# *Fundamentals of Recurve Target Archery*

Getting Started
in the BEST Method

**Second Edition**

Ruth Rowe

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Pictures of the National Championship and the Olympic fields courtesy of the USA Archery, Colorado Springs, CO.

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This **Second Edition** has been expanded, updated, and reorganized. The reorganization simplifies the book and makes the information flow more logically. Also, the discussion on setting up the first bow has been greatly expanded to include guidelines on selecting and sizing equipment.

Many thanks to Julia Body. During the 10 years I worked with her producing three editions of the National Archery Association's *Instructor's Manual*, I learned I could write and present information effectively. It started me on a path while not easy, has been very satisfying, knowing that I can make a contribution to the performance of others in the sport I love.

I've used the writing principles I learned when doing the *Instructor's Manual* throughout my working life and in the instructional materials developed in archery. I hope the organization and presentation of this book helps you with whatever goal you have for your shooting.

Thanks to Jack Stapleton who took time to help illustrate this book, Martha Sencindiver for the index, Stephanie Pylypchuk for some specific PhotoShop work, and Michelle for illustrating a right-hand archer.

And a very special thanks to Alan Anderson. His expertise and overall encouragement and advice helped make this book what it is. He also assisted with illustrations in all printings of both Editions, as well as giving general moral support. He has freely given many hours, many thoughts, and many suggestions about how to make this book even better.

# *Table of Contents*

# *Introduction*

This book about learning recurve target archery is intended for someone who is new to the sport, or possibly someone who wishes to relearn proper shooting technique. It presents information for learning if you are drawn to it, as many people are. While comprehensive, it can be used for learning to whatever level of interest you have, whether it is just getting an idea of what shooting a recurve bow is like, or wanting detailed information about it.

This book presents the beginning stages of the newer shooting technique being used by most top competitive archers. Now known as the BEST method (Biomechanically Efficient Shooting Technique), it aligns the body so that it is most stable, and by aligning the shoulder and arm bones to carry the draw weight, it also produces greater accuracy on the target and lessens the chance of injury.

Following the principles presented in *Total Archery* by Kisik Lee, this book has the elements of the BEST method important for a new shooter. It is not the complete method. For someone starting, learning all elements of the BEST method is too complex and unnecessary for initial success. What is here will carry you far. Therefore, this book contains the important elements needed to get started; once mastered, the remaining elements (presented in a second book and in *Total Archery*) can be learned, if desired.

Learning recurve shooting technique properly is deceptively difficult and requires learning many different details. For a new archer, doing everything correctly (or even well enough) the first time the bow is drawn is virtually impossible, as there are so many different things going on and too much to remember at the same time.

So to learn, a series of five Lessons breaks down the process to make it easier. The first Lesson presents some elements in a series of exercises, then additional elements are added in the exercises in the second Lesson after the first is mastered. This continues through the Lessons, which brings you

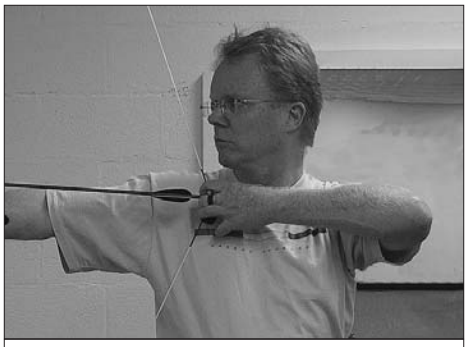
toshooting in Lesson 5. It makes the initial learning easier to master and more satisfying, as you can work with fewer elements at one time, learn them, and build on that. If you follow each Lesson closely and master it completely, you will have more success once you start shooting.

If your interest is shooting for your own pleasure, use what parts help you. If you want to really learn to shoot a recurve target bow well and potentially prepare for competition, study the information in detail and follow it precisely. Either way, this book can help you move more quickly down the path you choose.

## *The Execution and the Finish*

To start Execution, the drawing shoulder is dropped low. To ensure it stays low, the string is drawn with the hand below the chin level. Then *the hand only* is raised to the anchor position on the chin, leaving the drawing shoulder low.

Drawing shoulder



The draw; shoulder and hand low

The big knuckle of index finger is under the jawbone and the string solidly contacts the face. When the string approaches the face, the drawing shoulder joint and shoulder blade begin to move around towards the spine to load the effort of the draw into the lower trapezius muscle at the bottom of the shoulder blade. That effort is held until after the release.

