

6.8. DRAW

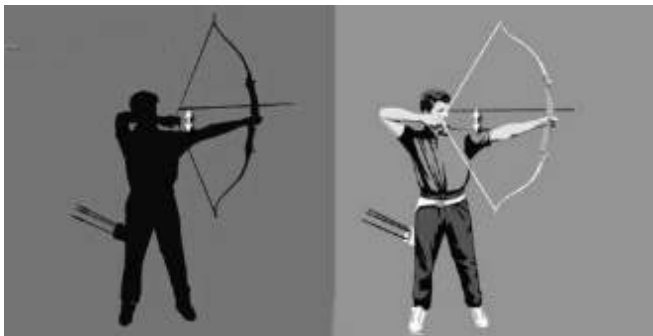
6.8.1. Complementary Knowledge

Type:

Force generating movements.

Objective:

To draw the bow without disturbing, and if possible, refining the pre-set position achieved through the preliminary elements. This draw action lasts until after the shot.

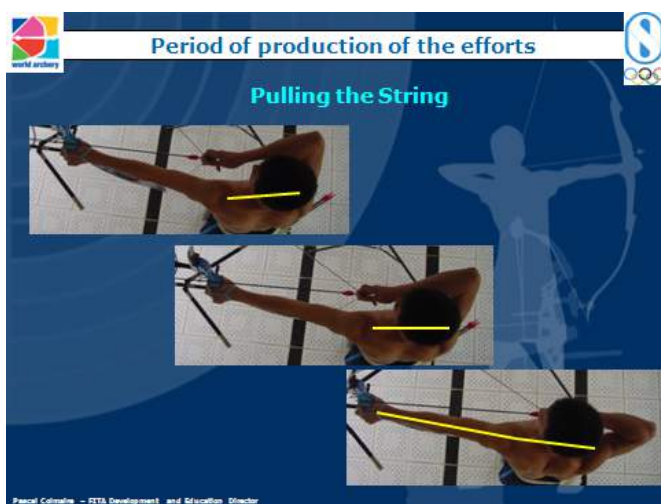


The draw from Pre-draw to Full draw.

Form:

Momentum movements are minimal, or non-existent with the novice staying in control throughout the draw. The initial phase of the draw happens relatively quickly to conserve energy. The closer the string comes to the face, the movement of the draw slows down until full draw is reached, but the motion never comes to a complete stop.

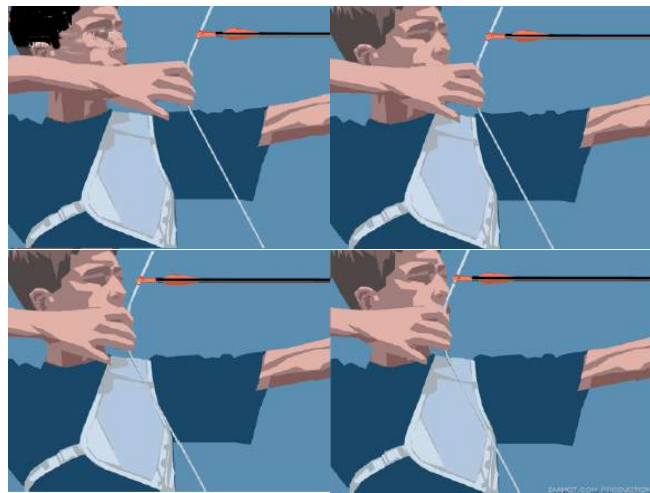
The torso is almost immobile. Only a slight rotation of the chest occurs, bringing the shoulders into the shooting plane; particularly if no pre-draw has been achieved.



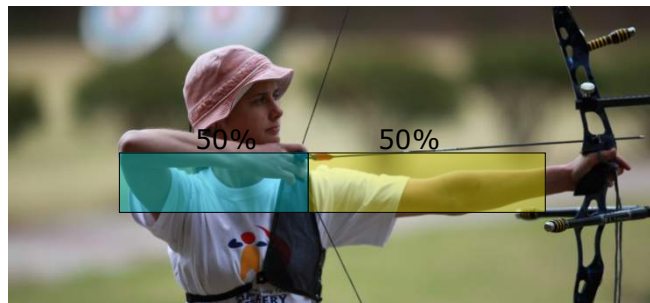
The body is vertical or remains at an original slight inclination.

The shoulders remain low.

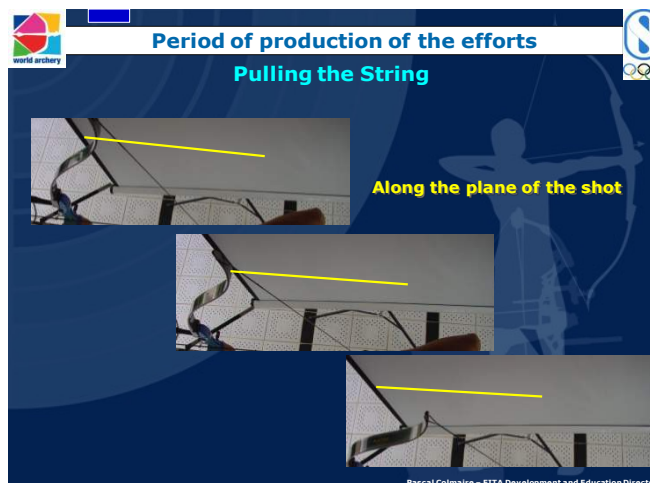
The head remains in place and extended up; it should not move toward the string at any point, but in particular during the last few centimetres of the draw.



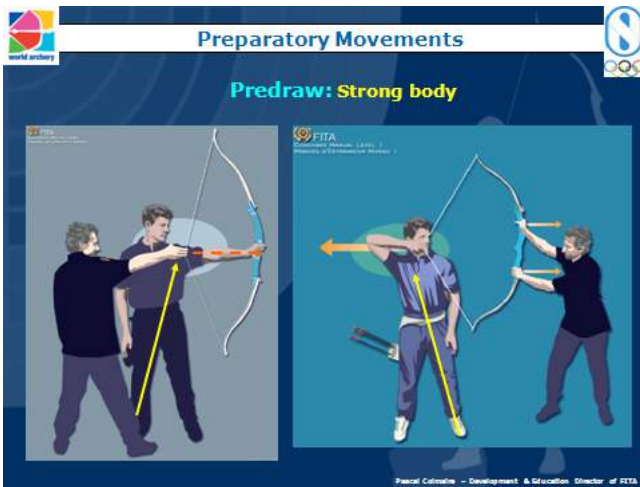
During the draw the pushing and pulling forces must be kept in balance.



