Risk assessment RA08

https://sportsciencesafety.stir.ac.uk

Faculty / Service Area	Faculty of Health Sciences and Sport	Location	Sport Science laboratories, other
Description of work task / equipment /area being assessed			
Body fluid sampling and handling (blood, urine, saliva, sweat)			
Change log	Version 1.1 29 Aug 2022 New format Included sweat Version 1.2 03 Nov 2022 Included Salivette collection devices, added spillage procedures and safety data sheets (SDS)		
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	3rd Nov 2022
		Date of next review	August 2024
Equipment used	For blood sampling a lancing device, needles, or cannulas are used, urine is collected into containers, with saliva and sweat obtained from swabs or Salivette saliva collection devices.		
Categories of people involved	Staff, UG, PG, Visitors		
Duration of activity	Generally involves repeat sampling of blood, urine or saliva over time intervals. Blood and saliva sampling may occur over a 4-6 hour period, urine collection may occur over a 24 hour period or longer.	Frequency of activity	Frequency dependent upon nature of work. Research work could be daily or weekly intervals, consultancy as and when requested (monthly), teaching 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 The Control of Substances Hazardous to Health Regulations 2004 (COSHSH) 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
Needlestick	**F6. Chemical & biological hazards**	Investigators, others Skin broken by needle leading to potential infection Biological hazard	SOP Instruction and training on use of equipment, Sharps bins and Employee wears laboratory coat and nitrile gloves during sampling or handling of body fluids. In the event of needle stick injury, bleeding is encouraged in the first instance. Injury report is filed in WorkRite. The victim is referred to accident and emergency and occupational health.	Medium					

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			Ongoing health monitoring of needlestick victims. Training in capillary sampling, venepuncture and venous cannulation required. All involved in blood collection are recommended to have vaccination for Hepatitis B and follow-up blood tests.						
Infection of capillary or venous access site during blood sampling	**F6. Chemical & biological hazards**	Participants Infection of access site Biological hazard	Sterilisation of blood sampling site Sterilisation of urine containers Use of sterile swabs. Employee wears laboratory coat and nitrile gloves during	Medium					

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			sampling or handling of body fluids.						
Spillages of clinical samples	**F6. Chemical & biological hazards**	Investigators	Instruction and training on handling of clinical samples in Induction and SOP Employee wears laboratory coat and nitrile gloves during sampling or handling of body fluids Spillages should be contained with absorbent material e.g. paper towelling, disinfected with 10% Milton if compatible or 70% ethanol for small volumes and bagged as hazardous waste. Once disinfected, the area can be cleaned with						

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			5% Decon detergent and rinsed with water						
References	https://www.hse.gov.uk/healthservices/needlesticks/								

Append supplier safety data sheets for all substances here:

SDS_AbsoluteEthanol.pdf

SDS_Decon75.pdf

SDS_Milton.pdf

Standard operating procedure

Procedure:

BLOOD:
The following standard procedures are employed when obtaining blood from a volunteer.
Capillary blood. Capillary blood is sampled from a finger tip and is performed after warming the site in water at 42ºC to arterialise the site and to assist bleeding. The fingertip site to be used (not normally thumb or little finger) is sterilised with an alcohol swab e.g. Steriprep prior to capillary puncture. Following cleansing of the site the alcohol is allowed to evaporate. The finger is then stabbed on the most distal portion of the distal phalanx (end of finger tip). A soft-clix lancing device with a spring loaded sterile lancet is used to give a single finger prick. The finger sampling site should bleed freely after stabbing and the first drop of blood is wiped away with a clean tissue. The site is then ready for sampling and blood is collected into a capillary tube prior to being prepared for analysis. No pressure should be applied to the finger to aid in blood sampling as this will alter the composition of the sample by increasing the amount of plasma obtained in relation to red cells. Following collection of the sample, the site should be covered (plaster) if no more sampling is to be performed in a short period of time.

Venous blood. Venous blood sampling is either performed as a single venepuncture or as venous cannulation (if repeated sampling is required). The venous sampling site (back of hand, forearm or antecubital fossa) is prepared for sampling using an alcohol swab. Once the alcohol has evaporated, the site may be punctured with the needle (generally 21G used). For venepuncture, a needle and syringe are used for sampling and collected blood is dispensed into blood collection tubes or a vacutainer system is used. Following venepuncture a sterile gauze swab is placed on the site and pressure applied to the site for a couple of minutes to ensure that bleeding has stopped. Once bleeding has stopped a plaster is applied over the site. For venous cannulation, once the cannula has been advanced into the vein, a cannula dressing is applied to keep the cannula in place and to prevent any infection of the site. Blood is sampled from the cannula using a dry syringe. Following drawing of a sample a volume (~2 ml) of sterile saline is infused through the cannula to maintain patency. On completion of all sampling the cannula is removed and pressure applied to the site using a sterile gauze swab. The site is then covered using a plaster.

Sharps and other clinical waste are collected into sharps bins and yellow clinical waste bags and taken to the Biological and Environmental Sciences store for subsequent removal for incineration/disposal. Blood samples are prepared (serum, plasma, or cells) and stored in laboratory fridges/freezers for subsequent analysis (in house) or for sending for analysis.

URINE:
Urine collection is either performed pre- and post-exercise or over a period of days using a 24 hour collection procedure. Pre- and post-exercise urine collection involves urine being passed into a container and the volume of urine recorded and a sample of urine (5 to 10 ml) taken for analysis. For 24 hour analysis urine is passed into a large urine collection container (3.5L). Urine collection for each 24 hour period is usually performed from 6 a.m. until 6 a.m. Urine volume is again measured and a sample taken (5 to 10 ml) for analysis.

SWEAT:

SALIVA:

Commented [KB1]: NRS to add sampling details for sweat

Saliva collection is used either at rest, during exercise or in recovery from exercise. Saliva is collected by placing a small swab or Salivette pad into the volunteers mouth. Once the swab or absorbent pad is saturated with saliva it is placed into a collection cup or Salivette container. The swab is then removed and placed into a dry syringe and saliva removed by applying pressure to the swab. Saliva is collected by centrifuging the Salivette collection device with the pad which transfers the saliva into the bottom of the tube.

GENERAL PROCEDURES:
In all of the above procedures the laboratory staff involved wear personal protective clothing including laboratory coat and nitrile examination gloves. If any splashing of body fluids is likely to occur then protective eye wear is also worn. Spillages should be contained with absorbent material e.g. paper towelling, disinfected with 10% Milton if compatible or 70% ethanol for small volumes and bagged as hazardous waste. Once disinfected, the area can be cleaned with 5% Decon detergent and rinsed with water.

STAFF RESTRICTIONS:
Only staff who have been trained in venepuncture and cannulation are able to perform these procedures. Research students and others are normally only permitted to perform capillary puncture sampling.