fitness~~ Archery Fitness!

by Annette M. Musta

*Have you every heard, “I took up archery because I don’t have to be in good shape;” or “Why should I be fit? I’m just an archer.” Should archers be concerned with physical fitness and conditioning? The answer is simple – maximizing your fitness level will improve your shooting, your health, and your life. A well balanced fitness program consists of three elements – cardiovascular conditioning, strength training, and flexibility. Each element is essential to maximize the fitness benefits of exercise. This article provides a brief overview of the elements of a well balanced fitness program and a section on fitness testing so you can establish your current or baseline level of fitness.*

## Cardiovascular Conditioning

Cardiovascular (cardiorespiratory) conditioning consists of any activity which consistently elevates your heart rate. Activities providing “cardio” conditioning include walking, bicycling, running, rowing, aerobic dance, kick boxing, hiking, trail running, and swimming. The frequency of cardio workouts depends on your current fitness level, the desired outcome, and the duration and intensity of the cardio program. Less intense workouts need to be performed more frequently and for longer periods of time to achieve the same results as a more intense workout. A word of warning, your perception of your level of exertion is not always a good measure of the actual intensity of the workout. You should have a cardio workout at least three days a week to improve cardiorespiratory fitness and to maintain body fat near optimum levels.

Cardio conditioning has too many benefits to ignore. The health benefits include a lower heart rate, lower blood pressure, and decreased risk of coronary artery disease. Weight-bearing aerobic exercise strengthens bones which can decrease the risk of osteoporosis in later years. Any consistent cardio workout will improve body composition. You will burn fat by doing aerobic exercise. Simply put, the only way to lose weight is through aerobic exercise and a sensible diet. Fad diets, supplements, diet pills, and “miracle workouts” are not the answer. If you want the body, you have to do the work. But, with just a few months of dedicated cardio conditioning, you will look better, feel better, and you can start eliminating the “archer’s ballast” around your middle.

## Strength Training

Strength training is typically resistance training or weight lifting. Strength training will increase an archer’s stability and endurance. More importantly, when properly done, strength training will prevent injuries.

Archery is a sport of repetition and causes imbalance in the muscles of the body. The bow arm and the draw arm must perform opposing functions repeatedly. Increasing muscle strength in the upper body (arms, shoulders, and back) evens out the imbalance and provides strength for repetitive drawing. The abdominal muscles and the muscles of the lower body (trunk and legs) provide stability during the draw sequence.

A proper strength program should include core exercises incorporating all of the major muscle groups and isolation exercises for specific muscle groups. Strength training can be designed to increase the bulk of the muscles or to tone the muscles. Only a very few people will “bulk up” from strength training. Everyone else will build lean, strong muscles. More importantly, lean muscle mass needs more energy to sustain itself. Your body will burn more calories each day to support your lean muscle mass which means the extra slice of pizza you just ate will not automatically gravitate towards your hips, thighs, and stomach. A good strength program, coupled with a consistent aerobic program will give you a lean, “chiseled” look and a healthy, strong body.

## Flexibility

The final element of a well balanced fitness program is flexibility. Flexibility exercises increase the range of motion of the joints, elongate the muscles, provide a warm up and cool down of the body, and decrease the risk of injury. A stretching program should include a series of slow stretches of each body part. Never force a stretch. Never bounce while stretching.

## Fitness Testing

Before you begin a fitness program, undergo a physical fitness test to find your current fitness level. A Certified Trainer can perform an extensive test and design a program specifically for you and your sport. The Fitness Test

below allows you to perform your own test and will give you a baseline assessment of your physical fitness.

#### Fitness Test

#### Warnings

The tests below are designed for reasonably fit and healthy people. As with all fitness information, you should first consult your doctor for clearance before performing or initiating any physical fitness program or training. If you have any of the

conditions listed in the box "Contraindications to Exercise," you must consult your doctor before taking the fitness test or beginning a physical training program.

This Fitness Tests is designed for adults only. Anyone under the age of 18 or over the age of 65 should not take the following test. If you experience the onset of pain, shortness of breath, or any other sudden or extreme physical reaction, discontinue the test and seek medical care immediately. All tests should be performed in the presence of another person.

#### How Fit Are You? – A Fitness Test

#### Cardiovascular Fitness

Test One: Cardiovascular Fitness (YMCA Step Test)

*Equipment needed* – a 12 inch (30 cm) step and a stopwatch

*Procedure* Step briskly up and down on the 12 inch (30 cm) step using the following cycle: right foot up, left foot up, right foot down, left foot down. Try to maintain a pace of twenty-four cycles per minute. Time yourself for three minutes using the stopwatch. At the end of three minutes, sit

down and find your pulse (Try two fingers on the outside of the neck.). After one minute of rest, find your heart rate by counting your pulse for 15 seconds and multiplying by 4 to get the rate in beats per minute. This is your "recovery heart rate." Compare your results with the chart in Figure 2. Record your level of cardiovascular fitness.



#### Strength Fitness

Test Two: Upper Body Strength (Push-up Test)

*Equipment needed* – none

*Procedure* Men will perform the test in the standard push-up position (only toes and hands in contact with the floor).

