Psychophysology Laboratory Cottrell 3B143

This space is used for undergraduate teaching and undergraduate and post graduate research. There is a wide range of general physiology equipment.

Health and Safety information

Emergency Procedure: there is an emergency procedure notice on the wall next to the telephone. Please familiarise yourself with this procedure and your location within the Cottrell building.

Induction: A laboratory induction is required prior to commencing any work in the laboratory. Contact the laboratory manager to arrange an induction in good time before you want to start.

Defibrillator: The automatic defibrillator is situated on the wall of the annex to 3B142C.

Fire: There are two fire extinguishers located in the passageway to either side of the laboratory for use in the event of a fire. If the fire alarm sounds, all lab users must leave the laboratory, leaving all bags and belongings behind. Exit the laboratory through any door and then exit the building to the rear. Congregate a safe distance from the building at the meeting point in the car park.

Out of hours and lone working: University policy (refer to safety handbook on guidance on safety in research located on the Occupational Risk & Environmental sustainability Home Page). See links at https://sportsciencesafety.stir.ac.uk.

First Aid box: On the wall by the telephone.

First Aiders: A list of first aiders is on the main door to the laboratory

Reporting accidents and incidents: Minor injuries are reported to a departmental First Aider or the Safety Officer and logged on WorkRite. In case of emergencies follow the emergency control procedure to arrange for emergency service response.

Risk assessments, Standard operating procedures, Safety data sheets and Manufacturers manuals: are held on the Health and Safety Information web pages and next to the relevant equipment. https://sportsciencesafety.stir.ac.uk/

Laboratory Rules

All lab users must act responsibly and safely while working in the sports laboratories.

Note: Wash hands before commencing lab work and again before leaving the laboratory

- You must attend a laboratory induction before you start any work
- Always wear personal protective equipment as required – Minimum requirement: lab coat and disposable gloves, safety glasses when dispensing blood and urine samples.
- Clean workstation bench with detergent and then 70% ethanol before commencing lab work
- Food and drink is permitted in this laboratory but should be for participant use and must only be consumed in designated, marked areas away from sample taking and handling.
- Mobile phones are not permitted to be used when wearing gloves e.g when texting, receiving or making calls or for use as a timer.
- Labelling of samples/solutions – minimum requirements: solution name, initials and date and expiry date if applicable
- Safe operating procedures (SOPs) are available in the holders adjacent to equipment. Your supervisor may provide additional SOPs. Pay attention to pre use equipment checks.
- Manufacturers manuals are also available in the holders adjacent to equipment
- Waste disposal: Normal (black bag) and clinical waste (yellow bag). Do not overfill bins and inform a member of staff when ¾ full. Clinical waste bags are stored with Ronnie Balfour at BES stores for specialist uplift.
- Fridge/Freezer storage – Space is a premium! Always label boxes, tubes, bags etc. according to the labelling criteria above and ask if you require long term fridge or freezer storage space.
- Lab books should be updated every time you carry out or complete an experiment. Always include materials used in write up and remember to document any deviation from protocol, while it's fresh in your memory.

Good practice equals more reproducible and reliable results!

Risk assessment / Control Procedure

Faculty	Health Science and Sport				
Head of Faculty	Professor Jayne Donaldson				
Safety Officer	Doctor Nidia Rodriguez-Sanchez				
Completed by	Chris Grigson, Kerry Bartie				
Change log	Version 1.1 07 Sept 2022 Added change log Version 1.2 02 Nov 2022 Added room 3A72 Version 1.3 08 June 2023 Removed Covid 19 specific content Amended cardiopulmonary testing				
Date	20/05/2020				
Reviewed	06/07/2023	By	CG	Next review due	08/2024

The activity

Activity	Use of laboratory space
Equipment used	Powerjog treadmill Cycle ergometers Cardiopulmonary testing Portable Dynamometers Anthropometry
Categories of people involved	Staff, UG, PG, Visitors, Young persons
Location of activity	Sport teaching laboratories 2B148 and 3A72
Duration of activity	Continual
Frequency of activity	Continual
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 (COSHSH) https://www.hse.gov.uk/coshh/

Hazard categories

Ethical approval requires hazards to be ascribed to a category. Use the following categories when describing the hazards in the table on the next page. Mark each category that applies clearly below.