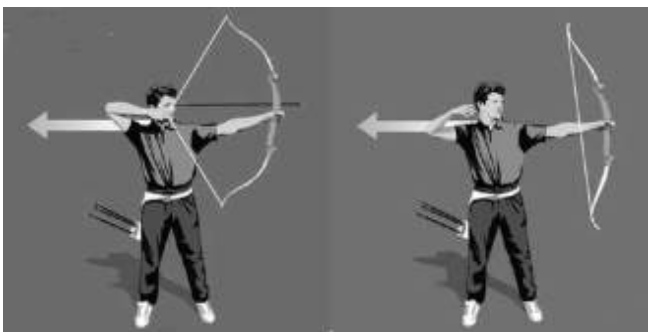
The string is pulled straight to the face in the shooting plane (see the illustration below), keeping the string continuously in front of the aiming eye.



As already seen and as the following illustration demonstrates, the pull and push efforts are supported by the legs.



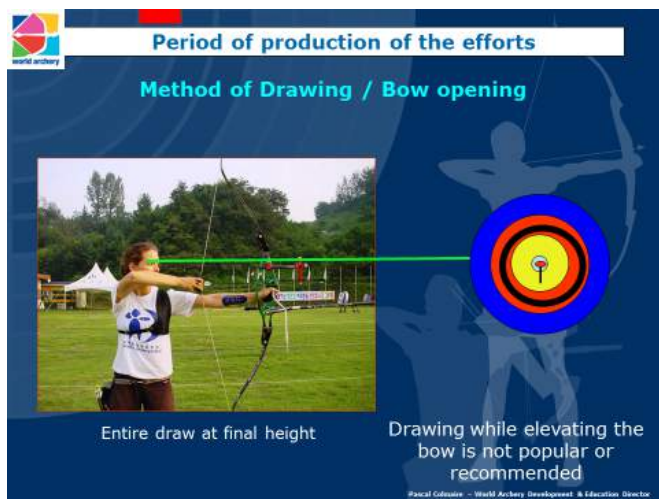
Left: String leg participation to the push effect.
Right: Bow leg participation to the pull effect.



The continuous draw activity starts once the bow is raised, and ends when the arrow is flying.

There are 3 main drawing forms:

1) *At a constant level*



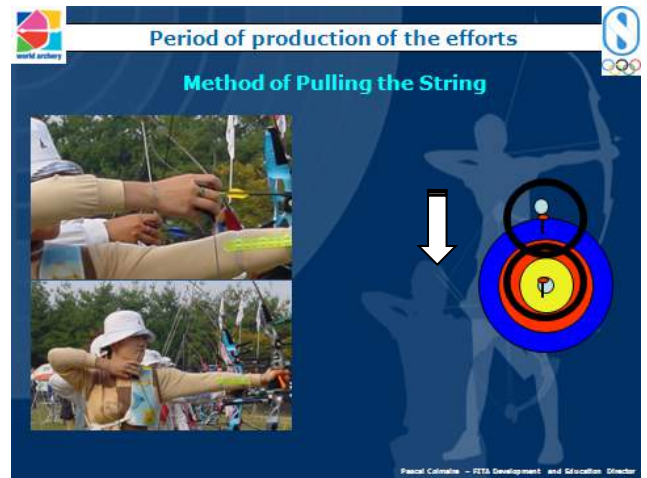
Entire draw at final height

Drawing while elevating the bow is not popular or recommended

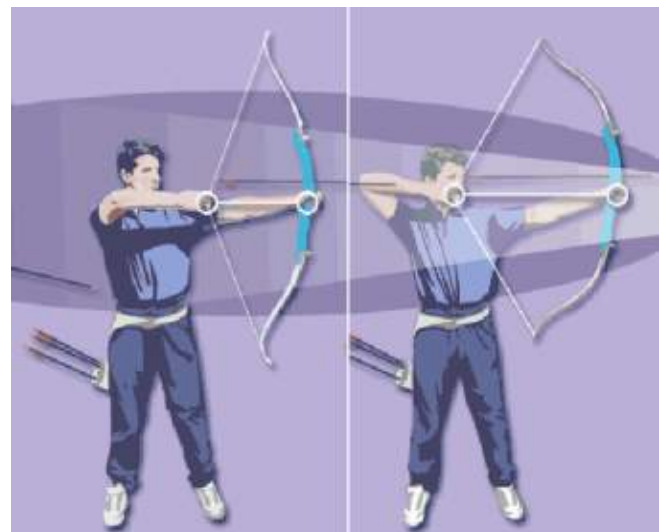
This method allows the archer to keep the sight pin close to the centre of the target all the way through. At short distance, the arrow should be always parallel to the ground.

2) *Starting from an elevated position*

The draw starts with the hands between nose and eye level. At a short distance, the arrow should be almost parallel to the ground.

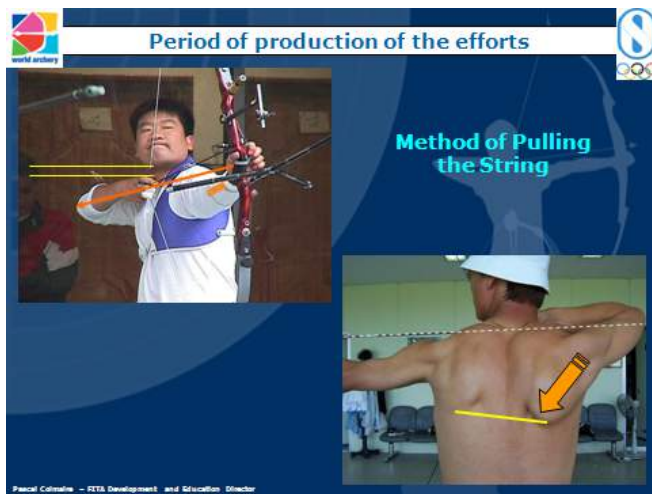


This method allows a better draw force line from the start of the draw, and better use of the big muscles located around the body and below shoulder level. On the other hand it requires some vertical synchronization between the two hands. Due to the short shooting distance of a beginner the hands should remain almost at the same level, and the arrow horizontal, all way through.