Loading the lower trapezius

Anchor

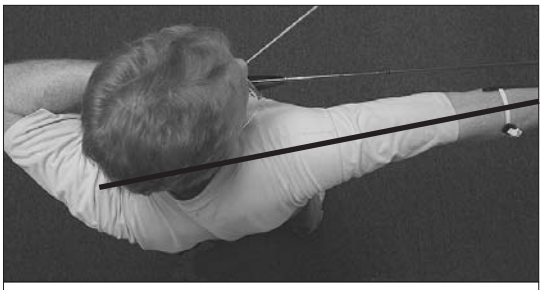
The release is simply feeling the effort in the back strongly, then relaxing the fingers and allowing the string to leave. Other than that, the *feel* is the body is *still* until the arrow is in the target. The body will react because the effort to hold the draw weight is still in the back and the string is gone, resulting in a spontaneous movement into the Finish.

This low rib cage and straight spine position should be set at the beginning of the shot and maintained through the Finish. Again, the hips should be in line with the feet and the shoulders in line with the hips. Body weight is centered over the middle of the feet.

There is no leaning in any direction and/or arching the back. Never lean either towards or away from the target, or forwards or backwards on the feet.

For most people, properly setting the spine, rib cage, and bow shoulder produces good string clearance on both the elbow and the chest.

***Shoulder Alignment*** — This is the other cornerstone of successful shooting. Proper shoulder alignment puts both shoulder joints perfectly in line with the bow arm, pointing to the target. This allows the draw weight to press the arm bones directly into the shoulder socket. This is important for performance, being able to shoot well with heavier draw weight, and avoiding potential shoulder injuries.



Correct shoulder alignment puts both shoulders directly in line with the bow arm.

This alignment is held through the shot. The shoulders should be directly above the feet and hips so the body stays straight.

***Bow Shoulder Position*** — From the front or back, the bow arm and the bow shoulder are level and straight with the arm set deep down in the shoulder socket. Shoulder alignment sets the arm horizontally in line. This vertically aligns the shoulder and bow arm so the draw weight presses the upper arm bone into the shoulder joint when the bow is drawn. This is the most stable position for the bow shoulder.

A low bow shoulder makes the upper arm bone press straight into the shoulder socket.

Once set, this position should be maintained through the shot.

and hips lightly contact the wall. Then put your waistline on the wall, too, or get it as close as you can. Once you have your spine straight, lean forward onto your feet. That is the position to work for. In this position, you should feel the abdominal muscles working, too.

***Both Shoulders Raised*** — When raising the arms, many people tend to also raise the shoulders. This puts the bow arm, particularly, out of line with the shoulder bones. It forces the draw weight into the upper trapezius, creating tension at the top of the shoulders/base of the neck. When drawing or shooting, fatigue or soreness on the top of the shoulders indicates one or both are up.

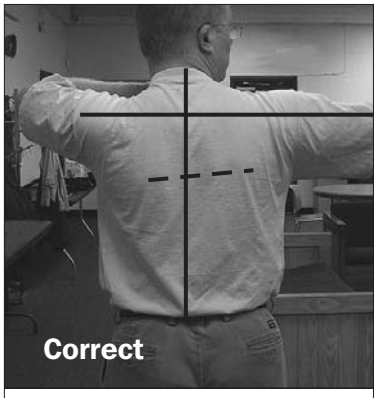

With the shoulders down, the traps are relaxed and the shoulder and arm bones are properly in line.


Shoulders are raised, with a lot of tension in the muscles on top of the shoulders and at the base of the neck.

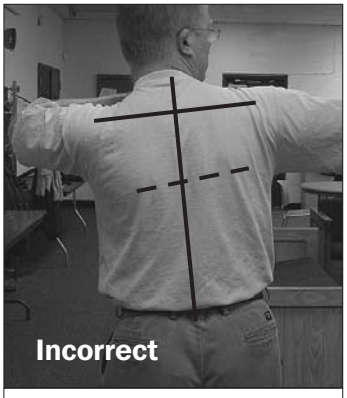
The arms and shoulders are separate. Only the arms move when setting up the shot. Raise only the arms with both shoulders set down. Initially in the Set, the shoulders must be at least level.

Repeat Exercise 4 until you can do the air bow and keep both shoulders down in place.

***High Bow Shoulder*** — Because the final position of the shoulder blades puts the drawing shoulder blade slightly lower than the bow shoulder blade, this can be harder to see, but the bow shoulder can be raised, putting the arm out of line with the shoulder. This is almost always either from leaning or from raising the shoulder when raising the bow arm.




