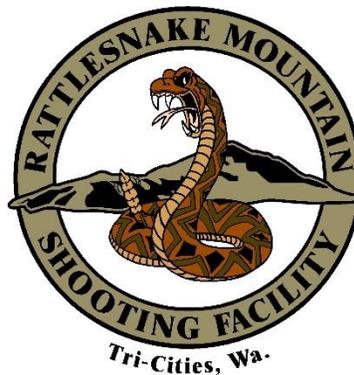


Tri Cities Shooting Association

Introduction to Smallbore (.22 LR) Match Shooting



Presented by the Tri-City Shooting Association

Instructors:

Ron Jorgensen

Agenda:

- **Introductions**
- **.22 Caliber Rimfire Matches**
- **Equipment desired and required**
- **Demonstration of typical .22 caliber rifle set up**
- **Course of Fire**
- **Safety Briefing**
- **Shooting on the high power range**

Additional Information and Attachments

- 8 Competition Shooting Tips for New Shooters
- Simple Things You Can Do To Improve
- Extreme Accuracy: How to Shoot Better Groups

Partial Listing of .22 Caliber Matches conducted at the TCSA

Complete match descriptions listing at www.tcsahighpower.org

1. .22 Caliber rimfire 50 Yard Match (Held at HESA range next to Rose Iris)

This match is designed to be a fun, informal match that tests the shooters ability, not their bank account. This match is not intended for custom made bench rest rifles. It is intended for rifles or pistols based standard production that may (or not) have aftermarket components.

Target: This target has 25 individual targets for score, and 3 targets which can be used for sighters.

2. Smallbore Mini Palma 100 yard (High Power Range)

Firing on all targets takes place in a single block. There will be two targets for each of the simulated distances pasted on the target holder. There are two 800 yards targets in a row, two 900 yards targets in a slightly lower row and offset to the right, and two 1,000 yard targets in the bottom row offset to the right of the 900 yard targets. This match includes two relays. When the first relay shoots the opposite relay pulls and scores targets. Then the relays switch.

3. Smallbore Prone 100/200 yard (High Power Range)

From 100 yards, shooters will have up to five optional sighters and twenty shots for record. Shooting is from the prone positions at 100 Yds. Time limit: 25 min.

Upon completion of the 100 yard portion, shooters will move to 200 yards where they will have five optional sighters and 20 shots for record. Again all shooting is prone. Time limit: 25 min. This match includes two relays. When the first relay shoots the opposite relay pulls and scores targets. Then the relays switch.

Check the TCSA website for a complete information on these and other .22 caliber matches. There is also a complete listing of the center fire matches. To locate the schedules and match description information, access the TCSA Highpower website www.tcsahighpower.org.

Equipment

There is a wide variety of equipment available for shooting in competition matches. To begin with you will want to purchase the following items:

1. Rifle

Types of .22 caliber rifles for match competition

There are several .22 caliber rifles that can be purchased off the shelf that will allow you to compete in the matches conducted at TCSA. There is, however, a large degree of variance between the lesser expensive rifles and the rifles truly designed for match competition. Here are a few examples.

Entry level rifles

- Savage Mark II BV with Accutrigger Cost \$400.00
- CZ Model 455 Varmint. Cost \$450.00
- Ruger 10/22 with target barrel Cost \$500.00

Higher end competition

- Anschutz 1416D "Classic" .22LR, Heavy Barrel Cost 980.00
- Winchester Model 52 bolt-action .22-caliber target rifle (Not currently in production) Cost \$2000.00-\$5000.00.

2. A good scope with either fixed or variable magnification. Typically for the 100 and 200 yard competitions, a higher magnification is desired. -----
Not to say you can't shoot open sights.
3. Shooting mat (you could start with a piece of carpet)
4. A front rest or preferably a bipod
5. Ammunition. Typically 50 rounds per match (More on this)
6. A flat board to set your front rest or bipod on.

