

THE ADVANCED STEEL GUIDE

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INDEXING

Index points are things to line your body up with while shooting to ensure consistency. This could be as small as how you place your thumbs on the gun. You could have a piece of tape or a thumb rest to make sure your grip is the same every time. In this example, the tape or thumb rest is the index point. Your brain knows where your hands are, and if they are on the gun the same way every time, your brain will learn where the gun is in relation to your hands. If you don't grip the gun the same every time, your subconscious brain will never accurately learn the position of the gun in your hands.

You can also use indexing to orient yourself with specific stages. Your body has a natural point of aim at any given time. To understand this, imagine you are in the shooter's box with one target directly in front of you. You don't have to swing to make any transitions, so when you are aiming at the plate your body should not be twisted in any way, you are at rest. This is your natural point of aim and you are naturally indexed on that plate.

An easy way to ensure you are centered properly in the box is to index yourself with the same plate every time you shoot a particular stage. The center plate is usually the most common index point. I start in the box by getting as close as I can to the targets and then rotating to whatever plate I am indexing on. This allows you to see the stages from the same perspective every time so that you can develop a more consistent understanding of where the plates are located. This plays a big part in developing a subconscious shooting routine.

Personal preference for each stage can determine your ideal index point, as well. I index on the center plate for Pendulum, showdown, Roundabout, smoke and hope, accelerator, and speed option. There are a few reasons why you may want to deviate from this trend. If there is a plate close to the stop plate that is particularly difficult to hit, you may want to index off that plate since your body naturally wants to return to being aimed at that target. I use this tactic on 5 to go, indexing on the farthest plate. This plate is very small from the shooter's box perspective and can trap you into a large time loss because it is so far from the next plate. It is also common to index on the stop plate for 5 to go, twisting your body to draw on the far left plate. This way, you can unwind your body to the stop plate.

Indexing can also be done with individual body parts, and is especially useful on wide transitions. By pointing your feet at specific targets (usually outside targets where you change swing direction), you can swing the gun hard to where your feet are pointed to get a fast transition with a hard brake. This mechanic is useful on stages where your shooting order focuses on preserving momentum.

PRACTICE

Ideally, you would have somewhere to set up stages and shoot them live every day, but that's a luxury few people possess. If you're a po' Boi like me, there are ways you can improve your performance for free. When you are practicing at the live range or dry firing at your house, your brain cannot tell the difference of whether or not you are actually shooting. The subconscious mind just accepts inputs, it does not judge them. Everything but accuracy and recoil control can be learned and mastered in dry fire if you give your subconscious good inputs.

For dry fire targets, you can make your own out of paper or purchase them. I recommend GoFastDontSuck dry fire SCSA stage sets. You can get a full set for \$35 that is perfectly scaled to the perspective of 8ft. It's important to make sure they match your perspective of the stage. To emulate this, next time you are at a match, get in your indexed position in the box and take a picture of the stage from your point of view. This way you can adjust the height of your dry fire targets based on how you see them in the real world. For extra realism, load the magazine with snap caps or other weights to simulate the weight of a loaded gun. Make an effort to emulate as many details as possible.

You want to feed your subconscious an idea of what a good string time feels like. The goal of setting the par time is to master shooting solid times (90% throttle), not necessarily crazy fast times (100% throttle). A good way to find this number is to calculate the average string time on your last personal best for the stage and add about 5%. So if I shot an 8 second smoke and hope, my par time should be 2.1 seconds for that stage.

When dry firing, it's very important to only feed your subconscious good habits. Rushing through a string to meet your goal par time without really seeing your sights and following proper techniques will actually hurt your shooting ability. By doing this, you are feeding your subconscious bad habits disguised as good ones. For every single target you dry fire, you should see the sight, call the shot, and pull the trigger without jerking the gun.

Every time you meet the par time, give yourself positive reinforcement to cement that action in your mind as a good run. This could be a big smile or an exclamation, whatever you want. With enough practice, you will be able to subconsciously shoot the stage with strings the same as your dry fire par time. This is when you should re-evaluate your par times and adjust them accordingly as you reach them to improve further.

