

Fatigue

This month's topic was suggested by someone who probably didn't get his nap on match day! (Actually, it had to do with his eyes getting tired, but I really miss naps on days I don't get them.) Fatigue obviously is going to affect any physical or mental activity, shooting more than others - say, taking out the garbage after the third time your wife 'reminds' you. So, how should we deal with it? Fatigue is mostly the result of the available resources - muscle fibers, oxygen, fuel, etc. being either limited or reduced in usefulness by the buildup of waste products. Lactic acid in muscle fibers, carbon dioxide in the blood and so on. Fuel and oxygen are transported in and waste products out by the circulatory system. Obviously, the better shape this system is, the better the process works. That is why all the emphasis on aerobic fitness, weight and endurance training, etc. for those involved in athletics. Looking down the line at pistol matches one can see the feet behind the "line" but a lot of bellies protruding past it - probably not the best endorsement of shooting as an athletic event! (Most shooters defend this type of physique as "ballast" - "gives me stability, mate!")

In addition to becoming more "fit" - having high oxygen uptake due to aerobic conditioning, having well toned muscles from weight training and having the ability to hold well due to "specific" training (covered in other "Notes") - one needs to consider the rate of transfer element in fatigue. Roughly, the transfer of lactic acid OUT of the muscle fiber takes twice as long as the duration of the effort that created it. I teach a pace of about 1 shot per minute - aborts are a shot - in the air pistol and free pistol discipline. This is broken into about 20 secs of lifting, aiming, and firing and about 40 secs of rest between shots. (2:1, eh?) A reasonably fit competitor can keep this up for hours. Eye fatigue is dealt with during this time: The cilia muscles need to be relaxed from the state of aiming as well as the directional muscles. During your rest period between shots one should look off into the distance - hopefully at a neutral colored background without too much reflected glare - and back to the bench or one's feet. This "flexes" these muscles and compensates for the fixed focus on the sight's position you spend so much time with.

The same sort of strategy can be employed for the leg muscles. During the rest period between shots, flex the thigh and calf muscles, rock on your toes (staying in position, of course), etc. to stretch out these muscles from their static shooting tensions. Periodically, one should break the shooting position and sit down. During such a break, breathing exercises for relaxation of the entire body and mind, mental exercises using the "left brain" to let the "right brain" rest (verbal, math, etc.) can be used. Of course, on resumption of shooting, one has to get back into the shooting mental and physical postures, so allow time for that. And, don't forget hydration! The body is one big chemical factory and it needs dihydrogen oxide to perform its needed work.

In short, fatigue can be managed to the benefit of the shooter by advance work to achieve physical and mental fitness and then using the time on the line profitably - resting and stretching while on the line - and learning how to time your "breaks" . Of course, sometimes you may not want to take a break at all! If you are in the zone and the 10s are coming, why stop? I watched a lady air rifle shooter in a World Cup shoot the entire

match without a break. She could hardly move at the end and her coach said this was not typical, but she was shooting extremely well - won the Gold - and didn't want to interrupt the process. Her superb conditioning made it possible. You should be in good enough condition to permit this if the situation calls for it. As for the eyes, even here advance conditioning is possible: An exercise called "accomodative rock" - focusing at infinity and then at the back of your hand - to infinity - back of hand, etc. will tone the eye muscles and give more endurance for shooting. So, make a plan for off and on the range, use the shot release technique described in another note, drink your water, and you can come off the range with a great score and still with enough energy left to high five your buddies!

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