See Attachment on improving your equipment for more details

Selecting .22 Caliber Ammunition

The task of selecting ammo for your .22 rifle is an important one. Regardless of the rifle, the following factors must be considered in the selection process:

1. Accuracy (and consistency from lot to lot)
2. Functioning (some types malfunction in certain guns)
3. Cost (the biggest variable)
4. Obtain sub sonic ammunition (1100 feet per second or less) for match competition.
5. Some examples of .22 subsonic ammunition are:
 - SK Match
 - Lapua,
 - Eley,
 - RWS.

The ammo list above is available on the Internet. Good sources include Champion Shooters, Midway, Cheaper Than Dirt. Expect to pay \$9.00 a box at the low end and close to \$20.00 a box at the high end (Eley Tenex).

If a certain ammo does not function well in your rifle, change to another. It is the only of the three factors of which you have no control. Beyond that, selection is really a matter of how much accuracy you can afford. Fortunately, even some of the most inexpensive cartridges still produce satisfactory groups. View this article for the best practices for conducting your own [Ammunition Accuracy Test](#).

Safety Briefing

The following safety briefing is provided to ensure your safety and those around you. It must be adhered to at all times. If you have any questions concerning safety, immediately contact the Match Director.

1. Rifles brought to the firing line should be in a case with an open chamber indicator in place.
2. Do not remove rifles from cases until instructed to do so. Once the rifle is uncased the muzzle must be pointed down range with an open chamber indicator installed.
3. Do not go forward of firing line once the line is hot and firearms have been uncased. In the pits remain behind the yellow line and in the safe zone unless instructed to do so by the Match Director
4. Pay attention to commands, both on the line and in the pits.
5. All rifles must have open chamber indicators in place unless Match Directors has instructed line to load. Open chamber indicators must be re-installed as soon as firing has completed.
6. Do not load rifles until instructed to do so.
7. All matches will include a preparation time to be used for setting up rifles, adjusting scope, and dry firing. Rifles are not to be loaded during prep time.
8. When you are through firing, unload rifle, insert open chamber indicator, case rifle, and notify Match Director. Do this prior to other post-shooting routines to help Match Director in calling range safe.
9. Any time you hear the command “Cease Fire”, immediately stop firing, unload your rifle, place open chamber indicator in place, and await further commands. DO NOT leave firing line or pits until instructed to do so.
10. The dirt road on the east side of the range is only for posting flags and for normal pit access. Please stay on gravel roads.
11. Please do not drive or park on firing lines, or walk on the bank on the front of the firing lines.
12. Eye and hearing protection is required on the firing line and in the pits. For rimfire matches, if everyone is using subsonic ammunition, hearing protection is not required. However, use of hearing protection is mandatory if anyone is shooting supersonic ammunition, both on the line and in the pits.

Eight Competition Shooting Tips for New Shooters

Don't Make Assumptions

I am surprised each time I hear someone in conversation or from a distance talk about competitive shooting. Oftentimes they are misinformed by other “target” shooters on what competition is really all about, what gear to use or specific rules. I have students who are avid competitors show up to classes with a lack of knowledge about the rules of their sport. So, one of my first recommendations is to read the rulebook of the sport they are shooting. If you are a new shooter, don't make assumptions until you attend a match and watch and speak to the shooters. After that, you will have a much broader understanding of the sport and what your next steps should be.

You Don't Need a Predetermined Skill Set

Many new shooters may actually be required to attend a class or group session before being allowed to compete. That being said, you don't need to be a great shooter (or even a good one) to compete. Almost every shooting sport out there has different classes of shooters ranging from beginner to expert. Most often, you will be competing against others with similar abilities. I have heard shooters say they are going to practice a bit before getting into competition, and my response is always to encourage these folks to get to a level of training where they are safe, then jump in with both feet. Competing with good shooters will probably help you more than practicing on your own.

Don't Be Too Quick to Buy All Your Gear

Please follow my advice on this one: Do not go out and buy guns and gear until you have watched a match. I can't possibly express how often I see shooters with guns that are completely wrong for their division. While there is a wide range of gear that may work, there are probably more effective (and most of time less expensive) gun/holster/magazine combinations available. Please take the time to watch a match, and take a notebook with you. Ask the best shooter you see what guns he or she is using and why. This insight will save you time, headaches and hopefully some cash.