While training consistency, it's important that you shoot on fundamentals alone. If you follow the fundamentals of shooting (good sight alignment, solid grip, accurate shot calling, and hitting every plate the first shot), you should be performing, on average, at the top of your ability. You can't go faster than your fundamentals without tripping somewhere on the way. If you aren't seeing your

sights every shot, you're gambling and it will catch up to you across the 195+ shots you will take in a match. The key to consistency is perfect practice.

Practice doesn't make perfect, perfect practice makes perfect. It does no good to you as a shooter if you practice a stage with high speed, but a 90% hit rate. Your subconscious cannot distinguish the difference in your shooting between clean and messy strings when you approach every string at that speed. I don't believe that pushing super hard in practice *beyond what you can see* is beneficial because you will train yourself to put fundamentals at a lower priority.

When I feel like my fundamentals are slipping at my current speeds, I stop using par timer beeps. I just use it as a random start beep and I finish the string however long it takes me to hit every target with a 100% hit rate across 5 strings. No "redo" strings or warmup beeps, shoot it just like you should in a match. I will do this on the same stage until I can shoot the string 15 times clean in a row, then change stages. Be critical of your hits. If you weren't certain it was a hit, count it as a miss and start again. This will allow you to develop an understanding of how fast is too fast. You should be using this speed during practice leading up to a big match so that you do not over-extend yourself when you are performing on the line.

When you perform in this manner at the match, you don't need to worry about things like messing up or not shooting fast enough. You are fast enough already to shoot your best and it's easy to lose control when you over extend. Shooting with fundamentals alone means that you will shoot the best you can, without having to gamble on strings that could bomb a stage.

You should also remember that short consistent practice is better than long intermittent practice sessions. Even if you are just shooting two or three strings for each stage you have set up, pick up the gun every day. Every day you skip is a day of skill decay.

EYE FOCUS

When aiming the gun, the fastest way to shoot is using an eyes-first process. You should be looking with both eyes open at the target, and bring the gun to the target. When you see the red dot on white, call the shot and fire. Immediately after firing, move your eyes to the next plate and repeat. Do not use your eyes to follow the gun or the sights to the plate, just focus on the plates.

If you watch the sights as you swing the gun, it causes a few major problems. The first being that you typically overshoot past the target when you are looking at your sights, and have to change directions back to the plate to get the hit. This is inefficient and bleeds a lot of time across a match. If you swing slower to anticipate the target coming into the optic, you are still spending more time than if you had just driven the gun and stopped on the plate.

