

Risk Assessment Details ID: RA_PESS_39010 Rev No: 1 Draft ID: 0			
User's School/ Department:	Physical Education & Sports Science	Project Title:	Risk Assesment for Excercise Physiology & Biochemistry Lab
Workplace:	National Institute of Education	Other workplace:	-
Location:	NIE5-02-02/03	Conducted By:	Muhammad Farihin Fawwaz(farihin.talib),
Approved By:	Koh Koon Teck (koonteck.koh@nie.edu.sg)	Submitted By/Submitted Date:	Muhammad Farihin Fawwaz/08-Nov-18
Approved/Rejected Date:	08-Nov-18	Next Review Date:	07-Nov-21
Status:	Approved	Comments:	Approved

1. Hazard Identification					2. Risk Evaluation				3. Risk Control				
1a.	1b.	1c.	1d.	1e.	2a.	2b.	2c.	2d.	3a.	3b.	3c.	3d.	3e.
No.	Work Activity	Hazard	Sub Hazard	Possible Accident/III Health & Person-at-Risk	Existing Risk Control	*S	*L	*R	Additional Risk Control	*S	*L	*R	Follow Up by & date
1	Handling of treadmill operation (motorized)	Physical	Trip, slip and fall on same level	Others:Bodily injuries	1) Safety harness for lab users. 2) Briefing lab users on safety precautions. 3) Emergency stop button. 4) Adequate familiarization and training. 5) Attire: > Sports attire > Covered shoes only > Shoe laces tightened > No loose clothing 6) Clear sign indication for stopping exercise. 7) Observing lab users are advised not to stand around perimeter of moving belt. 8) Caution & reminder to all lab users by faculty/lab staff. 9) Lab users will be supervised until competency is agreed by faculty/lab staff	2	1	2	NA				
2	Handling of cycle ergometer	Mechanical	Caught in or between	Others:Foot or toe Injuries, entrapment of body parts	1) Briefing lab users on safety precautions. 2) Adequate familiarization and training. 3) Attire : > Sports attire > Covered shoes only > Shoe laces tightened > No loose clothing 4) Secure feet in pedal and strap firmly 5) adjusting saddle height according to person's physique 6) No standing in front of bike. 7) Caution & reminder to all lab users by faculty/lab staff.	1	1	1	NA				

3	Handling of metabolic carts	Electrical	Others:Cables, gas tubes, calibration cylinders	Others:Leakage, tripping, foot or toe injuries	1) Adequate training for handling. 2) Keep cables fastened/covered. 3) Covered shoes only. 4) Caution & reminder to all lab users by faculty/lab staff.	1	1	1	NA				
4	Handling of gas calibration	Biological	Release to Environment	Others:Leakage	1) Close supervision of lab users to shut off gas cylinders after calibration. 2) Cylinders must kept upright and in well ventilated place. 3) No heat source. 4) Caution & reminder to all lab users by faculty/lab staff.	2	1	2	NA				
5	Handling of oxygen consumption measurement equipment	Biological	Contact with or infection by bacteria, virus or fungal spores	Others:Transmission of disease	1) Soaking and thorough disinfecting of face mask, breathing tubes and mouth piece. 2) Caution & reminder to all lab users by faculty/lab staff.	1	1	1	NA				
6	Conducting of physiological stress test and perform of blood work	Biological	Contact with or infection by bacteria, virus or fungal spores	Others:Needle stick injury, bleeding, transmission of infectious disease	1) Aseptic precautions (hygiene alcohol swabs). 2) Lab coats and covered shoes at all time. 3) Use disposable gloves at all times. 4) Strict adherence and training of techniques for finger pricking blood sampling. 5) Single use disposable lancet device. 6) Pressure with gauze/cotton wool after sampling to stop bleeding. 7) Only trained phlebotomist to perform venipuncture. 8) Sharps has to be disposed properly manner into the sharp container (yellow box). 9) Caution & reminder to all lab users by faculty/lab staff.	2	1	2	NA				
		Physical	Trip, slip and fall on same level	Others:Fatigue, giddiness, muscle soreness, injuries include ankle & knee sprain, fainting	1) Provide clear instructions beforehand for exercise preparedness (sleep,hydration,diet etc). 2) Check for wellness before exercise. 3) Warm up and stretching after exercise. 4) Trained first-aider present. 6) Caution & reminder to all lab users by faculty/lab staff	2	1	2	NA				
7	Handling of arm ergometer	Physical	Trip, slip and fall on same level	Others:Friction,blister, slipping hand, wrist and finger injuries	1) Adequate familiarization. 2) Adjust the height to optimum. 3) Progressive exercise. 4) Caution & reminder to all lab users by faculty/lab staff.	1	1	1	NA				

