

## **Your routine before and after training or competition**

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All of us know the feeling of a successful competition or training session and our preparation routines are key to experiencing that success. Certainly, there are important aspects for achieving a successful shooting competition or training session. These include your tactical skills, experience and your coach's qualifications and abilities. However, this article aims to point out the importance of always warming up before and cooling down after a competition and/or training session because these elements are fundamental to the shooter's preparation to ensure the recovery process is as effective as possible.

There are many different approaches in the warm up process (Laslo Antel & Ragnar Skanaker, *Pistol Shooting* pp 161 - 162) so I don't intend to highlight any of them here, but simply to point out their importance. From a physiological prospective, the benefits of warming up before a training session include:

- Increasing blood flow to the muscles, which increases the supply of oxygen in the body and improves the removal of carbon dioxide;
- Increasing muscle temperature, which increases metabolism and improves muscle movement to optimal speed and efficiency;
- Preparing and rehearsing movement patterns of muscle groups and joints for specific activities;
- Distributing hormones that prepare the body for exercise, which involves re-direction of blood flow to requisite muscles;

From a psychological perspective the benefits of warming up includes:

- Increasing endorphins that prepare the mind for relative activities;
- Re-assesses physical and technical preparedness for the smooth and clear decision making.

There are common warm up exercises used in sport, which can be general or specific and may include drills and tactics. General warm up exercises concentrate on moving different parts of the body and limbs while specific warm up exercises focus on those parts of the body that are vulnerable to injury and that are dominant in specific movements. Drills are disciplined, repetitious exercises used to perfect a skill by concentrating on specific elements of that skill. Alternatively, tactical warm-up exercises relate to the decision-making process and aim to achieve the goal in various situations while putting the shooter in the right frame of mind before the competition or training session.

Enough time should be allowed for warm-up exercises, but should not be too long or too short, which could result in the shooter losing focus and/or concentration. Focus on warming-up may change depending on the circumstances. If the warm-up is before competition, focus may be on the next match, but if the warm-up is before a training session, the focus may be directed at re-enforcing a particular skill. In either circumstance the aim of warming up is to adequately prepare both the body and the mind for upcoming activities.

Training sessions are usually structured to allow 10-15% of the total time allocated, for warming up and don't account for long breaks before the main part of the session. In competition, however, when and for how long warm-up exercises are done will depend on the specific circumstance with various other aspects taken into account.

Most elite shooters warm up for about ½-1 hour (or more) to warm-up for a competition, which is very different from the routine of the beginner who is not likely to allocate that much time on warming up. This may be due to a lack of understanding of the importance of this step in the process.

On cold days warm-ups should not be less than 10-15 minutes before the start of a competition, but in warmer conditions, it is reasonable that warm-up exercises are completed about 15–20 minutes before the competition. It is very important that significant changes to the body are avoided at the beginning of a competition and that the intensity of warm-up exercises are gradually increased to ensure all muscle fibres are appropriately engaged without significantly decreasing the muscles capacity for utilising available energy (Tudor Bompa; *Theory and methodology of training*, 1994 and E. N. Marieb; *Human Anatomy & Physiology*, 2004).

Let's discuss some specifics in the warm-up process.

Active warm-up exercises are aimed at bringing muscle temperature to 38 degrees to increase muscles and joint flexibility. Above that, at 39 degree, muscle flexibility will increase by up to 20%, which is not helpful in pistol shooting, therefore, warm-up exercises that are too active are not suitable for the sport of target pistol shooting.

In my practice I don't use the recommend static stretching exercises as part of warming up, but rather I include these exercises after competition or after the training session in the cooling down phase. Stretching exercises in the warm-up phase increases immediate flexibility of the muscles and joints, displaces the optimum shoulder position for shooting and can damage ligaments when the muscles have not been warmed-up. Similarly, I don't consider a massage to be part of the warm-up process or part of preparing for competition or a training session. A good feeling after a massage won't help muscle and joint stability.

As for the warm-up, it is important that the training session or competition is concluded with a cool-down routine. From the physiological perspective, the main benefits of cooling down after a training session or competition include:

- A steady decrease in blood flow from the muscles used during the training session or competition.
- Effective muscle recovery following dynamic and static loads.

From the psychological perspective the main benefits of cooling down include:

- The smooth decrease in endorphins in the brain, which are increased during periods of increased physical activity.
- The re-adjustment of the shooter's physical and technical performance and tactical skills during training or in competition.

In the cool-down phase, athletes will generally only perform static stretching exercises where muscle groups are passively stretched without moving the limbs and the exercise is held for say 20-30 seconds. This is the exact opposite to dynamic stretching where speed and momentum is used to stretch the muscles in the warm-up phase before the training session and before competition. (See Tudor O. Bompa; *Theory and Methodology of Training*, 1994 and Laslo Antal and Ragnar Skanaker, *Pistol Shooting*, pp 133 – 146 for other types of exercises used in the cool-down phase.)

From my view static stretching exercises are appropriate for the cool-down phase when the muscles are warm and easily to lengthened (stretched). Shooters can perform these exercises and hold for up to 20 seconds and repeated several times. If the shooter holds the exercise for less than 20 seconds, muscle connective tissues will be under stretched. Increasing the hold time when performing the exercise will increase flexibility as well as increase the range of movement in the joints. However, the shooter should avoid causing any pain or jerky muscle movements when doing static stretching exercises.

I recommend that in the cool-down phase, shooters repeat the same movements trained in the main part of the training session, but at a slower pace to allow the shooter to reinforce the techniques learned.