

GENERAL SAFETY INDUCTION INFORMATION

SCHOOL OF HEALTH SCIENCES

EXERCISE SCIENCE LABORATORIES (G127/C003/EXERCISE CLINIC)

IMPORTANT - Please note that before participating in a practical class you must complete a quiz and/or safety declaration that demonstrates you have read all the material in this safety module and understand what is required for participation in this unit.

INTRODUCTION

This manual provides back ground information for classes held in exercise science laboratories. In each class there will be a short introduction given by the lecturer highlighting the important parts of the lesson and any changes to the procedure. You should read and prepare this material before each class so that when you arrive, you know what you are doing and no time is wasted.

Practical classes are designed to provide student with practical skills. As such small groups are preferable as they provide better opportunity for students to learn and practice the requisite skills. Therefore if there are a small number of volunteers to be participants in a practical session which leads to less than optimal investigator/participant ratios, some students will be asked to attend a later class. Insufficient attendance at practical classes can lead to student being deemed ineligible to sit the final exam.

LABORATORY SAFETY ISSUES

- When you enter the laboratory for the first time, please take the time to identify all necessary safety equipment and the nearest safe exit. Safety equipment includes fire extinguishers, first aid kits, emergency phones, hand wash station. Your first practical session may also include information regarding the safe use of equipment. For your own safety you are not allowed to touch or interact in any way with any equipment you have not been shown how to use.
- Each student is required to attend classes prepared for exercise. This means wearing appropriate cloths to run or ride and allow electrodes or a heart rate monitor to be placed on your chest (females should wear a lycra short bra).
- You must wear appropriate closed toe footwear in the laboratory at all times. Ballet flats and high heels shoes are not considered acceptable.
- If you are unable to exercise due to illness or injury then inform the demonstrator at the beginning of class.
- If you are unable to exercise throughout the semester because of an underlying medical condition then inform the lecturer in the first laboratory class.
- You must wear protective gloves, eyewear and a laboratory coat when dealing with bodily fluids (blood, sweat and saliva). Wash your hands before and after each class using antiseptic soap.

- In some units practical reports are required which will involve the collection of physiological data to be presented in graphical and tabular formats. There may also be questions relating to the practical laboratory designed to assist your learning that must be submitted for assessment

RECRUITMENT AND SCREENING OF TEST SUBJECTS

The subject

All of the experiments performed in these classes require a volunteer to perform an exercise test or undergo other procedures (e.g. blood pressure or ECG). You are encouraged to volunteer for at least one of the procedures to gain valuable experience as a subject. An understanding of what it feels like to be a subject and to perform these exercise tests is likely to make you a better experimenter.

Only volunteer to be a subject if you feel well enough to exercise. You are under no obligation to volunteer and you may withdraw from any procedure, at any time, for any reason. The investigator is required to explain to you the details of the procedures you are about to undergo before you begin. You will also be asked questions about your health to ensure that you are not at risk of injury during the test (the Stage 1 Adult pre-exercise screening tool). Feel free to ask questions of your investigator about any aspects of the procedure. If you are uncomfortable with what you are doing then stop and you will not be penalised in any way. Before volunteering as a subject you must make sure you have submitted the signed consent form (see page 7) at the start of semester and have been cleared by tutor/demonstrator. Again, you are under no obligation to consent to this. You must do it freely and without any sense of obligation. The 'Informed Consent Form' that you will sign is an acknowledgement that you agree to participate in the experiment. It does not prevent you from withdrawing at any time and it does not waive your legal rights.

The experimenter

There is enormous academic and professional value in carrying out the experiments in these laboratories. However, it is important that you ensure that your subject is safe and comfortable at all times. You have a legal duty of care towards your subject and as such, you must treat them with care. You must understand your responsibilities to the subject before, during and after the test. Importantly, you must have a completed Informed Consent Form and Pre-exercise screening form completed before you begin any testing.