8	Handling of cardio treadmill	Physical	Trip, slip and fall on same level	Others:Bodily injuries	<ol style="list-style-type: none"> 1) Briefing lab users on safety precautions. 2) Adequate familiarization and training. 3) Attire: <ul style="list-style-type: none"> > Sports attire > Covered shoes only > Shoe laces tightened > No loose clothing 4) Secure all lead cables. 5) Observing lab users are advised not to stand around perimeter of moving belt. 6) Caution & reminder to all lab users by faculty/lab staff. 7) Lab users will be supervised until competency is ensured by faculty/lab staff. 	2	1	2	NA				
9	Operating of x-ray equipment (DEXA)	Physical	Ionisation radiation	Others: Miscarriage	<ol style="list-style-type: none"> 1) Lead curtains. 2) Door closed with red light on when scanning. 3) Vacate room when scan is operating. 4) Trained radiation worker. 5) Staff training. 6) Periodic visits by radiologist. 7) NEA approved room specifications & regulations. 	2	1	2	NA				
10	Handling of hyperbolic chamber (phiten)	Psychosocial	Others:Anxiety, fear and compression effects	Others:Anxiety and claustrophobia, headache, eye ache	<ol style="list-style-type: none"> 1) Screen lab users for anxiety and claustrophobia. 2) Be in constant contact with lab users through intercom. 3) Familiarization of equipment. 4) Screen lab users for ear infections, flu, fever, sinus congestion, nasal congestion or chest congestion. 5) Screen lab users for pregnancy. (female only) 6) Screen lab users for high degree myopia. 7) Screen lab users for conditions like high blood pressure and migraine. 8) Caution & reminder to all lab users by faculty/lab staff. 	2	1	2	NA				
		Biological	Contact with or infection by bacteria, virus or fungal spores	Others:Microbial infection, traces of airborne infection left by users	<ol style="list-style-type: none"> 1) Screen lab users for ear infections, flu, fever, sinus congestion, nasal congestion or chest congestion. 2) Screen lab users for pregnancy. (female only) 3) Caution & reminder to all lab users by faculty/lab staff. 	2	1	2	NA				

11	Conducting of electrocardiogram (ECG) test	Physical	Others:Electrodes, cables and adhesive	Others:Allergies	1) Wires are kept out of the way. 2) Lab users are briefed and trained on equipment handling. 3) Electrodes are one time usage. 4) Hypoallergenic electrodes are used. 5) Caution & reminder to all lab users by faculty/lab staff. 6) Lab users will be supervised until cleared by faculty/lab staff.	2	1	2	NA				
12	Conducting of height displacement test	Physical	Trip, slip and fall on same level	Others:Foot or toe injuries	1) Lab users are briefed on proper techniques. 2) Injured lab users are prohibited. 3) Covered sport shoe. 4) Laces fastened. 5) Caution & reminder to all lab users by faculty/lab staff.	1	1	1	NA				
13	Operating of skin fold calipers	Physical	Others:Clipping of skin	Others:Bruising and grazing	1) Training under supervision by faculty/lab staff. 2) Use plastic calipers before using metal calipers. 3) Lab users are briefed on proper techniques. 4) Caution & reminder to all lab users by faculty/lab staff.	1	1	1	NA				
14	Handling of skeletal models	Physical	Trip, slip and fall on same level	Others:Toppling of models, injury to eye, tripping over wheels	1) Signage to warn lab users of rough handling. 2) Models are put back in place after use. 3) Caution & reminder to all lab users by faculty/lab staff.	1	1	1	NA				
15	Handling of muscular models	Mechanical	Strike by falling object	Others:Dropping of parts onto self and individuals	1) Signage to warn lab users of parts. 2) Models are on castor wheel base.	1	1	1	NA				
16	Handling of biochemical analyzers	Biological	Contact with or infection by bacteria, virus or fungal spores	Others:Infection,cross contamination,exposure to chemical reagents	1) Only trained faculty/lab staff is to handle the equipment. 2) Follow exact equipment operational guidelines and protocols. 3) Use eye protection at all times. 4) Gloves are worn at all times 5) Wear lab coats, gloves and covered shoes at all times. 6) Dispose used chemical/reagents as per protocol. 7) Dispose tissue samples/ body fluids and other bio-hazardous materials as per protocol. 8) Only handled by trained faculty/lab staff.	3	1	3	NA				

