

Shooting Clinic, Alaska Biathlon – Anchorage

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Instructor: Richard Barlow

Session 5: Commitment, Diary, Fundamentals Revisited, Exercises

A. Shooting Well

1. Physical attributes (e.g., muscle and bone development, vision) are important; even if not ideal for the sport when you begin, through training and practice in their proper use for specific functions (e.g., supporting the rifle, aiming) you can achieve success in biathlon,

2. Mental training and practice also are essential so all the steps that result in a good shot are accomplished automatically, so you won't need to think about them when competing,

3. The intent of training in the proper use of your attributes specifically for biathlon is to get to the point of being able to refine with small adjustments each aspect of the shooting process so you can eliminate any problems or faults,

4. Considerable time is needed to accomplish the repetitions necessary to achieve the marksmanship development that characterizes higher levels in this sport;

- there are many demands on your time, so you need to prioritize these in some way so you can determine how much time you will be able to spend on biathlon shooting training in particular;

- it is well known that all successful biathletes have been willing to commit the time and effort necessary to get good at it, and this often is more than others who do not reach such high levels of proficiency,

B. Dryfiring

1. Dryfiring is absolutely necessary for you to get in the number of repetitions for the six fundamental steps to a good shot to become automatic;

- limiting your shooting practice to range time severely restricts the amount of time you can devote to it since the range usually is open only once per week,

- some range time is beneficial since others who can help you with various aspects of shooting may be present, you get feedback of where your shots hit, it allows certain practice exercises to be accomplished, and more exactly duplicates competition circumstances,

2. Because of the potential for completing many repetitions of the shooting sequence steps, without any limit on the number of repetitions that can be completed (aside from the time

required for all of the other activities in your schedule), dryfiring is the single most important training discipline you can develop to improve your shooting capability and movement to higher levels in biathlon,

- the amount of time you should devote to dryfiring probably varies by individual and level of development; 15 minutes per session may be a good starting point; you also may find it useful to dryfire for 5-10 minutes before going to the range for a workout, or before firing any live rounds after you get there,

- it may be best for you to dryfire consistently at a particular time of day so that it becomes more of a habit than a task that may interrupt other activities,

3. As a mental substitute for active dryfiring with a rifle, shooters may visualize the sequence of steps for a good shot; this exercise can be expanded usefully to include your approach to the range and your approach to the firing point,

C. Shooting Diary

1. All competitive shooters keep a shooting diary where they record details of each shooting bout and anything else that might affect their shooting and progress,

2. Record all practice sessions and apparent effects, shooting exercises, accomplishments,

3. Note any changes made on your rifle, approach to range and firing point, rifle dismount, into and out of position, your position, natural point of aim, sight picture, breathing, trigger control, ammunition; in short, anything you think might be important to improving your shooting success,

4. Record how much time you spend on various steps in the shooting process as well as range approach and departure, and getting into position,

5. Record wind, temperature, light, and cloud conditions,

6. Refer back to your diary frequently to check what sorts of changes you have made and what effect they may have had on your shooting, time in range, etc.,

D. Fundamental Shooting Steps Revisited

- it is important to accomplish these in the proper sequence in order to fire a well-aimed shot,

1. Position: building a stable platform (prone)

- important that it provide a stable platform supporting your rifle without using muscles (prone); once into it you shouldn't have to think about it further,

- sling adjustment tension to hold the rifle in position on your shoulder so it will stay fixed on the platform (handstop position and shooting cuff position, above bicep, and snugness affect tension); left arm at about 90 degree flex,

- bone support: left elbow (RH shooter) as close to under rifle as possible; only lower rib touching surface; right arm/elbow with steadying role,

- buttplate adjustment and sight to eye adjustment important but not a major aspect of the platform; after the platform is stable, adjust these,

2. Natural Point of Aim

- where the rifle points when you are in your position, requiring no conscious or muscular effort, i.e., where the position points the rifle,

- to get on target, you may have to adjust your position (while maintaining the stable platform),

3. Breathing Control

- stop briefly at the end of your breathing cycle exhale where there naturally is a brief pause (you're not trying to artificially exhale every bit of air),

- stop where it is most natural for you, at a place where it can be repeated each time; i.e., don't want to adjust the point where you pause each time, consistency is important,

- if not on target, adjust position by shifting your hips (maintain the stable platform),

- there should be coordination between your breathing and natural point of aim,

4. Trigger Control

- when you have an acceptable sight picture, continue to apply pressure to the trigger in a manner that does not disturb the sight alignment as the shot is fired (alignment depends on your ability to keep the rifle stable = your hold),

- you don't know the exact moment the rifle will fire, you're just increasing the pressure on the trigger which at some point in its travel will cause the rifle to fire,

- also, you will have an impression of where the shot will go because of the relationship of the aperture ring and target (sight picture) you see through the sight at the moment the rifle fires, so long as your eyes remain open throughout the firing process,

- if the shot does not strike where you thought it would, and your hold remained stable and sight picture acceptable throughout the firing process, the sight should be adjusted to move the shot where you want it to strike,

5. Follow Through

- any sport where an object is struck or released involves a follow through action after contact or release; in most it is more obvious (e.g., hockey, golf, basketball) than in shooting sports except trapshooting ,