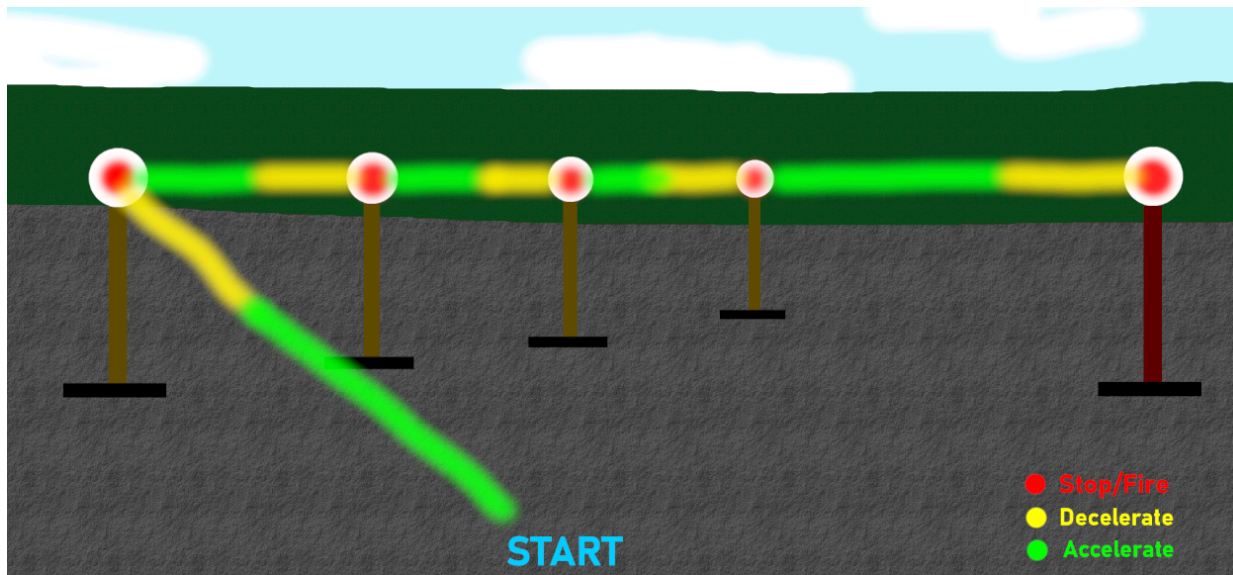
THROTTLING THE GUN

Getting a good string in steel challenge is not just about swing speed, it's about how fast you start and stop the gun efficiently. On an ideal transition, you should be accelerating the gun as fast as you can off the first plate as you move to the second plate. However, it is more important that you decelerate at the correct moment to stop on the plate without adjusting aim. The closer you can get to the second plate before decelerating, the better the transition. However, decelerating too early or too late will require more adjustments to aim once the gun has over or undershot the plate.

So the faster I'm moving the gun, the smaller margin of error I will have to decelerate and still stop on the plate.

This mechanic is used by all shooters whether they understand it or not, but plays a large role in aiming efficiency. At the highest level, someone with perfect aiming efficiency will appear to be "floating" the gun between targets. It may look like they are shooting the plates all without stopping while taking shots. They have actually just mastered throttling efficiency and they stop for such a short amount of time to take the shot that it looks like a smooth motion. Achieving this cannot be done by practicing drifting the gun along the plates alone, but by mastering a controlled stop on each plate.

A smooth, efficient throttle should look something like this:



You will need to figure out where it is most efficient for you to start decelerating based on your own skills. This strategy becomes more effective the less time you need to spend adjusting your aim when you get to the plate. That skill (AOI, explained later) comes from muscle memory, and will form with time and practice.

MENTAL PREP

Mental prep for a match starts days before you even show up. Obviously good sleep, hydration, and consistent practice are important, but they make the biggest impact close to the event. I want to go to every match knowing that I've been up on my practice routine and energy level. When I'm there, the last thing I want to have in the back of my mind is "I could've practiced more" "I'm feeling drained" or "My equipment/body feels clumsy."

I like to keep a shooting journal that I fill every day with things that I want subconsciously going through my mind. This is different for everyone but I mostly write down things that calm me down and work my way up to fundamentals of shooting. So a typical entry could start "I am a winner of my own match because I had fun. The score is a bonus, not my reason to be here." And it progresses to fundamentals like "I will trust the process to shoot my best, grip tight red on white." I highlight the lines and phrases that I believe are the most important. I try to fill out a page every day before practice or a match.

You want to feel the same way you do when you're practicing, so follow the same procedures in both circumstances. I like to listen to music while I'm practicing, and I always start my Playlist at the same song. This lets me use this song like a trigger, to get me in the mood to shoot and its familiarity makes me feel confident and warmed up before I've even made it to the line. I usually listen in the car when I'm close to the match, and before I go up to the line through my electronic earpro. When I'm not shooting, I like to talk and joke around with my squad mates. It helps me feel relaxed and improves my confidence. I always do things better when I'm having fun, and shooting is no different. Enjoy the people of the sport and lift them up while shooting together.

When I'm on deck to shoot, I break away from the group and focus on my fundamentals. I run through the highlighted entries from the journal in my head. I keep a list of fundamentals I want to remember (written in the journal or phone separate from my daily entries) and I transition from confidence boosting concepts to fundamental tactics. I think "trust the process, grip it tight, red on white, one for one." While the person before me is still shooting, I get my equipment and stand behind the box. I listen to the RO run the person in front of me, making note of their timing cadence. I imagine they are running me and I try to figure out when I should be ready to draw. I visualize myself shooting the stage, snapping my eyes from plate to plate at the speed I would shoot them.

