The specific postural variations in pistol shooting and exercises for posture development

**Neutral Hip Position – Ideal**

The neutral hip position is an ideal posture. A simple test to see if your hips are close to neutral is to place a ruler on top of your right hip bone and across to the top of your pubic bone. Then have someone look at you from the side. The ruler should look vertical from a side position. In the diagram you will notice that the right hip bone and the pubic bone are nearly vertically aligned. In this ideal position the centre of mass lines up just in front of the centre of the knee joint and just behind the centre of the hip joint. This alignment allows the joint structures to bear most of the weight in the normal stance by letting the knees lock out slightly and the hips push forward slightly. In this position the ligaments and structures of the joint actually take the load away from the muscles and allow the person to stand for long periods with less effort.

Shooters who exhibit this type of posture will generally have a more balanced stance and be able to adjust positions more easily as they will have a full range of movement and a more vertically aligned centre of balance. That’s not to say that they will not have problems with tight or weak muscles. It does, however, mean that they are more likely to use the bones to support their mass through a better positioned pelvis allowing for a longer or more efficient stance, lower levels of fatigue and more comfort in the stance over time or throughout a match. With this posture shooters need to maintain good abdominal control and trunk strength and should aim to continue to work on their posture to ensure that this is transferred to the shooting position. It is worth noting that good static posture, when viewed at rest, does not always mean a well aligned and stable posture during a dynamic motion or a shooting stance. Coaches should observe the individual during normal resting stance and in the shooting stance to identify whether there are implications for poorly aligned hips and/or trunk.

**Posterior Pelvic Tilt**

The posterior pelvic tilt is typified by a flat lower back and a flat bottom. As fatigue sets in shooters with this posture tend to push their hips forward moving the centre of mass further behind the hip joint, placing more stress on the joint structures and muscles at the front of the thigh and hip. This posture is commonly seen in overweight men whose tummy drags them forward or in pregnant women whose changing tummy weight drags the hips forward and the trunk backwards. Generally this places more stress in the legs and there is less involvement of the abdominal and backside muscles to maintain an erect stance. The posterior pelvic tilt can be quite stable as the person still leans into an exaggerated lock out position of the hip and knee structures, but when viewed from the side, they will assume a reverse “C” type shape. Shooters with this stance tend to lean further backwards in the shooting posture as their hips are pushed forwards.

In this position the hamstrings tend to behave short and tight and the hip flexors and glutes tend to be long and weak. Hamstrings need to be lengthened and the hip flexors and glutes need to be strengthened and shortened. Here are some examples.

With an anterior pelvic tilt the external abdominal obliques, abdomenals and hamstrings behave as if they are too long. These muscles need to be strengthened and shortened by specific exercises that will teach the muscles to behave shorter. Here are some examples.