

The Beginners guide to Smallbore Rifle Shooting

INTRODUCTION

Small bore is a very exacting sport. It is a sport that is full of little traps that present so many problems. These problems are the eventual fascination of shooting a .22 target rifle well. They are the whole body and soul of learning to shoot in a competition, and aside from the obvious basics that have to be faithfully instilled so that they are automatically carried out, you will find smallbore is indeed a fascinating challenge in your endeavour to achieve a perfect shot, every time.

The difference between a very experienced small bore expert and the rank beginner is vast. Only a certain number of really dedicated people reach the absolute pinnacle of shooting, and during the long climb to the top, many pitfalls are overcome.

Smallbore shooting is very difficult in the initial stages, and the idea behind this booklet is to try and shorten the very first initial stages that the beginner will find a tedious job. Its focus is on prone shooting which is the most popular form of shooting in Australia. Those who then wish to progress to shoot standing or kneeling will find the basics in this booklet helpful as many of the principles apply to those positions as well. Perhaps, the first knowledge of smallbore is the most interesting, but I advise you not to become too disheartened when you see the club's top shooters and other members firing seemingly impossible scores. I can assure you that the same problems exist for the top shots and quite often these shooters have to revert to the first basic principles in order to be able to ascertain just what is wrong. Everyone started out as a beginner, and with diligent practice you will soon be able to match it with the best of them.

Getting the priorities right

As a new shooter, you need to decide for yourself what you want to do with our sport. You, and only you, have to decide if you wish to shoot smallbore seriously as a competitive sport, or simply be a member of this club for the sake of companionship interspersed with the pennant & other competitions. You have to decide on just what rifle you wish to shoot with - a less expensive target gun or a premium quality target rifle like those that you see the club's top shooters using. You might also consider participating in air rifle shooting which is becoming more popular all the time due to the low cost of ammunition.

If you decide that you want to see how far you can go in the sport, you will be seriously handicapped without a specialised target weapon. Some of the more inexpensive rifles and sporting rifles are accurate, that is for sure, but nowhere near as consistently accurate as a target rifle.

In international, and Australian competition, the use of a telescopic sight is only allowed in the bench rest style of shooting, so unless you are primarily interested in this type of shooting, you will need to use open peep sights with some adjustments in-built in their design. Therefore getting your eyes tested to ensure optimum sighting and the purchase of specialised shooting spectacles for those who need corrected vision should be considered.

The club has some target rifles which you can use at the club or you may choose to purchase your own equipment which is available through one of the suppliers of target equipment. See our club rifle captain for details and advice on who to speak with regarding which rifle to buy. Target rifles are expensive, as they are fine pieces of art, and just the simple matter of discussion with some other members could save you a tidy sum.

If you decide to become a serious competitor, we suggest you use the advice of our other target shooters who have the experience and knowledge to save you years of heartache and many dollars. Amongst our ranks are former Olympic and Commonwealth Games representatives, so do ask if you need some advice.

If you decide to become a member for the sake of some fun, you will have many peers amongst your fellow club members and we hope you will get great enjoyment from our sport.

What equipment do I need?

1: A Rifle. .22 rimfire caliber, according to your decision of the previous page. If you are going to be serious about it, then buy one of the recognized brands of target rifles. Either an Anschutz or Feinwerkbau are most commonly used. Less common but also affordable are those from Walther. For the super serious a Bleiker or Grünig could be considered, but these are at the very premium end of the price range. A lot of really good quality second hand rifles are available, so shop around before you buy. Accompanying the rifle are a sling and glove for your hand.

2: A shooting jacket. These are an essential for improvement in serious smallbore. There are several types, and most of the members have their own. Once more, do not hesitate to enquire. The most popular are a mixture of canvas & leather. The jackets are a specialized item and can be made to order or bought in an off-the-rack size. Most jackets are imported from overseas. Prices starting at around \$300, but you can pay well over \$1000 for a top of the range jacket. You should expect one to last for several years. If you decide to shoot air rifle or 3 position rifle shooting, then you will also require a set of shooting trousers, shooting boots and a kneeling roll. Although it is possible to start without these items, you will be at a disadvantage compared to those shooters who have this equipment.

3: A Spotting Telescope. These are necessary for 20m shooting and when and if you travel to other ranges as there are only 2 ranges in Australia with the electronic target systems such as we have on our 50m range. The club has a spotting scope you can borrow until you are able to purchase your own, however if you plan on traveling to competitions at other ranges, getting your own scope is a must. A reasonable quality scope and stand will cost around \$350 although you can pay much more than this if you want.

4: Sundry accessories. These include a shooting mat to lie on when shooting prone (although the club has mats which can be used), a carry bag for your accessories, and some cleaning equipment for your rifle (when you get one). For the winter months a woolen cap or beanie is a must for keeping warm for those who feel the cold. For those who require corrected vision, special shooting spectacles which are sold at our club's shop are well worth the investment.