When I'm up I dry fire the stage to make sure nothing is off. If I notice a target feels slightly off center or it is not level, I make a note of that to myself. I make sure my music is off and signal ready. I want to be off the starting position and get the gun moving as close to the timer beep as possible. So I use some muscles to push the gun toward the first target, while keeping the gun from moving with others. So the gun is not moving, but as soon as I release opposing pressure, the gun will be propelled to the first target.

For the first string, I recall the cadence at which the RO was running the person before me and make sure I can call it. I react to the beep on the first string to make sure the cadence is the same. From the second string on, I draw maybe 0.05s after I think the beep will go off. It takes about 0.2s for your brain to hear the beep and respond to it, but by anticipating the timer you cut that response time by 0.10s or more every string. I'm not saying that you should jump the timer or start moving the same moment the timer beep starts. But be able to move just after so you are on the clock while moving, without waiting for your brain to register it. A fast, consistent, cadence is ideal.

(10/25/2021 UPDATE) I've stopped timing it in my head after practicing with a random dry fire start beep for long enough. It just comes second nature at this point and allows me to focus on what I'm doing in the moment without having to switch once the timer goes off. I think people should practice timing it, but eventually it doesn't really seem to matter once you have so many reps.

After the buzzer, I want to keep my mind clear so I can just let my subconscious do the mechanical work. Of course, thinking about letting your subconscious take over will take you out of the zone. I try to flood my conscious thought so I don't move the gun manually. I like to repeat "red on white" over and over to keep target focus and maintain accuracy. This is like training wheels for my subconscious. It keeps me shooting at about 90-95% speed but ensures I get all hits so I won't fall off.

THE PROCESS

Shooting at top speed for every single string could net you some great highlights, but it doesn't consistently win matches. Typically competitors shoot a bit slower than their 100% time to ensure these consistent results and shoot one-for-one. Over the course of the match, shooting one-for-one at reduced speed will be faster on average than 100% speed with makeup shots.

When I get up to the line and finish my make-ready, I like to shoot my first string at about 85% of my top speed. If it doesn't feel right or you aren't in the zone that day, you may need to stay around 85-90% for the remaining strings to avoid make-ups. In this case, take the stage as a warmup and keep it safe. If my first string feels good, I'll ramp it up to 90% on the second and third string. 90% for me is usually the par time I practice at home in dry fire. This is the comfort zone I've developed where I can just let my subconscious go on autopilot.

At string four, you have a choice to make: get a safe fourth string or gas it up. If you feel confident and have shot clean up to this point, you can go for a 100% string if you are feeling risky. Since you have one string that is thrown out, the idea is that if you shoot a top speed string at string 4 without missing any plates, you can try it again on string 5 and go for a super low time. But, if it does not

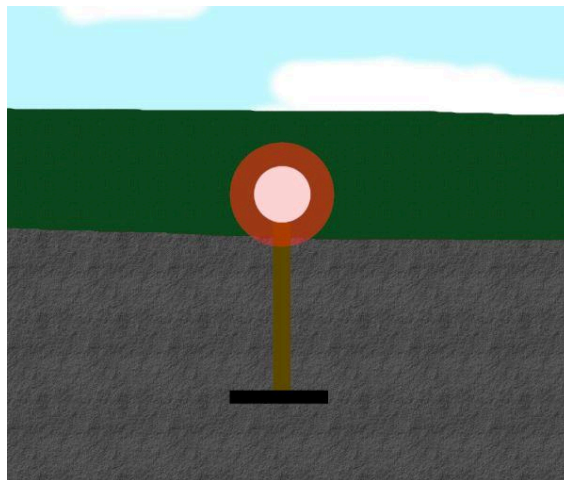
work out on string 4, you will have to shoot string 5 safe with no safety net for a malfunction or bad string. I typically push for about 95% on my 4th string in a major, due to the unreliable nature of rimfire. Then I gas it up to 100% on my fifth string to replace my 85% first string if it works out.

