

## 6.5. BODY PRE-SETTING

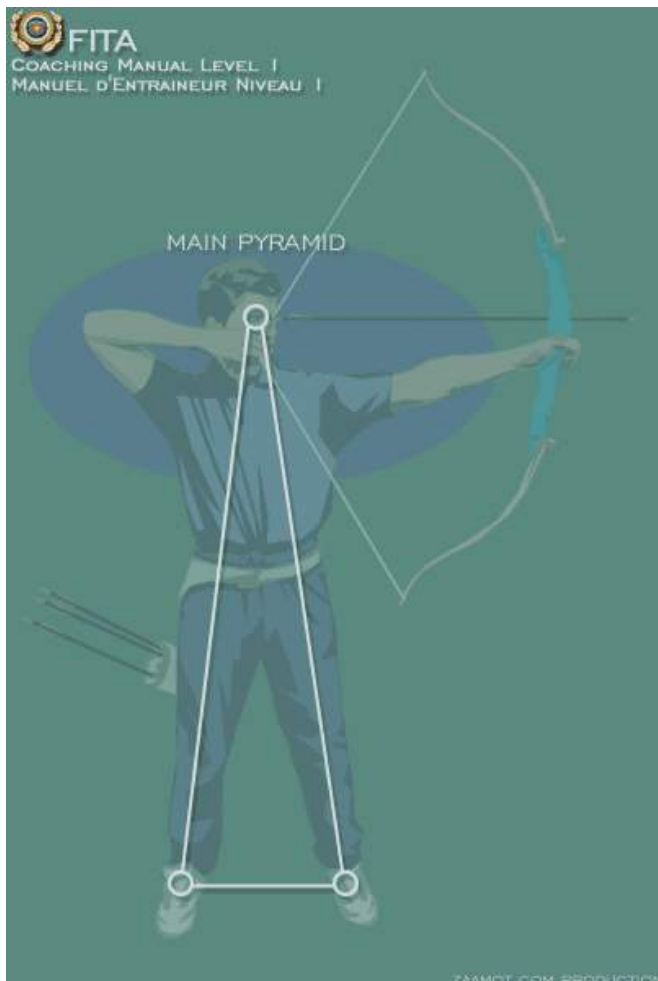
### 6.5.1. Complementary Knowledge

Type:

Preliminary action.

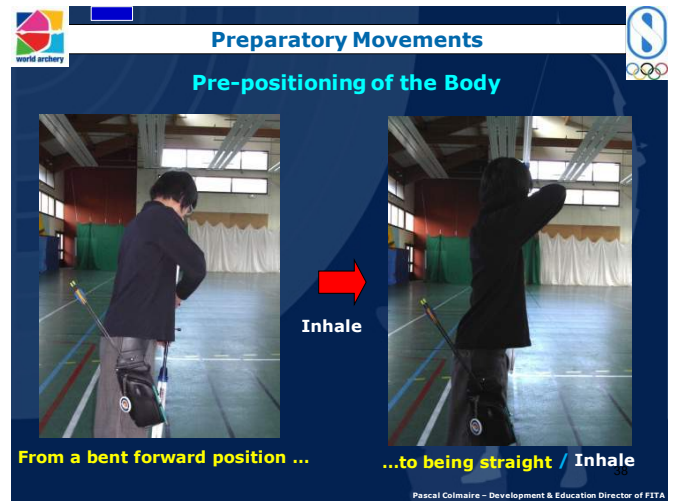
Objective:

Provide an identical, stable foundation permitting consistent repetition of upper body actions, as well as optimum general balance. It should also allow the re-positioning of the aiming eye at the same stable spot in space. We can imagine the aiming eye at the top of a pyramid (let us call it "Big pyramid" to avoid confusion with the "Top pyramid" that will be introduced later).