Match Nerves Never Go Away; Learn to Control Them

This is one that prevents many people from shooting a match, or even considering it. Just think of the inevitable nervousness as an adrenaline rush. Even the top shooters in the world get the shakes when they step up to the plate, but one thing they all know is there is no secret potion that will get rid of that performance anxiety. If your nerves are really bothering you, find a good instructor/coach that can break down your issues.

Don't Expect to Win Right Away

When I was still in law enforcement I routinely brought other officers with me to handgun matches. Most of them shot well, but seemed to be surprised when they were out-shot by civilians or first timers. Since then, I've met many people who shot their first match and were so humbled that they chose not to go back. Even if you're a good shooter at your local range and you can beat your buddies, you're probably not going to win your first match. You can't let a slow start bother you, though, my personal suggestion is to look at it as a challenge!

If You Need Help, Simply Ask Someone

When you are at your first match, it's pretty likely that you will have a question or need some help. Don't be afraid to ask someone. Most shooting communities that I have been a part of are extremely helpful to all involved and more often than not will go to extreme lengths to help fellow competitors. I have seen more guns, gear and ammunition loans than I can count.

Your Ability in Practice Will Probably Never Translate to the Match

I wish this weren't true, but it is. Practice makes perfect, so hopefully you will spend some time training on the range to improve your match scores. Surprisingly, you may not be able to perform to the same level in a real competition as you do in practice. Don't let this discourage you, though, as long as your skill is improving in practice it will carry over to competition. If there is a huge difference in your ability in practice and a match, then consider this an indication that you might not be as strong mentally as you need to be. Likely, the failure during competitions is a result of a lack of confidence, or high anxiety.

Have a Strong Mental Preparation Program

Shooting is a physical skill that is strongly influenced by visual input and mental control. That is why it's so important to understand what the “mental game” is, and how to improve in that area. The reason I bring this up is that new shooters always tend to react to a poor performance by going to the range and simply shooting more. While this may be an effective solution, it is much less effective than adding some mental training to the equation. In my book, *Your Competition Handgun Training Program*, I include a mental section that helps shooters build solid mental skills that translate to better performance in competitions. A key point in that section covers utilizing the mental tools I give them, such as a “focus breath” and “performance statement” during their training.

Read more: <http://www.gunsandammo.com/blogs/for-the-love-of-competition/8-things-new-shooters-need-to-know-about-competition/#ixzz3bZBLS4Dv>

Simple things you can do to improve your equipment, technique and raise your benchrest and prone scores without hurting your billfold.

Put together by Jim Doriss, Chris Petersen and Peter Krook.

In no particular order:

- Use subsonic target quality ammunition - many brands available online
- Try multiple brands of ammunition to determine what shoots best in your rifle
- Don't waste time testing ammo at 50 yards. Test at 100 yards minimum
- Don't mess with variable scope magnifications while you are sighting in. Set it at the maximum, changing variable scope power can affect impact
- Tighten & torque all screws on your rifle and scope mounts. Scope base screws should be cemented with Blue Loc-Tite (not the ring screws). DO NOT over tighten. Use an inch-pound torque wrench to achieve the correct degree of tightness. Some rifles have aluminum receivers, too much torque will strip the threads, requiring a qualified gun smith to rectify the damage.
- Use a stable and solid front rest. Bipods work best.
- Obtain a shooting mat to lay on for prone matches. Start with a large piece of carpet. Shooting mats are inexpensive and should be purchased.
- Use stable rear rest (for example a rabbit ear style rear bag)
- Rifle rests should naturally point the rifle exactly where you want to hit. If you find yourself pushing the rifle around and trying to hold it on target, adjust the rests
- Watch for changes in the wind flags before each shot, especially while the target is being marked and scored. Shoot quickly when the wind is favorable.
- Know your scope's elevation and windage settings for each distance (keep these in a log)
- If you are shooting a match that includes 200 yards, immediately return your scope to the 100 yd. settings after shooting the 200 yard portion.
- Use a rifle/scope level (cost @\$40 on up) check it before each shot
- Load your rifle one round at a time, not from a magazine. Loading from a magazine can deform soft lead bullets. Note: DO NOT do this with a Ruger 10/22, the rifle is designed to feed the round up and behind the extractor claw, and a few have had out of battery detonation from the extractor striking the rim when the bolt strikes an already chambered round.
- The elbow on your trigger hand should rest the on the bench or shooting mat. This will help immensely to stabilize the rear end of the rifle. Put a bag under your elbow if needed, or consider using an elbow pad. They can be obtained at many sports stores for a nominal cost.
- Use a mechanical pencil for scoring (pencil leads can break at the worst time)