5: A notebook It is a great idea to keep a record of your shooting, your equipment settings and other information. In this way you are not starting over each time you shoot.

Finally there are lots of other tools and gadgets you can buy. These include adjustable front and rear sights, torque wrenches, different model butt plates, and so on. The list is quite endless and you can certainly spend a lot of money experimenting, but initially, the key items listed above will get you started, and you can add more as you need.

The first basic principles of prone smallbore

These are essentially:

Hold

Aim

Trigger release

Once these three principles are mastered to some degree, then the new shooter will find the true thrill of shooting smallbore will unfold into a million new problems.

Principle One - Hold.

Hold is divided into a number of facets, and each and every one of these facets will affect the hold to some degree, in some way or another. I shall divide the section of “hold” into a series of lessons, which, when properly integrated, will produce a distinctly steadier hold, and allow us to progress to the more advanced stages of aiming and trigger release.

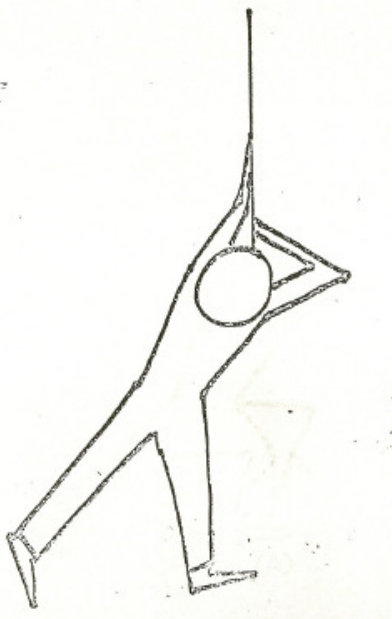
Before I start however, I will point out that holding the rifle still is vitally important. If the shooter cannot learn to hold the rifle quite still, relatively quickly, then little progress can be made. It is impossible to hold a rifle absolutely motionless, but it is possible to have a degree of steadiness that will amaze you in a very short space of time. I would also point out that a ‘ten’ fired in the initial stages of smallbore is more good luck than management, but they are not impossible to shoot.

You must realize that the rifle must be held quite still in order to consistently shoot tens. You must also realize that in order to produce a sound hold, the basic position can be built up around a few small principles, which are more or less mandatory, though not strictly without any individual variation. Any two persons will have a slightly different position, depending on body configuration, but there are some basics that should be observed.

Assuming the position

There are four basic positions for prone shooting. They are each entirely different, but I shall only point out the more recent types that have evolved not only in Australia, but particularly in the USA, and the European countries.

The “Estonian” classic prone position



The Estonian position has been used with devastating success by shooters all over the world. It is assumed by placing your left elbow (RH shooters) on the foremost corner of your shooting mat, and then stretching the body onto the approximate angles shown on the diagram.

It is important that the left leg should be placed in the position shown, that is with the left heel turned out, and the foot resting on the side of the toes. This is simple to lock the left side, and place conscious thought into assuming the position correctly. The right leg should generally be aligned along the same angle as the rifle, and this can be checked simply by having a look over the shoulder. The forward part of the position is extremely important and I shall explain the geometry of this after the sub-section devoted to the American Variation of the Estonian position.

The American Variation of the Estonian position.

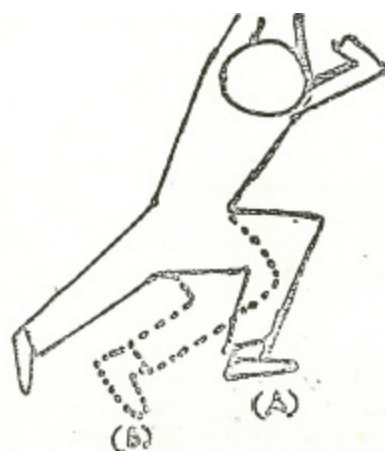
As you can see, the primary difference is in the leg placement and the American theory is that it reduces the pressures on the diaphragm, thus reducing contact with the firing point surface. It does increase pressure on the right knee, and rolls the hips over further to the left, putting more weight on to the left side.

The important thing is to completely settle this part of the position, with the exceptions required to slightly move the legs in order to bring the rifle to the correct aiming point. (This is covered later).

The variation has two leg positions, indicated by position “A” and the dotted lines “B”. Each position is relative to shooter comfort and has no special advantages, other than those of left side pressures that I have already mentioned.

In modern times this position has been straightened by many shooters to bring the torso more directly behind the rifle, however each shooter must experiment to find the position that will work the best for them.

