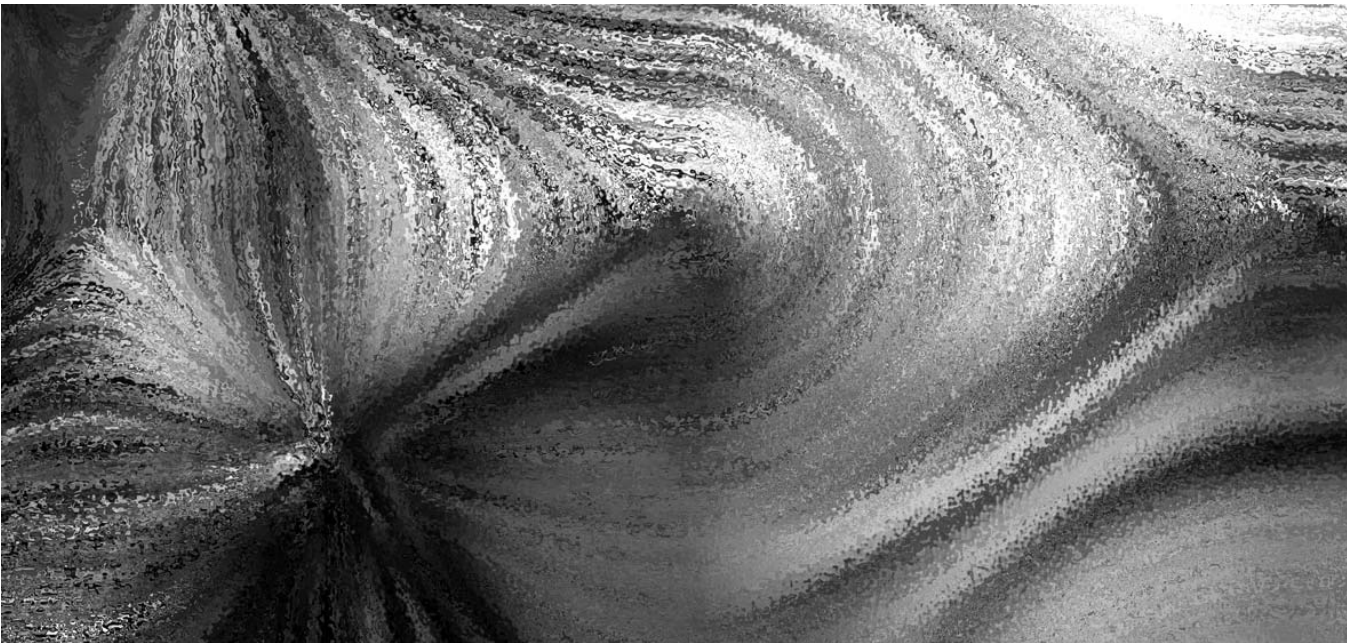

Measurement & Testing of Physical Performance



FELTHAM PRESS

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Sample Prior Informed Consent Form

**Title of Investigation
or Experiment:** _____

Objectives: _____

Description of Procedure: _____

Questions: All questions relating to the investigation or experiment will be answered in full.

Safety: All the procedures to be used in this investigation/experiment are widely and commonly used in Schools and Colleges, and although all activity involves some risk of an accident, the risk of harm in this investigation/experiment is no greater than in normal everyday life, or than in a supervised physical education lesson.

Right of Withdrawal: You are absolutely free to withdraw from the investigation/experiment at any time. If during the investigation/experiment you feel in any way uncomfortable and wish to stop, you should do so.

**Reassurance of
Confidentiality:**

All information obtained as a result of the investigation/experiment will be treated confidentially.

Availability of Results: The data may be recorded manually, and/or stored on a computer, but not in association with your name. You are entitled to a copy of your own results on request.

Use of Results: The data may be used in discussions and/or as part of assignments or projects, but not in association with your name. They will only be used to illustrate general physiological principles, and will not be used for diagnostic or any other purposes

Statement of Consent: I fully understand the nature of the tests, and agree to participate in this investigation/experiment. To the best of my knowledge I suffer from no illness or condition that will:

- i prevent me from successfully completing the tests,
- ii be made worse in anyway by my taking part in the tests.