F1. Working in a dangerous area: e.g. high crime area, area of civil/political unrest, psychiatric unit or prison. Check with the Foreign and Commonwealth Office Travel Website and with University Insurance Officer prior to travel overseas. Discuss risk assessment/control measures with the management of any institution involved or with local police/law enforcement. - Take into account the possibility of psychological injury (trauma/PTSD and stress) as well as physical injury. - Give contact details and measures to be taken in case of emergency.	~~Yes~~ No
F2. Working in an isolated geographical area: An isolated geographical area can include city parks, urban brownfield site as well as a remote hillside or a valley. - Take into account physical isolation through distance, screening effect of shrubbery/woodland or lack of mobile phone signal, etc. rather than just distance from "civilisation". - Give contact details and measures in case of emergency.	~~Yes~~ No
F3. Lone working: Lone working can include unaccompanied visits to research subjects in their own home, etc., as well as working alone in the field. Working alone in an office environment with access to a phone is not usually categorised as "lone working". - Give contact details and measures in case of emergency	Yes ~~No~~
F4. Working with equipment: Please detail the risks associated with this - Give the manufacturer and model -Take into account how the equipment and users are affected by the location	Yes ~~No~~
F5. Environmental hazards: e.g. extremes of weather (temperature, wind speed, ice, etc.), rough terrain, animals, plants, earthquake, water quality, contaminated land, derelict/unstable buildings are examples of factors to be considered here.	~~Yes~~ No
F6. Chemical & biological hazards: e.g. laboratory and other chemicals and mixtures (eg, oils, acids, chemical wastes (pre-existing or generated during the project), detergents, crop spraying or fumigation, diseases (of humans, animals or plants). - If this section is applicable, a full COSHH risk assessment will always be required.	Yes ~~No~~
F8. Emotional risks: e.g. sensitive research. This can include many areas that can be emotional triggers – research with or regarding children, animals, conflict (war, terrorism, holocaust studies, etc.), and natural disasters are examples. - The predisposition of the individuals should always be taken into account as an individual's emotional triggers depend very much upon that individual's personal/family history.	~~Yes~~ No

The Hazards

*Details under relevant heading in appendix

All hazards other than category F6 (Chemical and biological hazards) should go here

Faculty / Service Area:	FHSS Sport Science	Location:	Cottrell 2B148and 3A72
Description of work task / equipment /area being assessed:			
General use of laboratory			

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
Cycle ergometers	F4 Working with equipment	Investigators participants a. Overexertion leads to adverse health effects b. Slips, trips and falls cause cuts bruises and abrasion a. Nip points cause crushing and cuts	a. RA01, RA02, RA16 b. Instruction, SOP a. SOP	3	Monthly inspection and annual maintenance		Competent person	Continual	

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
Cardiopulmonary testing	F4 Working with equipment	Investigators participants a. Infection from contaminated parts b. Low oxygen c. Use of compressed gas cylinders c.	RA18 Instruction, SOP c. Sterilisation, use of microbial filters	3					
Portable Dynamometers	F4 Working with equipment	Investigators and participants a. Overexertion leads to adverse health effects b. Slips, trips and falls cause cuts bruises and abrasion	a. RA01, RA02, RA03, RA04 b. Instruction, use of mats	3					
Anthropometry	F4 Working with equipment	Investigators and participants a. Overexertion leads to adverse health effects b. Slips, trips and falls cause cuts	a. RA07 Instruction, use of mats	1					

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
		bruises and abrasion							
Body fluid handling		Investigators and participants Biological hazard	RA08 Weekly inspection of housekeeping	2					
Clinical waste		Investigators and participants Biological hazard	RA09 Weekly inspection of housekeeping	1					
Lone working	F3 Lone working	Investigators and participants a. Increased exposure to hazards due to lack of assistance from co-workers b. Stress and fatigue lead to poor health and function	See University policy Laboratory users instructed not to work alone or out of hours unless necessary a. Laboratory users instructed to take extra care and be aware that they are at a greater risk. Also not to perform hazardous activities. b. Lone workers in regular contact with their supervisors or line	3					

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
		c. Increased risk of harm associated with isolation in case of an incident	managers who monitor stress and wellbeing. c. Lone workers instructed to inform other available and competent staff of their schedule, location and contact information. For longer periods of work or more hazardous activities, periodic check – ins are required. Emergency procedures, first aid kit and telephone available in each room a. Instruction given in SOPs and induction						

COSHH Section

Anything in category F.6 (Chemical and biological hazards) should go here

*Details under relevant heading in appendix

Manufacturers COSHH data sheets are required for all chemical hazards

The Substance What are the hazards and *classification? *Route of exposure	*WEL mg/m3	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	Health monitoring
Milton sterilising solution 10% working solution Irritant Skin Eyes		Investigators, Students Skin irritation Eye irritation	Provide eye goggles, washing up gloves Instruction on PPE during induction and in SOP Instruction – In case of contact with eyes rinse immediately with plenty of water for least 5 minutes. In case of contact with skin, wash affected area thoroughly with water.	2						No