The spine is straight, keeping the bow shoulder set down into the shoulder socket.




Leaning makes the bow shoulder high. They are not in correct relationship to the spine.

$^1/_2$" from the front of your chin, your head is back with the chin raised, or you feel like you're stretch- ing really far.

Test and readjust the strap until you can come to full draw with correct body alignment and the hand on the chin with proper head position.

The shoulders are lin line with the bow arm.

The drawing arm is in line with the strap.

*Part 2 — Using the Strap to Feel the Draw*

Once you are close to the correct draw length with the strap, you can begin using it as the bow. In this exercise, you will put effort into the strap to feel the line of pressure from the 'draw weight.' You will also learn the feeling of stability in the shoulder/bow arm position.

Because it does not stretch, you can put real effort into the draw without losing your Form. If building strength is necessary, this can also be an isometric weight training exercise.

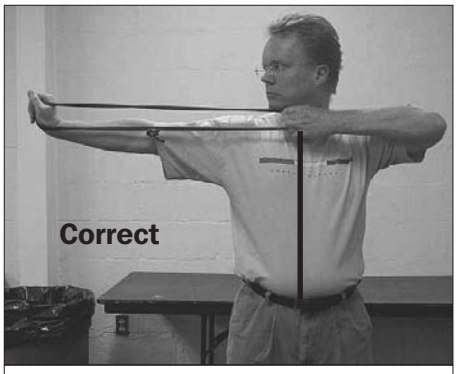
*Use a mirror if you are working on your own.* Stand in front of the mirror and practice setting up the shot and coming to full draw.

1. **Do the initial setup.** When shooting, this would be before coming to the Set position.
   - Fingers on 'string'
   - Bow hand on 'bow'
   - Bow elbow turned down
   - Shooting Posture

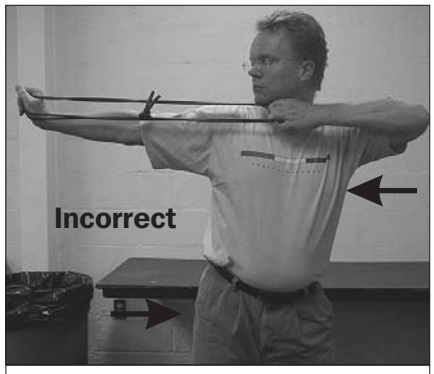
   For now, this is mostly like the Air Bow exercise in Lesson 1, since the strap does not stretch. So pretend by putting your hands and arms in the initial position.

Start the shot as you would when using a bow.

2. **Come to full draw.** With the bow (and with the stretch material, next), you would stop in the Set, but here, raise the arms and stretch the strap straight, *keeping the drawing shoulder down*. The drawing hand should be




With the body straight, the spine is straight, the shoulders and spine are aligned correctly.




Body lean often comes from leaning when raising the bow or when drawing.

The body should be straight so there is equal weight on both feet; if anything, just a little more on the foot nearer the target. The shoulders are directly over the hips and feet.

If you are working by yourself, you must have a mirror to see this, as working only by feel allows the leaning to continue. *Right now, what feels straight probably isn't.* It is important to learn what is truly straight and vertical. Learn the feel of straight and do it every time.

If you are leaning, look in the mirror at full draw and move the shoulders towards the target and the hips away until you are standing straight. When doing this, be sure to keep the weight centered over the feet.

***Loss of Shooting Posture*** — Through the shot, maintain Shooting Posture you set at the beginning. It's really easy to start arching the lower


The spine is straight and the chest is low.


The chest is high and the back is arched.

- String sits solidly on tip of nose and side of chin
- Index finger knuckle is under jawbone

The shoulder stays low; only the hand moves up to anchor.

6. **Transfer all effort into the muscles in the back.** You've done this in both Lessons 1 and 2. Now you're using the bow, it's more important.
   - Hand stays 'glued' to face
   - Drawing shoulder joint and shoulder blade move around toward the spine, bringing the drawing arm in line with the 'arrow'
   - Muscle on low inside edge of shoulder blade holds the weight

   *Check Shooting Posture!* It is very easy to raise the chest and arch the back when trying to get the drawing shoulder into proper position.

   Viewed from different angles, 1) the shoulders and bow arm are perfectly straight, and 2) the lower drawing arm is in line with the hand and the bow.

The line of the shoulders and bow arm: straight.

The line of the drawing arm and the bow.

