ALIGNMENT DIFFERENCES
IN THE SHOOTING POSITION

IN PREVIOUS ARTICLES WE'VE DISCUSSED THE SHOOTING POSTURE MOSTLY REGARDING THE WHOLE BODY POSITION. THE RESULT OF PHYSICAL TRAINING IS GENERALLY AIMED AT THE POSITION OF THE TRUNK, HIPS AND LEGS AS THIS TENDS TO BE THE WAY IN WHICH MOST FITNESS PROGRAMS ARE DEVELOPED. YET THE POSITION OF THE SHOULDER AND FOREARM PLAYS A MAJOR PART IN DETERMINING THE RESULTANT POSITION OF THE PISTOL AND ALIGNMENT OF THE SIGHT.

Proper supervision or coaching can determine whether the position of the firearm is incorrect due to incorrect grip or, more commonly, to poor physical or postural position of the arm.

Evident in 'young' shooters is the tendency to horizontally align the front sight with the rear sight in the aiming area so that the firearm is tilted to the right or left. In this article we discuss the physical reasons as to why this deviation to alignment may occur.

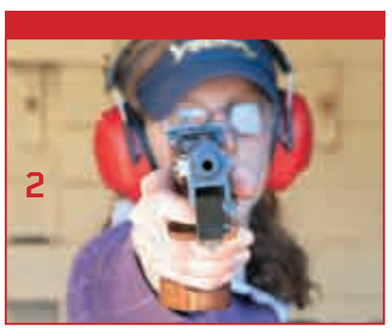
SOME GENERAL INDICATIONS

Besides the obvious changes in the vertical alignment of the firearm, there are a few other alignments to consider. Here are some examples: **Picture 1** shows an example of the firearm tilting to the left. Notice the following conditions in the shooter's posture that create this situation:

- The bottom knuckle is positioned further to the right of the top knuckle,
- The shoulder appears to be lifted and closer to the chin or side of the face due to the whole shoulder rolling in as it strives to achieve the position,
- The trunk is almost sideways in regards to the shooting line and,
- As a result , the head leans to the right so as to be positioned behind the sights

Picture 2 shows the firearm tilting to the right. Again notice the following conditions in the shooter's posture that create this situation:

- The top knuckle is positioned further to the right than the bottom knuckle, (the opposite of the picture on the left)
- The shoulder appears to be lower or away from the face, which is the result of the shoulder girdle rolling or rotating towards the outside.
- The trunk is almost sideways in regards the shooting line and appears to lean backwards.
- As a result, the head leans to the right so that it is positioned behind the sights.



Fotos & Illustrations: Mark McKean and Vladimir Galiabovitch

Structurally the shoulder can be held in three key shooting positions. The shoulder can rotate inwardly as in Picture 1, outwardly as in picture 2 or it can be dropped, thus dragging the shoulder angle downwards. Many of these postures are the result of physical adaptations to the shooting posture where the body adjusts to cope with weakness in the relevant muscles.

Holding the firearm in these positions on an ongoing basis, not only causes degradation of one group of muscles and overstressing of opposing and/or other closely aligned groups of muscles, but often causes problems for the shooter when adjusting his/her alignment for group shots towards to the center of the target.

OUTWARD ROTATION OF THE SHOULDER

Generally, inward rotation of the shoulder results in a slightly elevated shoulder position and the resulting change to the elbow and the wrist causes tilting.

The tilt that has been generated has the potential to reduce the ability of the head to be vertically aligned behind the sights and may lean to the left because of the shoulder position. The shooter may attempt to correct this by rotating the wrist, but this will create structural instability with the neutral angles of the wrist and will alter the elbow-to-shoulder alignment. This alteration may create a feeling of loss of control, therefore, shooters will attempt to find a stronger position, which results in the firearm tilting back to the left.

This posture is indicative of the front shoulder muscles being more dominant and, the shoulder adjusts to a stronger position, the same as the back shoulder muscles. Shooters may be susceptible to this position due to inwardly rotation of the shoulders i.e. slouched, a curved upper back (kyphosis) and/or a curved back.

INWARD ROTATION OF THE SHOULDER

When muscle dominance allows or creates outward shoulder rotation, the shoulder will tend to drop or slouch and the firearm will tilt outwards. The result is that the head will lean to the side to get the eyesight in line with the pistol sights.

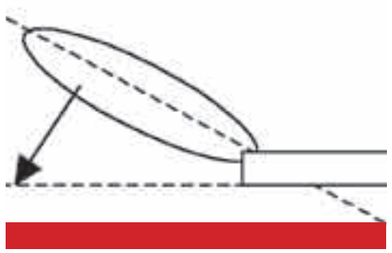
Both inward and outward shoulder rotation results in head tilting, but each position is differentiated by the relative position of the shoulder to the head.

This posture is indicative of rear shoulder muscles which are stronger than the front shoulder muscles. Shooters with sloping shoulders, head tilting forward and flat backs may be inclined to tilt the head more readily than shooters that don't display these postures.

The key to correcting both these problems of alignment, if attributed to the described physical issues, is to firstly to have the shoulder and posture assessed for inconsistencies. Once identified, exercises can be prescribed to correct shoulder imbalances.

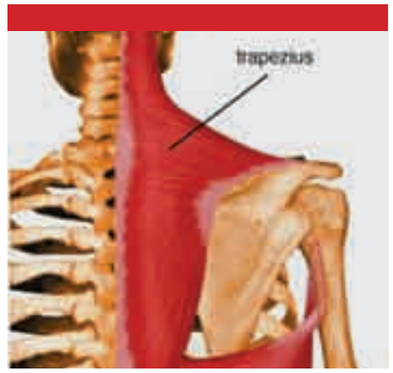
There are three key areas that must be considered during assessment regardless of the tilt angle.

1. The angle between the square of the trunk and the shooting arm must be closer to 30 degrees than to 0 degrees. The closer the square of the trunk is to the line of the shooting arm the more likely it is that the shooter will have an unstable and, consequently, a weaker shooting position.



2. The upper trapezius is one of the main shoulder muscles and its key role is to maintain the angle of rotation of the shoulder blade (scapula) so that the angle of the shoulder joint (gleno-humeral joint) allows optimal positioning of the arm (humerus) to achieve best nerve transmission, strength and balance of the soft tissue structures

Ensure that the upper trapezius is not over stretched as overstretching of this muscle causes the shoulders to droop and create a downward angle of the shoulder joint socket. This will result in various related problems and cause pain in the shoulder.



3. The combination of the movement caused by the supraspinatus and the deltoid muscles is the main flexor when the shoulder elevates, lifting the firearm to shoulder height. Despite the shortening of these muscles, they will be involved in the lifting of the arm. It is essential that the shoulder blade remains stable and provides an anchor (fix or support) for the supraspinatus and the deltoid muscles, when flexing. If the muscles that anchor the shoulder blade are weak, then the movement of the supraspinatus and the deltoid will force the shoulder to drop and this will generate poor postures.

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