

STUDY OF OSTEOPOROTIC FRACTURES (V4)

Waist, Abdomen, and Hip Circumference Measurement Body Composition Cohort

I. WAIST GIRTH

1. Introduction:

Waist girth will be measured in centimeters using an inelastic tape around the waist horizontally at the natural waist line, or if that cannot be determined, at the midpoint between the highest point of the iliac crest and lowest part of the costal margin in the mid axillary line.

Waist circumference is an index of deep adipose tissue, and is related to fat mass. When used in a ratio with the thigh or buttock (hip) circumference, waist circumference is an indicator of the degree of masculine distribution of adipose tissue. The higher the waist to thigh or hip ratio, the more masculine the pattern of fat distribution and the greater the risk of certain diseases such as noninsulin-dependent diabetes.

2. Equipment:

An inelastic fiberglass tape that is marked in centimeters alone on one side. Confusion may arise if the tape is marked in centimeters and inches on the same side.

3. Subject Preparation:

Heavy or extra clothing should be removed. Participants should not wear any restricting or compressing undergarments which could interfere with the measurement. The measurement should be taken over bare skin to insure that the proper circumference is chosen. This may require lifting up shirts and blouses and lowering pants a few inches.

4. Measurement Procedure:

a) The participant should stand with her weight equally distributed on both feet, arms hanging at her side, and head facing straight forward. She should relax and breath normally. The examiner should be sitting or squatting so that eye level is at the level of the waist.

"I'd like to take a few measurements around your middle. First, I'm going to measure your waist. Breath normally. Don't hold your stomach in. Just relax."

b) Measure the waist directly over bare skin. Lower slacks or skirt so that waist bands do not produce a bulge in tissue. The tape is held snug against the skin without compressing the tissues and with its zero end below the value to be recorded.

c) Pull the tape halfway around her waist at the natural waistline, i.e. the most narrow portion of the waist. If the natural waistline cannot be determined, palpate the rib cage and the top of the iliac crest on both sides with two or three fingers and place the tape midway between the two landmarks. Be sure the tape is in the same horizontal plane all around. An assistant may sometimes be needed to position the tape behind the subject.

d) The measurement is made at the end of a normal expiration. "Breathe in and let it out." Take the measurement and record the value to the nearest 0.1 centimeter on the form.

e) Remove the tape from the participant's waist completely. Repeat the procedure above, taking a second waist measurement. Record this value on the form. If the first and second measurements differ by 3 centimeters or more, then repeat the whole procedure above, taking 2 new measures. Record these values in the spaces provided on the form.

II. ABDOMINAL GIRTH

1. Introduction:

The abdominal circumference, like the waist circumference, is an anthropometric indicator of subcutaneous and deep adipose tissue. It differs from the waist circumference in being the maximum circumference of the abdomen and, therefore, may be a better indicator of adipose tissue. It is probable that the waist and abdominal circumferences are highly correlated, although the extent is unknown because in most studies one or the other measurement is recorded.

2. Subject preparation:

The measurement should be taken over bare skin to insure that the maximum circumference is chosen. This may require lifting up shirts and blouses and lowering pants a few inches.

3. Measurement procedure:

a) The measurer faces the subject. The subject stands with the arms by the sides and the feet together.

"Now I'm going to measure you at a level a little lower down than the previous measurement. Breathe normally. Don't hold your stomach in. Just relax."

b) The procedures are the same as those to be followed for the waist circumference, except that the tape is placed around the subject at the level of the greatest anterior extension of the abdomen in a horizontal plane. The examiner

should be squatting or sitting by the side of the subject to view the greatest extension. This level is usually, but not always, at the level of the umbilicus. (See Figure.)

c) The tape is held snug against the skin without compressing the tissues and with its zero end below the value to be recorded. The participant may assist in gently holding the tape in place on the side away from the examiner. Be sure the tape is in the same horizontal plane all around.

d) The measurement is made at the end of a normal expiration. "Breathe in and let it out." Take the measurement and record it on the form to the nearest 0.1cm.

e) Remove the tape from the participant's abdomen completely. Repeat the procedure above, taking a second abdomen measurement. Record this value on the form. If the first and second measurements differ by 3 centimeters or more, then repeat the whole procedure above, taking 2 new measures. Record these values in the spaces provided on the form.