Ensure that during testing, one experimenter is watching the subject 100% of the time and another experimenter is ensuring that the data is being collected correctly. Both of these tasks may seem simple, but can become very complicated if not attended to correctly. The subject needs to be able to communicate any discomfort to the experimenters during the test. This can be achieved by agreeing on hand signals before the test begins (remember that sometime the subjects cannot speak, such as when they have a mouth-piece in). Both experimenters must communicate effectively during an exercise test. If something abnormal occurs the lecturer needs to be alerted immediately. Always stop the test if you are unsure of the continued safety of the subject. Do not take risks by assuming that an abnormal physiological response is probably benign.

Often you will have only one opportunity to perform an exercise test – do not miss the opportunity to do it well.

Before volunteering to participate as a subject in any of the practical sessions you must take the time to read and complete the following material. These questionnaires should be done online in the 'Practical classes' folder on MyLO.

ADULT PRE-EXERCISE SCREENING TOOL

This screening tool does not provide advice on a particular matter, nor does it substitute for advice from an appropriately qualified medical professional. No warranty of safety should result from its use. The screening system in no way guarantees against injury or death. No responsibility or liability whatsoever can be accepted by Exercise and Sports Science Australia, Fitness Australia or Sports Medicine Australia for any loss, damage or injury that may arise from any person acting on any statement or information contained in this tool.

Name: _____

Date of Birth: _____ Male Female Date: _____

STAGE 1 (COMPULSORY)

AIM: to identify those individuals with a known disease, or signs or symptoms of disease, who may be at a higher risk of an adverse event during physical activity/exercise. This stage is self administered and self evaluated.

Please circle response

1.	Has your doctor ever told you that you have a heart condition or have you ever suffered a stroke?	Yes	No
2.	Do you ever experience unexplained pains in your chest at rest or during physical activity/exercise?	Yes	No
3.	Do you ever feel faint or have spells of dizziness during physical activity/exercise that causes you to lose balance?	Yes	No
4.	Have you had an asthma attack requiring immediate medical attention at any time over the last 12 months?	Yes	No
5.	If you have diabetes (type I or type II) have you had trouble controlling your blood glucose in the last 3 months?	Yes	No
6.	Do you have any diagnosed muscle, bone or joint problems that you have been told could be made worse by participating in physical activity/exercise?	Yes	No
7.	Do you have any other medical condition(s) that may make it dangerous for you to participate in physical activity/exercise?	Yes	No

IF YOU ANSWERED 'YES' to any of the 7 questions, please seek guidance from your GP or appropriate allied health professional prior to undertaking physical activity/exercise

IF YOU ANSWERED 'NO' to all of the 7 questions, and you have no other concerns about your health, you may proceed to undertake light-moderate intensity physical activity/exercise

I believe that to the best of my knowledge, all of the information I have supplied within this tool is correct.

Signature _____ Date _____

FURTHER PRE-EXERCISE SCREENING

If you answer “YES” to any of these questions, vigorous exercise or exercise testing should be postponed until medical clearance has been obtained and Stage 2 and 3 of the pre-exercise screening tool has been successfully completed.

The Stage 2 and 3 adult pre-exercise screening tool is used to identify individuals with cardiovascular and metabolic risk factors or other conditions. If you are under 45 years of age for males and 55 for females and have no more than one of the following positive risk factors then you are considered to be low risk. Two or more factors places you at a higher risk and therefore maximal exercise is not recommended without clearance from a doctor or medial supervisor. Take time to read these risk factors prior to completing the consent form.

Positive risk factors

- Family history of myocardial infarction, stroke or sudden death - before 55 years of age of father or other male first degree relative (i.e. brother or son) or before 65 years of age in mother of other female first degree relative (sister or daughter).
- Cigarette smoking – current or those who have quit in the previous 6 months
- High blood pressure – systolic blood pressure of ≥ 140 mmHg or diastolic of ≥ 90 mmHg confirmed by measurements on at least 2 separate occasions, or subject on hypertensive medication
- High cholesterol– previously diagnosed
- Impaired fasting blood glucose – previously diagnosed
- Obesity – body mass index (mass(kg)/height^2) $> 30\text{kg/m}^2$ or waist girth of $> 100\text{cm}$
- Sedentary life style – persons not participating in a regular exercise program or meeting minimal physical activity recommendations of less than 150 min per week.