This style is easy to replicate consistently because the shot foundation is minimally disturbed and the movement is simple, thus control is easily achieved. Striving for symmetry of motion will keep the archer's balance intact. The production of effort is not centralized, but dispersed. It facilitates achieving symmetry, reduces local fatigue effects, and minimizes the risk of injury. The major muscles are used to generate the effort.

3) Finishing with a low string hand



This method emphasizes the use of the big muscles below the armpits, those located around the body and those below shoulder level. The string scapula moves down. The arrow may not be kept horizontal while drawing.

Caution:

Make sure that the arrow does not point so far up that it could fly over the target if the arrow is involuntarily released in the course of the draw. Such a draw angle is forbidden under international rules due to the danger and potential for injury.

Note: While opening the bow from the low position, special attention should be paid to the height of the bow shoulder, since the forces applied to the archer's body tend to push this shoulder upwards.

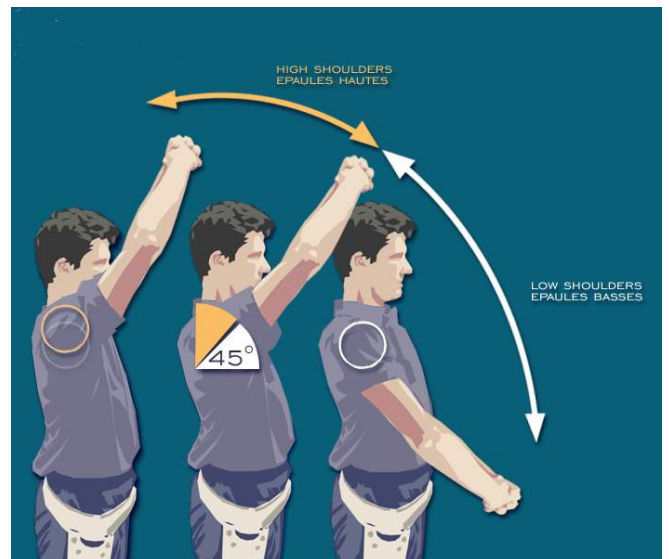
6.8.2. Exercises

The Start of the Draw - Exercise

This exercise starts like one of the exercises for teaching how to raise the bow up.

1. Simulations: Have the novice clasp their hands, with their fingers interlaced and palms up. The arms are placed in front of the body, slightly bent at the elbow. Have the novice lower their shoulders by using the pectoral muscles and generating a stretching feeling in the trapezius. They then raise their arms in front as high as they can while maintaining:
 - The shoulders in the lowered position;
 - A flat back.

The novice should finish with the arms raised at an angle of about 45 degrees and their elbows at eye level.



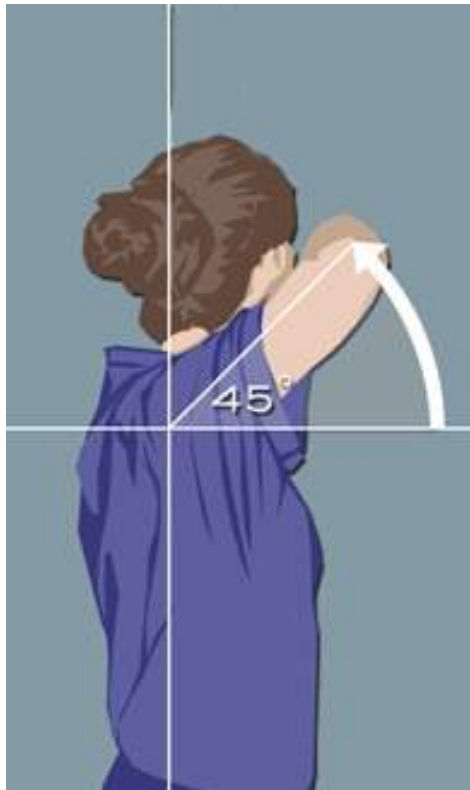
Normal range of motion allows the arms be raised up to approximately 45 degrees without lifting the shoulders.

Now separate the hands, and move the arms outwards and laterally, without changing the curve of the arms. The novice should feel that opening of the arms is like a fan. This opening motion comes from the shoulders, which move down and apart.



Feel the opening of the arms like a fan without changing the curve of the arms.

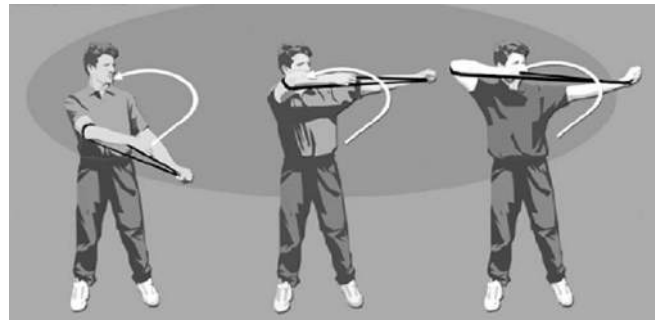
1.2. Simulate raising the bow without lifting the shoulders. Notice that the raised upper arm (string arm) makes an angle of about 45 degrees with the body. At this stage the string forearm is at about the level of the eyes, as are the hands and the imaginary arrow. At this step the "top triangle" (between the aiming eye and the two shoulders) is PRE-SET.



The string arm makes an angle of approximately 45° from the horizontal line without lifting the shoulders.

Let the novice focus mainly on the beginning of the draw. Then continue simulating the draw, changing the shape of the arms as little as possible to avoid using them for the draw action. At the start of the opening motion, the feeling should come from the shoulders, which move down and apart. Also, the novice should feel a sort of "opening" of the rib cage, a kind of expansion especially at the beginning of the draw. This exercise can also be done with eyes closed in order to better feel the effort and action.