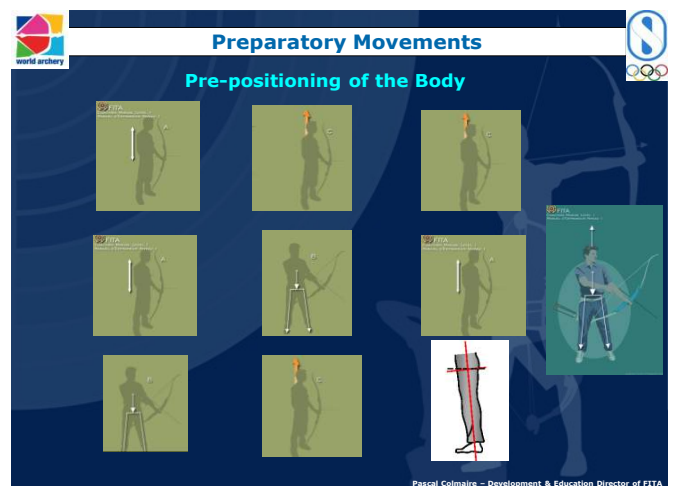
Form:

Most novices are slightly bent over while setting up the string and bow hands (see the 2 previous steps). Moving from a bent over position to an upright one creates a good base at the beginning of the execution of the shot process.



The following illustrations also present alternative ways to pre-set the body. From Left to Right and Top to bottom:

- Stay upright with flat and straight back;
- Head stretched upwards;
- Flat chest - *Do not move the chest up when stretching the head up;*
- At the same time, keep the shoulders low and down;
- Feel a strong lower body, and feel the body weight spread on both feet;
- Feel a strong belly and a low centre of gravity;



- Keep the entire body in the shooting plane with shoulders above hips and feet;
- Turn the head toward the target;
- A little less weight on heels than on the front part of the feet;
- The illustration on the right hand side summarizes the vertical firmness well.

## a) Legs

### Objective:

Provide an identical, stable foundation:

- permitting an optimum general balance
- on which will be set the upper body
- on which will be applied forces

### Form:

- The legs form an upside-down "V" that is symmetrical around the vertical axis going through the head.

Weight is placed as equally on both feet as possible. The novice does have a weight in the out-stretched bow arm, so there will always be a bit more weight on the bow leg.

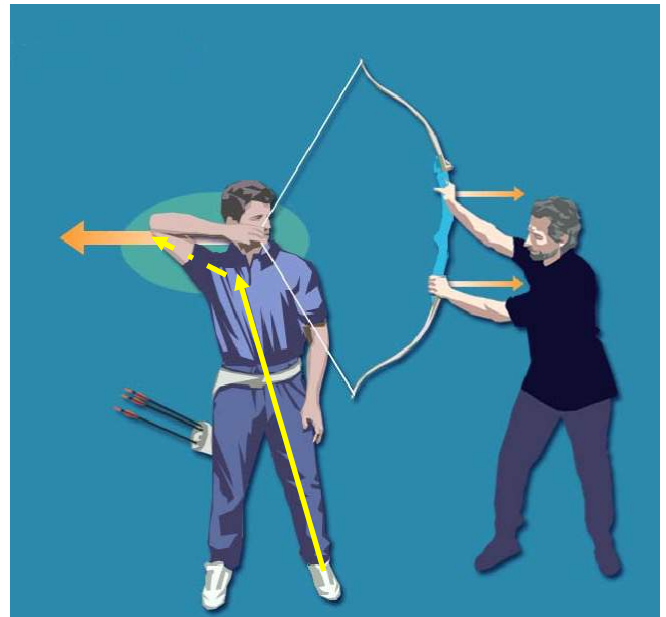


Body and legs positioning.

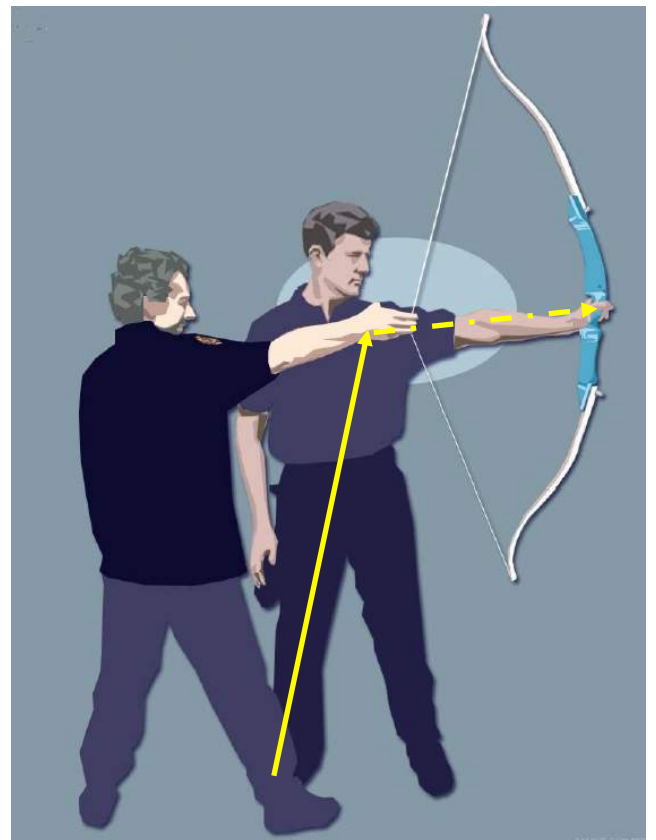
### Rationale:

