## Squad Screening – Physical Benchmarking

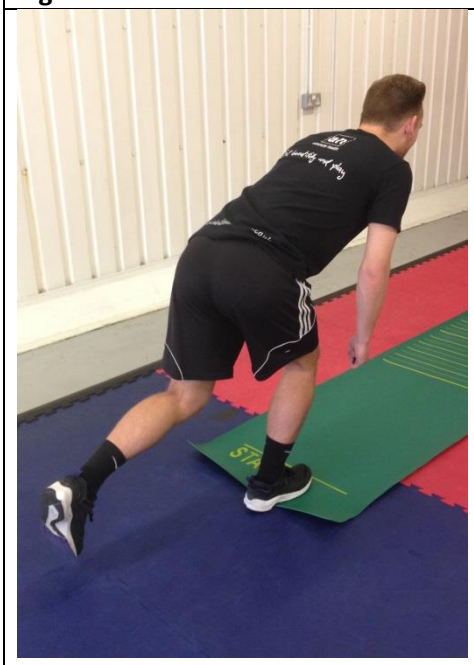
With the coaching scheme shining a light on the excellent work coaches are doing to inspire and develop talent around the country it is understandable that many are looking for extra support and resources to ensure that they can help people climb to the best of their potential without putting them at risk.
It is easy to find information out there on what injuries can occur and how to avoid them but coaching is about differentiation – what are the differences between the 20 squad members in front of you and what are *their individual* corresponding risks?
Engaging a Physiotherapist with the requisite knowledge and time to come and help your squad can be difficult so is there anything you can do as a coach?

This series of articles intends to outline some general and specific biomechanical screening tests that you can do with your squad to help identify whether there are any issues that should be addressed. This issue will be looking at general strength and core stability, as the series progresses the articles will become more climbing focussed. All tests are well researched and considered safe and reliable measures and, importantly all tests can be done anywhere with a bit of flat ground.

*As with any maximal exercises please ensure all participants are adequately warmed up prior to starting the tests. Should any of the tests provoke any pain then stop immediately and recommend a good Physiotherapist.*

**Test 1 – The 5-hop test (Fig 1)**

**Fig 1**



This is a test of stability and power – although seemingly a test of just one leg do not under-estimate the amount of body systems that need to be engaged and the muscles and coordination that is required to do this successfully.

Apparatus: tape measure, masking tape.

The climber needs to hop on one leg 5 times as far as they can manage (allow 15 metres space – which should be enough). They start with their toes behind a line and the final measurement is taken behind the heel. On the final jump is permitted to touch the toes down of the other foot for balance. Each climber gets 2 attempts each side.

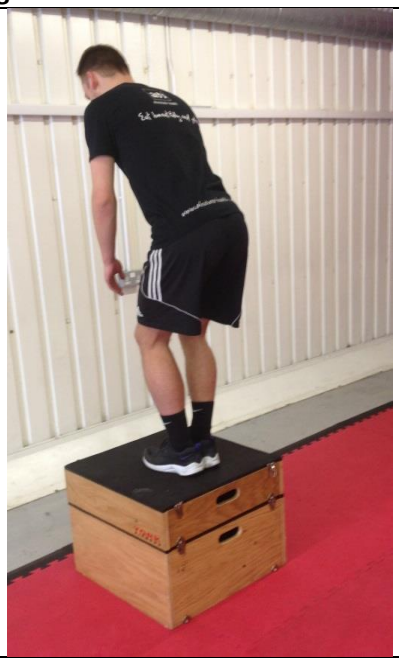
**Test 2 – Box Jump (Fig 2)**

This is a test of anaerobic lactic endurance.

Apparatus: 40cm box, stopwatch. Spotters are recommended for safety in case the athlete falls during the test (this is quite common). 2 spotters steady the box on each side, 2 spotters cover the athlete as they perform the test.

Here we are testing to see how many jumps on and off the box the climber can perform in 90 seconds. Both feet should move at the same time and where this doesn't happen these are not counted.

