Risk assessment RA02

https://sportsciencesafety.stir.ac.uk

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 submaximal)			
Change log	Version 1.1 6th July 2022 New format Expanded equipment used 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:	12th May 2015
Reviewed by:	Dr Nidia Rodriguez Sanchez Chris Grigson Kerry Bartie	Date:	10 July 2023
		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. Other equipment may be used for specific projects		
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

Legal compliance to standards and regulations required	Health and Safety at Work act 1974 (HASAWA) https://www.hse.gov.uk/legislation/hswa.htm Management of Health and Safety at Work Regulations 1999 (MHSWR) https://www.legislation.gov.uk/uksi/1999/3242/contents/made Provision of Work Equipment Regulations 1998 (PUWER) https://www.hse.gov.uk/work-equipment-machinery/puwer.htm The Control of Substances Hazardous to Health Regulations 2004 (COSHH) https://www.hse.gov.uk/coshh

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	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.	Low					

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
			Participants never left alone during and for a period after testing. Investigator instructed to look out for signs of a feint.						
Hard exercise leads to adverse health effects	F4	Cardiac or respiratory event leads to illness and potentially death	Should not occur in individuals who are accustomed to hard physical effort and who routinely exercise. SOP, Instruction and familiarisation. Participants never left alone during and for a period after testing. Investigator instructed to look out for signs of a feint. pre-participation screening (including resting blood pressure and heart rate) and physical activity questionnaire exclude	Low	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.				

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

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
			Investigators trained in emergency procedures						
References	* Preparticipation medical evaluation for elite athletes https://bmjopensem.bmj.com/content/bmjosem/7/4/e001178.full.pdf								

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 normally 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:

- <18 or >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 <18 parental consent is required before assessment takes place assuming that other screening criteria do not exclude the individual.
- If >40 guidance of medical practitioner is requested even in cases where other screening criteria do not exclude the individual.