

1.0 SCOPE

1.1 INTRODUCTION AND PURPOSE

Excessive body fat is known to increase the risks of several diseases. There is considerable evidence to suggest that excessive fat stored in the intra-abdominal cavity may be especially harmful. This intra-abdominal fat mass can be reasonably inferred by waist measurement. A high waist:hip ratio = waist circumference (cm) / hip circumference (cm) implies a high degree of central obesity and is a risk factor for ischemic heart disease¹.

The purpose of this guidance is to detail the procedures to be followed for the measure of waist and hip circumference in all study participants.

1.2 SCOPE

Waist circumference and hip circumference will be measured for study participants and the waist:hip ratio will be calculated from these values. These measurements may be unobtainable if a participant is:

- Pregnant
- Wheelchair user
- Wearing a colostomy bag
- Not willing to be measured

1.3 MODIFICATIONS TO WAIST AND HIP MEASUREMENT PROTOCOL

Pregnancy and Wheelchair Use:

If the trained Program staff selects “yes” for the pregnancy or wheelchair use question (Figure 1 below), the participant should not be measured. The waist and hip measurement data entry fields will not appear in HealthPro.



The image shows a screenshot of a digital form with two dropdown menus. The first dropdown menu is labeled "Is participant pregnant?" and has "No" selected. The second dropdown menu is labeled "Is participant a wheelchair user?" and also has "No" selected. Both dropdown menus have a small downward-pointing arrow on the right side.

Figure 1

If a participant uses a wheelchair but can stand up for short periods of time, they still should not be measured. This is to minimize fall risk. If participant is unable to be measured, we do not ask them to provide an estimated waist and hip circumference.

Participant Wearing a Colostomy Bag:

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If Participant is wearing a colostomy bag, do not perform the waist measurement. Locate the “Modification to Waist Circumference Protocol” field in HealthPro and select “Colostomy Bag” option. If hips can be measured accurately, trained Program staff should ask if the participant feels comfortable having hips measured and if so, hip measurement should be obtained.

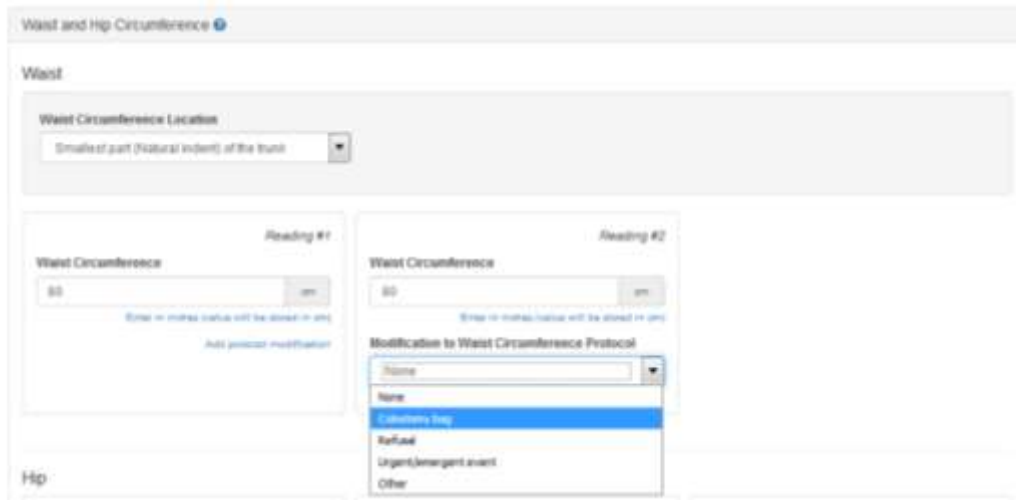


Figure 2

Participant Not Willing to Be Measured:

If the participant is not willing to be measured, do not perform the waist and hip measurements. Locate the “Waist Circumference Protocol Modification” and “Hip Circumference Protocol Modification” and select “refusal” option.

Staff Error or Other Circumstances:

If measurement was unable to be obtained due to staff error or other circumstances not listed, enter modification to protocol, select “other” and document in the comments field.

2.0 PROCEDURES

2.1 MATERIALS

- Non-stretchable tape measure (Program staff should have access to a tape measure with a minimum value of 80 in or 203.2 cm, if needed.)
- HealthPro (documentation tool)

2.2 RESPONSIBILITY

It is the responsibility of all trained Program staff to be aware of and diligently follow the instructions in this document.

2.3 PROCESS

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The following steps should be followed to measure hip and waist circumference for each participant.

