

CYCLING PHYSIOLOGICAL ASSESSMENT

PRE-TEST PREPARATION:

DO'S:

1. Bring your own sports drink if you wish to drink this during the test. Otherwise water will be freely available.
2. Try to walk or drive to the test venue. Cycling prior to the test may affect the test results.
3. Complete and bring this consent form.
4. Bring your cycling shoes and pedals (our bike has Look pedals, so it is not necessary to bring your own if this is what you use).
5. Bring measurements of your bike:
 - 1) Setback: From the centre of the bottom bracket to the centre of the saddle *along level planes*.
 - 2) Saddle height: from the centre of the bottom bracket to the centre of the saddle.
 - 3) Reach: From the middle of the saddle to the centre of the handlebars *along level planes*.
 - 4) Drop: From the floor to the top of the handlebars.
 - 5) Crank length: As stated by the manufacturer.

DON'T'S:

It is essential that you follow these guidelines to ensure pre-test standardisation:-

1. Do not do heavy sessions the day prior to the test. Easy/light sessions are okay.
2. Do not exercise on the morning of the test or warm-up prior to the test (warm-up included in test).
3. Do not eat a large meal within a 3 hour period before the test (snacks are okay).

TEST INFORMATION:

The tests take place on an SRM ergometer. This ergometer is designed so that the cyclist can choose their optimum cadence and the ergometer then keeps the power output constant. All positions of handlebar and saddle, as well as crank length, can be adjusted to mimic the cyclist's own bike. You will need to allow 2 – 2.5 hours for your visit.

MAX TEST

The purpose of this test is to determine the maximum power output you can obtain and your maximum ability to use the oxygen you breathe in, to provide energy for working muscles (known as your VO_2 max).

You will start working at ~100 - 150W (depending on your fitness and body weight), and this workload will go up by 5W every 15 seconds for males, 4W every 15s for females, and you will be required to cycle for as long as possible. Once you can no longer maintain your cadence within 10rpm of your chosen cadence the test will be ended.

Throughout the test your oxygen uptake will be continuously assessed using an on-line gas analyser. Your maximum power output is calculated as the average power output over the last minute of the test. Your maximal heart rate will also be measured, as well as your blood lactate concentration 1 minute post-test, from a finger-prick sample.

ECONOMY TEST

This is a submaximal test to determine your cycling economy, training status and lactate and heart rate response to increasing exercise intensities. This test consists of 6 - 7 four minute stages (continuous) at intensities based on your maximum power output, from 30% of max power at the first stage up to 76 - 84% of max power at the last stage. Oxygen uptake and heart rate are assessed continuously throughout the test, and in the last 15 seconds of each stage a small finger-prick blood sample will be taken. These blood samples will be analysed to determine blood lactate concentration.

POSSIBLE RISKS/ DISCOMFORTS

During the test you will reach your maximal ability to extract oxygen from the air that you breathe in. This will require maximal effort for a duration of around 1 to 2 minutes. Following this however, athletes usually fully recover within 5 minutes. If at any point in time during the test you experience intolerable discomfort, then stop exercising immediately. The sport scientist will be vigilant at all times during the testing and will be ready to end the test should you report, or even appear, unduly stressed.

The procedures for blood sampling will be carried out in accordance with the Code Of Practice For Workers Having Contact With Body Fluids thereby minimising any risks of infection.

FEEDBACK

The information from the first test will be used to determine your maximal aerobic power output, VO_{2max} and maximal heart rate. The second test will give information on your lactate thresholds and associated heart rates. Within a week of your assessment you will receive a detailed written report explaining your results, highlighting your strengths and weaknesses and giving training advice and guidelines.