1.3. Repeat the previous exercise with an elastic band placed around the string elbow and the other end of the band held in the bow hand.



Drawing exercise with elastic band placed around the string elbow.

1.4. Repeat the previous exercise with a harness on the string elbow connected to the string with a rope.



Focus remains mainly on the beginning of the draw. Repeat with eyes closed for a better feel of the action.

Throughout this session, the novice should keep all previous steps in mind, and should also follow these steps:

- Back straight and flat;
- Head raised while looking at the target;
- Low shoulders;
- Low centre of gravity (powerful belly) to get the feeling of proper balance on the feet.

2. Let the novice stand 5 metres from the target, have them raise the bow and begin the draw with the eyes closed, then at full draw have them open their eyes and shoot the arrow, if it is safe to do so.

3. In the next exercise, have the novice watch themselves in a mirror while raising the bow. At full draw, have them turn their eyes to look at the target butt.

4. With eyes opened, but not specifically focused, have the novice raise the bow and execute the beginning of the draw. Focus the eyes on the butt only when at full draw.

5. With eyes opened, have the novice raise the bow and begin the draw. Take aim and shoot whilst keeping focused on the aiming point. In this exercise, the focus should be on the aiming point.

Drawing in the Shooting Plane - Exercise

1. Let the novice stand in front of a mirror without an arrow on the bow. The mirror must be fixed on the target butt, or a wall.

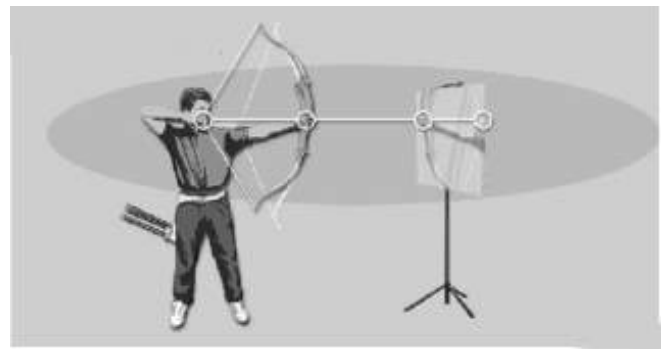
Have the novice stand very close to the mirror, so that – at full draw – the front end of the long stabilizer (if any) is about one foot or 1/3 meter away from the mirror; the body of the novice should be no more than 2 meters from the mirror.

During the raising of the bow, ensure that the string is aligned where it is normally aligned on the bow window or sight aperture.

At the start of the draw and while pulling the string back, the focus is on keeping the string:

- In proper alignment with the bow or sight;
- In front of the aiming eye.

Important: Never allow any movement of the head during the draw.



Control of the Draw plane in a mirror.

2. Let the novice repeat the same exercise but this time aligning the string only after raising the bow up and close their eyes at the beginning of the draw. At full draw, have the novice open their eyes and check if the string is still in front of the aiming eye and properly aligned on the bow or sight.

If not, check for the following:

- Possible head movement during the draw;
- The string being pulled away from the shooting plane;
- Twisting of the body during the draw;
- Leaning forward of the body (toward the toes).

3. Let the novice do the same as in #1, but this time have him shoot arrows at a blank butt at short distance of 10 to 18 meters (remember to remove the mirror from the butt).

4. The same as in #3, but shooting arrows at a vertical band on the target butt, from a short distance of 10 to 18 meters.

5. Repeat exercise #4, but shooting at a vertical band on the target from the regular shooting distance, as determined by the Beginner Award

level the novice is working on (see the Beginner Award Program).

6. The same as in #4, but shooting arrows at a regular target face, from a regular shooting distance.

The Path of the Hands During the Draw - Exercise

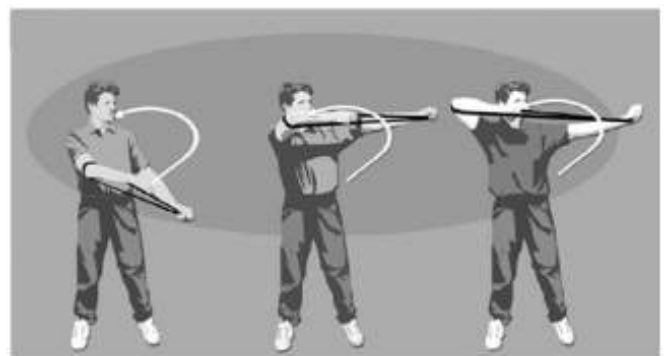
1. Let the novice assume the body's pre-setting, raising of the bow, and the draw positions. Ensure that the string hand follows a smooth curved line in the vertical plane to the end of the draw, i.e. until reaching the facial reference points. Throughout this movement both hands should remain parallel to the floor. This action should be progressive and in a continuous flow, avoiding staccato-like jerky movements.

2. Same as above, but standing in front of a mirror.



The novice visually checks the level of both hands in a mirror whilst simulating the draw.

3. Same again, but with an elastic band placed around the string elbow and the other end held in the bow hand. The band should remain horizontal during the draw process.



Line of forces should always be horizontal during the entire draw.

4. Same again, still standing in front of a mirror, but with the elastic band gripped in the string fingers.



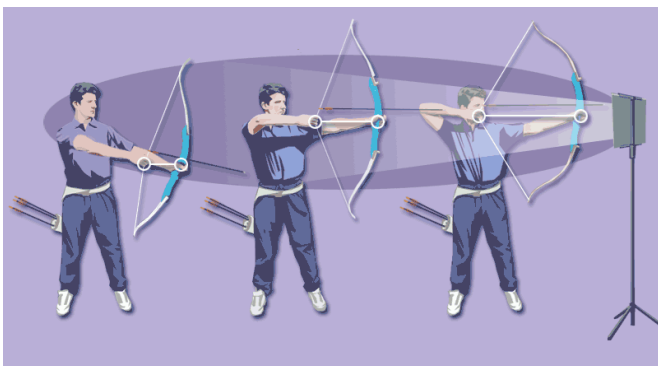
Simulate a draw ensuring the hands are always at the same level.