- even though recoil from firing a .22 cal biathlon rifle is small, it is important that you continue the same effort immediately after your shot fires as before (all aspects of position, natural point of aim, holding breath, pressure on trigger, contact with cheekpiece, pressure of stock into shoulder, position of hands, etc.) so there won't be any significant movement before the bullet leaves the barrel,

- if you do this the sight picture should come back on target from where the recoil moved it,

- if you allow these aspects to change before the bullet leaves the barrel, the shot won't strike where you thought it would,

6. Call Your Shot

- an experienced shooter must have an impression of where the shot will hit; if it does not, and there were no obvious problems with position, natural point of aim, breathing control, or trigger control, the sight should be adjusted so the bullet hits where you think it should hit,

E. Zeroing Your Rifle

1. Object is to adjust the sight so your shot hits the center of the target,

- although you are trying to hit the center of the target, there is no benefit of doing that other than it gives you a larger margin for error in your hold before you actually would miss the target,

2. Try to center as well as possible, but you can hit the target with less than a perfect hold, particularly in the standing position,

- need to apply the six fundamental steps for zeroing shots just as for any other shots,

3. You need to be able to say where you think the shot hit, and it actually does hit there; if not, the sight should be adjusted so it does (however, if you determine that a flaw in your position, natural point of aim, breathing control, or trigger control was responsible, correct those before adjusting the sight),

- you should realize that when you adjust the sight to move the bullet strike, the sight actually does not make the bullet strike move; you do that by shifting your position/natural point of aim slightly to accommodate the new alignment of front and rear sights to bring them back into alignment with the target,

4. Minute of Angle concept for adjusting sights/zeroing rifle

- rifle sights are adjustable in minutes of angle,

- adjustment of a typical rifle sight 1 minute of angle moves the bullet strike 1" at 100 yards; a sight with accuracy allowing $\frac{1}{2}$ min of angle adjustments will move the strike $\frac{1}{2}$ " at 100 yd, $\frac{1}{4}$ min of angle = $\frac{1}{4}$ " at 100 yd,

- moving the target closer to the rifle decreases the distance any sight adjustment will cause the bullet strike to move; for example, if the target is located at 50 yd (roughly equal to the 50 meter distance on a biathlon range) instead of 100 yd, a sight adjustment of $\frac{1}{2}$ minute of angle will move the strike $\frac{1}{4}$ ",

- adjustable rear sights are graduated in clicks that are equal to a whole or fractional minute of angle; for example, on a sight that is graduated in $\frac{1}{2}$ minute of angle per click, one click will move the bullet strike $\frac{1}{2}$ " at 100 yd,

- biathlon rifle sights generally have an accuracy of about $\frac{1}{4}$ min of angle (= one click of adjustment) equal to $\frac{1}{4}$ " at 100 yd or $\frac{1}{8}$ " at 50 yd (approximately 50 m); thus if you want to move the bullet strike $\frac{1}{2}$ " on the target, you would need 4 clicks (note that the .22 bullet hole in the target, including the disturbed paper around the rim of the hole, is somewhat larger than $\frac{1}{8}$ " - about $\frac{3}{16}$ "),

F. Exercises

1. Slow fire with eyes open

- this exercise is not about speed; that will come later, naturally, after all the steps in the shooting process are occurring automatically; even during a race, it is better to take a little extra time to do your fundamental steps and do fewer penalty loops,

- begin in the standing position, off the mat with the rifle on your back, so you practice getting into position as well as the shooting process,

- deliberately get into your prone position, establish your natural point of aim (adjust your position if necessary to get on target), breathing control, and trigger control; fire the shot, follow through (hold position through recovery from recoil – 1-2 seconds), call the shot, check the shot in the scope,

- get up out of position and remount the rifle onto your back; practice getting out of position each time, especially in winter with skis and poles,

- critique: what was done correctly, what not so well; review where you might have varied from the correct procedure slow down! speed can be added later!

- at this point it is all right to think through each fundamental step – they will become automatic with repetition so you won't need to think about them; right now you are trying to duplicate precisely each step each time,

- need to make the slight natural point of aim position adjustment for each shot; if you're not moving the hips slightly to allow the rifle to settle naturally into the natural point of aim for the next target you're moving the rifle with muscles which will cause muscle tension and shaking,

2. Slow fire with eyes closed

- same basic drill: into position from off mat, establish natural point of aim, on target with breath cut off, then close eyes,

- accomplish trigger control, fire the shot, open eyes, repeat by moving natural point of aim to next target or up out of position and off mat first (depending on the focus of the exercise),

- Slow down! This exercise is about providing a solid platform for your rifle with the natural point of aim at the target and a good sight picture and trigger control, so having your eyes open at the moment of firing becomes irrelevant,

- Why do you sometimes miss more with eyes open? It's possible you're subconsciously trying to compensate for what you think is an imperfect sight picture, that is to improve it slightly, and in the process, without realizing, you neglect breathing control and trigger control; it takes great mental control to not do this; it's a good practice to incorporate closed eye exercise into your routine training.

3. Try these as dryfire exercises.