7. **Stay at full draw.** Keep the muscle holding the draw weight working. Hold steady for 5 seconds and Let Down.

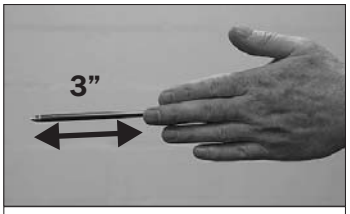
Repeat this until you 1) are able to comfortably come to full draw and load the back, 2) have some strength in the muscles in the back to hold the draw weight. *No matter how strong you are, these muscles are never used this way for anything else,* so they are always relatively weaker than the other muscles. They must be built and this practice helps do that.

### *Exercise 3: String Alignment*

Add string alignment only after you can consistently get to full draw without much trouble and load the draw weight into the back, can consistently have the string solidly on the face in the same place, and can transfer the draw weight into the correct muscle. It is important to first learn how to

Determining Arrow Length — Take an arrow and put the nock on your chest. Hold the arrow out with both hands. The point of the arrow should extend at least 3 inches beyond your fingers. For safety, this is important – do not draw an arrow that is shorter than this. If the arrows are too short, get longer ones before continuing.

Place the nock on the top of your chest and extend your arms with the arrow.




For safety, have at least three inches beyond the fingers.

***Standing on the Shooting Line*** — Since so far you've been working without an arrow, where you were standing was not important. Now that you'll be drawing with an arrow on the string, stand on the shooting line.

Target archers stand with one foot on each side of the shooting line. The feet are in a 'square stance,' meaning the toes are on an imaginary line straight to the center of the target. Every time you come to the line, set your feet in this position. *After that, stand still until you leave the line.*

Target archers stand with one foot on each side of the shooting line in a square stance.

To begin, put the toes in a straight line to the target.

***Nocking an Arrow*** — Almost all target arrows have three fletchings. One is perpendicular to the slot in the nock that goes onto the string. This fletching must be pointing away from the bow when the arrow is nocked.

Stay still, turn your head, and look in the mirror. The Finish: your bow hand should be at or below the line of your bow arm and your drawing hand should be alongside your neck with the fingers relaxed. This is the Finish. Hold it for a second or two, then relax.

Practice this until you can do a complete 'shot' smoothly. Feel the reaction of the drawing arm/hand on each 'shot.'

*Part 2 — With the Stretch Material*

While less 'draw weight,' the stretch material you used in Lesson 2 more closely simulates the action of the bow. It also allows you to get the feel of keeping both hands relaxed and the action of something *leaving* the hand.

1. **Do the Initial Position, Set up the shot, draw, and load the back.** Come to full draw, following the complete process you have learned, especially moving the shoulder around towards the back.

3. **Anchor and transfer all effort into the lower trapezius.** While the drawing hand stays anchored put all effort into the muscle on the low inside edge of the shoulder blade as you have done before. Keep the hand anchored on the chin and the head still!

   Focus on keeping the feel of slightly increasing the 'draw weight.' *The drawing hand position on the face and the head position stay as they are.*

Align the shoulders and load the effort of the draw weight into the back.

3. **Execute and Finish the shot**. Keeping the hand anchored on the jawbone, feel like you are increasing the effort in the back and Execute and Finish the 'shot.' The stretch material will snap out of your drawing hand. With a relaxed bow hand, it will go some distance. Done correctly, the drawing hand stops alongside the neck with the fingers slightly curled. The bow hand is at least level with the arm from the release of pressure.

The release with relaxed hands sends the stretch material some distance. Both hands are relaxed.

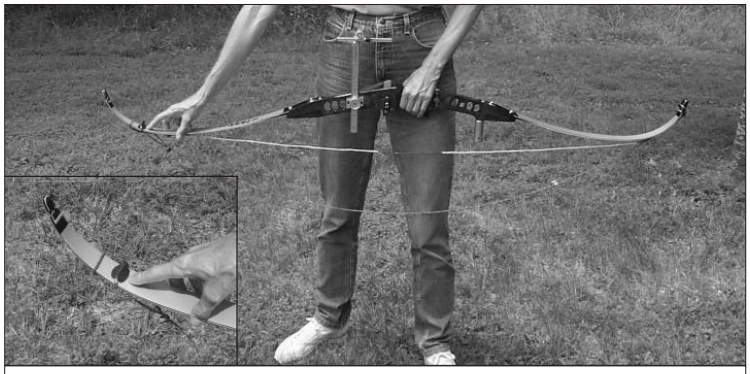
## *Using the Stringer with the Odd Piece*

The odd triangular piece takes the place of the smaller cap of the two-cap stringer.