- Practice breathing, sight picture, and trigger control. Take your time.
- Squeeze the trigger as slowly as you can make yourself do it. This helps keep you from squeezing with the whole trigger hand
- Your cheek weld is an important anchor point. You need to be consistent. Don't lean heavily on the stock - just enough to get the correct eye relief
- Make every attempt to go thru the same set and sequence of motions for each shot. Develop a routine and focus on execution.
- Have all your equipment organized so when the setup time begins you are not looking around for your stuff. Use set up time to load magazines (I prefer to load singly)
- Know where your rifle shoots with a "cold bore" so you don't unnecessarily make major sight corrections when using your sighter shots
- Test to determine if you rifle shoots best with regular cleaning or clean only when the groups start to open up
- Note that for right hand twist rifling, the wind tends to move the bullet a little up or down as it moves it left or right. The usual line of impacts is from about 0945 to 1545 at 50-100yd . So if you are holding off due to wind, you want to have your sights along that line. If you are making a sight correction using the scope knobs, you need to move about 1 click of elevation for every 4 clicks of windage.
- Measuring rim thickness, bullet diameter and weighing each round are steps often used to try and reduce "flyers". Read up on these tricks online.
- If you have parallax adjustment in your scope, adjust to eliminate parallax, not for sharpest focus. Oft times the two are not the same.
See: <http://www.rimfirebenchrest.com/articles/parallax2.html>
- Go online and read the following Rimfire Benchrest Tips:
<http://ukbr22couk.ipage.com/RimfireBenchrestTips.pdf>

Extreme Accuracy: How to Shoot Better Groups



Consistency is the key to shooting better groups. This goes for the loads you're putting in your rifle, the conditions at the range, and your shooting technique.

Setting Up

When you're shooting from the prone position or off the bench, you don't want your front rest and rear bag to move at all. You want the gun to slide over them, not push them around under recoil.

You can get your rear bag to stick to the bench by placing a piece of rubber carpet mat between the bag and the bench, or if your rear bag is made of leather, by wetting the bottom of the bag.

Swivel studs will cause the bags to jump around, so either position the bags away from them or unscrew them from the stock while you're shooting.

To help the rifle slide on the bag, use this benchrest shooter's trick: Take a used dryer sheet and place it between the bag and the stock.

Gripping

With a rifle that weighs more than 13 pounds and rides the bags well, you can let it free recoil—meaning you don't touch the stock at all—when shooting groups. But with any regular sporting rifle, you're going to need to grip it.

When I shoot a hunting rifle that's between 9 and 10 pounds with a scope, I might just grip it with my trigger hand and barely rest it in my shoulder. With a lighter gun, you'll need to grip the forend as well to keep it from jumping all over the place.

Use the least amount of contact you can while still feeling the rifle is stable under recoil.