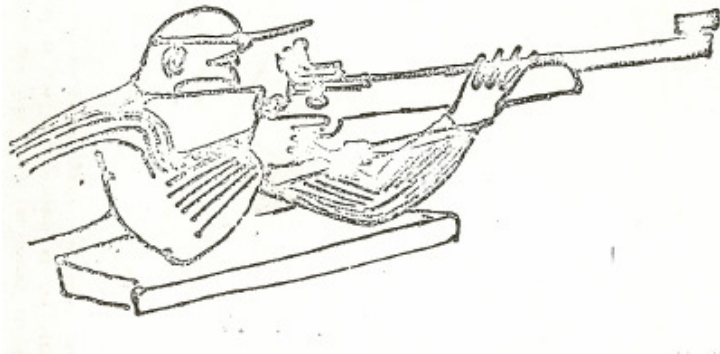
The other two basic prone positions are the Russian “Flounder” position, and the military position, however these are seldom used in smallbore these days.



Forward Position Geometry

This is the most important aspect of attaining a sound, almost motionless hold. There are several very important parts of the forward geometry which are essential, and every good shooter that I know has impeccable position consistency, and pays strict attention to assuming the forward part of his/her personal position. **THIS IS VITALLY IMPORTANT.**

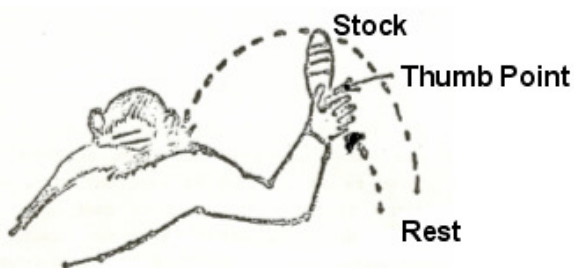
If you take careful notice of the illustration below, you will see how equal the position must be assumed.



The left elbow is carefully placed on the mat as already described, **in a position either directly under the rifle, or just a little to the left of the rifle.** The whole forward position is built on this point. The rifle is then adjusted correctly to have the required tension in the shoulder, and the sling (please see page 8 on sling placement). Once the rifle is placed into position in the shoulder, the right elbow is dropped onto the mat, and the trigger band carefully placed in exactly the same position **every** time.

You will note the reference to placing the trigger hand **after** the rifle is placed onto the shoulder. Do **not** place the rifle into the shoulder with the hand on the pistol grip and possibly with the finger on the trigger. There is far too much risk in releasing a shot that does not hit the target whilst you are placing the rifle into position. 10 points is absolutely impossible to make up, for even if you shoot 59 tens you still only shoot a 590 which usually isn't going to win much.

Correct butt placement is also important. The butt is placed in the shoulder from the top, and pushed exactly the same place by the cheek. The butt is placed by a simple looping motion of the right hand, with the thumb placed on the bottom of the butt plate as illustrated below.

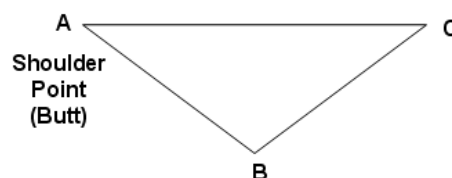
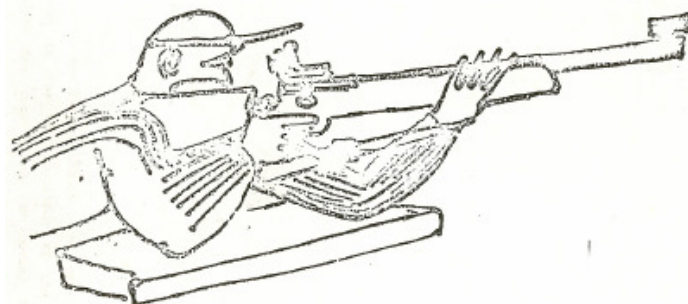


Under no circumstances should the shoulder be moved forward to try and increase pressure in the butt position of the rifle. It should be adjusted to the rear simply by moving the sling stop forward a little. To move the shoulder forward is disastrous and is called 'propping' the rifle. All sorts of funny problems arise, and the least of which is elevation shots. (Shots that place either above or below the ten ring).

The diagram at right shows an inverted triangle, and in an explanation of the geometry of the forward part of the position, this diagram should be placed in the corresponding position on the illustration of the main part of the illustration. Taking point 'A' as the butt in the right shoulder, point 'B' as the left elbow, (which you will remember should be placed either under or just to the left of the rifle stock) and 'C' as the forward hand, placed firmly against the sling stop. The two measurements, A to B, B to C, should be very close to equal, with the two hands level, and parallel to the barrel.

I must state that this 'geometrical system' is only a basis to enable the shooter to assume the forward position relatively properly in the early stages of learning to shoot smallbore prone. It is based on my own observations of top shooters all over the world, and is the method that I have

had a limited amount of success with, both in the coaching that I have done throughout Australia and in my own scores.



The geometrics of the forward part of the position explained here are also designed to enable the shooter to assume a fairly high position, which is relatively important. The position should be taken so as to allow the eyes to function in as normal a plane as is possible. The head should not be strained forward in order to reach the rear sight, but placed naturally on the stock, with a firm steady pressure exerted on the cheek piece of the rifle.

The head can be consistently located by a number of methods usually varying from individual to individual, however it is important that the head is placed consistently in the same position, with the height of the cheek piece set to allow the eye to look directly through the rearsight.

