

Chapter 36. Waist Circumference and Waist-Hip Ratio

36.1 Introduction

During the PVDOMICS study each participant will undergo waist circumference and waist-hip ratio measurements. These measurements may be studied and thought be an indicator of increased disease risk if both are increased. Although the level of association may vary, it was found that waist circumference and waist to hip ratio correlated with Body Mass Index (BMI). In fact, these measures may provide different information and therefore are not interchangeable with BMI. Abdominal obesity and waist circumference have been included as one of the elements of metabolic syndrome. According to the WHO Report in 2008 from Geneva, abdominal obesity is defined as waist-hip ratio above 0.90 for males and above 0.85 for females.

World Health Organization Cut-off Points and Risk of Metabolic Complications

Indicator	Cut-off points	Risk of metabolic complications
Waist circumference	>94cm (M); >80cm (W)	Increased
Waist circumference	>102cm (M); >88cm (W)	Substantially increased
Waist-hip ratio	≥90cm (M); ≥85cm (W)	Substantially increased

M=Men W=Women

36.2 Preparations for Taking Measurements

- Identify a room (or space) preferably with a closed door to allow privacy and prevent interruptions during the measurements.
 - Exam area should be comfortable and free of drafts.
 - A chair or coat stand should be provided for participants to place their clothing and take off their shoes. Feet need to be flat on the floor during measurements.
- A constant-tension tape measure(s) (to measure waist and hip circumferences) – It is recommended that each center order more than one tape measure. Examples of constant-tension, cleanable tape measures include Gulick II and Figure Finder Tape.
- Disinfecting wipes to clean tape measure after use.

36.3 Participant Exclusions

Do not take participant's measurements if either of the following condition(s) exist:

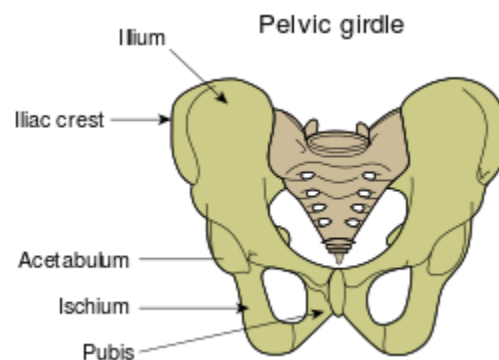
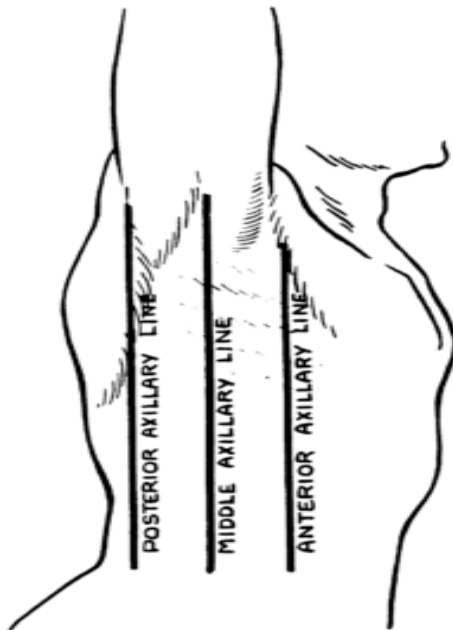
- Wheelchair bound and unable to stand up straight for any length of time
- Significant kyphoscoliosis

Record on Form 131 that test could not be completed.

36.4 Participant Preparation

- Study testing procedure should be explained to the participant.
- Ask the participant to urinate prior to measuring.
- Ask participant not use a cell phone or mobile device while having a measurement done.
- Participant should remove clothing over their abdominal and hip areas for this testing. A participant's privacy should be protected during this portion. If it is not possible for a participant to remove all of their clothing in this area, measurements must be taken over thin/light clothing.
- Use the constant-tension stretch-resistant tape measure that can be wrapped snugly around a participant but it should never be constricting. The tape should be kept level and parallel to the examination room floor.
- When measuring the waist circumference, a participant should take several natural breaths and then measurement taken at the end of these breaths. The measurement should be conducted with the tape level to the examination floor, midpoint between the top of the iliac crest and lower margin of the last palpable rib at the mid axillary line.
- Participant should stand during testing, if possible.

Reference Points



36.3 Performing a Waist Circumference

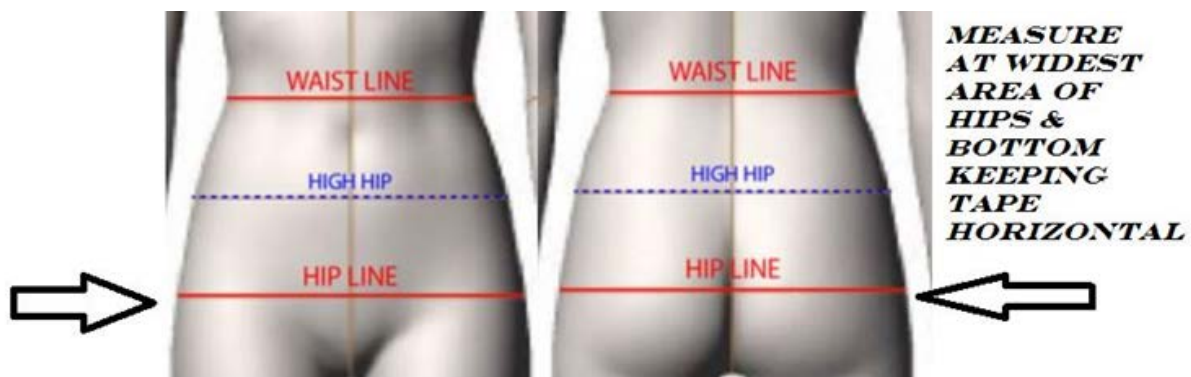
After the participant has removed the clothing around their waist and hips and are barefoot, approximate the midpoint between the lower margin of the last palpable rib and the top of the iliac crest.

- Arms should be at their sides and relaxed.

- Ask the participant to wrap the measuring tape around the waist, and then position the tape midway between the last palpable rib and the top of the iliac crest or hip bone. Make sure that the tape is located over the same spot on the other side. The tape should appear level with the floor.
- Participant should stand with their feet together with weight evenly distributed.
- Participant should breathe several natural breaths and the measurement should be recorded in centimeters (cm) to the nearest 0.1cm after a normal expiration and recorded on PVDOMICS Form 131. This measurement should be done only once.

36.4 Performing a Hip Circumference Measurement

- Arms should be at sides and relaxed.
- Ask participant to wrap the measuring tape around them, and then position the tape at the maximum circumference over the buttocks. Make sure that the tape is located over the same spot on the other side. The tape should appear level with the floor and should be snug without constricting.
- Participant should stand with their feet together with weight evenly distributed.
- Measurement should be recorded in centimeters (cm) to the nearest 0.1 cm on the PVDOMICS Form 131. This measurement should be done only once.



References

Wikipedia-Iliac Crest and Mid Axillary Definitions

Waist Circumference and Waist-Hip Ratio, Report of a WHO Expert Consultation Geneva 8-11 December 2008

Hip measurement image from s3.amazonaws.com

Waist circumference and waist-hip ratio: Part 3: Training and Practical Guides 3-3-4
Section 3: Guide to Physical Measurements (Step 2) WHO STEPS Surveillance 12 December 2008