1. The staff member informs the participant that they would like to measure around their waist and hips, explaining that it is not necessary to undress, but it would help if any bulky clothing could be lifted up, to allow their waist to be located, if the participant approves. Any bulky items (such as wallet or mobile phone) are to be removed and placed nearby during the measurement, since these may interfere with accurate measurements.
2. The staff member informs the participant to stand with feet positioned close together, and weight evenly distributed across both feet.
3. The participant should be advised to relax and take a few deep breaths before the actual measurement is made, to minimize the inward pull of the abdominal contents during the waist measurement.
4. Standing behind the participant the staff member identifies the waist as smallest part of the trunk, or the top of the hipbones (i.e. natural indent). If it is not possible to locate the natural indent of the trunk, the umbilicus (“belly button”) is identified and the circumference measured at this level (Figure 3: Position of Waist Measurement). The location of measurement should be documented in HealthPro (Figure 4). If it is not possible to locate the umbilicus or the natural indent of the waist, trained Program staff should ask participant to point to location of umbilicus and measure at that point. Select “Umbilicus” in the “Waist Circumference Location” field in HealthPro.

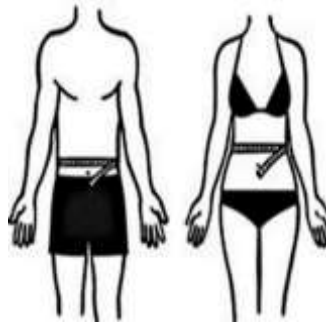


Figure 3: Position of Waist Measurement

Figure 4: Location of Waist Measurement Documentation in HealthPro

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- Working from the side of the participant, the staff member holds the non-stretchable tape measure (Section 2.1 Materials) in their hand, passing the tape measure around the participant's body and checks that the tape measure is horizontal and not twisted. If necessary, the staff member may ask the participant or a colleague to help with the measurement by holding the end of the tape measure in place. The participant is asked to relax and breathe in and out slowly.
- While the participant is breathing out (end of normal expiration), the measuring tape is tightened or loosened to best fit the participant. The tape should fit snugly around the body, but not pulled so tight that it is constricting. The measuring tape should always be positioned at a level parallel to the floor. As the participant slowly breathes out, but before they breathe in again, the waist circumference is recorded (in centimeters). If the measurement falls between two values the provider should round to the nearest millimeter.
- Two consecutive measurements should be obtained. After the first measurement, remove tape measure and repeat the measurement. Document each measurement in HealthPro and indicate the measurement location by selecting the appropriate option. A third measurement should be taken (at the same measurement location) if the first two measurements differed by >1.0 cm (Figure 5). If it is necessary to take a third measurement, the two closest measurements are automatically averaged in HealthPro. Should the third measurement fall equally between the first two, all three measurements will be averaged.

The screenshot displays the HealthPro interface for recording measurements. It is divided into three main sections: two for waist circumference and one for hip circumference.

Waist Circumference Section:

- Reading #1:** A form titled "Waist Circumference" with a text input field containing "89" and a unit dropdown menu set to "cm". Below the input is the instruction "Enter in inches (value will be stored in cm)" and a link "Add protocol modification".
- Reading #2:** A form titled "Waist Circumference" with a text input field containing "89" and a unit dropdown menu set to "cm". Below the input is the instruction "Enter in inches (value will be stored in cm)" and a link "Add protocol modification".

Hip Circumference Section:

- Reading #1:** A form titled "Hip Circumference" with a text input field containing "93" and a unit dropdown menu set to "cm". Below the input is the instruction "Enter in inches (value will be stored in cm)" and a link "Add protocol modification".
- Reading #2:** A form titled "Hip Circumference" with a text input field containing "95" and a unit dropdown menu set to "cm". Below the input is the instruction "Enter in inches (value will be stored in cm)" and a link "Add protocol modification".
- Reading #3:** A form titled "Hip Circumference" with a text input field containing "94" and a unit dropdown menu set to "cm". Below the input is the instruction "Enter in inches (value will be stored in cm)" and a link "Add protocol modification". A note below the input states: "Third measurement is required when first two differ by more than 1 cm".