17	Handling of ultra low freezers	Others:Extreme cold temperature (-70 to -80 degree celsius),	Others:Storage of tissue samples,storage of biological fluid samples	Others:Frostbite,electric shock,wet and slippery floor,infection,contamination	1) No food or perishable to be stored. 2) All samples/containers should be labelled with contents, faculty name and date. 3) Wear lab coat and insulated gloves while working at the freezers. 4) Check door gasket and ensure that it is free of ice build up. 5) Brush frost off doors. 6) Know the location of samples to minimize time needed to take them out and quickly close the freezer door. Ensure the outer latch is closed properly. 7) Place absorbent paper towels on floor to soak up water from melting frost/ice. 8) Only handled by trained faculty/lab staff personnel. 9) Regular maintenance of freezer.	2	1	2	NA				
18	Handling of ice makers	Physical	Others:Freezing temperature	Others:Cold effects, pain, frostbite	1) Wear insulated gloves and use ice scoop/shovel to collect the ice.	1	1	1	NA				
19	Handling of safety cabinet	Chemical	Corrosive	Others:Fire hazard	1) Keep dangerous liquids safely organized and segregated. 2) Improve efficiency by locating materials near point-of-use. 3) Only handled by trained faculty/lab staff personnel. 4) Keep the cabinet door close at all times.	3	1	3	NA				
20	Removing out items required in biochemical analysis	Others:Glass panels	Others:Items of glass like test tubes,beakers and pipettes	Others:Accidental dropping and breakage of glass items	1) Signage to warn lab users to be careful while opening the glass panels and to close doors when items are taken out. 2) Avoid over stuffing of items on the shelves. 3) Only handled by trained faculty/lab staff.	2	1	2	NA				
21	Handling of reagents (powder/solid form)	Others:Excessive inhalation of dusts	Others:Irritation to respiratory system	Others:Eye/skin burns & irritation.	1) Read the safety data sheet (SDS) before handling any chemical and follow the safety precaution stated. 2) Wear lab coat, gloves and safety goggles & covered shoes at all time. 3) Work in fume hood. 4) Lab safety briefing to lab users. 5) Only handled by trained faculty/lab staff.	2	1	2	NA				
22	Handling of reagents (liquid, buffer solution)	Chemical	Others:Spillage,contact with skin	Others:Mild skin irritation	1) Wear gloves, lab coats, protective goggles at all times. 2) Safety data sheet (SDS) briefing of chemicals and safety. 3) Flushing of skin if contacted. 4) Proper signage.	2	1	2	NA				

23	Collecting of blood sample	Biological	Others: Sharps, glass tubes, capillary tubes, needles	Others: Cuts, bruising, fainting, infection	1) Only performed by trained phlebotomist. 2) Two lab users must be present (one to puncture, one to assist) with faculty/lab staff supervision. 3) Screening of lab users (participants) well being with faculty/lab staff supervision. 4) Lab coats, protective gear, gloves must be worn by both lab users at all times. 5) Lab safety briefing. 6) To cap needles when done.	2	1	2	NA				
24	Handling of blood storage and retrieval	Others: Glass collection tubes	Others: Ice	Others: Cold burns and cuts, cross contamination	1) Freezer defrosted twice per year to prevent ice built up along edges. 2) Proper storage and labelling. 3) Cryo gloves must be worn. 4) Proper labeling and storage. 5) Freezer shelves labeled with name.	1	1	1	NA				
25	Handling of centrifugation	Chemical	Others: Collection tubes breakage	Others: Cuts and pricks, cross contamination	1) Lab coats, protective gear and gloves to be worn. 2) Training of equipment. 3) Lab safety briefing. 4) Cleaning of centrifuge with disinfectant. 5) Dispose in sharps container.	2	1	2	NA				
26	Handling of glassware	Others: Breakage of glassware	Others: N.A	Others: Cuts, skin contact	1) Wear lab coat, protective gloves, safety goggles and covered footwear. 2) Dispose all broken glass into the sharp container (yellow box) provided 3) Caution & reminder to all lab users by faculty/lab staff.	1	1	1	NA				
27	Handling of heating equipment	Mechanical	Others: Heating surface	Others: Burns, blisters	1) Observe proper usage of equipment. 2) Lab briefing. 3) Not for boiling liquids	2	1	2	NA				
28	Handling of blood agitation	Mechanical	Others: Vortex machine vibration	Others: Glass breakage, damaging equipment	1) Not to put any glass ware close when working with vortex. 2) Caution & reminder to all lab user by faculty/lab staff.	1	1	1	NA				
29	Handling of bio-hazardous material	Biological	Contact with or infection by bacteria, virus or fungal spores	Others: Needle stick injury, bleeding, transmission of infectious disease	1) Prepare bio-hazard container. 2) Ensure proper disposal of bio-hazard materials. 3) Regular inspection to dispose bio-hazard materials when it is fully filled. 4) Get authorized disposal bio-hazard vendor (SembCorp). 5) Caution & reminder to all lab users by faculty/lab staff.	2	1	2	NA				

30	Handling of fume hood	Biological	Release to Environment	Others:working with chemicals or procedures that may produce hazardous fumes or vapor	<p>1) Know how to properly operate a fume hood before beginning work. Inspect the fume hood before starting each operation to ensure it is working.</p> <p>2) Place equipment and chemicals at least six inches behind the fume hood sash. (to reduces the chance of exposure to hazardous vapors)</p> <p>4) Do not allow paper or other debris to enter the exhaust duct of the hood.</p> <p>5) Do not store excess chemicals or equipment in fume hoods.</p> <p>6) Do not block the baffle area of the fume hood.</p> <p>7) Elevate any large equipment within the hood at least three inches to allow proper ventilation around the equipment.</p> <p>8) Set the sash height below eye level</p> <p>9) Wear personal protective equipment, as appropriate.</p> <p>10) Do not alter/modify the fume hood or associated duct work.</p> <p>11) Clean up spills in the hood immediatly with table absorbent.</p>	1	1	1	NA				
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