The Substance What are the hazards and *classification? *Route of exposure	*WEL mg/m3	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	Health monitoring
Decon 75 detergent 5% working solution Irritant Skin Eyes		Investigators, Students Skin irritation Eye irritation	Provide eye goggles, washing up gloves, lab coat Instruction on PPE during induction and in SOP Instruction – In case of contact with eyes rinse immediately with plenty of clean, flowing water and seek immediate medical attention. In case of contact with skin, rinse immediately with plenty of clean, flowing water. Seek medical attention if there is persistent irritation.	2						No

The Substance What are the hazards and *classification? *Route of exposure	*WEL mg/m3	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	Health monitoring
Absolute Ethanol 70% ethanol working solution Flammable Skin Eyes	TWA 1920 STEL 5760	Individual lab users Flammable Skin irritation Eye irritation	Absolute ethanol (stock) stored in designated flammable metal cabinet Provide eye goggles, washing up gloves, lab coat Instruction on PPE during induction and in SOP Instruction – In case of contact with eyes rinse immediately with plenty of clean, flowing water and seek immediate medical attention In case of contact with skin, rinse immediately with plenty of clean,	2						No

The Substance What are the hazards and *classification? *Route of exposure	*WEL mg/m3	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	Health monitoring
			flowing water. Seek medical attention if there is persistent irritation							
Compressed gas Dry N2 Toxic-Asphyxiant Inhalation Explosion		Investigators, Students, Participants Asphyxiation in high concentrations if gas released in confined space or there is insufficient ventilation The bottle could explode if heated or if the bottle or valve is physically damaged leading to cuts and lacerations	On demand valve prevents release of gas when not connected to sample pump Small bottle size reduces potential explosive force and limits the total quantity of gas released Only competent staff in good health allowed to handle gas bottles. Instruction on use: in well ventilated areas,	2	Use piped external supply	1	Estates	Completion of new laboratory	2023	No

The Substance What are the hazards and *classification? *Route of exposure	*WEL mg/m3	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	Health monitoring
			safe valve removal. PPE gloves and goggles Reduce exposure and prevent physical damage to gas bottle by storage in external gas store when not in use, instruction on safe handling, bottle to be kept on its side at all times and safe transport.							
Compressed gas O2, C02, N2 mix Harmful – Increases respiration Inhalation		Investigators, Students, Participants Exposure to build up of gas mixture could result in increased respiration due to high CO2 concentration. Increase respiration may lead to loss of	On demand valve prevents release of gas when not connected to sample pump Small bottle size reduces potential explosive force and	2	Use piped external supply	1	Estates	Completion of new laboratory	2023	No

The Substance What are the hazards and *classification? *Route of exposure	*WEL mg/m3	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	Health monitoring
Explosion		consciousness or heart issues in vulnerable individuals.	limits the total quantity of gas released Only competent staff in good health allowed to handle gas bottles. Instruction on use: in well ventilated areas, safe valve removal. PPE gloves and goggles Reduce exposure and prevent physical damage to gas bottle by storage in external gas store when not in use, instruction on safe handling, bottle to be kept on its side at all times and safe transport							

The Substance What are the hazards and *classification? *Route of exposure	*WEL mg/m3	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	Health monitoring
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The Substance What are the hazards and *classification? *Route of exposure	*WEL mg/m3	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	Health monitoring
			plenty of clean, flowing water. Seek medical attention if there is persistent irritation							

Append supplier safety data sheets for all substances here:

Drierite

Miltons

Decon 75

Nitrogen Calibration gas

Air Mix Claibration gas

Ethanol

Appendix

Risk ratings

Risk ratings are a way of evaluating risk. A risk is defined as the likelihood that a hazard will cause harm combined with the severity of the harm. We can apply a value to a risk by using the following formula and matrix.

Risk = Likelihood x Severity

Likelihood	Severity				
	Trivial	Minor Injury	Over 3 Day Injury	Major Injury	Incapacity or Death
Highly Unlikely	1	2	3	4	5
Unlikely	2	4	6	8	10
Possible	3	6	9	12	15
Probable	4	8	12	16	20
Certain	5	10	15	20	25

Risks can then be prioritised by their rating

1 Urgent Action - (Risk 15 - 25)

2 High Priority - (Risk 10 - 12)

3 Medium Priority - (Risk 5 - 9)

4 Low Priority - (Risk 2 - 4)

5 Very Low Priority - No Action Required (Risk 1)

This gives the leads to the residual risk: Low (Risk 1-4), Medium (Risk 5-9), or High (Risk 10 to 25). If the risks are acceptable (Low Risk) then you may feel able to proceed without further action. If the risk is Medium or High then you must do something to bring the risk to a "tolerable" level.