The sling and the geometry connected with it

Pay close attention to the sling, for it is simply an aid to holding the rifle. It cannot be more important though. The sling decides the actual 'point' of the rifle once the position is assumed. It is the only factor that stops the shooter from falling forward with the rifle over the period of the shoot. It is the sling that enables the shooter to fire good shots over an extended period of time. It is the sling that locks the forward geometry of the position into place, and is therefore the most important accessory that a shooter can use.

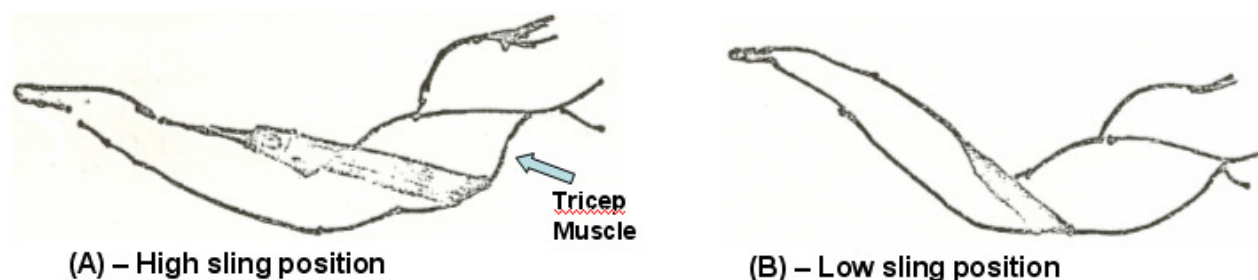
The sling is also the cause of the most acute discomfort in the early stages of learning to shoot well, solely because it is a strange position to be in, and the new shooter just does not have the muscle tone to put up with the pain.

Do not worry unnecessarily over this problem, for a few steady shoots will soon enable the new shooter to gain the tone of muscle needed, and you will find that the sling needs to be tightened up to do the job for which it is intended.

The new shooter simply will NOT be able to shoot with a solid tight sling in the early stages. As the shooter progresses, the sling should be steadily placed into the proper tension.

Let me state now, that I do not advocate that any prone smallbore rifle can be fired with a loose position successfully. The sling MUST be as firm as is humanly possible, but placed in the CORRECT position on the arm. This is the MOST important facet of the sling. It must be placed correctly.

So, there are two schools of thought on sling placement. If you study the illustrations below carefully, you will notice that the two positions are quite clearly defined.

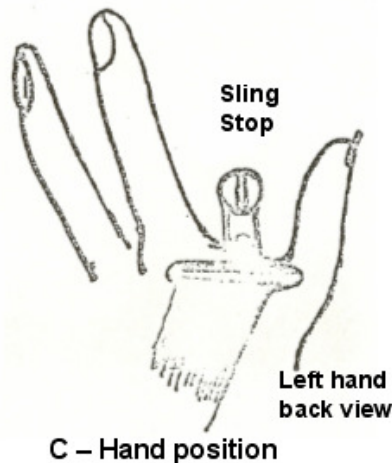


Position A is the correct high sling position on the arm. It is placed on the top part of the triceps muscle, not above it for this area is fraught with problems, not the least of which is the main artery pumping blood to the hand. This large vein runs close to the surface in the inside of the upper arm (see diagram C on the next page).

Position B is the low sling position on the upper arm. As you can see it is almost down to the elbow. The disadvantage with this is that it defeats its purpose as a support, and is quite likely to slip even further down. For this reason, the low sling position requires a very tight sling tension to function properly and therefore will tend to cut circulation. Whilst many European shooters tend to the low position, it matters little which you choose as long as it works for the individual.

Whichever position is decided on, the forward part of the sling should be consistent. It must be placed carefully around the back of the hand, and across the wrist bones so that it feels as if it is supporting the front arm and the rifle. The hand should be placed firmly into the sling stop, with the sling position emanating from the web of the thumb and index finger as per diagram D on the next page.

The buckle of the sling should be above the elbow point, as this should be easily adjustable whilst in position. The buckle should also face to the right, or OUT of the position, for ease of adjustment.



C – Hand position

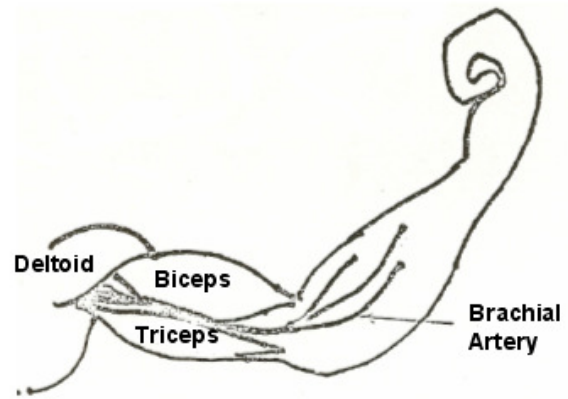


Figure D

Sling Tension

Sling tension is vitally important. Sling tension in top shooters can be extremely tight and I don't advocate that you start with something so tight. However over time you should plan on increasing sling tension to enable a strong, solid hold.