Throughout the entire practice session, continue to attend to all the points dealt with previously, i.e. the novice should follow these steps:

- Straight Body (vertical, flat back and body weight equally distributed on both feet);
- Erect spine (flat nape);
- Low chest;
- Low centre of gravity (heavy and powerful belly, low shoulders, flat chest, and a stretching feeling in the trapezius muscles);
- Fixation of the body around the hips (especially in the lower back);
- Entire body within the shooting plane (shoulders should be directly above the hips and feet);
- Head orientation facing the target (chin and nose pointed toward the target).

At this step, the top triangle (aiming eye and shoulders) is pre-set, hence the draw can start using the back muscles of the shoulder girdle.

5. Shooting arrows, starting with the raising of the bow, let the novice observe the string hand while the bow is being drawn; be attentive of the path of the novice's string hand. Be sure that the string hand remains at the same level as the bow hand and the arrow stays parallel to the ground. The use of a mirror will make this observation easier.



Let the novice come to full draw, aim at the target and continue the shooting sequence.

6. Same as above but with eyes closed instead of watching the string hand.



Drawing with eyes closed.

The novice should focus on the feelings of:

- A smooth, continuous, and progressive movement of the string hand;
- An action coming from the muscles of the back and posterior part of the shoulders (not from the arms).

7. Have the novice raise the bow and begin the draw with the eyes open but not specifically focused. Focus on the butt only when at full draw.



Drawing with unfocused eyes.

8. Let the novice raise the bow and begin the draw with eyes open and focused on a blank butt. Shoot whilst maintaining the focus on the blank butt.

9. Let the novice raise the bow and begin the draw with eyes open and focused on a target face. Let him take aim and shoot whilst remaining focused on the aiming point.

Low Centre of Gravity - Exercise

Objectives:

- To improve body stability by having as low a centre of gravity (CoG) as possible.
- Be able to draw the bow back while keeping the shoulders (and CoG) down.

Situation:

Have the target at a nominal shooting distance and a partner assisting.

Equipment:

Basic equipment set-up and a piece of wooden rod about one meter long.

Instructions:

The partner faces the novice and places one end of the stick just below his belly button and the other end placed just below the archer's belly button. The novice maintains the pressure on the stick from before the draw until two or three seconds after the release.

If the stick is long enough, one end can be touching the archer's belly just below the belly button and the other end could be placed on the ground about 1½ meters in front of the archer. See illustration.



Lower the centre of gravity by maintaining pressure on the stick.



Centre of gravity pressed down on a stick.

Motionless and Stable Head - Exercise 1

Prepare a mirror as shown in the pictures below.



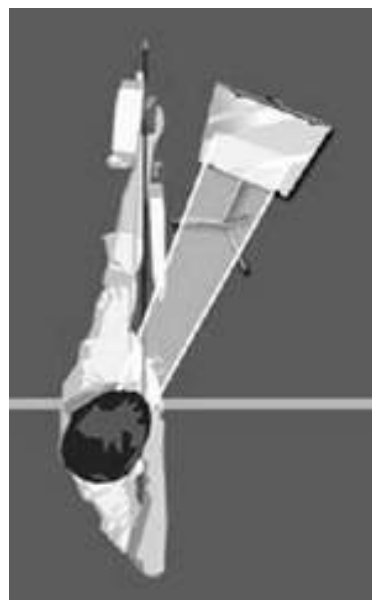
Self-control of the head (and torso) position during the draw with an elastic band simulation.

a) Simulations with an elastic band:

Let the novice pre-set his body and start the sequence toward the target. As soon as he has started the draw action, let him move his eyes toward the mirror without turning his head and let him observe his upper body (the top pyramid - in other words the head and shoulders); they should remain immobile and passive.

b) Same as above, but with a bow and arrows:

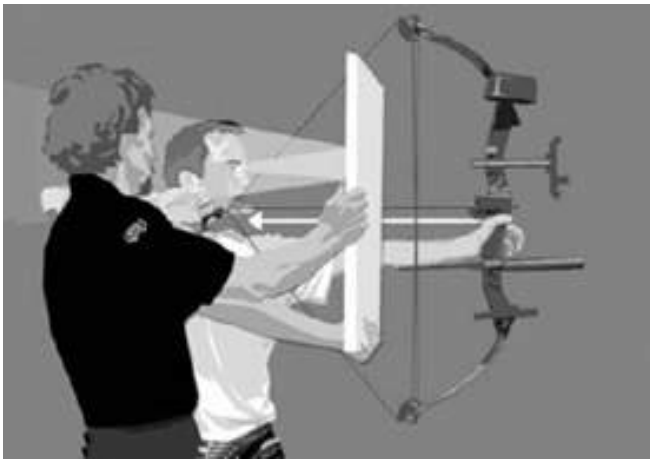
At this time do not pay too much attention to the consistency of the facial marks



Observing the head stability using a mirror on a stand.

At full draw, let the novice move his eyes back toward the target and continue the shooting sequence.

If a mirror stand is unavailable, ask an assistant to hold it.



Observing the motionless head in a mirror held by an assistant.

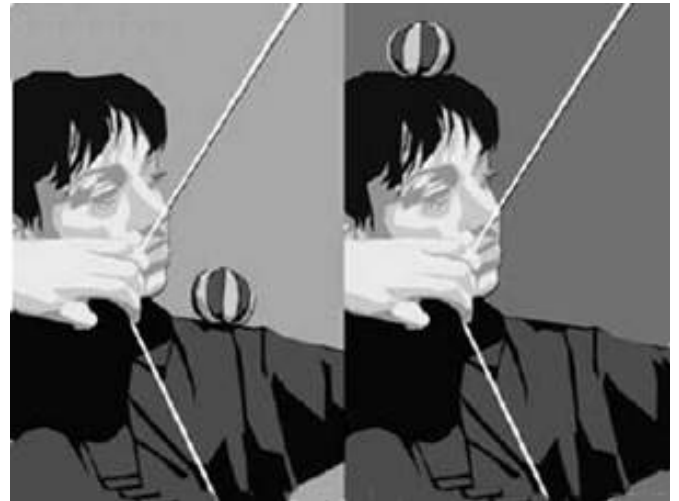
- c)** Put away the mirror and have the novice repeat with the eyes closed. At full draw, let the novice open his eyes toward the target and continue with the shooting sequence.
- d)** Let the novice alternately do one simulation in front of the mirror, and one with eyes closed.