Name of Subject: _____

Signed: _____

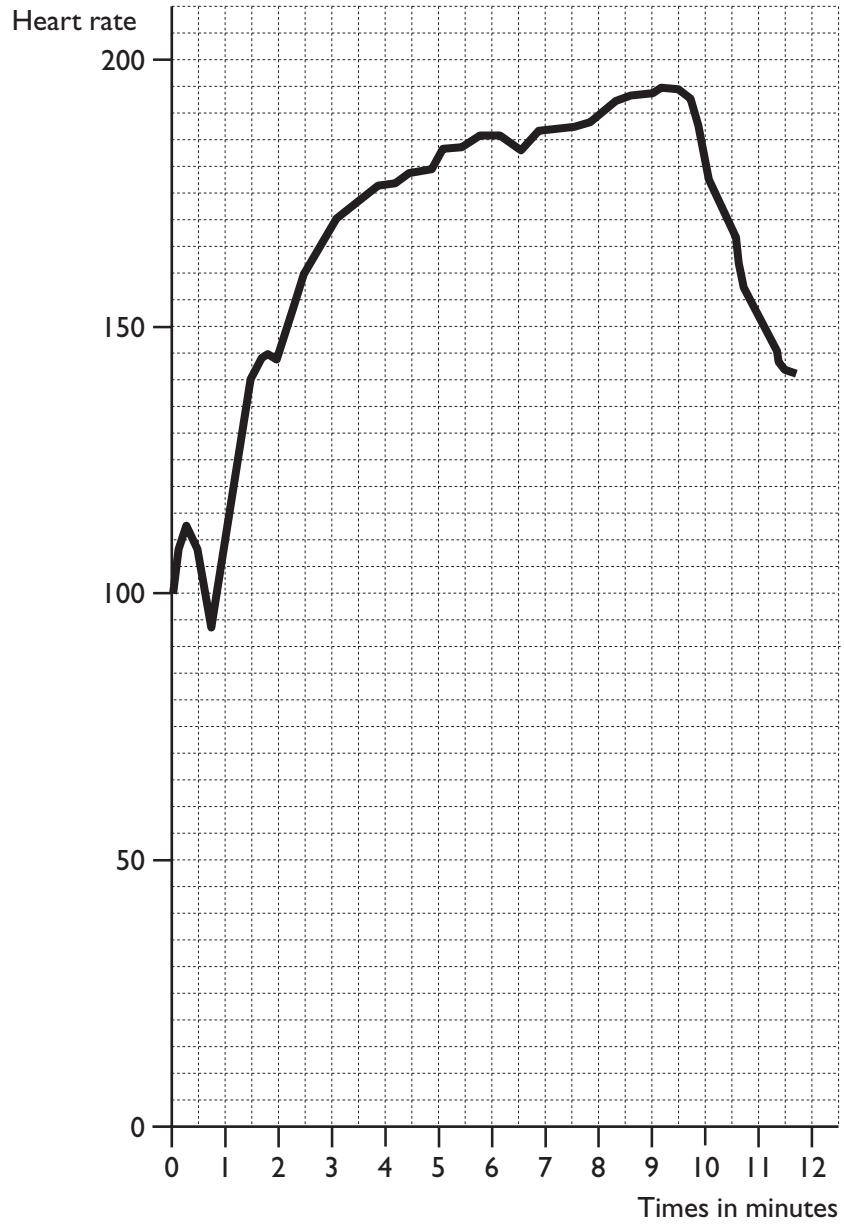
Date: _____

**Name of Parent or
Legally Authorised
Representative:** _____

Signed: _____

Date: _____

Figure 2: Computer print out of heart rate 'profile' from data gathered at 15 s intervals from a maximal cycle ergometer test. Modified after Polar HRM.



