

# **Shooting Clinic, Alaska Biathlon – Anchorage**

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## **Session 2: Fundamentals Review, Ski/Shoot Transition**

### A. Prone Position

1. stability: the following basic items need to be accomplished in the same way each time, without thinking, to get and maintain stability throughout the shooting process for each shot,

- angle of body to target (30-40 degrees) needs to be the same each time so the natural point of aim is consistently at the desired target,

- sling tension should be the same each time so the effect of recoil from the shot is consistent and use of muscles to maintain a stable position is not necessary,

- position of the cheekbone on the rifle cheekpiece should be the same for each shot,

- position of the rifle buttplate in the shoulder groove should be the same for each shot, and should be accomplished in the same way each time without having to look at the rifle to refine how it is positioned in the shoulder; the buttplate should be guided into position with the right thumb (RH shooter) which is placed at the upper or lower end of the plate,

- the grip of the stock should be held firmly, not squeezed hard which tends to move the rifle, and the hand should not be supporting the rifle (i.e., you should be able to move it away from the stock and still maintain the rifle in the same natural point of aim position); the grip should be held the same way each time so the trigger finger contacts the trigger at the same point (halfway across the pad of the first joint),

- not accomplishing one or more of the basic items in the same way each time can cause the shot group to shift,

### 2. Trigger Control

- ideally, final pressure applied to the trigger when the sights are aligned on the target allows the rifle to fire without disturbing the alignment of the sights and target,

- however, as you complete the trigger squeeze you may involuntarily close your eyes in anticipation of the rifle firing; this will result in remembering the sight picture as it was during the final trigger squeeze rather than the picture during the actual firing process; if you move the rifle during this period, you won't be able to call the shot accurately since you won't know what the sight picture was at the moment of firing; it requires strong mental control to avoid closing the eyes, so you need to practice this in order to know if you have moved the rifle at the moment of firing,

- this concept is important for zeroing the rifle: did you move the rifle as you shot, or do you actually need to move the sight to move your shot group?

- trigger control is the most important step of the six fundamental steps discussed in session 1 because it is the last thing you do before firing that can pull the rifle off target in a major way,

## B. Standing Position

### 1. Sighting differences

- much larger amount of movement than prone because of instability due to only two points of contact with ground (i.e., lacks the tripod effect of the prone position), and necessity of maintaining the position using muscles,

- but you are shooting at an effectively larger target (115mm) than in prone position (45mm) even though the aiming target is the same size for both (115mm),

- so there can be considerable variation in the sight picture (the target not necessarily centered within the sighting “donuts” perfectly) and you still will hit the target (i.e., the bullseye just needs to be within the front sight aperture ring) as long as you accomplish the other fundamental steps (within your ability to hold on the target at your current stage of development in biathlon), especially the trigger control step,

- if your shot group is not very compact, you probably need more trigger control,

- it is important not to get in the habit of squeezing off the shot as the sight swings across the target: this can be difficult to correct,

### 2. Improving your position

- dryfiring in front of a tall mirror can reveal aspects of body position that need adjustment,

- check your body position, and make corrections gradually; don't change several things at the same time or it will be hard to tell which one is affecting your shooting results,

- settle into a natural position at the center of balance, elbow well supported on hip if possible, butthook firmly into armpit so butt of stock is not allowed to creep up the shoulder,

- your natural point of aim should be slightly to the right of the target (RH shooter), then use very minor muscle adjustment to “tighten” the position to the left to bring it on target (as with other steps this needs to be a reflex action that you do without thinking); this should be done for each of the five targets by shifting your position slightly from one to the next,

- use same breathing pattern as in prone: at the end of the exhale, hold for up to about 5 sec that it takes to center on the target,

- best time to take your shot is within 5 sec of starting your breath hold, so work on this aspect,

## C. Transition from skiing to shooting

- these two sports have very different requirements, from more physical to more mental; however, all aspects of the shooting bout process should be reflex, not requiring much conscious thought,

- the workload and stress of skiing: results in oxygen debt (which interferes with clear thinking) and lactate accumulation (which interferes with muscle activity); the response is increased breathing rate to bring in more oxygen, and increased heart rate to increase blood flow to muscles,

- the heart expands in size somewhat to pump more blood at a given heart rate; this allows more blood to be pumped without increasing heart rate, or the same amount with decreased heart rate, helping to recover from oxygen debt and any lactate accumulation,

- it is desirable to fit the shooting bout into the brief window when the heart is enlarged and heart rate is decreasing as you approach the range so there will be less effect of heart beat on sight picture and movement of the rifle during the shot,

- finally, the important practical aspect of the transition process requires a biathlete to determine where he/she should start preparing for the shooting bout to come, and this requires knowledge regarding how your physiology responds to the demands of race pace skiing, and what level of physiological stress you can tolerate and still shoot well; you need to preplan a sequence of actions beginning with the distance from the range you should start slowing your pace, through opening rifle snow covers and checking wind flags, to dropping your poles on the mat and beginning the six fundamental steps for a good shot, all done without conscious thought because you have repeated the sequence many times before, and it is now all automatic,

- you can achieve a faster overall time if, during your approach to the range, you can maintain race pace closer to the range before slowing down, but only if you still can shoot well at a higher heart rate and breathing rate, or you will sacrifice any gains on the penalty loop; part of your training should involve moving the point at which you begin slowing your pace closer to the range, and realize that this will change at different venues depending upon the terrain near the range.