Perfect Draw Length

One of the simplest, yet most overlooked, problems in archery today involves proper draw length. At the pro shop, the 3-D range or in the field, everyone seems to have a fascination with drawing bows that are too long for them. Whether it is a matter of trying to get more speed from their setups or they just don't know better, the majority of all archers are currently shooting a draw length that is too long.

In archery, as in most sports, repetition is the most important step on the path to success. By shooting a draw length that is too long, you are forcing your body to try and compensate for the equipment instead of working with it. The problem begins with how the body compensates for the ill-fitting equipment and progresses to "what it sacrifices in the process" and "whether it can repeat the action in the exact same manner from one shot to the next."

For example, the farther you draw back past the corner of your mouth, the more you compensate by shifting the weight to the arm muscles and away from the back muscles. The arm muscles are much smaller and tire more quickly than the larger muscles of the back, making your shot less steady. Additionally, once the weight is shifted to the arm and the back muscles are isolated, it is impossible to release the string using back tension or follow through with the shot.

The Warning Signs. The most obvious signal that your draw length is too long can be found in the hips. At full draw, your body should be in the shape of a "T" with your shoulders directly over your feet. If you are leaning back at the waist, even a little, your draw is too long and will hurt your form. Other indicators of an over-extended draw can be seen in the relationship of the bowstring to the face. If the farthest point of the string reaches more than about 1/2 inch past the corner of the mouth, or if the string lays across the side of the nose instead of touching the tip of the nose, your draw length is likely too long.

The arm that holds the bow can be another indicator of proper or improper draw length. Proper form when shooting a recurve or longbow requires the bow arm to be fully extended and locked at the elbow. Compounds, however, draw to the mechanical stop of the wheel or cam, creating a mechanical draw stop. Because of this, when shooting a compound bow the archer has the option of shooting a yielding (bent) arm instead of a straight arm.

Draw length is measured from the pivot point to the inside of the nock. Bows are measured using the Archery Manufacturers Organization standard draw length that is measured from the arrow's nock groove to 1 3/4-inches in front of the pivot point. If, when at full draw, you cannot bend the elbow slightly without fear of collapsing the string forward, it is time to look at shortening the draw. Even if you opt to shoot the stiff arm, you should still be able to bend your elbow without letting down or your draw is most likely too long.

Finding the Correct Length. One of the first steps in buying or setting up a bow is to determine the correct draw length. The official standard for measuring the draw length of a bow is to measure from the inside edge of the groove of an arrow's nock to 1 3/4 inches in front of the pivot point when the bow is at full draw. The pivot point is the deepest part of the grip where the bow normally rests and pivots against your hand.

To find your natural (true) draw length, use a lightweight recurve bow with an extra-long arrow. Draw the arrow to the corner of your mouth, touching the string to the tip of your nose. Have a partner ensure that your hips are straight and your head is in its normal, upright position. You

should not have to move your head forward or backward to line up the string. Then have your partner mark the arrow (from a safe position) at a spot even with the front of the bow. Next, remove the arrow from the bow and measure from the mark to the beginning of the string groove on the nock and record this measurement. Measure from the pivot point to the front of the bow. If it measures 1 3/4, then your first measurement is your draw length; otherwise you will need to add or subtract the difference as necessary.

One important thing to remember: For this to work you should use a low-poundage recurve bow (under 10 pounds). If the bow has too much weight, you may strain to pull and hold the bow, influencing your results. Compound bows draw to a mechanical stop or to the valley of the cam, causing you to believe that this is your natural draw length because it feels right. In fact, it is more likely to be due to the bow's reduced holding weight, caused by the letoff of the cam, that makes it feel more comfortable.

Adjusting the Draw. Depending on the type and model of bow you are shooting, changing the draw may be as simple as moving a couple of screws or as involved as completely rebuilding the bow with different cams, cables and a new string. When adjusting the draw, there are several different options for adjusting the draw length depending on who manufactured the bow and the bow's age. The easiest bows to adjust have a sliding module.

Even if you use a peep sight, your draw should not bring the string past the corner of your mouth or past the tip of your nose. With a moveable module system, you remove the screws, slide the module to a new length and replace the screws. This can be done in the field without the use of a bow press. In fact, the only tool required is a set of Allen wrenches.

Fixed modules require the use of a bow press. Once the string pressure is removed from the limbs, the string and cables can be unhooked. The module can then be replaced with the appropriate size and the bow reassembled. Other bows, especially one-cam models, have draw pegs on the cam itself. Again, a bow press removes the pressure from the limbs. Then the string or cable can be safely removed from one post and attached to another, shortening or lengthening the draw as necessary. The last style of cam has several slots cut into the cam. After putting the bow into the press and removing the tension, the loop of the string remains on the peg, but the string threads through a different slot on the cam. For example, wrapping more of the string around the cam shortens the amount available for the draw, effectively shortening the bow's draw length.

Fine-Tuning the Draw. After adjusting the cam to as close to your desired draw as possible, you will need to start adding or removing twists from the cables and string to micro-tune the draw the rest of the way. Few archers go to this length when adjusting the draw. Think about it this way, though: Would you let your mechanic put new front tires on your car and eyeball the front-end alignment? Of course not; you want the complete package for the best handling and to prolong the life of the tires. When adjusting your draw length, you have the same requirement by wanting the best performance from your bow. Draw length is critical enough, even to the smallest increments, that "close enough" really isn't.

PSE's Advisor, Terry Ragsdale, has been a top-ranked tournament shooter and coach for more than 20 years. A few years ago, before a tournament, a pro shooter asked Terry if he would take a look at his form and give him some tips. It's was little surprise that the first thing he corrected was the pro’s draw length. What was a surprise was by how little he changed the draw length-about a 1/4 inch. At the time the pro questioned if such a small amount could make a difference. Terry's answer was simple: “I spend more time adjusting and tweaking the draw length of a new bow than

the entire rest of the tuning process combined". Oftentimes, Terry spends one to two days adding or removing a twist or two to the string and then shooting it until he is sure that it is perfect. Draw length can actually be that critical.

Does the average bowhunter heading out for the annual deer hunt really need to put this kind of dedication into tuning his draw length? Probably not. As hunters, though, we do owe it to the game to ensure that we take any means available to make the best possible shot, which includes changing our draw length for more accuracy. Also, it is a great example of how important your draw length is in the big picture. Next time you head out to the field or to your local pro shop, stop and take a look at your own draw. You may be surprised to find that with a proper draw you will hold steadier and shoot tighter groups, and better groups are sure to lead to more meat in the freezer and bigger racks on the wall!