

Risk assessment RA01

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| Faculty / Service Area: | Faculty of Health Sciences and Sport | Location: | Sport laboratories, Fieldwork |
| Description of work task / equipment /area being assessed: | | | |
| Exercise testing (dynamic and maximal) | | | |
| Change log | Version 1.1 | 6 July 2022 | New format |
| | Version 1.2 | 10 July 2023 | Referenced regulations and SOPs |
| Head of faculty | Prof Jayne Donaldson | Safety officer | Dr Nidia Rodriguez Sanchez |
| Completed by: | Dr Stuart Galloway | Date: | 12 May 2015 |
| Reviewed by: | Dr Nidia Rodriguez Sanchez | Date: | 10 July 2023 |
| | Chris Grigson Kerry Bartie | Date of next review: | August 2024 |
| Equipment used | Ergometry. Cycle: Lode Excalibur, Corival; Monark 894e. Treadmill: HP Cosmos Pulsar 3P Dynamometry. Kin-Com, Biodex System 4. Ergometry may include use of expired gas analysis. | | |
| Categories of people involved | Staff, UG, PG, Visitors | | |
| Duration of activity | Various durations from 30-45 minutes for assessment of VO_{2max} to 60 minutes or more for assessment on the Kin-Com (these are total times of subject involvement, not exercise times) | Frequency of activity | Frequency dependent upon nature of work. Research work could be daily, consultancy work could be monthly, teaching could be 3-4 times per year |

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| Legal compliance to standards and regulations required | <p>Health and Safety at Work act 1974 (HASAWA) https://www.hse.gov.uk/legislation/hswa.htm</p> <p>Management of Health and Safety at Work Regulations 1999 (MHSWR) https://www.legislation.gov.uk/ukxi/1999/3242/contents/made</p> <p>Provision of Work Equipment Regulations 1998 (PUWER) https://www.hse.gov.uk/work-equipment-machinery/puwer.htm</p> <p>The Control of Substances Hazardous to Health Regulations 2004 (COSHH) https://www.hse.gov.uk/coshh</p> |
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| What are the hazards? | Hazard category | Who might be harmed and how? | What are you already doing to control the risks? | *Risk rating | What additional controls (if any) are required to reduce the risks? | *Risk rating | Action by who? | Action by when? | Date of completion |
|--|--------------------------------------|--|--|--------------|---|--------------|----------------|-----------------|--------------------|
| Collapse or impaired movement leads to slips, trips and falls | F4 Working with equipment | Participants Cuts, abrasions and broken bones | SOP, equipment SOP, Instruction and familiarisation sessions ensure the participant knows the equipment and their surroundings. Appropriate period of active recovery following exercise to prevent collapse due to venous pooling or hypertension Regular equipment maintenance and inspection. | Medium | | | | | |

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| | | | Participants never left alone during and for a period after testing. Investigator instructed to look out for signs of a faint. | | | | | | |
| Hard exercise leads to adverse health effects | F4 Working with equipment | Cardiac or respiratory event leads to illness and potentially death | <p>Should not occur in individuals who are accustomed to hard physical effort and who routinely exercise.</p> <p>SOP, Instruction and familiarisation.</p> <p>Participants never left alone during and for a period after testing. Investigator instructed to look out for signs of a faint.</p> <p>Pre-participation screening (including resting blood pressure and heart rate) and physical activity questionnaire exclude</p> | Medium | To be 100% certain of no risk an exercise ECG and echocardiography should be performed prior to testing but this would be impractical in a non-clinical setting. | | | | |

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| | | | <p>participants with inadequate fitness levels</p> <p>Medical history questionnaire and age restriction exclude participants who may have existing health conditions.</p> <p>Pre-participation guidelines are the standard for any exercise assessments worldwide*</p> <p>Investigators trained to look out for signs of adverse health effects and instructed to stop the test immediately.</p> <p>Investigators trained to use the automatic defibrillator located nearby.</p> | | | | | | |

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| | | | Investigators trained in emergency procedures | | | | | | |
| References | <p>* Preparticipation medical evaluation for elite athletes https://bmjopensem.bmj.com/content/bmjosem/7/4/e001178.full.pdf</p> <p>Activity Risk Assessments Standard Operating Procedures</p> <p>RA16 Dynamometers KinCom Biodex</p> <p>RA17 Bicycle ergometers Lode Excalibur Lode Corival Monark 894E</p> <p>RA18 Metabolic testing Cosmed Quark Cpet Douglas Bags</p> <p>RA20 Treadmills CosmedK5 HP Cosmos Pulsar 3P</p> <p>Laboratory Risk Assessments</p> <p>RA80_TeachingLab_L19 RA81_ResistanceLab_3B140 RA82_PhysiologyLab_3B142</p> <p>RA83_NeuromuscularLab_3B142D RA84_MultipurposeLab_3A72</p> | | | | | | | | |

Standard operating procedure

Procedure:

Volunteer arrives and is given written and oral information about the nature and purpose of such a test. They then complete a physical activity and medical history questionnaire prior to assessment of resting blood pressure and heart rate. On completion of these procedures and if no adverse responses have been observed (see below) the volunteer is asked to sign an informed consent form agreeing to participate in such an activity and agreeing that they are free to withdraw from the procedures at any time without giving any reason for doing so.

The exercise test protocol is then carried out by a minimum of one support person however, for ergometry based testing this is a minimum of two support personnel.

Following completion of the exercise testing an active recovery period is performed by the volunteer to ensure adequate recovery from the exercise and to prevent venous pooling of blood in the periphery which may lead to hypotension and collapse (syncope).

Following the active recovery volunteers are generally provided with feedback on their test results and will remain in the laboratory for a further 5-10 minutes. At this point the volunteers are free to go as long as they do not complain of any adverse symptoms when asked if they feel light headed, faint or sick. In the event of them feeling an adverse symptom they will be placed in a supine position with feet elevated and blood pressure will be monitored at intervals for at least 5 minutes or until they feel that they have recovered.

Responses which would screen a person out of participating in this activity:

- 40 years of age and/or inactive (inactive defined as less than 3x30 minutes of exercise per week)
- Resting blood pressure >150/100 mmHg (even after two repeat measurements 5 minutes apart)
- Resting heart rate >100 beats per minute (even after repeat measurement following additional seated rest)
- History of cardiovascular, respiratory, metabolic or other disease (including muscle, bone or joint problems)
- Females if they indicate that they are pregnant
- If >40 guidance of medical practitioner is requested even in cases where other screening criteria do not exclude the individual.