

## Triathlete Assessment Package Lactate Profiling & Aerobic Capacity Assessment Package

The Ulster Sports Academy is offering a special assessment package for triathletes carried out in the newly accredited British Association of Sport and Exercise Science (BASES) laboratory. The test procedure takes approximately 1 hour 30 minutes on the first occasion and approximately 1 hour on the second assessment. The cycling test is carried out on a state of the art SRM cycle ergometer and the running assessment is completed on a H.P Cosmos treadmill. Triathletes should abstain from strenuous exercise for 2-3 days before each test. They should arrive motivated, free from injury or illness and be well hydrated. For the cycling assessment athletes can wear their own heart rate monitors and fit their cleats to the SRM ergometer. They can also adjust the sizing of the bike to meet their individual needs. The assessment is outlined into the following sections:

### 1. Anthropometric Measurements

This includes height, body mass and body composition analysis (body fat percentage). Body composition is analysed using skin-fold callipers. This technique involves pinching fat tissue at different sites of the body. The values obtained give an indication of body fat levels. Individuals can opt to have body composition analysed via bioelectrical impedance, which is a less invasive method. It does not require the individual to remove clothing. Instead, a small electrical device is connected, by electrodes, to the hand and foot and readings are obtained.

Why is this important?

If you are carrying excessive body fat it will be counterproductive to endurance exercise performance. Basically, you are carrying deadweight that will slow you down and make hill climbing much more difficult.

### 2. Hydration Status

Athletes' hydration status is measured by analysing the concentration of a urine sample, using a micro osmometer.

Why is this important?

As little as 2% dehydration will negatively impact upon endurance performance. We can help you ensure you are drinking enough fluids.

### 3. Resting Blood Analysis

A small sample of blood is collected via a finger prick and analysed for haemoglobin content and haematocrit levels.

Why is this important?

Endurance athletes require haemoglobin molecules to carry oxygen to the working muscles. The haematocrit reading represents the percentage of formed elements in the blood (mainly red blood cells) and it is important that these fall within a healthy range. If either haemoglobin or haematocrit levels are low an athlete may require an intervention to be actioned by their G.P

### 4. Single Leg Strength Test

Maximal strength levels between the right and left leg will be assessed using a dynamometer.

Why is this important?

Triathletes will commonly have an imbalance in leg strength between right and left legs. Measuring the strength levels will establish if a strength & conditioning intervention is required.

### **5. Double Leg Power Assessment (squat jump)**

Using an electronic jump mat we will measure indices of double leg power.

Why is this important?

Having superior levels of leg power is important for the athlete and has implications for an athletes' power to weight ratio when cycling. Tracking levels can provide information on the success or failings of a strength & conditioning programme and the whole training programme in general.

### **6. Single Leg Hamstring Flexibility**

Using a goniometer we will assess hamstring flexibility with an active straight leg raise test.

Why is this important?

Triathletes will typically suffer from a lack of flexibility in the hamstring muscle group. Measuring hamstring flexibility and using stretching interventions will ensure that the athlete has optimal flexibility. Hamstring flexibility is crucial for runners because it impacts upon stride length. A lack of hamstring flexibility can also affect positioning on the bike and long term it can contribute to low back pain. Additionally, if the hamstring muscle group is tight it will limit the exercises that the athlete can use for improving leg strength and power. It is a prerequisite to have adequate hamstring flexibility before using exercises such as squatting movements and Olympic lifts in a conditioning programme. These are the most effective exercises for developing strength and power.

### **7. Lactate Profile Assessment**

Triathletes will be put through an exercise test to establish how their body responds to different exercise intensities on both the SRM ergometer and the treadmill. These tests will take place on separate days. The response to exercise is measured by tracking the heart rate and blood lactate levels. Blood lactate is measured by taking capillary blood samples – this will require taking a very small sample of blood from either the tip of a finger or the ear lobe.

Why is this important?

This information will be used to structure heart rate training zones for 3-4 months. They will range in intensity and be specific to individual fitness levels. This procedure establishes individualised heart rate training zones for each athlete to train at. This process will also establish your onset of blood lactate accumulation (anaerobic threshold) and give sub maximal exercise markers that are very important to your cycling and running performance because they reflect the pace of most distance events. This is superior to structuring training from age predicted heart rate zones.

### **8. Aerobic Capacity ( $\dot{V}O_2\text{max}$ )**

This involves connecting the athlete to a gas analysis system that will calculate how much oxygen the body can extract and use during exercise. It is recommended that athletes complete this component of the assessment on the treadmill.



Why is this important?

The higher these levels are the more suited an individual is to endurance exercise. Furthermore, improvements in the value will support the fact that your training is working and fitness levels improving. This part of the test requires you to really push yourself and we only conduct this with healthy and fit individuals

### **9. Recovery Training Session**

After all your hard efforts relax in our recovery suite and soothe away your aches and pains.

Why is this important?

The recovery suite contains a steam room, ice cold plunge pool and warm Jacuzzi. Alternating between these treatment areas will accelerate recovery and have you feeling rejuvenated.

### **10. The Follow Up Report**

The report will detail all of our findings and help you towards new found levels of performance.

The comprehensive discounted support package is now available from £200 - £240 depending upon the timing of the test (daytime/evening/weekend). Discounts of up to 20% can be organised for clubs or groups who wish to book in a group of five or more individuals for the test package.

Why not give your training a boost and recruit the experts at the Ulster Sports Academy.

For further information or bookings contact Maria Faulkner, B.Sc., M.Sc. on 02890 368154 e mail [m.faulkner@ulster.ac.uk](mailto:m.faulkner@ulster.ac.uk) Or William Moore, B.A.(Hons), M.Sc, C.S.C.S, A.S.C.C on 02890 366028 e mail [wb.moore@ulster.ac.uk](mailto:wb.moore@ulster.ac.uk)

For further information on the range of athlete support services from the Ulster Sports Academy, including nutritional, strength & conditioning or psychological support visit the website at [www.sportsulster.com/performanceservices.php](http://www.sportsulster.com/performanceservices.php)