Controls measures

Control measures are actions that reduce the risk to a tolerable level. Controls should be chosen to reduce the severity and or likelihood of a risk. Controls should be applied in an order of preference or Hierarchy of Controls:

1. Elimination – Remove the hazard
2. Substitution – Exchange the risk for something less likely or severe
3. Physical Controls – separation or isolation, prevent contact with the hazard
4. Administrative controls - safe operating procedures to ensure safe interaction with hazard
5. Information, instruction, training & supervision – warn people of the hazard and tell or show them how, or help them to deal with it.
6. Personal Protective Equipment – dress people to reduce severity of harm

COSSH section

The Control of Substances Hazardous to Health Regulations 2002 require additional specific risk assessment for hazardous substances. Fill in the COSHH section for any of the substances identified under hazard category F.6 . Control is adequate when the risk of harm is ‘as low as is reasonably practicable'. This means you need to demonstrate that:

1. All control measures are in good working order.
2. Exposure is below the Workplace Exposure Limit, where one exists.
3. Exposure to substances that cause cancer, asthma or genetic damage is reduced to as low a level as possible.

"A brief guide to COSHH": https://www.hse.gov.uk/pubns/indg136.htm

Workplace exposure limits (WEL)

There is a maximum exposure to hazardous substances defined by law. These workplace exposure limits are given in the following document.

"EH40/2005 Workplace exposure limits": https://www.hse.gov.uk/pubns/priced/eh40.pdf

COSHH Hazard classifications

This information should be given on the exterior of the container and on the COSHH data sheet supplied with the hazardous substance.

- Very Toxic
- Toxic
- Corrosive
- Harmful
- Irritant
- Sensitiser
- Dust
- Teratogenic
- Carcinogen or suspected carcinogen
- Microorganism
- Possible long term effects

COSHH Routes of exposure

Routes of exposure are the different ways hazardous substances interact with the body. There may be more than one route.

- Contact damage to skin or eyes
- Injection
- Absorption through skin
- Ingestion
- Inhalation

COSHH Supplier Safety data sheets

Attach the supplier safety data sheet to the risk assessment for each substance covered.

Safe operating procedures

The faculty provides safe operating procedures for many activities these can be found on the health and safety web pages and in the folders located near any equipment they apply to. The activity you are planning may require an additional procedure to be written as a control. Contact the safety officer for help with this as they may be able to identify similar activities the procedure should apply to. They will also be able to advise on a suitable format and wording.

Pre operation equipment checks

Pre operation checks are detailed in operating procedures found on the health and safety web pages and in the folders located near any equipment they apply to. Fill in the form provided each time you use the machine. Report any issues you encounter in your check and leave a note on the machine. Do not be tempted to skip pre operation checks. Faulty machinery can cause injury.

Resources, instruction, information, supervision and training

In addition to the resources mentioned elsewhere. Manufacturer user manuals are available from the health and safety webpages https://sportsciencesafety.stir.ac.uk and in the folders by the equipment. Training and supervision are arranged as part of the laboratory induction. Remember, you must not work in any laboratory without obtaining authorisation for the activities you wish to undertake as part of an induction. Inductions should be repeated on a regular basis as indicated on your induction record. If further instruction, training or supervision is required, please contact the person in charge of the laboratory.

Records, reporting faults

Every time you use a piece of equipment you should fill in the use form in the folder located nearby and note any faults you experience. This is important as adequate maintenance requires monitoring and maintenance periods are determined by the amount of use.

Where does this all come from?

As part of your University induction and regular training you should have taken a set of compulsory courses

https://www.stir.ac.uk/about/professional-services/estates-and-campus-services/safety-environment-and-continuity/safety/induction-courses/

The University has further information available on their health and safety pages
https://www.stir.ac.uk/about/professional-services/estates-and-campus-services/safety-environment-and-continuity/safety/

The Sport Science health and safety pages are here
https://sportsciencesafety.stir.ac.uk

Employers, employees and people who own buildings have a legal duty to their own safety and the safety of any others who may be affected by their activities. This mainly comes from the Health and Safety at Work act 1974 (HASAWA) and the Management of Health and Safety at Work Regulations 1999 (MHSWR). Substances used in the workplace must be used in accordance with The Control of Substances Hazardous to Health Regulations 2004 (COSHH). Work equipment must be suitable, safe and well maintained in accordance with The Provision of Work Equipment Regulations (PUWER). Further regulations apply to machinery. Machinery is a special category of work equipment which usually incorporates a motor. The legal requirements are summarised in guidance provided by the Health and Safety Executive. The guidance is much easier to read and can be found on the HSE web site.