You will need to find what number works for you, but in general I go for 85-90-90-95-100. If at any point you have a makeup shot or malfunction, you will need to shoot the rest of your strings clean. Throttle yourself as needed to ensure that. When I take a makeup shot on a string, I usually shoot the rest of the strings at 90%. The difference between your 90% and 100% speed is, on average, less than the cost of a makeup shot on the clock.

READING HITS

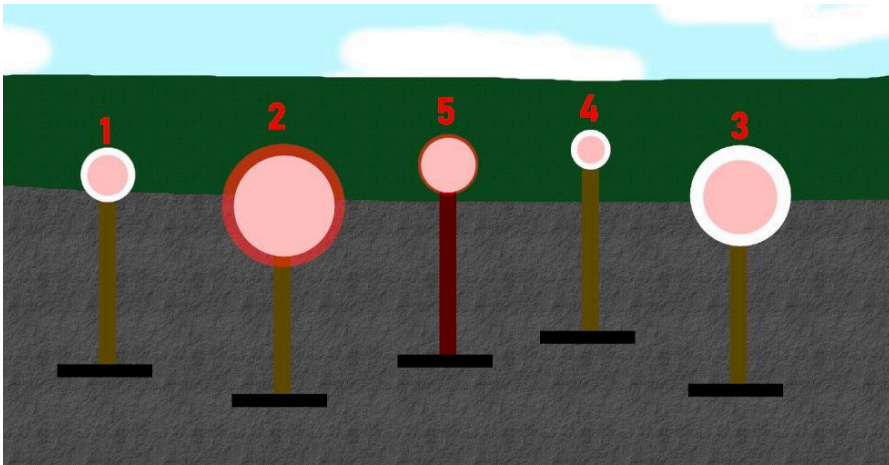
The term “grouping” in traditional target shooting is a reference to how close together your shots are while aiming at a single point. In speed shooting, your accuracy is a function of your speed and grouping size. The faster you are moving the gun, the wider your area of impact (AOI) is.

$AOI = (\text{grouping size at rest}) \times (\text{speed of approach})$



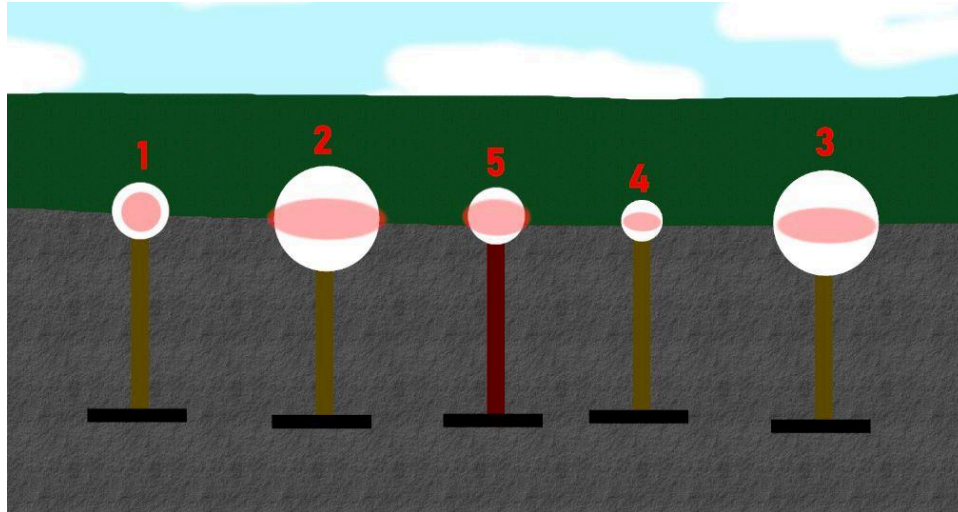
In this picture above, the AOI (area highlighted in red) is 50% larger than the plate. I would miss 50% of the time if I fired as soon as the transition stopped in this scenario. To make this shot hit reliably I need to reduce AOI by starting to decelerate the gun earlier in the transition.