Motionless and Stable Head – Exercise 2

This exercise should be done as an immediate follow-up to the previous one.

The novice can start this exercise with an elastic band instead of the usual archery equipment.

- 1.** As soon as the novice has started to raise his bow or during the pre-draw, have someone put a soft juggling ball (filled with rice) or something similar on top of the novice's head and/or the bow shoulder, as illustrated below.

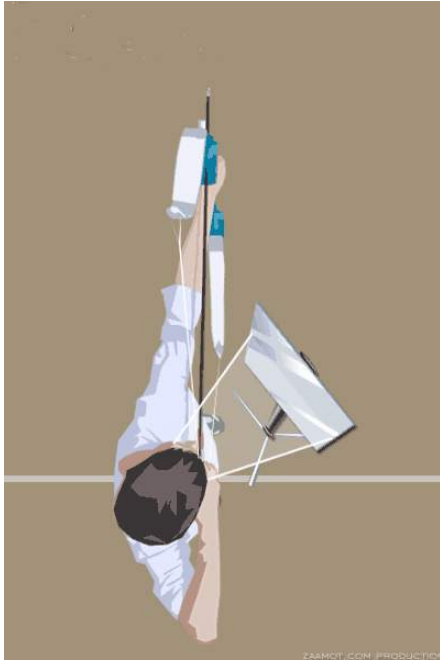


A juggling ball is used to control the upper body movement.

As shown above, the control can be extended to the upper body with the use of a ball placed on the bow shoulder, since forward head motion is sometimes associated to the bow shoulder creeping up.

At the same time, let the novice move his eyes, towards a mirror that is very close to his face, without moving his head; observe the string approaching and landing on the novice's face, while his face, lips and chin remain passive.

At full draw, let the novice move his eyes back to the target prior to completing the shooting sequence. The ball should remain on the novice's head without falling off. The coach can remove the ball before the release, since the checking of a stationary upper body is complete.



2. Similar to the previous exercise, but with eyes closed, or with the novice watching them self in the mirror.
3. Same again, but with unfocussed eyes.
4. Same again, but looking and shooting at a blank butt.
5. Same again, but shooting at a cut-out target face, only showing scoring zones 1 to 5. See picture below.



A cut-out target face.

6. Same again, but shooting at a cut-out target face, only showing scoring zones 1 to 6.
7. Same again, but shooting at a cut-out target face, only showing scoring zones 1 to 7.



8. Same again, but shooting at a cut-out target face, only showing scoring zones 1 to 8.
9. Same again, but shooting at a cut-out target face, only showing scoring zones 1 to middle of the 9.
10. Same again, but shooting at a cut-out target face, only showing scoring zones 1 to 9.
11. Same as #10, but shooting at a complete target face.

Note: The above exercise uses all of the various steps of the Standard Teaching Process (STP) from the stage of self-observation until shooting at a regular target face from a regular shooting distance and under some stress or challenge (a match, an elimination game, etc.)

Still Upper Body - Exercise

Objective:

To control and make the novice aware of the possible collapse of the upper body at the end of the draw.

Situation:

Usual shot, with partner assistance.

Equipment:

Basic equipment set-up plus a mirror.

Instructions:

The partner is positioned behind the novice at shoulder height. The partner places one hand on the bow shoulder and the other against the archer's chin. Forming a solid square angle shape, both hands remain in position and act as stops, making the novice feel any upward movement of the bow shoulder or head movement toward the string.



The partner's hand provides a feedback on the constant distance from the chin to bow shoulder.



This exercise should be completed using the standard teaching process. Hence the next stage uses visual feedback. During the draw and especially at the end of the draw, let the novice look in the mirror for immobility of the upper portion of the body, then bring the eyes back to the target and aim. For this stage and the

following ones, it is suggested that the assistant only use his/her hands every second arrow.

Instruct the novice to repeat the exercise:

- looking up;
- watching the blank butt;
- By shooting at increasingly complete targets.

Self-Observation for the Maintenance of the Upper Body Form During the Draw - Exercise

Objective:

To let the novice develop the ability to maintain body position during a partial and full draw.

Situation:

Standing about 5 meters from a blank target butt.

Equipment:

Elastic band, basic archery equipment set-up, a target, a set of target faces with cut-outs, and a mirror. This can be set on a stand or held by an assistant.

Instructions:

Have the mirror positioned so that the novice can easily see their reflection without turning the head, only their eyes.

Simulations:

They should be conducted with an elastic band. Have the novice pre-set the body and start the shooting sequence. As soon as he has started the drawing action, let the novice turn his eyes to look towards the mirror without turning the head, ensure that the upper body and face remain immobile and passive. At full draw, let him move the eyes back toward the target and continue the shooting simulation.

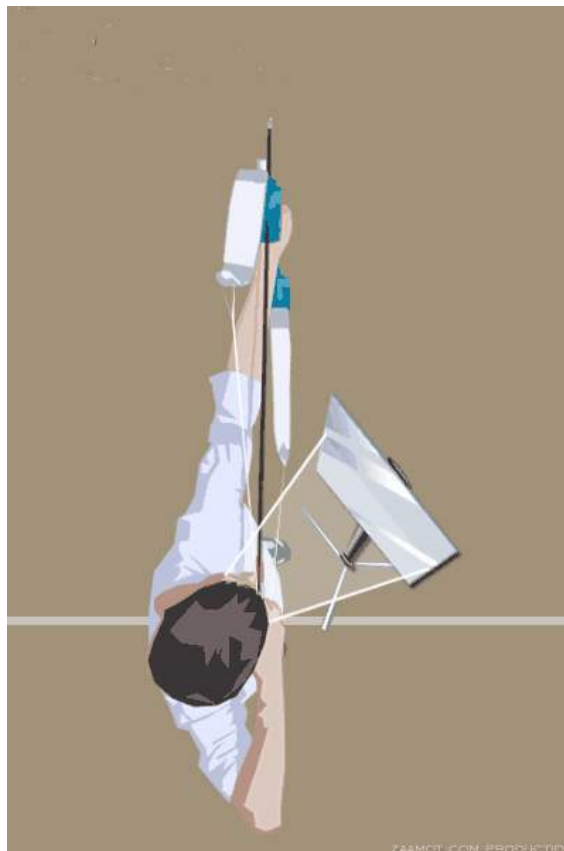


Self-control and the maintenance of the pre-set body during the Draw step.