#### Contraindications to Exercise

*Check with your doctor if you have any of the following conditions before starting any exercise program or before taking this test.*

- High Blood Pressure
- Chest Pain
- A Heart Condition
- Angina
- Dizziness
- Loss of Consciousness
- Bone or Joint Problem
- Any Other Reason Not to Do Physical Activity

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Women perform the test in the modified push-up position (knees bent, only knees and hands in contact with the floor). This test will test the strength and endurance of the upper body including the front shoulder (anterior deltoid), chest (pectorals), and back of the arm (triceps) muscles. The individual performs as many push-ups as they can to the point of exhaustion. There is no time limit but a steady pace and correct form must be maintained. Resting is only allowed in the *up* position. The score is the total number of push-ups completed. Compare your score to the scores in Figure 3. Record your level of upper body strength.

#### Test Three: Abdominal Strength (Curl-up Test)

*Equipment needed* – padded flooring or mat

*Procedure* Perform a bent leg curl-up. This is not a sit-up.



Assume a lying position on the floor, knees bent, feet flat on the floor, hands at sides. Tighten your abdominal muscles and curl your upper torso off of the floor. Hands should move forward approximately 3 inches

and shoulders should be off of the floor. Return to starting position. Perform as many curl-ups as possible while maintaining a steady pace. If the pace is interrupted, the subsequent curl-ups do not count. The score is the total number of curl-ups completed. Compare your score to the scores in Figure 4. Record your level of abdominal strength.

#### Test Four: Leg Strength (Wall Sits)

*Equipment needed* – a bare wall and a stopwatch

*Procedure* Stand two feet away from the wall, facing away, with your feet hip width apart and toes facing forward. Bend at your hips and knees and press your back into the wall as if you were sitting on a chair. Hips and knees should be at a 90° angle. Keep your upper body relaxed and your shoulders lifted. Use the stopwatch to time yourself. Hold as long as you can. Compare your time to the chart in Figure 5. Record you results.

#### Flexibility Testing

##### Test Five: Lower Body Flexibility

*Equipment needed* – none

*Procedure* Sit upright on the floor with your legs extended in front of you 12 inches (30 cm) apart, feet flexed, toes pointing to the ceiling, do not lock your knees. Breathe in, then as you breathe out reach your hands forward to your toes. Do not bounce, do not stretch your neck to increase your distance. Reach as far forward as you com-



fortably can. Have another person mark the distance you reach from the tip of your fingers to your toes. Compare your results to Figure 6.

#### Test Six: Shoulder Flexion

*Equipment needed* – none

*Procedure* Stand upright, back straight, abdominal muscles in, knees bent slightly. Reach towards the ceiling with your right arm, bend your elbow and drop your hand over your shoulder.



Bend your left arm at the elbow and reach up behind your back. Slowly move your hands toward each other, try to make your fingers meet. Mark how close your hands are to each other. Repeat with the other side. Compare your results to those in Figure 7. Record your results.

Your results represent your baseline level of fitness – the starting point for your fitness program. Any score in the *poor* or *fair* categories indicates an area you need to work on extensively. A score in the *good* category indicates a higher level of fitness that can be improved with a little extra work. An *excellent* rating indicates a high level of fitness that must be maintained.

Repeat the test every three months and watch your improvement as you exercise to better health. ♣

**Note** See page 13 for all Fitness Test Tables.

*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.*



**Figure 1 Recovery Rates for the Three Minute Step Test**

Age(years)	18-25		26-35		36-45		46-55		56-65	
	M	F	M	F	M	F	M	F	M	F
Excellent	>89	>98	>89	>99	>96	>102	>97	>104	>97	>104
Good	90-105	99-117	90-107	100-119	97-112	103-118	98-116	105-120	98-112	105-118
Fair	106-128	118-140	108-128	120-138	113-130	119-140	117-132	121-135	113-129	119-139
Poor	<128	<140	<128	<138	<130	<140	<132	<135	<129	<139

**Figure 2 Upper Body Strength - Push-up Test**

Age(years)	18-25		26-35		36-45		46-55		56-65	
	M	F	M	F	M	F	M	F	M	F
Excellent	>29	>21	>22	>20	>17	>15	>13	>11	>11	>12
Good	22-28	15-20	17-21	13-19	13-16	11-14	10-12	7-10	8-10	5-10
Fair	17-21	10-14	12-16	8-12	10-12	5-10	7-9	2-6	5-7	1-4
Poor	<16	<9	<11	<7	<9	<4	<6	<1	<4	<1

**Figure 3 Abdominal Strength**

Age(years)	18-34		35-44		45-65	
	M	F	M	F	M	F
Excellent	>60	>50	>50	>40	>40	>30
Good	45-59	40-49	40-49	30-39	25-39	15-29
Fair	30-44	25-39	25-39	15-29	15-24	10-14
Poor	<30	<25	<25	<15	<15	<10

**Figure 4 Leg Strength**

Level of Fitness*	Beginner	Intermediate	Advanced	Expert
Excellent	>50	>80	>120	>160
Good	40-49	60-79	100-119	140-159
Fair	30-39	50-59	80-99	120-139
Poor	20-29	40-49	60-79	100-119

\*Level of Fitness *Beginner* - Never exercises or is over 50  
*Intermediate* - Exercise intermittently (at least in past year)  
*Advanced* - Regularly exercises 3-4 times per week  
*Expert* - Exercises daily

**Figure 5 Lower Body Flexibility**

Excellent	Fingers reach 1 inch or more past the toes
Fair	Fingers reach or almost reach toes
Poor	Fingers are more than five inches from toes

**Figure 6 Shoulder Flexion**

Excellent	Fingers interlock
Fair	Fingers touch
Poor	Fingers are more than three inches apart