You should always see the sights and be able to call your hits as you shoot. AOI should be considered in how fast you approach plates during transitions. For example, let's pretend I'm shooting a roundabout string at 90% speed. In the picture below you can see the approximate AOI that I use.

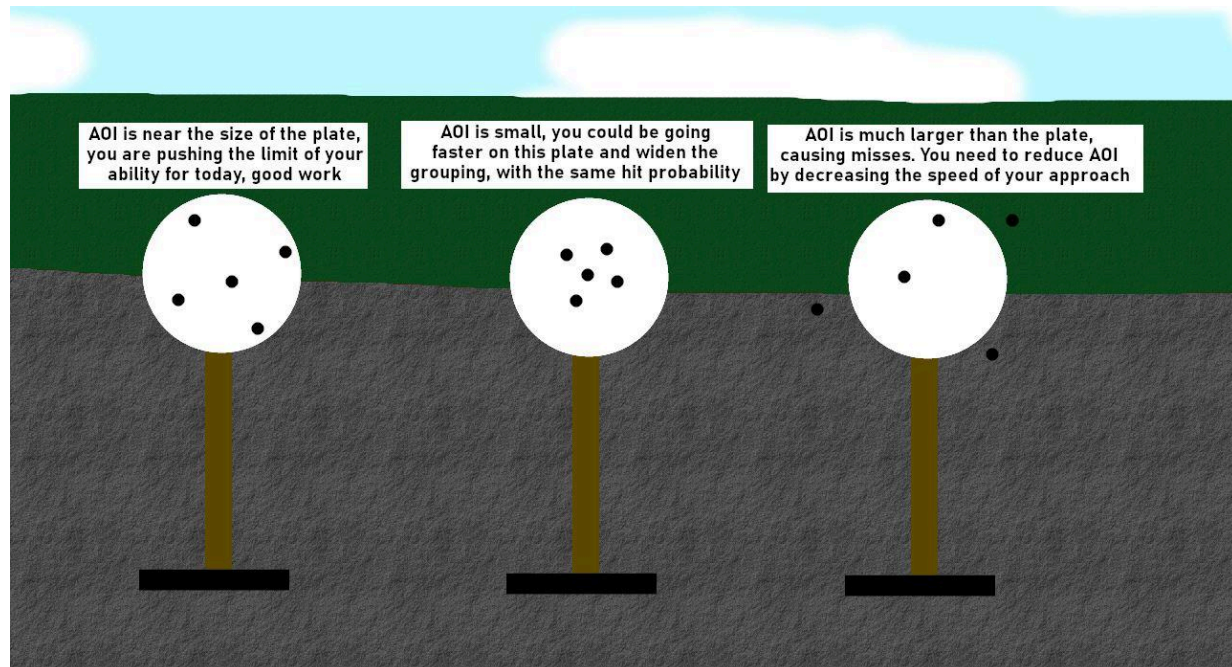


On the first plate, I make sure to use an AOI that is inside the target so I get a hit every time. The second plate I have an AOI that is slightly larger than the target. I'm confident in my ability to slow down and hit the plate mid-swing without stopping as I move to plate three. This is a calculated risk I like to take. You have an allowance for every stage to have AOI slightly larger than the targets while still being considered "safe." If I can transition to that target and shoot immediately with a hit 90% of the time, that's a risk worth taking. I have a reduced AOI while shooting plate three, as I am braking hard and changing direction of momentum. This tends to reduce my AOI the most. Plate four I slow down and make sure I get a good hit every time, before snapping to the stop plate. My AOI for the stop plate is slightly larger than the size of the plate itself. It's an important hit and if I do get a miss, I can put a makeup shot down range quickly since I don't need to move the gun anywhere else. Makeups on stop plates are always faster than a plate you've already transitioned off of.