The theory of the tight sling is simply for consistency in placement, and to allow the rifle to settle properly after, and during recoil. The sling, if firm enough, will afford practically no disturbing recoil to the rifle, and providing the attention to detail regarding the sling positioning is carefully adhered to, will enable the shooter to assume exactly the same forward geometry in the position.

The pressures on the three points of the sling should be about equal, the front hand, wrist & upper arm tension being the reference points.

Consideration should be given, after practice, at ascertaining the various pressure responses in these areas. It takes some experience to be able to sort out the problems associated with the sling and the various differences in the pressures.

In training the shooter should learn to carefully judge if any small difference is affecting the rifle recoil, and point of aim, together with resisting the urge to fire the shot irrespective of the awareness of these small differences.

Correct use of the sling is a process that can only come from experience, but the first principles of the sling, and the theory behind it are very important pieces of knowledge. You must work to become quite adjusted to the discomfort induced by the sling, and to prepare some form of muscle tone for the process of tightening the sling over time.

If at any stage, the shooter feels that the sling is too loose, and it requires a conscious effort to hold the rifle up onto aim, then the sling is ready for adjustment. Usually just hitching it up a notch will suffice, but the shooter should very carefully watch the effect of this adjustment in case a complete position change is warranted. This is particularly relevant for junior shooters who are growing and will require their positions adjusted substantially every few months until the growth spurt stabilises.

Principle Two – Aim

Position is important, but the Aim is an equally critical facet of smallbore, or any other shooting for that matter. Aim at the early stages is important, but the more fundamental aspects of attaining a solid position, and trigger release must first be mastered. Once this is done, then aim comes into its real importance. Closely connected with concentration, aim becomes a far more complex facet in the quest for top class scores.

You see, Aiming IS a complex form of concentration, and whilst the new shooter is concentrating on developing the necessary basic fundamentals, he/she is actually also developing a concentration level, although slight, that is devoted to aiming.

There are so many individual characteristics that determine the best sighting for each shooter; however the fundamentals associated with correct aim are always the same, regardless of individual preference.

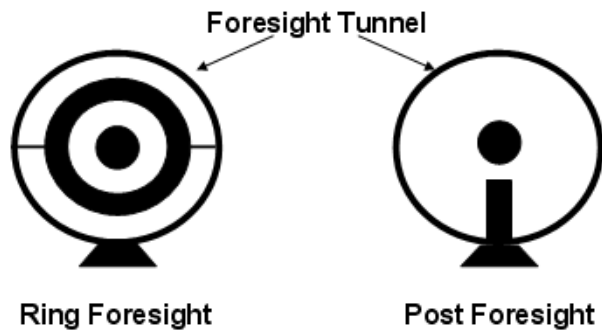
First of all, 99.99% of the world's shooters in small bore use a ring front sight. The one notable exception happens to also be the world record holder in three position shooting who manages to shoot exceptionally well with a post front sight, however he is the only one we know of. I recommend for 50m shooting a ring foresight of not less than 3.6mm, although the size is influenced by the sight radius, barrel length and also the thickness of the ring annulus. The longer the sight radius, the larger the foresight must be. It requires great amount of experimentation to find just which foresight suits you, however erring on the side of too big is better than too small is advised. Once the shooter has reached the stage where he/she is starting to score tens, then the sight picture needs more attention to attain steady improvement. It is worth noting that some shooters have used less than 3.6 as a front sight, however I don't advocate this.

As stated previously, once the fundamentals of position and trigger release are mastered, and the scores are advancing, the difference between the current level and higher results is simply perfection of aim and increasing concentration.

The ideal aim is almost impossible to find. The perfectly concentric circles, absolutely jet black in contrast, with ultra clear vision, extreme depth of field, and keyhole accuracy is impossible. Our eyes are just not capable of sustaining so many details.

An acceptable aim is far more practical, and more easily found. The aim should be so placed that the aiming mark steadies in the centre of the foresight ring, and the shot released exactly when this situation occurs. It is as simple as that. It matters little what you actually see during the aim, so long as you see the aiming mark exactly the same for every shot. I care not if you seem to be aiming at a bunch of grapes, if you shoot tens with this method, then surely this is the object of the exercise?

Correct aiming – Both the systems should be centred in the rear peep



It is of course desirable to be able to see clearly, but not as imperative to scores as most people would think. As I've said, the trick is to see the same picture for every shot, and release the shot only when this state is reached.

It is of little use to steadily shoot tens with a slightly blurred or grey sight picture, and then suddenly find ONE shot that has an absolutely clear aiming picture. Common sense should dictate that all is not right and if you fire when this occurs you will probably find the shot has fallen outside your group and sooner or later the result will be dropped points.