The body weight is distributed approximately equally on both legs. Swaying in the vertical plane is reduced because the body weight is slightly forward (toward the toes). The front of the foot is responsible for balancing so it is very important to get the stance correct during the early stages of teaching beginner archery.

The following illustrations show the contributions of each leg to the shot process:



The string leg participates in the production of the push.



The bow leg contributes to the pull.

In reality, the two efforts cancel each other out at the waist leaving only a slight downward pressure, providing a solid foundation for upper body work and good stability (see the earlier picture entitled "Body and legs positioning").

## b) The Upper Body

### Objective:

To pre-set the torso, shoulder, and head close to their final position.



On the left a woman with a very curved back. This form is not recommended;

On the right a man with a flat lower back: This is the recommended form.

### Form:

Ensure that the novice has a flat lower back; the spine is stretched up with shoulders in the same plane as the hips. The shoulders are lowered and chest is flattened, a slight stretching in the trapezius is often felt at this point. Turn the head toward the target to its maximum rotation whilst maintaining the "stretching-up" action in the spine.

### Rationale:

Stretching the head and spine up assures an erect vertical stance. The flattening of the chest and the lowering of the shoulders lowers the centre of gravity, making the body more stable and contributes to better string clearance. Furthermore, the shoulders and the head are close to their final position, thus minimizing movement during the draw phase.

## 6.5.2. Exercises

### Pre-Setting the Body – Exercise 1

**1.** Have the novices close their eyes as soon as they grip the string, while they are slightly bent forward. Have them continue the sequence with eyes closed until they are upright and have come to full draw and then get them to open their eye(s) and complete the shot. Have them do this several times until they identify an internal strategy for re-setting their body in the same position.

While they have their eyes closed, have them concentrate on:

a) When and how they pre-set their body (Big Pyramid = the geometrical form between the aiming eye and both feet). This could be before raising the bow in the direction of the target or during the pre-draw, but seldom during the draw.

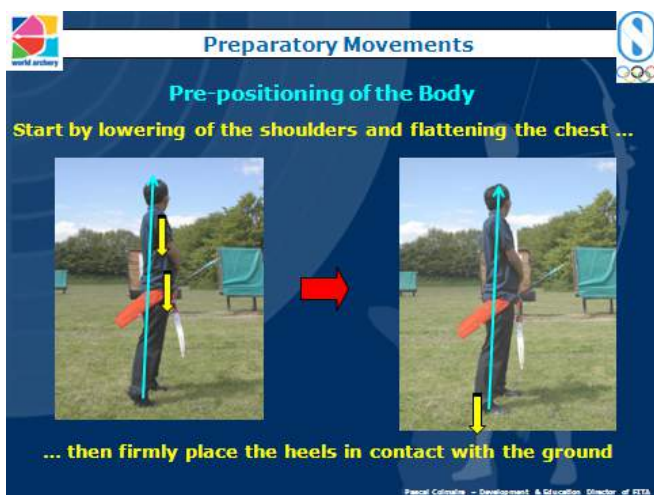
b) The following points and feelings.

- Upright body: vertical spine with body weight equally distributed over both feet;
- Low centre of gravity: heavy and powerful belly, low shoulders and shoulder blades, flat chest, and stretching feeling in the trapezius muscle;
- Solid support of the upper body on the hips: especially in the lower back;
- Erect spine with upright head: quite flat nape with a "vertical firmness" keeping the energy and body weight down;
- Body orientation: entire body in the shooting plane (shoulders above the hips and feet);
- Body weight distribution: See "Upright Body" and less weight on heels than on the front part of the feet;
- Head orientation facing the target: chin and nose pointed towards the target.