Negative risk factor

If you have been diagnosed as having high HDL (high density lipoprotein) cholesterol you can subtract one for the risk factors identified above.

Additional factors

Please do not volunteer as a subject if you are aware of any reason that you should not participate in any practicals that involved fingertip blood sampling. Reasons would include the presence of any blood related disorders such as haemophilia, hepatitis or human immunodeficiency virus (HIV).

ADULT PRE-EXERCISE SCREENING TOOL

STAGE 2 (OPTIONAL)

Name: _____

Date of Birth: _____ Date: _____

AIM: To identify those individuals with risk factors or other conditions to assist with appropriate exercise prescription. This stage is to be administered by a qualified exercise professional.

RISK FACTORS

<p>1. Age _____</p> <p>Gender _____</p>	<p>≥ 45yrs Males or ≥ 55yrs Females +1 risk factor</p>																					
<p>2. Family history of heart disease (eg: stroke, heart attack)</p> <table border="0"> <tr> <td>Relative</td> <td>Age</td> <td>Relative</td> <td>Age</td> </tr> <tr> <td><input type="checkbox"/> Father</td> <td>_____</td> <td><input type="checkbox"/> Mother</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> Brother</td> <td>_____</td> <td><input type="checkbox"/> Sister</td> <td>_____</td> </tr> <tr> <td><input type="checkbox"/> Son</td> <td>_____</td> <td><input type="checkbox"/> Daughter</td> <td>_____</td> </tr> </table>	Relative	Age	Relative	Age	<input type="checkbox"/> Father	_____	<input type="checkbox"/> Mother	_____	<input type="checkbox"/> Brother	_____	<input type="checkbox"/> Sister	_____	<input type="checkbox"/> Son	_____	<input type="checkbox"/> Daughter	_____	<p>If male < 55yrs = +1 risk factor</p> <p>If female < 65yrs = +1 risk factor</p> <p>Maximum of 1 risk factor for this question</p>					
Relative	Age	Relative	Age																			
<input type="checkbox"/> Father	_____	<input type="checkbox"/> Mother	_____																			
<input type="checkbox"/> Brother	_____	<input type="checkbox"/> Sister	_____																			
<input type="checkbox"/> Son	_____	<input type="checkbox"/> Daughter	_____																			
<p>3. Do you smoke cigarettes on a daily or weekly basis or have you quit smoking in the last 6 months? Yes No</p> <p>If currently smoking, how many per day or week? _____</p>	<p>If yes, (smoke regularly or given up within the past 6 months) = +1 risk factor</p>																					
<p>4. Describe your current physical activity/exercise levels:</p> <table border="0"> <tr> <td></td> <td>Sedentary</td> <td>Light</td> <td>Moderate</td> <td>Vigorous</td> </tr> <tr> <td></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> <td><input type="checkbox"/></td> </tr> <tr> <td>Frequency sessions per week</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> <tr> <td>Duration minutes per week</td> <td>_____</td> <td>_____</td> <td>_____</td> <td>_____</td> </tr> </table>		Sedentary	Light	Moderate	Vigorous		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Frequency sessions per week	_____	_____	_____	_____	Duration minutes per week	_____	_____	_____	_____	<p>If physical activity level < 150 min/ week = +1 risk factor</p> <p>If physical activity level ≥ 150 min/ week = -1 risk factor (vigorous physical activity/ exercise weighted x 2)</p>	
	Sedentary	Light	Moderate	Vigorous																		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>																		
Frequency sessions per week	_____	_____	_____	_____																		
Duration minutes per week	_____	_____	_____	_____																		
<p>5. Please state your height (cm) _____</p> <p>weight (kg) _____</p>	<p>BMI = _____</p> <p>BMI ≥ 30 kg/m² = +1 risk factor</p>																					
<p>6. Have you been told that you have high blood pressure? Yes No</p>	<p>If yes, = +1 risk factor</p>																					
<p>7. Have you been told that you have high cholesterol? Yes No</p>	<p>If yes, = +1 risk factor</p>																					
<p>8. Have you been told that you have high blood sugar? Yes No</p>	<p>If yes, = +1 risk factor</p>																					

Note: Refer over page for risk stratification.