You can reduce your AOI further by getting level with the targets. I like to squat down a little bit so my eyes are level with the plates (5ft). This works on every stage except pendulum. You can basically just swing side to side, without worrying about having to adjust the gun up and down. This minimizes your AOI substantially, making them more oval shaped, like this:



Your hits on steel are a gauge to the effectiveness of your AOI management, when you learn to read them. If your hits are all evenly spread around the plate, from edge to edge, you are very close to the edge of your ability that day. You are within your AOI and pushing the limits, good job. If your hits are pretty close to the center, you are taking too much time and you would benefit from speeding up a bit to widen your AOI. If you do not have all your hits on steel, you need to slow down and tighten it up.



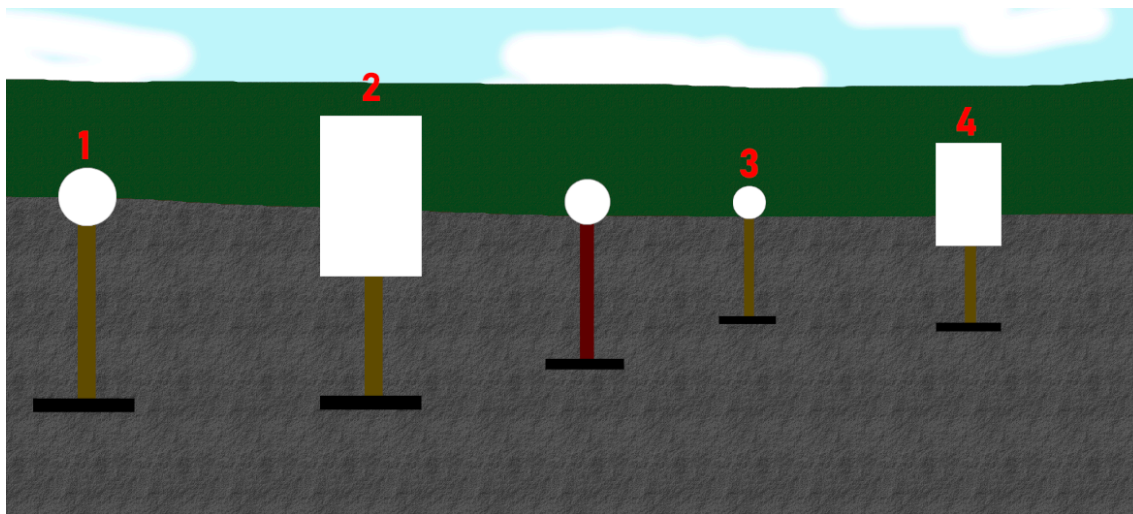
I'm not saying that you should throttle your overall speed down to the point of never missing, but use AOI to minimize it. If you never miss, you are shooting too slow. If you are getting more than one or two misses per stage, you are going too fast. You may not always be able to shoot at the same

speed, you may be having a slow day or you're just out of it. You use AOI to figure out where you stand and adjust for THAT match, not your usual.

STAGE PLANNING AND MOMENTUM

When choosing how you are going to shoot a stage, the pattern that is most comfortable to you is going to be the best within reason. As long as you are only changing direction one time in the string, it can work out fine with practice. It's also advised that you shoot small targets first and transition to large targets from there when possible. In doing so, you will find a good sight picture right off the bat, and if you grip the gun tight, you'll maintain it and keep it for the rest of the string. From the small plate, you can hit the larger plate off the recoil without having to wait as long for your gun to settle, since the bigger plate can be shot with a larger AOI.

Good use of your momentum allows you to slow the gun down instead of fully stopping to shoot large plates. Let's look at Accelerator for an example. By shooting it 1, 2, 4, 3, stop, you are keeping your change in speed to a minimum. You get your good sight picture on 1, you can maintain a high transition speed on plate 2 and 4, then change speed and shoot 3 and the stop plate. This is more efficient and easier to do consistently than shooting 1,2,3,4,stop using the small-big method of stage planning. If you used the 1,2,3,4,stop on Accelerator you would have to use high transition speed for 1-2, then low transition speed from 2-3, then high transition speed from 3-4, then low again going from 4-stop.



You can also change your perspective of a stage by standing closer or further away from the stage in the box. This only works on stages with wide transitions like Smoke and Hope and Accelerator. By standing back, you make the outside plates closer together from your human perspective. It is very slight, but noticeable. You can also shift left and right to make some plates appear closer together,

however this will not change the total distance your transitions need to cover for the stage. It only helps for shooting certain plates off the recoil of other plates.