**Note:** The body pre-setting is often refined during the pre-draw, particularly the body orientation and positioning of the shoulders. Even during the draw there may be some minor adjustments of the body orientation.

## Pre-Setting the Body – Exercise 2

Lift the heels, then while keeping the body stretched up, lower the shoulders, then the chest, then the heels until they just touch the floor with a little body weight on them. This should give the students a firm and correct overall body position.

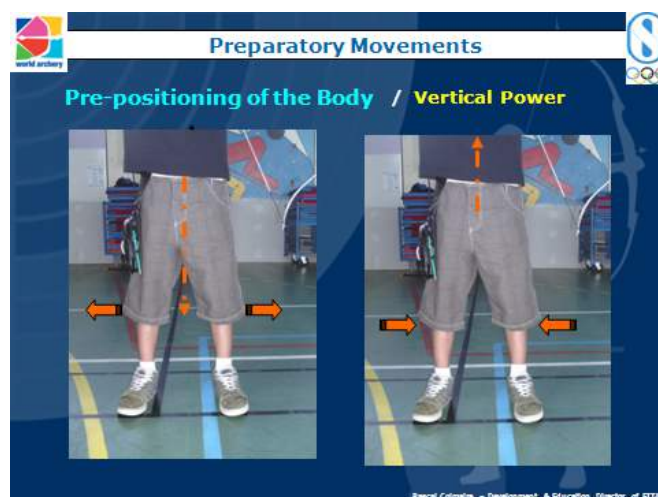


## Pre-Setting the Body – Exercise 3

The legs contribute to the setting of the vertical firmness; hence the coach should help the novices to properly use their legs. Various uses of the legs are possible. The most common is probably the following one:



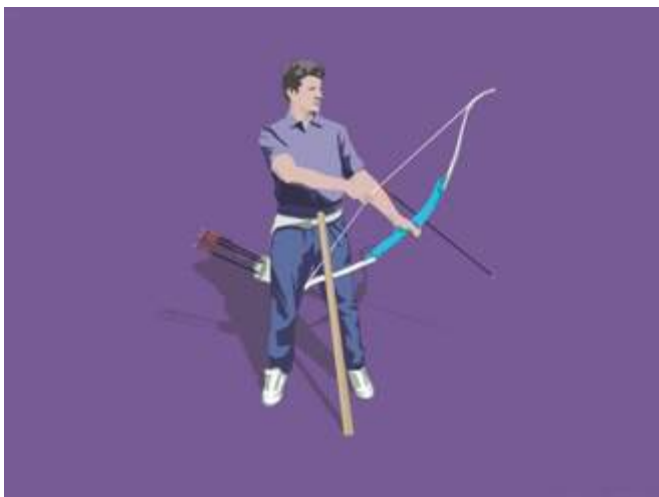
The knees are slightly turned outward, while the buttock is slightly tensed. This combination easily establishes the vertical firmness. The next illustration shows two other uses of the legs to establish some vertical firmness.



Both are associated with a slight contraction of the buttock.

## Pre-Setting the Body – Exercise 4

To promote a low centre of gravity, place a long stick between the ground and the novice's belly. Ask the novice to keep a "heavy" belly in order to apply some pressure on the stick.



The belly pressure on the stick will have to be kept for the duration of the shooting sequence.

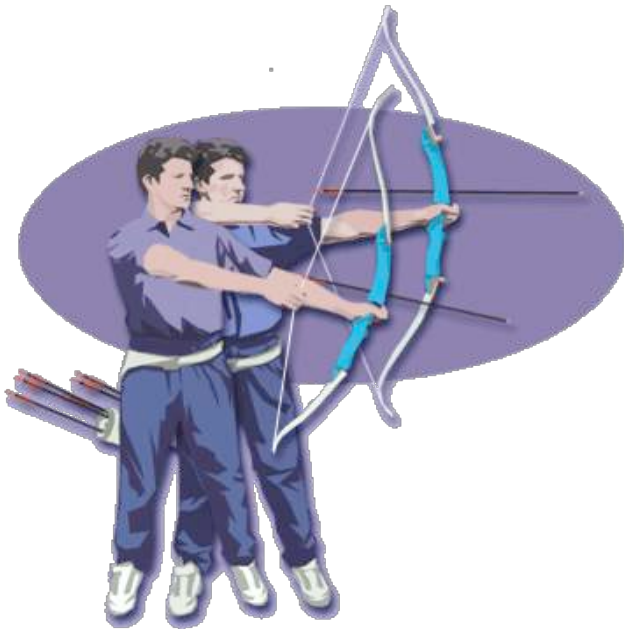
The goal is to keep the energy and centre of gravity down for body stability. It also contributes to a flat chest and low shoulders.