Repeat with eyes closed. Alternate one simulation looking in the mirror and one with eyes closed.

1. Set the blank butt at 5 meters. With the normal shooting equipment, have the novice pre-set the body and start the sequence toward the target; as soon as he has started the draw action, let him move his eyes, without turning the head, ensure that the upper body and face remain immobile and passive. At the moment, ignore differences in the facial marks. At full

draw, have him move the eyes back toward the target and continue the shooting sequence: expansion, release and follow through.



Self-checking of the draw.

- 2.** Repeat the actions explained in #1, but with eyes closed instead of letting the novice watch himself in the mirror.
- 3.** Repeat the actions explained in #1, but with unfocussed eyes (upward) instead of watching self in the mirror.
- 4.** Set the target at 10 meters and have the novice repeat the actions explained in #1, but shooting at a blank butt.
- 5.** Repeat the actions explained in #1, but shooting at a target face that has the middle cut out and showing only scoring zones 1 to 5.
- 6.** Repeat the actions explained in #1, but shooting at a target face that has the middle cut out and showing only scoring zones 1 to 6.
- 7.** Repeat the actions explained in #1, but shooting at a target face that has the middle cut out and showing only scoring zones 1 to 7.
- 8.** Repeat the actions explained in #1, but shooting at a target face that has the middle cut out and showing only scoring zones 1 to 8.
- 9.** Repeat the actions explained in #1, but shooting at a target face that has the middle cut

out and showing only scoring zones 1 to middle of the 9.

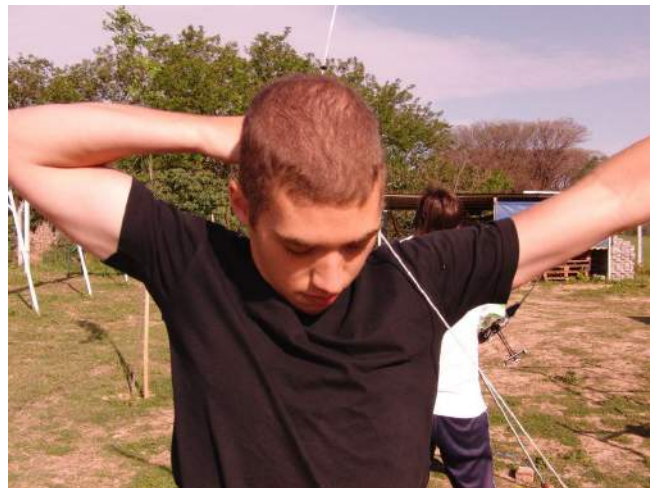
10. Repeat the actions explained in #1, but shooting at a target face that has the middle cut out and showing only scoring zones 1 to 9.

11. Repeat the actions explained in #1, but shooting at a complete target face. The focus here is on maintaining a still body and head, and making sure the face stays relaxed during the draw.

Drawing with Bow Shoulder Down - Exercise

Have the novices place their bow hand in the grip and get their normal string grip and then lift their bow arm to about 45 degrees above the horizon.

Let them feel the bow shoulder settle into joint. Then have them pull the bowstring behind the neck as if doing a 'Lat pull-down' exercise.



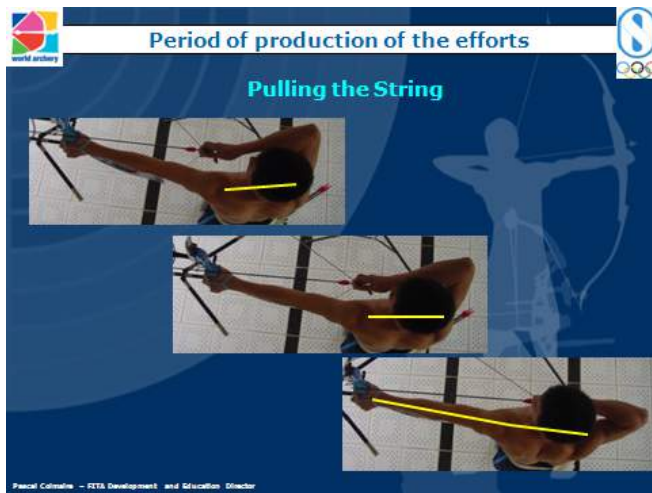
10 Sets of 5 Reps with 30 seconds' rest between sets.

This exercise strengthens the front shoulder and makes it easier to keep or learn to keep the bow shoulder down.

Drawing while Maintaining Shoulder Alignment - Exercise

Objectives:

To keep the pre-set form and shoulders aligned with the hips while drawing, avoiding any motion of the bow shoulder and arm toward the string path.



Note that a slight improvement in shoulder alignment, i.e. the bow shoulder moving a little towards the string path, is acceptable.

The image below shows a coach checking an archer with good shoulder and bow arm alignment.



Situation: Shooting with an assistant

Equipment:

Regular archery equipment and one extra arrow or stick.

Instructions:

1. As soon as the novice has achieved his/her pre-set form (at the end of the pre-draw), the coach places an arrow vertically against the bow shoulder of the archer on the string side. The coach holds the vertical arrow by the ends and strives to keep it in the same spot throughout the draw.



The novice can feel the contact of his/her bow shoulder with the arrow. Shooting with eyes closed is recommended to enhance the feeling of the shot. The novice draws the string back while striving to keep the same pressure on the arrow from their bow shoulder. A slight increase is acceptable if it is the result of a refinement in the alignment of the shoulders.



Drawing in the Shooting Plane – Exercise with an Elastic String

Objectives:

Get the novice to provide effort directly opposed to the bow action, reducing or avoiding any torque and/or lateral forces in the shot.

Situation:

Anywhere.