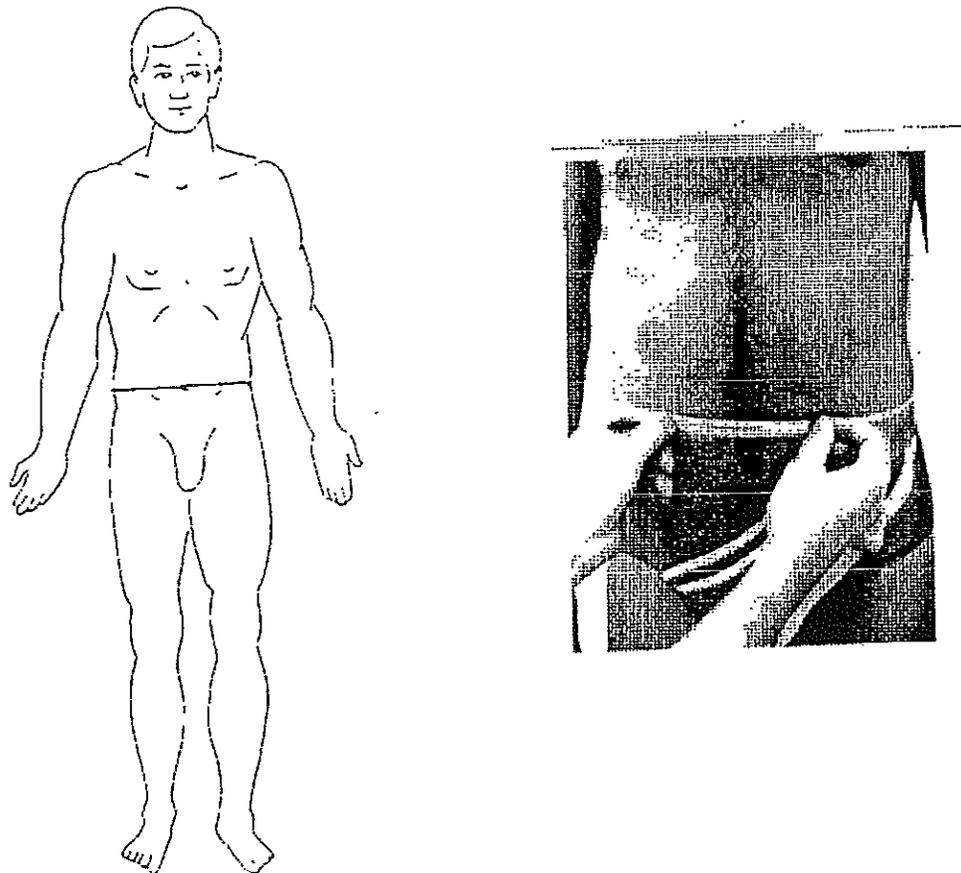


Figure
Abdominal Circumference

III. HIP GIRTH

1 Introduction:

Hip girth will be measured with an inelastic tape at the level of the greater femoral trochanter, or if the trochanters cannot be palpated, at the greatest protruberance of the buttocks. Hip circumference is a measurement of external pelvic size that reflects the amount of adipose tissue in the region. Adipose tissue in the region is largely subcutaneous and relates to the lower segment of the body. Hence, hip circumference is an indicator of lower body fatness. Used in conjunction with waist circumference, in the waist-to-hip circumference ratio, it is an indicator of the pattern of subcutaneous adipose tissue distribution, with low values being characteristic of women versus men.

2. Subject Preparation:

The measurement should be made over undergarments only. Participants should not wear any restricting or compressing undergarments which could interfere with the measurement. Pants should be lowered to below the hips.

3. Measurement procedure:

- a) Ask the participant to lower her pants to just below the hips.

"I'm also going to measure your hips. To do so I have to find the bony point called the trochanter."

Palpate the greater trochanters of the hip. Ask the subject to assist in finding the "hip bones." If necessary, mark each with a piece of tape. Pull one end of the tape halfway around the hips and ask the participant to hold it in place on the bony prominence on one side. Then pull the other half of the tape over the spot marking the other trochanter.

- b) If the greater trochanters cannot be felt, the measurement should be taken at what appears to be the greatest protruberance of the buttocks, as viewed from the side.

- c) When the tape is in place, look to be sure that it is horizontal all around and has not slipped out of place, especially in back. An assistant may sometimes be needed to help position the tape on the opposite side of the subject's body. The zero end of the tape should be below the measurement value. The tape is in contact with, and should gently indent the clothing, but not compress the underlying tissue.

- d) Take the measurement and record it on the form to the nearest 0.1cm.

- e) Remove the tape from the participant's hips completely. Repeat the procedure above, taking a second hip measurement. Record this value on the form. If the first and second measurements differ by 3 centimeters or more, then repeat the whole procedure above, taking 2 new measures. Record these values in the spaces provided on the form.

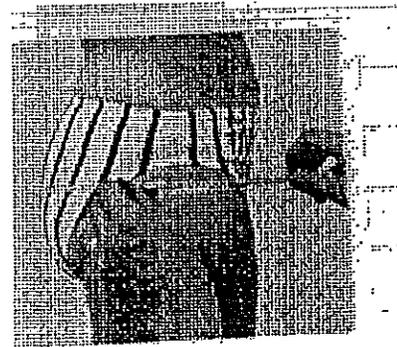
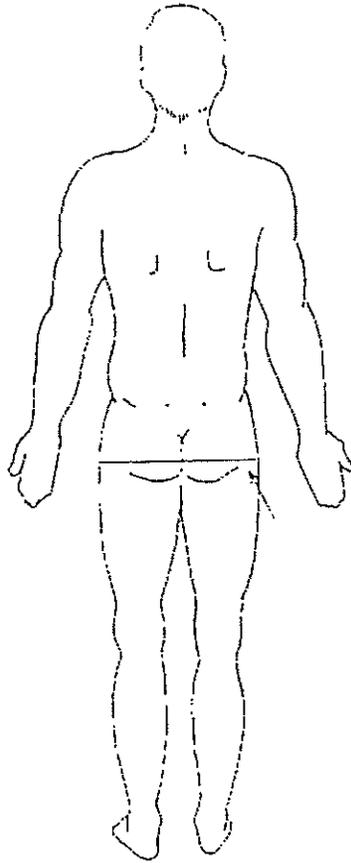


Figure
Hip Circumference

1. WAIST

1st Measurement _____ cm.

2nd Measurement _____ cm.

If ≥ 3 cm difference in 1st and 2nd,
then repeat 2 measurements

Repeat 1st Measurement _____ cm.

Repeat 2nd Measurement _____ cm.

2. ABDOMEN

1st Measurement _____ cm.

2nd Measurement _____ cm.

If ≥ 3 cm difference in 1st and 2nd,
then repeat 2 measurements

Repeat 1st Measurement _____ cm.

Repeat 2nd Measurement _____ cm.

3. HIP

1st Measurement _____ cm.

2nd Measurement _____ cm.

If ≥ 3 cm difference in 1st and 2nd,
then repeat 2 measurements

Repeat 1st Measurement _____ cm.

Repeat 2nd Measurement _____ cm.