## 6.6. RAISING THE BOW

### 6.6.1. Complementary Knowledge

Type:

Preliminary action.



Raising the bow.

Objective:

To perform the preliminary movements with as little unnecessary motion and disruption to initial positioning as possible; this initial positioning must allow for an effective draw.

Form:

The synchronized raising of the two hands towards the target until the bow arm is outstretched and pointing toward the target.

Throughout the whole process:

- The bow shoulder must stay as low as possible;
- Both shoulders should remain approximately at the same level during this process;
- The upper body (shoulders, chest and centre of gravity) should be maintained at a lower position;
- The loaded arrow must be kept in the shooting plane. ( For example, the body often deviates to the left when the bow is raised right to left);
- The head and spine stay extended as if someone is pulling them towards the sky;
- The lower back remains flat;
- As little tension (draw) as possible must be maintained on the string.



Toward the end of the raised bow position:

- Both hands are moved up to the same level;
- The arrow is parallel to the ground due to the short shooting distance for the novices.

At the end of the raised bow position:

- The arrow is at the nose/eyes level
- The string shoulder is lower than the arrow shaft;
- The string wrist is in line with the string forearm;
- A slight backward inclination of the torso toward the string foot is acceptable, but a straight body is recommended;
- The string is between the archer's aiming eye and the aiming point.

The main "raising the bow" forms are:

Up to the level at which the arrow will be while at full draw.

- This form will allow keeping the sight close to the centre of the target during the following step (bow opening or draw).



Higher than the level at which the arrow will be while at full draw, up to eye level.

A popular height is around the nose level. Drawing a bow down from an elevated position appears easier than from other positions, but special care is required to keep the hands synchronized during the draw step.



#### Rationale:

The simplicity of this movement is easiest to repeat and it is a safe process, even if an arrow is released accidentally. The elements already in place are minimally disturbed, and are finalized following the action. The forces exerted on the upper limbs facilitate the low positioning of the shoulders. The body's inclination toward the string foot counterbalances the weight of the bow and moves the archer's centre of gravity towards the target (the use of bows with light mass weight will reduce this inclination).

## 6.6.2. Exercises

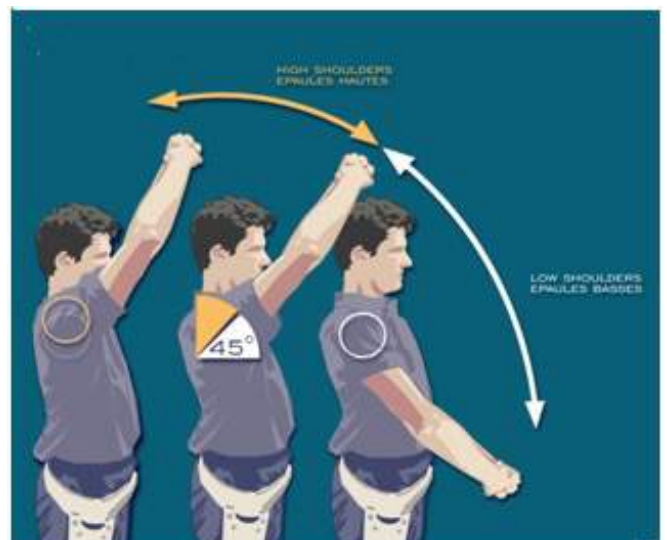
### Raising the Arms, Hands and Bow – Exercise 1

#### 1. Simulations

**1.1.** Have the hands together with fingers interlaced and palms in, arms against the front of the thighs and slightly bent at the elbows. Lower the shoulders by using the pectoral muscles, feel the trapezius stretching. Raise the arms up in front as high as possible, while maintaining:

- The shoulders in the lowered position;
- A flat back.