STAGE 2 Total Risk Factors =

9. Have you spent time in hospital (including day admission) for any medical condition/illness/injury during the last 12 months?
Yes No

If yes, provide details

10. Are you currently taking a prescribed medication(s) for any medical condition(s)? Yes No

If yes, what is the medical condition(s)?

11. Are you pregnant or have you given birth within the last 12 months? Yes No

If yes, provide details. I am _____ months pregnant or postnatal (circle).

12. Do you have any muscle, bone or joint pain or soreness that is made worse by particular types of activity? Yes No

If yes, provide details

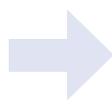
STAGE 3 (OPTIONAL)

AIM: To obtain pre-exercise baseline measurements of other recognised cardiovascular and metabolic risk factors. This stage is to be administered by a qualified exercise professional. (Measures 1, 2 & 3 – minimum qualification, Certificate III in Fitness; Measures 4 and 5 minimum level, Exercise Physiologist*).

	RESULTS	RISK FACTORS
1. BMI (kg/m ²)		BMI \geq 30 kg/m ² = +1 risk factor
2. Waist girth (cm)		Waist > 94 cm for men and > 80 cm for women = +1 risk factor
3. Resting BP (mmHg)		SBP \geq 140 mmHg or DBP \geq 90 mmHg = +1 risk factor
4. Fasting lipid profile*		Total cholesterol \geq 5.20 mmol/L = +1 risk factor HDL cholesterol > 1.55 mmol/L = -1 risk factor HDL cholesterol < 1.00 mmol/L = +1 risk factor Triglycerides \geq 1.70 mmol/L = +1 risk factor LDL cholesterol \geq 3.40 mmol/L = +1 risk factor
5. Fasting blood glucose*		Fasting glucose \geq 5.50 mmol = +1 risk factor
		STAGE 3 Total Risk Factors = <input type="text"/>

RISK STRATIFICATION

Total stage 2
or
Total stage 3
Plus stage 2 (Q1 - Q4)



\geq 2 RISK FACTORS – MODERATE RISK CLIENTS

Individuals at moderate risk may participate in aerobic physical activity/exercise at a light or moderate intensity (Refer to the exercise intensity table on page 2)

< 2 RISK FACTORS – LOW RISK CLIENTS

Individuals at low risk may participate in aerobic physical activity/exercise up to a vigorous or high intensity (Refer to the exercise intensity table on page 2)

Note: If stage 3 is completed, identified risk factors from stage 2 (Q1-4) and stage 3 should be combined to indicate risk. If there are extreme or multiple risk factors, the exercise professional should use professional judgement to decide whether further medical advice is required.

PRACTICAL CONSENT FORMS

The following consent form should be signed by you and a witness and given to your instructor in the first practical class.

CONSENT FORM

1. I have read and understood the information for this unit and completed the pre-practical on-line quiz.
2. The nature and possible effects of the exercise testing have been explained to me.
3. I have completed an Adult Pre-exercise Screening form on-line. I have read and completed the questionnaire regarding cardiovascular and metabolic risks factors on-line and will not volunteer for maximal exercise if, according to these risk factors, I am not considered to be in a low risk category.
4. I understand that the unit involves a large range of practical activities that can be physically demanding and fingertip blood sampling.
5. I understand that all testing will be conducted in an exercise laboratory or clinic at the Launceston campus of the University of Tasmania.
6. Any questions that I have asked have been answered to my satisfaction.
7. I agree to participate in this unit where appropriate and understand that I may withdraw at any time without prejudice or penalty. I understand that while I am required to attend and participate in practical classes my participation as a subject in these classes is entirely voluntary and without remuneration, financial or otherwise.

Name of Participant:

Signature of Participant:

Date:

Unit Code: CXA

Name of Witness:

Signature of Witness

Date:

PRACTICAL REPORTS

Attendance at practical sessions is compulsory. For some units a practical report must be submitted. In these units the information obtained in the practical sessions must be analysed and presented for assessment. Each practical report **MUST** be submitted prior to your next practical class.