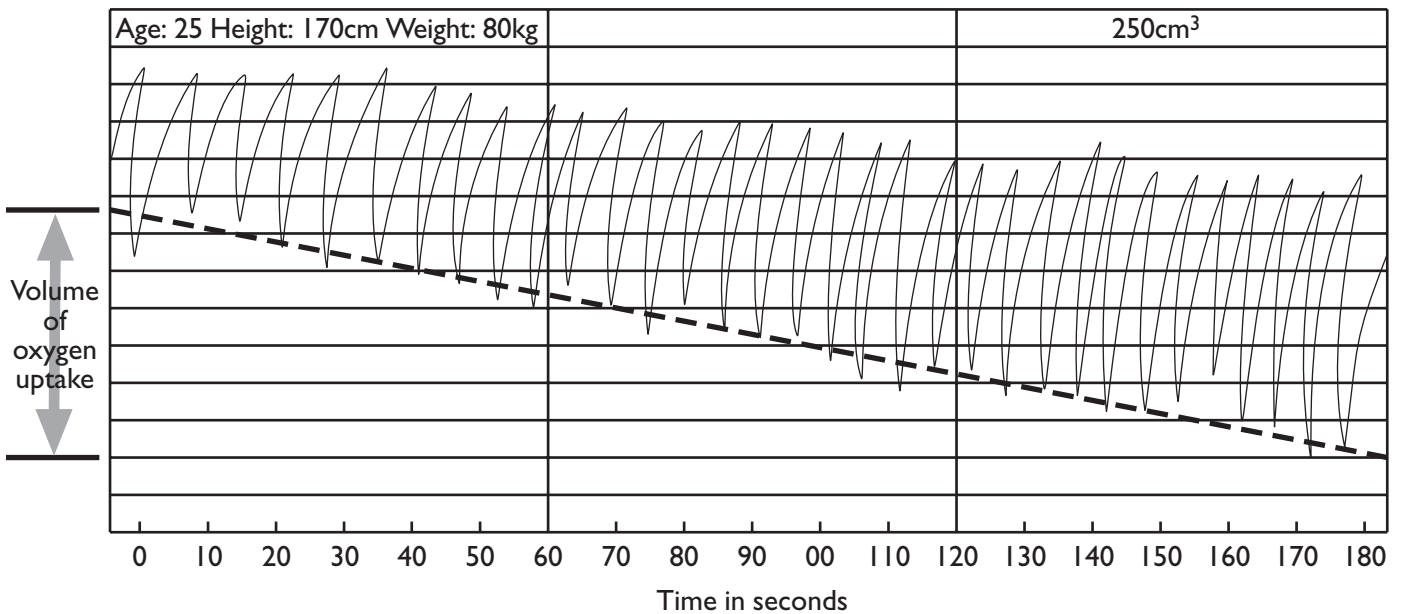
Time/minutes	Heart rate values at 15 second intervals											
0	103	111	105	94	108	125	140	143	142	151	158	162
3	167	170	172	174	175	174	177	178	179	180	180	183
6	184	184	183	180	184	184	185	186	186	188	190	191
9	192	192	193	192	192	187	175	170	164	155	150	146

Modified after "Working with an HRM" Polar.

Length of Time on Spirometer

The question then arises of how long is it feasible for a subject to exercise while breathing the enclosed breathing mixture. This will be determined primarily by the severity of the exercise, the composition of the breathing mixture, and the body size of the subject. Direct measurements of oxygen uptake by college students under conditions varying from standing still to working to exhaustion show a range of values from around 200 cm³ to over 4 dm³ in each minute. Particularly large or well-trained individuals may have even higher minute-by-minute consumptions. It will be appreciated that, given a breathing mixture of 60% O₂, a large subject could undertake heavy exercise for only about 1 minute before exhausting the oxygen supply. Bearing this in mind it is possible to tailor experiments so that during the warm-up to the desired workload the subject might breathe room air (the spirometer lever would be set to 'atmosphere') only switching to the breathing mixture (lever set to 'spirometer') for the test period of 1-2 minutes. There is no reason why the oxygen in the spirometer cannot be topped up during the experiment provided the lever is moved to 'atmosphere' for the operation. The oxygen uptake trace would be interrupted but the test could at least be extended.

Figure 6: Oxygen Consumption trace. With medical grade oxygen in the chamber and carbon dioxide absorber in the return tube. Oxygen consumption is usually expressed in dm³ per minute.



Matching Pairs Questions

For each of the following exercises, a list of four possible answers, labelled **A**, **B**, **C**, and **D** are provided. Several questions relating to these follow, and one of the alternative answers must be chosen for each question. Each of the four alternative answers **A – D** may be used once, more than once, or not at all to answer these questions.

- 9** **Listed below are four criticisms of various fitness tests.**
- A** 30 seconds of flat out effort on the cycle ergometer will not exhaust the anaerobic capacity.
 - B** Allowance must be made for the reduction of maximum heart rate with age.
 - C** Is particularly dependent on the motivation of the subject.
 - D** Is not as valid or reliable as cycle ergometer tests.
- Which of these most applies to the:**
- i** shuttle run test?
 - ii** Wingate test?
 - iii** estimation of maximal aerobic capacity from sub-maximal tests?
 - iv** step test?

[go to answer page](#)

- 10** **Listed below are four ways in which the box-type spirometer can be set up.**
- A** With air in the float and no carbon dioxide absorbent.
 - B** With air in the float and a carbon dioxide absorbent.
 - C** With oxygen in the float and a carbon dioxide absorbent.
 - D** With 60% oxygen and 40% air in the float, and a carbon dioxide absorbent.
- Which of these would:**
- i** be potentially hazardous within a few minutes, and result in a raised ventilation rate?
 - ii** result in no change in the pO_2 and the pCO_2 in the float.
 - iii** result in an increase in the pCO_2 in the float.
 - iv** extend the duration of the exercise, but avoid problems of oxygen toxicity?