Average Section:

A blue header bar labeled "Average" is followed by a white box containing the following text:
Waist Circumference: **89.0 cm (35.0 in)** (average of two closest measures)
Hip Circumference: **94.0 cm (37.0 in)** (average of three measures)

Figure 5: HealthPro Screen

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8. If the tape measure is not of adequate length the staff member should enter the maximum value on the measuring tape and enter a modification to the hip or waist protocol by selecting “other.” Then enter the “tape measure was not of adequate length.” This should be a rare occurrence because every provider should have access to a tape measure that can measure up to 203.2 centimeters (80 inches).
9. With the participant remaining in the same position the non-stretchable tape measure is slid down to the widest portion of the buttocks and checked to make sure it is still horizontal and not twisted (Figure 6: Position of Hip Measurement). The tape should fit snugly around the body, but not pulled so tight that it is constricting. The measuring tape should always be positioned at a level parallel to the floor. Hip circumference is recorded in centimeters to the closest millimeter.

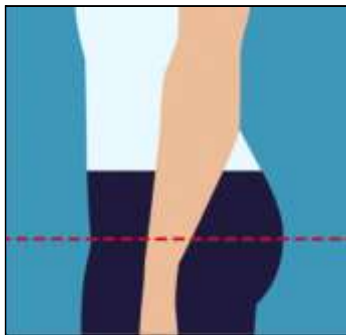


Figure 6: Position of Hip Measurement

10. Two consecutive measurements should be obtained. After the first measurement, remove tape measure and repeat the measurement. Each measurement should be documented in HealthPro. A third measurement should be taken if the first two measurements differed by >1.0 cm. If it is necessary to take a third measurement, the two closest measurements are averaged. Should the third measurement fall equally between the first two, all three will be averaged automatically in HealthPro.

It is preferred that the measuring tape measures in centimeters. If the tape measure being used can only measure in inches, enter that number in the conversion tool in HealthPro and the measurement will be converted to centimeters.

11. The non-stretchable tape measure is cleaned with disinfectant wipes or if disposable, thrown away after each participant.

Note: If the visit is terminated, and the participant is scheduled to complete their visit at a future date, the blood pressure and heart rate must be repeated. If the other physical measurements were completed during the initial visit, the provider does not need to repeat the physical measurements that were already taken and documented in HealthPro.

3.0 LIST OF ATTACHED FORMS

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None

4.0 REFERENCES TO OTHER APPLICABLE SOPS

None

5.0 REFERENCES

1. Yusuf S, Hawken S, Ounpuu S, et al., Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. Lancet. 2004 Sep 11-17;364(9438):937-52.

6.0 APPROVALS

MEDICAL DIRECTOR? Director of Operations? DATE

Effective Date	Version	Synopsis of Change
1/17/2017	1	Original Document
4/20/2017	2	<ul style="list-style-type: none"> - Section 1.3 added information that measurement fields will not appear in HealthPro - Added clarification that a participant who uses a wheelchair should not be measured even if they can stand for short periods of time - Added clarification that if measurement was unable to be obtained for a reason not listed in the drop down, provider should select other and add comments - Added participant wearing a colostomy bag should not have waist measured. If hips can be measured accurately, trained Program staff should ask if the participant feels comfortable having hips measured and if so, hip measurement should be obtained - Section 2.1 added materials required include a non-stretchable tape measure that can measure up to 80 inches or 203.2 centimeters. - Section 2.3 (#2) removed wording about standing with arms at sides - Section 2.3 (#4) added that if it is not possible to locate the umbilicus or the natural indent of the waist, trained Program staff should ask participant to point to location of umbilicus and measure at that point. - Section 2.3 (#5) removed specification about which hand provider should hold tape measure in. - Section 2.3 (#6) If the measurement falls between two values the provider should round to the nearest millimeter. - Section 2.3 (#8) If the tape measure is not of adequate length the staff member should enter the maximum value on the measuring

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		<p>tape and enter a modification to the hip or waist protocol by selecting “other.” Then enter the “tape measure was not of adequate length.” This should be a rare occurrence because every provider should have access to a tape measure that can measure up to 203.2 centimeters (80 inches).</p> <ul style="list-style-type: none"> – Formatting changes
3	4/26/17	<ul style="list-style-type: none"> – Updated screen shot of HealthPro (Figure #2) – Updated screen shot of HealthPro (Figure #4) – Updated screen shot of HealthPro (Figure #5)
4	6/26/17	<ul style="list-style-type: none"> – Added “If the visit is terminated, and the participant is scheduled to complete their visit at a future date, the blood pressure and heart rate must be repeated. If the other physical measurements were completed during the initial visit, the provider does not need to repeat the physical measurements that were already taken and documented in HealthPro.”
5	10/2/17	<ul style="list-style-type: none"> – Added “If necessary, the staff member may ask the participant or a colleague to help with the measurement by holding the end of the tape measure in place.”

REVISION HISTORY	
Original Date	Month XX, Year
Review Date	Month XX, Year
1. ----	