Foulers

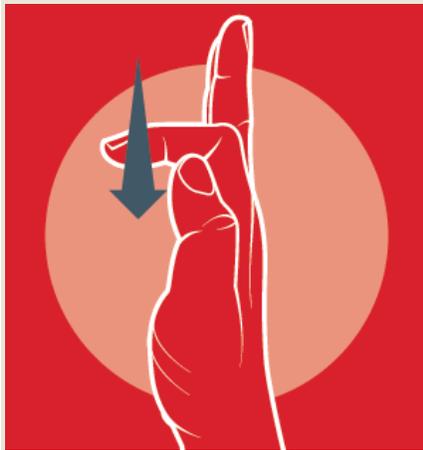
After cleaning a rifle, you should fire a fouling shot or two before shooting for groups. Also, when shooting a semi-auto, the first round that you manually chamber should be shot off to the side of the target, as it won't seat in the chamber the same as the subsequent rounds that are automatically loaded.

Fixing Fliers

The classic "four-and-one"—a tight group with a flier on the fourth or fifth shot—happens when you get excited and lose focus. It's at this point that you try to wish the final shot into an existing hole and mess it up. Often you find that you've put extra shoulder pressure on the stock, which usually sends the shot low.

To cure this, reset on the bench. Stand up, turn in a circle, and get back behind the gun. Or send a shot deliberately off to the side, then go back to shooting the group.

Extreme Accuracy: How To Perfect Your Trigger Press



Lots of shooters can probably recite the basic elements of a good trigger press, but do they put it into practice? To review: You want to position the trigger in the middle of the pad of your fingertip, and lay the finger straight across the face of the trigger so that it forms a right angle in relation to the barrel.

That accomplished, you need to isolate the movement of the trigger finger so that it applies pressure in a straight line to the rear of the gun. This is much harder to do than it sounds, as the tendency is to

exert more pressure on one side of the trigger or the other, in effect pulling or pushing the trigger a tiny bit. That little bit of force will throw your shots off horizontally.

Lastly, you need to follow through with the trigger press, holding the trigger toward the rear of the firearm until the recoil has subsided.

To detect poor form, take a video of your trigger control the next time you go to the range

Extreme Accuracy: How to Master Practical Positional Shooting



When you're hunting, using a kneeling or sitting position is often the only practical way to get a shot at an animal. In these circumstances, a shooting sling is a real aid to accuracy.

How a Sling Works

The classic shooting sling is the leather Turner that is associated with the Springfield M1903 service rifle. It adjusts to cinch tight around the shooter's upper arm and pull the rifle snug into the shoulder. The downside to the Turner sling is that it can take a while to deploy.

Modern shooting slings have quick-adjust buckles or elastic bungees to perform the same task as the Turner. Common to every shooting sling is that it forms the top of a triangle, with the other two sides being the shooter's bent arm supporting the stock.

Proper Technique

You want to build that triangle right above the knee, with the elbow positioned just in front of the kneecap. Done right, bones—not muscle—support the rifle.

Of all the fundamentals, the most important when kneeling or sitting is natural point of aim (NPA). With correct NPA, the rifle is pointed at the target, and the shooter's body is "pointed" at the rifle. This means that the shooter isn't exerting any muscular pressure on the rifle to aim it.

How to Practice

Developing proper NPA requires an inordinate amount of dry-fire practice. You master this in your backyard, not at the range. To check for proper NPA, build your shooting position, close your eyes, and go through a couple of breathing cycles. Open your eyes. If you're on target, that's great. If not, move your body and rifle as a single unit to make a correction and try again.

Once you've established good NPA, take stock of your body—the position of your feet, torso, and arms. Break the position and do the drill again. Eventually your NPA will get better. Do this break-and-build drill from the carry position you'll use in the field.

Breathing

With a kneeling or sitting shot, break the trigger at the bottom of the breathing cycle.

Trigger Control

Don't slap the trigger. Press it straight to the rear. Slapping will cause the shots to string out horizontally across the target.

Follow-Through

Stay engaged with the rifle. Wait until the recoil is over, then release the trigger and run the bolt.

Goals

You want to be able to hit a 2 MOA target while kneeling or sitting. This means hitting a 2-inch target at 100 yards, a 4-inch target at 200 yards, and so on. Starting off, use a target that is 4 MOA or larger, and work toward this goal.