



Prehabilitation is the training that you would do in order to prevent injury from occurring

# Coaching column

## Injury recovery for shooters

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When first looking at the physical demands of shooting it may appear as if there is very little need to consider the topic of injury recovery. But experienced shooters will appreciate the demands on the body from shooting and in turn the need for both injury prevention and recovery.

There are two types of training discussed with regards to injuries. They are prehabilitation and rehabilitation. Prehabilitation is the training that you would do in order to prevent injury from occurring and rehabilitation is the training you would do after the injury occurs to recovery from the injury.

Prehabilitation training involves those exercises and stretches mentioned in the last issue which will strengthen the shooters general posture and the specific shoulder position so as to be able to cope with the demands of the sport of shooting. There are also other prehabilitation methods that can be used to prevent injury. They include a correct warm up and cool down processes, the nutritional and fluid intake before, during, and after training, as well as the post training methods for recovery, which may include rest, ice packs, contrast showers, and massage.

Typical injuries in shooters occur in the wrist, elbow and shoulder. This is due to two main reasons. Firstly the sheer number of times the arm is raised and lowered with the weight of the pistol as resistance causes the muscles of the shoulder to be placed under stress. If this stress exceeds the strength potential of the shoulder,

muscle behaviour will develop which changes or alters the pathway of the arm being raised and alters the muscles used to create that pathway of lift.

Over time, a shooter may develop a whole new group of muscles to create this lifting and if these muscles are not the usual muscles that would normally lift the arm they may develop strength unevenly and cause a change in the position of the shoulder blade and eventually result in an overuse injury. The key thing to remember here is that if you are stronger you can cope with more stress and the muscles are more likely to operate correctly if they are trained correctly. Poor strength of the shoulder blade muscles will lead to shoulder related injury.

Secondly the requirement of the shoulder and arm muscles to absorb the recoil, small as it may be can lead to injury. If the elbow or wrist joints are not placed in the best anatomically aligned position they will be forced to take the force of the recoil unevenly and this places uneven stress into specific parts of each joint. Simple issues such as the angle that the wrist is held can lead to both wrist and elbow problems. So ensure that you work with your coach on getting both the shoulder elbow and wrist positions correct so as to prevent incorrect overuse injuries.

### **Wrist alignment ensures forces are transferred to the shoulder**

In order to establish a procedure for dealing with rehabilitation you must ensure that there is a correct process in place for identifying conditions or injuries in shooters. This process may be implemented as follows:

1. Once shooter or coach believes there is a condition or injury, (remember injuries may not always present with symptoms of pain, they may simply be an inability to perform a movement correctly or unusual levels of fatigue in an area) the shooter should cease training.
2. Following the cessation of training the shooter should be referred to a health specialist for assessment.
3. The health specialist should then report to the coaching staff or the person designated to handle such issues and present the assessment report and the proposed treatment plan for the shooter.
4. This plan should then be implemented with the support of the shooter, coaching staff and health specialist for a short period of time perhaps 2–3 weeks. During this time it is important for the shooter to limit or cease all shooting training as per the directions of the health specialist and make every effort to complete the treatment plan as proposed.
5. Following this period of time of treatment and rehabilitation the shooters should be reassessed to determine if the treatment plan worked appropriately. If the treatment has been successful then the health specialist will continue to develop the return to normal shooting training as required. If the condition or injury persists then the coaching staff may seek a second opinion to determine the extent of the injury and the treatment plan proposed and implemented to that date.

## Shoulder region

The shoulders are generally the most unstable part of our body with the weight of the whole arm and all its muscles being attached to the body by the smallest of bones in the collar bone.

Sure all the muscles of the shoulder attach to the trunk but remember that these muscles can be trained correctly or poorly. If they are trained to do the incorrect pattern of movement the whole shoulder causes us problems in shooting. Generally problems occur at the shoulder because the muscles that attach from the shoulder blade back to the ribs and spine become weak and unable to maintain the shoulder blade in its correct position. This causes the muscles of the rotator cuff to attempt to take over the role of stabilising the shoulder and they become tight and restrictive. The problem then is that while the bigger muscles have become weaker, the smaller muscles of the rotator cuff are trying to take over the role of the bigger stronger muscles.

Eventually the smaller rotator cuff muscles will become inflamed, or tear and then you have real shoulder problems. So if your shoulders are tight, you have a stiff neck, lower shoulder on one side or you can see all your knuckles on your hand when you stand in front of a mirror in the relaxed position, then its time to get your shoulders looked at.

Treatment will generally involve a series of sessions with a physiotherapist and a home program of stretches and exercises to correct muscle behaviour. This will also require you to make some adjustment to your shooting arm posture with the help of your coach to avoid falling back into bad habits and returning to the same problem muscles you had before.

**Shoulder Girdle complex**



**Front Rotator cuff Group**



**Rear Rotator cuff Group**



## Elbow and wrist joints

Both the elbow and the wrist joints function best when placed in a square alignment between the bones either side of the joint.

Any change to this alignment can cause the muscles that control the stability of that joint to be placed under excess tension during the movement of that joint or even whilst holding the pistol for extended periods of time accumulatively over the course of a training session or match. It may start as a small change but over time issues such as tendinitis can develop in the regions near the joints where the muscles in question insert or attach. Adjusting your arm or pistol grip to allow the joints to be in a more aligned position can prevent such problems in the short term. As the shoulder joint controls so much of what happens to the arm, even if you have great elbow and wrist alignment, poor muscular control of the shoulder may cause tension to develop further down the arm or up into the

neck. Elbow and wrist problems then may not always be directly related to wrist and elbow positions.

Treatment will generally be the same as for the shoulder joint, in that you may need treatment from a physiotherapist for short period of time to alleviate any excessive tension or inflammation and this would be followed by a home stretching and strengthening program.

The key to a good recovery from any injury is to maintain open lines of communication between the coach, the coaching staff, the athlete and the treating specialist to ensure that the whole program is altered to allow for the treatment to be provided at its best and that all training and shooting techniques after the recovery are modified as required to prevent further injury.

When in doubt rest is always the first decision to make followed by an appointment with a consulting specialist for an assessment of your problem and a chat with your coach. ✪