1. Place the odd piece over the upper limb.
2. On the lower limb, check to be sure the string stays in the string groove and place the cap over the end. As with the 2-cap stringer, generally it is easier to stand the bow upside down to do this. Check the position of the string, then hold the string against the limb while placing the stringer cap over it.

Place the cap over the end of the lower limb. Be sure the string stays in the string groove.

3. Hold the bow so both strings are hanging down.



Ready to string the bow. Both the string and the stringer are on the same side of the limb. The string loop is closer to the end of the limb than the odd piece.

4. Set the odd piece on the limb behind the string loop, then place one or both feet on the stringer cord.
5. Holding the odd piece in place on the limb so it doesn't slip, draw the bow *straight up*.

It is almost always necessary to hold the odd piece against the limb at the start. The odd piece is under the thumb.

are different diameters, some larger, some smaller, changing the overall thickness for the same number of strands. As a starting guide, these are the recommended number of strands for fastflite and dacron (as a standard).

| Draw Weight | Number of Strands | |
|---|---|---|
| | Fastflite | Dacron |
| Under 25# | 14 | 10 |
| 25#-30# | 16 | 12 |
| Over 30# | 16-18 | 14-16 |

## Arrows

While technically not part of the bow, arrow selection is important. Four points must be considered when selecting arrows.

***Shaft Material*** — This is discussed in *The Equipment*. In general, aluminum arrows are recommended for new shooters. The all-carbon arrows sold in sporting goods stores are not good as they almost always too stiff for anything but a bow over 40 pounds. (See the Spine discussion.)

***Length*** — See the beginning of Lesson 4 for information on how to determine the correct length to start.

***Spine*** — The arrow bends when it is shot. How much it bends (called the *spine*) can affect grouping on the target. Spine depends on the length of the arrow, the bow weight and the arrow size. While it's not necessary to make it perfect, when starting it is good to have the arrows at least reasonably close to what the bow needs.

Any good archery shop has charts to help determine the correct spine for any setup. While the selection from those charts is usually stiff, they will work reasonably well.

***Fletching*** — This is discussed in *The Equipment*. If you are using aluminum arrows, feathers are a better bet.Outdoors, vanes are better.

***Nocks*** — Nocks generally are specific to one type of arrow or a group of arrow types. Nocks for the more expensive arrows often have two 'throat' sizes, helping nock fit on the string.

## Putting It all Together

With a new bow, initially there are some default parameters – settings that serve as good starting points. As you get more familiar with equipment

**Draw** – (n) The act of bringing the Bow String back to the face; can be either half draw to the Set or full draw to the face. (v) To pull the Bow String back to reference points of the Anchor.

**Draw Length** – (n) The distance the Bow String is drawn back, as measured from the Nock Throat to the Pressure Point. There are two types of Draw Length: Standard ($26^1/_4$") to the Pressure Point and the Draw Length of the archer.

**Draw Weight** – (n) The amount of effort, in pounds, required to draw the string. There are two different Draw Weights: Standard and the archer's. The Standard Draw Weight is measured when the bow Limbs are manufactured and is marked on the lower Limb. An archer's draw weight is rarely the same as the Standard draw weight, as the Draw Length is different.

**Drawing Side** – (n) The side of the body with the arm that draws the Bow String. For a right-handed archer, this is the right side; for a left-handed archer, it is the left side.

**End** – (n) The number of arrows shot before going to the target to score and/or pull them. This comes from old England when archery fields had targets at both ends. Archers would stand just in front of the targets on one end and shoot to the other end. Then they would walk to the targets, pull the arrows, turn, and shoot to the other end (again). So they were always shooting a set number of arrows from 'End' to 'End.'

**Execution** – (n) Doing the shot, starting from the Set through the Release and into the Finish.

**Face of Bow** – (n) The side of the bow that faces the archer when shooting.

**Finger Sling** – See Sling, Finger.

**Finger Tab** – See Tab.

**Fletch** – (v) To glue the Fletching onto the Arrow Shaft.

**Fletching** – (n) The feathers or plastic vanes on the back of the Arrow Shaft. These make the arrow spin as it travels through the air.

**Forgiving** – (adj) A general term meaning the setup of the equipment keeps it from reacting as much to minor errors when shooting. A 'forgiving' setup generally means tighter groups. As opposed to 'Critical.'