Some shooters use a filter lens in the rear peep and adjustable rear iris size to clarify the sight picture. It requires much experimentation to determine the correct combination required, however I found that degrees of grey filters worked best in the lighting conditions encountered on most ranges.

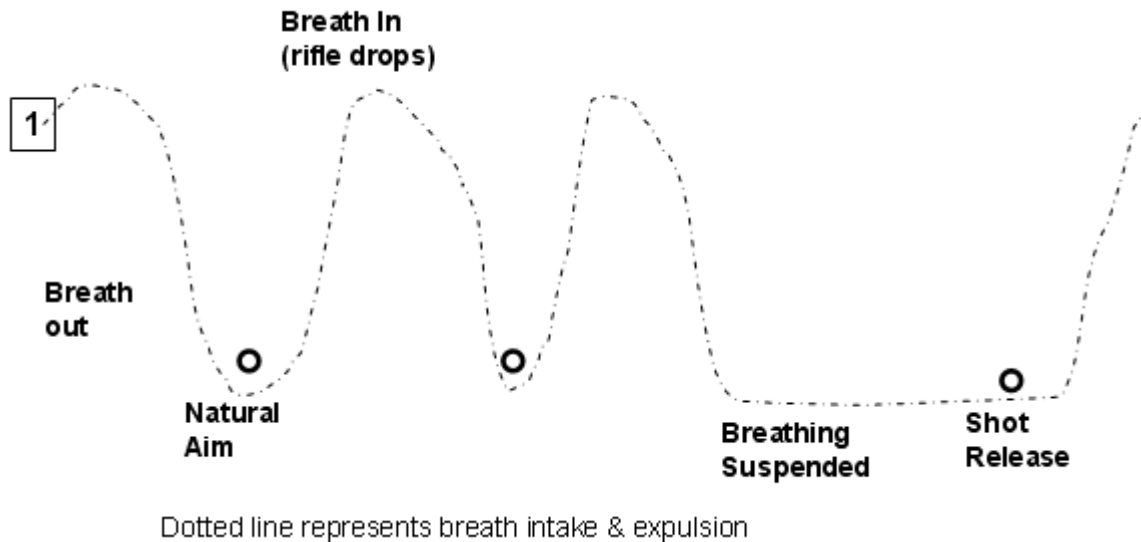
Selecting a suitable filter requires considerable experimentation and a great deal of analysis of results. There is however, in my opinion, a well tried method in their selection that has not failed to my knowledge. This method consists of trying various filters until the shooter finds one that does not vary the impact point on the target under varying light conditions. The sun comes out, goes behind a cloud, or it suddenly rains heavily. Early morning direct light is almost always a problem ten points of glare, and a host of other problems will confront the shooter. So it is purely a matter of experiment to find the filter that will not affect your sighting under most of the unfavourable conditions listed above. Some shooters like a yellow/green filter. Others use red or bright orange. My preference when shooting outdoors is to use something that alleviates the glare from the targets & surrounding light and enables the front ring to remain clear around the inside edges.

A filter should NOT be used to completely flatten the light, and the practice of fitting a multiple of filters onto the rearsight. The problem with this is that if any filter has a slight flaw in the grinding, it is aggravated by the use of a second filter that may also have a flaw compounding the sighting error. Filters are NOT used to cut down the glare to almost light as night, but purely to clarify the sight picture. A correct filter will actually reduce eye tiredness and shooting fatigue, and a filter that causes complete light reduction MUST also reduce sighting clarity which is most important.

Once you find the filter that suits you, **STICK** with it, as the recognition of sighting errors requires the shooter to gain absolutely consistent sighting picture.

Breathing problems and their relationship to correct sighting.

One of the more important sighting problems comes from the actual breathing process. There is an area of breathing that actually produces the steadiest holding period. This **MUST** be found in every individual, and utilised to its fullest extent. As you study the illustration below, you will see the breathing process as simply as I can explain it.



You are aware that the eyes require a tremendous amount of oxygen to function at their utmost clarity, but contrary to the obvious theory, the shot is released with the lungs virtually empty of air. The breath is expelled naturally and breathing suspended for a few seconds (3 – 8 seconds) in order to produce the hold you are looking for.

Also connected with this part of the technique of shooting is the natural aim point, so read this section very carefully, and ask questions of your fellow shooters to ensure you understand this concept.

Starting from point 1, as you breathe in, the rifle muzzle will drop away from the aim point, and conversely, as you breathe out the muzzle will rise to the target. The rifle should be so set up in the position of the body, that when the breath is expelled, it should be lined up in perfect aim under no control from the muscles at all. The aim is checked again under the breathing technique quoted above, and once more finalised on the outward breath, under natural breath expulsion. **Do not force the breath from the body in order to move the muzzle further up on to the correct sight alignment.** If the muzzle is not in the correct position at this breathing point, then the position must be adjusted to compensate for the error displayed in the sight picture.

The shot is released under a perfect aim with the breath expelled naturally from the lungs, and failure to master this basic fundamental is in my opinion, the reason that so many shooters, good shots included, drop so many of the points that they do.

