

*The NIHR Southampton Biomedical Research Centre (BRC) has a tight quality assurance system for the writing, reviewing and updating of Standard Operating Procedures. As such, version-controlled and QA authorised Standard Operating Procedures are internal to the BRC.*

*The Standard Operating Procedure from which information in this document has been extracted, is a version controlled document, managed within a Quality Management System. However, extracts that document the technical aspects can be made more widely available. Standard Operating Procedures are more than a set of detailed instructions; they also provide a necessary record of their origination, amendment and usage within the setting in which they are used. They are an important component of any Quality Assurance Framework, but in themselves are insufficient and need to be used and interpreted with care.*

*Alongside the extracts from our Standard Operating Procedures, we have also made available here an example Standard Operating Procedure and a word version of a Standard Operating Procedure template. Using the example and the Standard Operating Procedure template, institutions can generate their own Standard Operating Procedures and customise them, in line with their own institutions.*

*Simply offering a list of instructions to follow does not assure that the user is able to generate a value that is either accurate or precise so here in the BRC we require that Standard Operating Procedures are accompanied by face-to-face training. This is provided by someone with a qualification in the area or by someone with extensive experience in making the measurements. Training is followed by a short competency assessment and performance is monitored and maintained using annual refresher sessions. If you require any extra information, clarification or are interested in attending a training session, please contact Dr Kesta Durkin ([k.l.durkin@soton.ac.uk](mailto:k.l.durkin@soton.ac.uk)).*

*This document has been prepared from Version 5 of the BRC Standard Operating Procedure for making measuring adult weight. It was last reviewed in April 2015 and the next review date is set for April 2017. The version number only changes if any amendments are made when the document is reviewed.*

## NIHR Southampton Biomedical Research Centre

### Procedure for Measuring ADULT WEIGHT

#### **BACKGROUND**

This procedure is to be used for measuring weight of adults. Weight measurement can be a useful guide to nutrition, fluid retention and assessment of BMI and body composition. The measurement of weight can serve as an indicator of a person's general health and well-being. It may also help to diagnose current medical conditions or serve to predict or identify future health problems. It is very important that the measurement is taken using the same method and in the same conditions in order to ensure uniformity between participants and in the same participant over time. For the purposes of both longitudinal follow-up studies of individual children or populations, and cross-sectional group studies, accurate and reproducible measurements of weight are essential.

#### **PURPOSE**

To ensure correct and uniform measurement of adult weight.

#### **SCOPE**

It is the responsibility of the measurer to use this procedure when measuring weight of adults. It is the responsibility of the Principal Investigator to ensure that staff members who are working on specific studies have adequate experience to do so.

#### **RESPONSIBILITIES**

Any equipment used for measuring weight must comply with Trust policy with a recommended maximum error allowance of 0.1kg (Class III scales). Electronic weighing scales designed for medical purposes are generally better than the simple mechanical weighing scales which should be avoided for two reasons – firstly, the mechanisms can wear and secondly, they have the capacity for adjustment and are prone to 'fiddle'.

## PROCEDURE

There are many different weighing scales available, but the scales that are best suited to this purpose are those which are:

- valid
- can be routinely checked through calibration
- have an in-built spirit level to ensure that scales are horizontal
- have a remote display so that the individual cannot see the reading
- are portable, light and easy to transport
- display weight to 100g over the range 0-150 kg and have both a hold and tare facility

Mechanical bathroom scales must not be used because of innate inaccuracies and errors that may be introduced with use over time.

The weighing equipment must be calibrated and this should be done by trained personnel annually. Calibration sticker and spirit level must be checked at the start of each measuring session.

Once every three months the scales should be weight checked by the relevant person within. You should set the scales to zero and place each of the weights, in turn, on to the scales to check that the weighing equipment records the same weight as the portable weight. If the error goes beyond 100g, the scales must be sent for calibration.

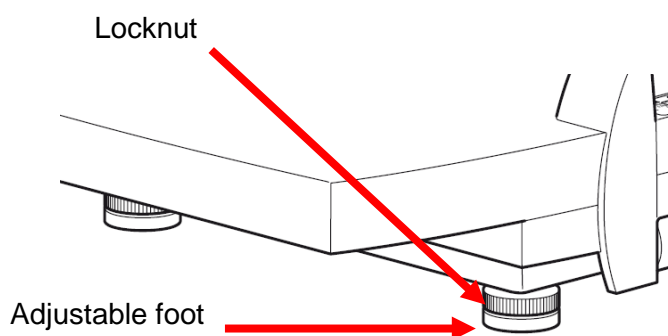
1. Ensure that the scales have been checked and calibrated annually following the manufacturer's guidelines.
2. Before using the equipment, you must make sure that it is level. To do this, you must alter the feet until the spirit level bubble (identified in Figure 1) sits in the centre circle. If you move the equipment, the position of the bubble will most likely change so will require re-adjustment. To adjust, turn the screw-feet clockwise to raise, and anticlockwise to lower the scales. When in the correct position, such that the bubble is in the centre circle, lock in place by screwing the locknuts (upper discs) up to the top, anticlockwise (figure 1a, b and c).



**Figure 1a** Spirit level bubble  
It's position on the scales.



**Figure 1b** Close-up showing the bubble in  
the centre circle.



**Figure 1c** Adjustable foot which screws to raise and lower the scales  
and lock nut which screws to secure the adjusted foot in place.

3. Turn on the scale's display as a check for the operational function.
4. Wait for the display to show 0.00.
5. Ensure shoes and any heavy clothing is removed and ask the participant to remove any other heavy objects on them, such as things in pockets (mobile phones, wallets, loose change) and any heavy jewellery, chunky watches etc.
6. Ask the participant to stand still on the centre of the scales with their arms hanging loosely at their sides. They must look straight-ahead and remain as still as possible. The posture is important as this ensures their weight is evenly distributed, to achieve an accurate reading.
7. The display should then show a fixed weight.
8. The weight should be recorded in kilograms and should be signed /dated by the nurse taking the measurement.
9. Weight should be recorded as displayed (i.e. to the nearest 100g or 0.1kg)
10. Repeat the process until the participant has been measured 3 times.
11. If these readings are within 100g of each other, then record these readings as well as the average of the three readings.
12. If you do not have three readings that are within 100g of each other, then continue to repeat the process until you do.