



Importance of Functional Movement Assessment

The use of the expression “Functional Training” has gained a lot of attention over the last number of years. Athletes have been seeking out new methods and approaches to training in the hope it will improve performance. During the course of this, they have talked about making their training more ‘functional’. But do they know what this really means and is it another fad in the strength and conditioning industry? We know the best way to improve at a sport is to practice it regularly, however, practice alone will only develop the motor skill element of the sport and the energy systems involved. It will not improve your ability to apply force which is important for most of these skills, and will not improve your flexibility and mobility. Exercises outside of normal training must be performed to help improve an athlete’s force production, flexibility and mobility to reduce the risk of injuries and help improve performance. This article intends to look at the first step in functional training, the functional assessment. We will focus on “The Overhead Squat”, a basic test for coaches to evaluate the whole body movement once they understand some basic anatomy.

What is a Functional Assessment?

The functional movement assessment is part of a pre-participation screen and can involve a series of tests which assess the stability and mobility of the various joints of the body. The tests performed will assess whether the athlete has the basic stability and movement competency in order to undertake or continue in intensive training without associated risk of injury. The tests we perform at KG Elite Performance include:

- The Overhead Squat
- Single Leg Squat
- Core Strength (using a pressure feedback analyzer)
- Pelvic Stability Testing

This article will focus on the first of these tests. The results of the functional assessment help guide the coach before handing over the next part of the screen to the physiotherapist/physical therapist who conducts the musculo-skeletal assessment.

What is the rationale for the tests?

Functional tests such as the overhead squat provide very useful information regarding an athlete's strengths and weaknesses. The overhead squat assesses mobility limitations around the ankle, knee, hip and shoulder joints. If these limitations are left unaddressed they could severely impact upon performance and increase the risk of injury for the athlete.

If we use the ankle joint as an example, rugby player's often have muscular imbalances of the lower leg. Very often the calf muscles are tight, one of these in particular, the soleus. When this muscle is tight it can reduce the amount of

dorsiflexion (bringing toes towards shin bone) of the ankle joint when the knee is bent. So how will this affect performance? It will severely affect a player's ability to squat effectively. As the squat movement closely replicates skills seen in the game such as line-out lifting, jumping, etc, a tight soleus if left in a shortened state can result in poor performance when performing these skills.

Flexibility imbalances can also occur higher up in the hip region. The hip flexors are a group of muscles which cross over the front of the hip. They are involved in flexing the hip and pulling it forward anteriorly. This can typically become tight and affect a player's movement. For outside backs, speed is particularly important. One of the factors involved in speed is the high knee lift which has a multitude of benefits for enhancement of speed (loads up hip extensors, increases hip angular acceleration, increases down force production and enhances bi-articular function). If the hip flexors are tight, the hips are pulled forward which reduces a player's ability to generate high knees when sprinting. As a result, their hip extension force is reduced which will reduce their maximal speed.

The overhead squat can be also used to assess for any asymmetries which occur between right and left hand side of the body. Let's look at one of the main hip stabilizer, the gluteus medius in some more detail. Its main function is to stabilize the hip when the foot contacts the floor. If this muscle is inactive or placed in a weakened position, it can affect a player's ability to change direction and side step.

The Overhead Squat – set up of the test

Below are some key coaching points which are important for performing the functional assessment:

Start Position Key Points:

- Arms positioned at 10 o'clock and 2 o'clock
- Dowel positioned directly overhead
- Feet shoulder width apart
- Feet pointing straight



Bottom Position Key Points:

- Arms stay straight
- Feet stay pointing straight
- Knees stay in line with feet
- Hips stay level



Common Compensations seen during the overhead squat

Ankle Joint: Unable to achieve 15-20 degrees of ankle dorsiflexion

Knee Joint: Knees buckle inwards

Hip Joint: Flexes too much at the hip

Lumbar Spine: Extends too much through lumbar spine

Shoulder Joint: Unable to keep dowel overhead as player squats down

Functional Training

Once all the flexibility, mobility and stability compensations have been collected from the ankle, knee, hip and shoulder joints an individualised program is created to address the underlying problems. This really is the true essence of functional training whereby you are trying to return muscles to their normal resting length and in particular have the stabilizing muscles activate accordingly. Once this is achieved, a player is then physically ready to commence more advanced training without the injury risks. And as players, staying injury free is one of the keys to success.

At KG Elite Performance, we functionally screen our athletes on the initial consultation and then have them return one week later to receive their individualized programmes which address their compensations. We spend this second consultation taking them through their exercises so that they thoroughly understand them. Six weeks after this players return for the re-assessment. After this we begin prescribing programs which are specific for the sport so that they can continue making improvements when competing.