**Fig 2**



**Test 3 – Water Bottle Bear Crawl (Fig 3)**

This tests the climber's body tension and their ability to maintain dynamic control between the hips and shoulder.

Apparatus: cones 10 metres apart, water bottle

It is essentially crawling forwards and backwards on hands and feet (not knees) between two markers 10 metres apart. Putting a water bottle across the small of the back is appropriate for climbers over 14 yrs old and provides excellent intrinsic feedback on the climber's stability.
Allow a few practices before testing then start the climber behind the line from where they crawl forward until they reach the 10 metre line with their hands and then they crawl backwards. Then repeat – their score is their total distance achieved. Continue to fatigue or when the bottle falls from their back.

**Test 4 – Blind Single Leg Stand**

This relatively simple test is about balance and proprioception – this is the feedback our joints give to our movement centres in the brain.

Apparatus: blindfold, stopwatch

**Fig 3**

The climber is blindfolded whilst standing on 2 feet then asked to stand on one leg. Time before needing to put the other foot down is recorded. Most healthy and fit young people should manage up to a minute. The figures for younger children are less reliable with reports saying adult levels are reached from the age of 10 years but a minimum of 15 seconds below this age would be expected.

**Test 5 – Single Leg Dip (Fig 4)**

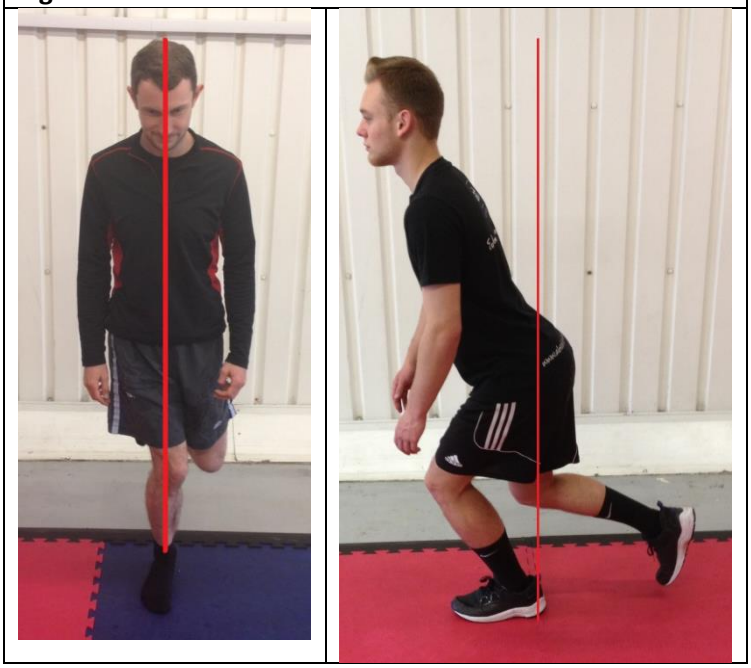
**Fig 4**

Analysis from the coach is required for this test, not just repetition and time and it introduces this concept in readiness for the next article. This is a simple test but measures an awful lot and with experience you will be able to match the test outcome with your climber's performance quite easily.

The climber is asked to stand on one leg and then do a small dip at the knee. The ideal outcome is shown in Fig 4 – straight back with no inward collapsing of the knee through the mid-line. Two poor outcomes are shown in Fig 5 & 6. Poor hip stability; glutes and piriformis are primarily responsible for Fig 5 and weak hamstrings and spinal muscles for Fig 6. Although this is not the whole picture so if you see extremes of these then it is worth a visit to a good personal trainer or a physiotherapist.

Recording the outcome for each test is important as is regular repetition of the tests and subsequent comparison is essential for them to have any relevance or usefulness. The above is a digested version of all the tests, if you contact me I can send you full information.

**Fig 5 & 6**



These five tests will give you an understanding of the climber's overall condition. Often with young people their ability to climb brilliantly is down to just one factor being better than their peers and this tends not to translate well to being brilliant adult climbers. Adopting a balanced approach to training will engender a healthier approach to exercise and ensure that your squad members do not become too obsessed with the campus board.

**Next issue – Physiological testing**

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