The exercise should result in the upper arms (not the forearms) being raised to an angle of about 45 degrees above the horizon, and the elbows stopping at about eye level.

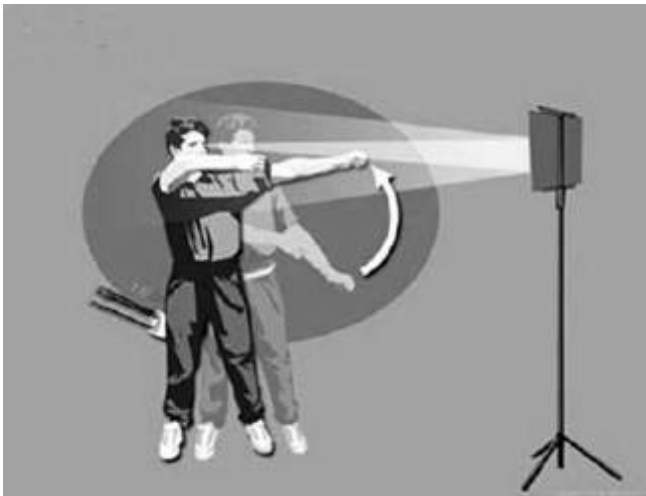


Normal range of motion allows the arms to be raised up to 45 degrees, without lifting the shoulders or changing the back position.

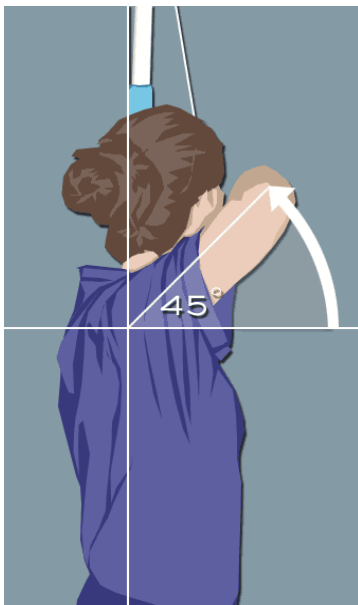
**1.2.** With the hands unclasped, preferably in front of a mirror, have the novice simulate raising them as if they were raising a bow, while maintaining:

- The shoulders as low as possible;
- A flat back.

Once raised up, notice that the upper part of the string arm (not the forearm) makes an angle of about 45 degrees. At this step, the string forearm is at the level of the eyes, as well as both hands and the imaginary arrow.



Maintaining body positioning, especially low shoulders during bow arm elevation.



The string arm making an angle of approximately 45° from the vertical without lifting the shoulders.

**1.3.** Repeat the previous simulation with an elastic band attached to the string elbow (or held in the string fingers), and in the bow hand. Continue to attend to all the points dealt with previously throughout the whole session.



Similar to the previous illustration but under an elastic tension.

All throughout this session, be conscious of the previous aspects that have been dealt with, i.e. attention should be directed as follows:

- Start by lowering the centre of gravity by using a powerful belly;
- Feel the proper balance on the feet;
- Lower the shoulders;
- Keep the head erect while looking at the target;
- Maintain a flat and straight back.

At this point the top triangle (between the aiming eye and both shoulders) is pre-set.

## 2. While shooting:

**2.1.** Observe the upper part of the bow arm while raising the bow. Look at the bow shoulder if possible. Feel the bow shoulder staying low and not rising. Once the bow is raised, look at the target butt, draw the bow, and shoot the arrow.

**2.2.** Similar to the above, but watch the raising of the bow in a mirror.

**2.3** Similar to #2.1, but with eyes closed instead of watching the bow shoulder. Focus on the feeling of a low bow shoulder and scapula (shoulder blade).



Eyes closed.

**2.4.** Same as #2.1, but now with eyes open, looking up, and unfocused.





Eyes opened but unfocused.

**2.5.** Same as #2.1, but looking at a blank target butt.

**2.6.** Same as #2.1 but shooting at a target face.



The assistant will ask the novice to raise the bow up while pressing the armpits down on the assistant's fingers.

Instead of fingers, two arrows may be used, one under each armpit.