Equipment:

Bow and an elastic string.

Instructions:

1. Fit the elastic string to a braced bow. Let the novice hold the elastic string and raise the bow up and align the elastic string and the bow string. Draw the elastic string while keeping the two strings aligned.

2. Same exercise with eyes open and then continue with the other stages of the Standard Teaching Process.



2. Let the novice hold the elastic string, raise the bow and look at the string in front of the aiming eye. Have him close his eyes and draw the elastic string back. At full draw have him open his eyes; the two strings should still be aligned.



Self-observation of the Draw in the Shooting Plane - Exercise

Objectives:

Get the novice to produce effort directly opposed to the bow action, reducing or avoiding any torque and/or lateral forces in the shot.

Situation:

Anywhere.

Equipment:

Bow and a mirror.

Instructions:

1. Let the novice stand in front of a mirror with the bow but no arrow. Raise the bow up and see – in the mirror – the string in front of the aiming eye. Draw while keeping the string always in front of the aiming eye.



Because the objective is to have the student learn to draw the actual bow string in the shooting plane, when the archer regularly succeeds at this exercise, proceed to the exercise entitled "Drawing in the Shooting Plane with Regular Archery Equipment – Exercise."

2. Again, in front of a mirror, using a bow without an arrow. Let the novice raise the bow and see – in the mirror – the string in front of the aiming eye. Close the eyes and draw the bow back. At full draw open the eyes; the string should still be in front of the aiming eye.

Because the objective is to have the student learn to draw the actual bow string in the shooting plane, once the novice is proficient at this exercise have them proceed to the exercise entitled "Drawing in the Shooting Plane with Regular Archery Equipment - Exercise."

Drawing in the Shooting Plane with Regular Archery Equipment - Exercise

Objectives:

Have the novice produce efforts directly opposed to the bow action, reducing or avoiding any torque and/or lateral forces in the entire archer/bow unit.

Situation:

Regular shooting on a range.

Equipment:

Regular archery equipment.

Note: At least one of the two previous exercises should be implemented before this one.

Instructions:

Have the novice stand in front a target, with a bow and arrow. Have him raise the bow and see the string align on one part of the bow, usually along the vertical part of the sight window, but any part will do. Once the string is aligned, have him close his eyes and draw the bow back. At full draw have him open his eyes; the string should still be seen on the same spot.



Drawing with a Consistent String Hand and Finger Position - Exercise

Objectives:

Have the novice produce the draw mainly with the back and posterior part of the string elbow, with a minimum change in the string fingers.

Situation:

While shooting with an assistant.

Equipment:

Regular archery equipment.

Instructions:

From the pre-draw, the assistant gently holds the unused two fingers of the novice (thumb and little finger).



Note:

The assistant should respect as much as possible the natural relaxed shape of the two unused fingers, and not move them to another position.



Even at full draw the two unused fingers should still be in the same positions and quite relaxed, although a little extra stiffness is acceptable.

Alternative:

If no assistant is available, the coach can ask the beginner to visually check the string hand close to the face, between pre-draw and full draw.

Involvement of the Three String Fingers - Exercise

Objectives:

Many novices have a finger, often the ring finger, which does not grip the string properly; it slips on the string. Several problems may ensue from such a string grip: such as an inconsistent string grip, contraction of the wrist, or one or two fingers becoming painful. Below is a tip to avoid these problems and get a consistent string grip.

Situation: Drawing the bow.

Equipment: Regular archery equipment.

Instructions:

When gripping the string, slightly reduce the tension on the middle finger (less than in the illustration below where it is exaggerated for a better understanding); start the draw with this modified string grip.

The forefinger and ring finger get well hooked on the string.



Keep drawing the string back and let the middle finger grip the string when and how it wishes.



At full draw, all three fingers are well hooked on the string.

Body Weight Distribution on the Legs - Exercise

This exercise is for novices who place too much weight on one foot or the other during the draw process. It is usually due to either their strong focus on the target resulting in more weight on the bow foot or leaning back to ease their draw effort and thereby placing more weight on the string foot.

Objective:

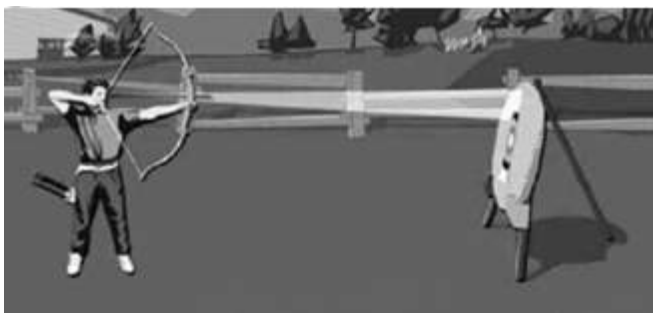
To control and increase awareness of the body weight distribution on lower limbs.

Equipment:

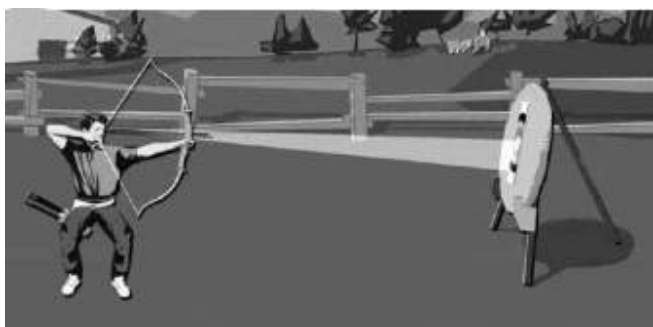
The basic equipment set-up. Attach a vertical strip of target face on the butt to use as a reference guide.

Instructions:

At full draw, let the novice aim at the top of the strip, then close their eyes and flex their knees to move slowly down. When in a full squat, the novice opens their eyes. If the body weight is evenly distributed over both legs, the sight or the arrow, depending on the aiming method, will be at the bottom of the strip.



Aiming at the top of a vertical strip.



Good body balance allows the sight to move down the strip.

A right-handed beginner, who has a more weight on the bow leg, will drift to the right while moving down. With more weight on the string leg, the drift will be to the left.