NUTRITION

I'm by no means a dietician, but I'll try to explain my understanding of it where it's relevant to speed shooting. Basically, your body keeps you sustained in two ways: from calories you consume and from burning intramuscular fat. When you are hungry and your body doesn't have any food to take energy from, it kind of starts to go into conservation mode. You have less energy to allocate so your eyes will be slower and your brain will be less responsive when processing information. This leads to many smaller mistakes like extra makeup shots, slower transitions, or a breakdown in fundamentals. When you are full or satisfied from a carolic standpoint, you're going to perform at a higher level than when your body burns fat.

Prior to learning this, I was usually practicing right after I got home from work or from my night classes. It was usually a few hours after a meal and I was tired, so I essentially learned to shoot and operate on a near-empty stomach. My reasoning for this at the time was "well I may not have anything to eat at a match, but I always have the option to go hungry." However, I found this actually was hurting me time wise over the course of a match. This was important in determining my dietary routine before an event.

My current strategy is to make sure I have all three meals the day prior to the match, mostly proteins and carbohydrates, anything clean with slow burning energy. The next morning, I would eat breakfast about 90 minutes before I shoot and drink at least one bottle of water. At this point, I feel that I have just the right amount of energy consumed to shoot optimally by the time I'm on the line to compete. For me, this is like the "Goldilocks zone" where I'm not full (because it's not a condition I'm acclimated to shooting in) but I'm still far from burning fat. I maintain this by eating peanuts (calorie dense and slow burning) and taking a drink every stage when I'm on deck or in the hole to shoot next. If you miss a stage or two where you aren't maintaining your energy, you will fall behind.

When you follow this behavior, it also trains your body to deal with stress. When you eat the food and take a drink during a high stress situation like a major match, you're training your body to consume food with stress. Since eating is a non-stressful event, you are pairing them together so that the stress seems less severe. I noticed that after about two months of this, I became much more relaxed on the line at important matches when I maintained the routine.

The routine will be different for everyone and you need to find what's suited to your body. I recommend staying on the same routine for about two months, tracking your times during that duration. If you improve at a higher rate, then it's obvious that you should stick with it. If you don't notice any change in rate, try a different pre-match dietary plan.

TIPS

5 to go: Index on plate 4 or the stop plate, unwind your body toward the plate as you shoot the stage

Showdown: Shoot the first two stages from whatever side you are weaker on, as a warmup. Run those two strings safe and get some solid times up.

Smoke and Hope: Transition hard, don't bother decelerating into any plates except the stop plate. You should see the sights on every shot, and take your time on the stop plate. Use the direction of your feet to index wide transitions.

Outer limits: Stand in the back of the first box and move to the front of the second box, so you aren't sidestepping but actually moving diagonally. Push off hard with your right foot and coast the momentum out so you are stable by the time you reach the second box. Don't look at the ground, keep your eyes on the next target and be ready to take the shot as soon as you land.

Accelerator: Shoot it like roundabout but more carefully if you use the 1, 2, 4, 3, stop pattern. Hit the front square plate while swinging like a drive by, slow down for it but don't stop. Take time on the small back plate to ensure a hit.

Pendulum: This stage is all trigger control for pistols. The plates are small and close together so swinging smoothly to them is faster than snapping.

Speed option: Another trigger control stage, no cheating your sights. Call the shot on the stop plate, don't wait for the ringing steel.

Roundabout: Going 1, 2, 4, 3, stop: hit the first plate and then make a drive by on the second, slowing down but not stopping, hit plate 4 while you are changing direction. Make a careful shot on plate 3, and hit the stop plate on the recoil from plate 3.

General:

Taking the shortest transition distance takes precedence over the small-big target shooting strategy. You should only change direction once per stage.

Standing in the back of the box can make the plates seem closer together, but smaller

You should see your sights on every shot, except for burndown strings where you already have four clean strings and your AOI on string 5 is massive