Do not fire any shot that you are not sure of, but above all, so not fire a shot that is incorrectly “breathed”. It will almost certainly not be a ten.

Checking for misalignment of the natural aim point is a simple process consisting of breathing steadily with the eyes closed. As the breath is expelled, the rifle moves back to the natural aim point. Open the eyes. If the rifle is either left or right of the target, the whole body must be moved around the fulcrum of the left elbow in order to achieve the state of natural aim point. This process is repeated until the rifle 'point' is on the target you are about to shoot at. Similarly if the rifle is high or low when the air is expelled, the height must be adjusted either by small hip movements forward or back for minor adjustments, or by adjustments to the set up for larger adjustments (buttplate up or down; front hand forward or back; sling tighter).

All that remains then is to learn how to fire the shot properly under correct trigger release which is the final principle to be learned.

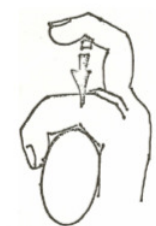
Principle Three – Trigger Release

This is a very complex subject. Most shooters have a terrible trigger release during the early stages of learning to shoot smallbore. A steady consistent release has to be perfected, and the new shooter should resist the temptation to HIT the trigger as the aim comes on.

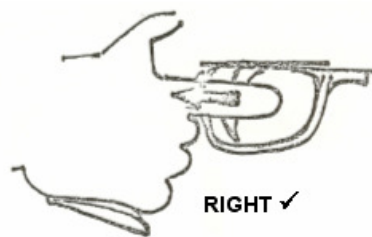
In my opinion, the trigger should not be too light in pressure required to fire the shot, but be about 100grams in weight. The rest is up to your personal taste of either a single or two stage trigger.

A trigger release is a personal thing that your own technique will develop over time; however the following will guide you to a starting point. The release should be controlled and quite slow at first, with the trigger finger movement exerted in a direct rearwards direction.

A trigger should NOT be pulled sideways. This results in some shots breaking quite well, and others taking about three times the normal pressure. Study the diagrams below very carefully.



Trigger release directly to the rear

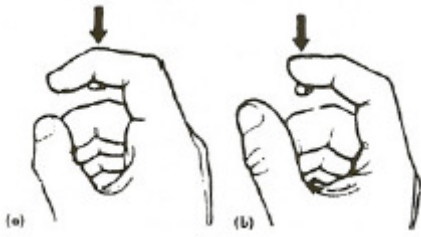


RIGHT ✓

NOT sideways



WRONG X



Correct placement of the index finger on the trigger as in a) with joint of index finger or b) with first bone section of index finger.

As the aim picture is finalised, the shooter should work to fire the shot by steadily increasing the pressure on the trigger so that the shot release comes as almost a complete surprise. A devotion to sighting will become second nature once the release sequence is finalised.

Then in training for a large match, I try to reach the state where the shot is released without any conscious thought at firing the shot. It simply goes off and I cannot recall any conscious thought impulse to make this occur. This system of release is brought about by many years of intense practice and the system will not break down under competition stress. It has stood me in good stead for many years and I consider it to be the best type of release for any aspiring smallbore shooter.

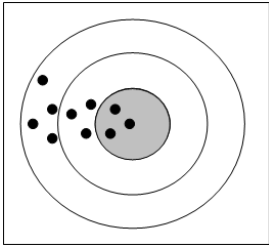
The other alternative is the “release of awareness” where the shooter almost says aim is right, trigger, GO! Some good shots use this system, but it has a tendency to cause trigger freeze when the pressure is on, despite working all the time in training, so that one shot will go a little early, another a little late, and so on.

The trigger hand should have an absolutely consistent release pressure exerted on the pistol grip of the rifle, and it is important to be able to operate the trigger without the fingers on the pistol grip moving or changing their pressure. It is imperative that this grip be placed consistently every time, and that the pressure of the grip is exactly the same.

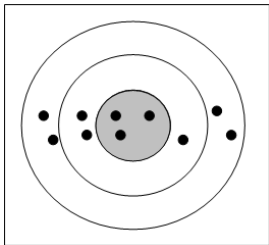
The trigger should be pulled straight back as much as is possible as shown in the diagram. The only way to become proficient at trigger release is to practice. It is as simple as that.

Shot analysis chart for prone

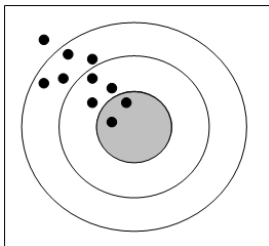
The following can act as a guide to assist in determining causes of shot errors. It assumes that the rifle and ammunition are of an acceptable quality.



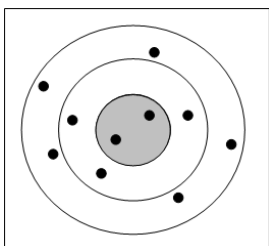
This target illustrates the effect of “dragging wood”, caused by placing the trigger finger too deeply into the trigger guard. As the sear released, the finger moved back rapidly and caused the upper part of the finger to drag against the right side of the grip. This moved the front sight to the left by the time the bullet left the barrel. To correct, let a little daylight show between the upper part of the trigger finger and the side of the grip. Such an error is also caused by not squeezing the trigger straight back, but rather at an angle



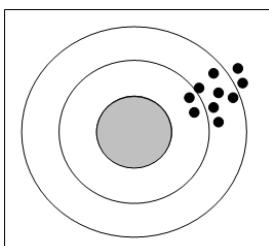
A horizontal pattern as illustrated is usually caused by canting the rifle or by not having the front sight vertical in the same place for each shot.



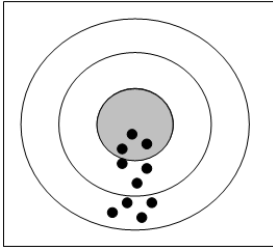
Shots dispersed to the high left indicate the shooter is not following through. He/she started to relax the right shoulder too soon or anticipated the shot and recoil. The right shoulder pulled to the rear, causes the front sight to stray upwards to the left. Another cause of this type of flyer is releasing the trigger too soon. By permitting the finger to go forward immediately after the squeeze, the hand is moved, which in turn pushes the rifle



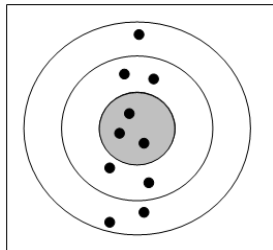
A target that has no definite grouping can have a myriad of reasons. The shooter may have been focussing the aiming eye on the target rather than the front sight, the whole position may be unstable, the equipment may be sub-standard (poor quality rifle and/or ammunition).



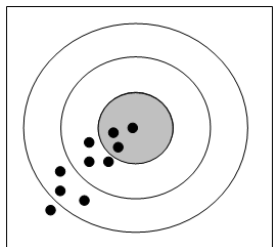
A compact group not centered. Two possibilities for this type of error no matter where on the target it might appear. Either the shooter is making the same error on each shot – in this case heeling with the trigger hand. Or the shooter may be out of position and muscling the rifle onto the centre hold. At the point of shot release, the shooter relaxes, and the shot tends in the natural direction from which it is pushed.



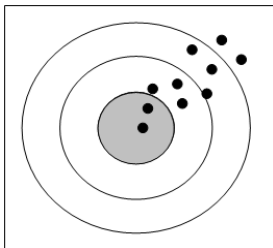
The probable cause of shots displaced to the 6 o'clock area is the sling becoming looser with each shot, or the shooter holding the rifle up on to the target.



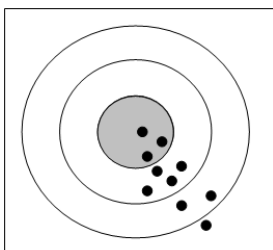
The vertical errors here could indicate the shooter is erratic in breathing. Another cause of this error is failing to relax completely and allow the sling to take the weight, but rather using muscle tension to hold the rifle on the target. A third possibility is inconsistent cheek pressure on the stock.



The classic low left pattern is almost always caused by pushing with the right shoulder on the butt in anticipation of the recoil.



Occasional shots to the high right as shown are commonly caused by pushing the gun with the left hand in anticipation of the shot. The left arm must remain relaxed as a support base during the shot release and follow through. A second possibility is relaxing the right shoulder at the moment of shot release.



The most fundamental mistake of jerking the trigger will cause shots to fall low and to the right. The shooter must learn to squeeze the trigger slowly, up to and past the point of release, so that the sights are not disturbed. A second less well known reason for this type of shot pattern is the right elbow slipping to the right, causing the whole position to fall off the front support arm.

Adapted from an anonymous source

Conclusion

Smallbore is a science. Very rewarding, but it is not simple. Your own progress is dependent upon yourself, for no matter how good the coach or your equipment, at the end of the day you still have to put the effort in to get the results.

If you are satisfied to just be a member of the club and an average shooter, that is your decision and be happy with what you get out of being in the club and the sport. However if you have desires to challenge yourself to be the best you can, and see how far your ability can take you. Whatever you decide, the fundamental principles outlined in this text will assist you, no matter whether you become an international level shooter, or a club level participant. With a little effort, most shooters can achieve a reasonable level of performance in a relatively short span of time.

To gain the skills and knowledge necessary to achieve scores of 595 or better requires the perfection of techniques in training, mastery of nervous reaction, and the mentality required to shoot a high score. It is also a product of intense training of the mind and body, far more complex than the initial fundamentals outlined within this guide. Shooters aspiring to these levels might seem aloof at training; however this is largely due to the level of concentration and effort required. At the end of the training session, there is always the opportunity for conversation.

There are several books available with which you can enhance your knowledge, however I suggest you master the basics as outlined here first and then look to expanding your skills with further study and research.

Good shooting.