

PREEHCO PROJECT ANTHROPOMETRIC AND MOBILITY TESTING PROCEDURES

Overview and purpose of anthropometry, and mobility.

Functional health is a major determinant of health status and requires survey data. In addition to information about health history, activities of daily living, instrumental activities of daily living, nutrition etc. this study will include measures of stature, weight, and other anthropometric dimensions.

Anthropometry is the study of the measurement of the human body in terms of the dimensions of bone, muscle, and fat tissue. These measures provide valuable information because persons with certain values may be at increased risk for cardiovascular disease, arthritis, adult onset diabetes and limitations in ambulation that may lead to falls and possible bone fractures. The anthropometric data obtained in this study will provide valuable and essential information needed to better understand the functional health status of older persons.

Description of Equipment and Supplies

The equipment and supplies necessary for body measurement for PRECO are as follows:

1. Body weight scale
2. Stadiometer
3. Stop watch
4. Plastic measuring tape

Equipment set-up procedures including maintenance and calibration for the weight scale and stadiometer.

At the beginning and end of the measurement process, the interviewer should take an inventory of the equipment and supplies needed for the body measurement process. Any missing, or faulty equipment or supplies should be reported to shift supervisor.

Stadiometer:

Calibrate the height scale at the beginning of each stand and once every two weeks and at the end of each stand after all examinations. Each day check the upright bar and the attached tape measure to determine if they have been damaged. Also check to see if the horizontal bar is firmly attached to the upright sliding section and that the section operates smoothly.

Weight Scale:

The interviewer should apply a random set of the standard weights daily to roughly check the accuracy of the weight scales. If there is any reason to believe that the scales are not accurate, do a complete recalibration. At the end of all body measurement procedures, carefully pack up all equipment in appropriate carrying cases. If there are any malfunctions or missing equipment, report this to the shift supervisor immediately in order to obtain replacement equipment and materials.

Examination/testing procedures for body measurement.

Body measurement will be taken for the following:

1. weight
2. standing height
3. knee height
4. abdominal (waist) circumference
5. hip circumference

Eligibility criteria

All respondents including the main respondent and spouse are eligible for body measurement. This includes individuals with cognitive impairment who are mobile and physically able to sit in a chair, stand up for the height and abdominal measurement.

Physical limitations of respondents

If someone is physically unable to safely walk, stand, move to a chair, step up on to a scale without assistance then you will have to take precautions to determine if it is safe for the individual to participate in the body measurement procedures. If during the measurement the respondent becomes unsteady, weak or indicates that they must discontinue the procedure, stop immediately and assist the individual to a chair or to obtain their balance. After a period of rest you may ask them if they wish to proceed. If they indicate they will continue proceed with caution. If they do not wish to continue then discontinue the process and record in the anthropometric log.

Role of the interviewer during anthropometric measurement

The role of the interviewer is that of observer and recorder. Precision and accuracy are the goals for the measurement process. Accuracy in both observation and recording of measurement is essential. When an error is noted the procedure must be repeated.

Measuring Guidelines

When working with older persons regarding body measurements it is important to consider their preference and respect their concerns regarding these measurement processes. Body measurements are always taken on the right side of the body. However, some measurements may be taken on the left side of the body because of casts, amputation or other reasons. When this occurs, the reason is noted in the comments section on the body measurement results hardcopy form by the interviewer.

Summary Table of Anthropometric and Ambulation Measurement Procedures

TEST	PROCEDURE	MATERIALS
WAIST CIRCUMFERENCE	.Measure the circumference of the waist right above the iliac crest. .Ask participant to stand and conduct the measure only over undergarments if the participant will permit this.	.Tape measure
HIP CIRCUMFERENCE	.Measure the hip at the ½ way point between the iliac crest and the greater trochanter. .Remove stockings etc. to avoid inaccurate measure. .Ask participant to stand and conduct the measurement procedure	.Tape measure
KNEE HEIGHT	.Measure the knee height from the middle of the knee cap right down to the floor surface (along side of the leg). .Ask the participant to sit for this measure. .Ask them to remove shoes and stockings etc.	.Stadiometer
STATURE/HEIGHT	.Measure is done standing up against a wall surface and with a special device	Stadiometer
BODY WEIGHT	.Measure is done standing on weight scale without pressure support	Ordinary body weight scale
SINGLE LEG STAND (timed test)	.Measure is done standing on one leg while being timed with a stop watch for 10 seconds.	Stop watch
GET UP AND GO (timed test)	.Place mark at the end of the 10 feet distance .Place chair in a flat and safe surface .Explain to participant to not push up from the chair from rising and to cross arms in front of chest for balance when rising from chair. .Prepare timer for 30 seconds	.Chair (armless) .Stop watch .Plastic tape measure

Waist (Abdominal) Circumference

The respondent is asked to stand up and then requested to remove any belt, or loosen any clothing that would interfere with the measurement procedure. The pants and underclothing of the respondent must be lowered slightly for the examiner to palpate directly on the hip area for the iliac crest. The examiner stands directly behind the respondent and palpates (locates with finger tips) the hip area for the right iliac crest. The examiner marks the horizontal line at the high point of the iliac crest and then crosses the line to indicate the midaxillary line of the body. The examiner then stands on the respondents right side and places the measuring tape around the trunk in a horizontal plane at this level on the right side of the body trunk. The recorder walks around the respondent to make sure that the tape is parallel to the floor and that the tape is snug (somewhat tightly) but does not compress the skin. The measurement is made at minimal respiration to the nearest 0.25 inch.

Hip (Buttocks) Circumference

The respondent is asked to stand up with feet together and weight evenly distributed on both feet. The examiner stands in back of the respondent and moves directly to the right

side of the respondent and squats down on the right side of the respondent and places the measuring tape around the hip (buttocks) area. The tape measure is placed at the widest area of the buttocks. The examiner then adjusts the sides of the tape and checks the front and sides so that the plane of the tape is horizontal. The zero end of the tape is held under the measurement value. The tape is comfortably adjusted, but not too tightly. The measurement is then taken from this position on the right side of the respondent.

Knee Height

Knee height is only measured on adults 60 years of age and older. To obtain this measurement, the respondent is asked to sit on the examination chair or an examination table where both legs would be dangling. The examiner places the fixed blade of the large sliding caliper under the heel of the right leg just below the lateral malleolus of the fibula. From a squatting position, the examiner raises the leg so that the knee and ankle are both at a 90 degree angle. This is best accomplished by resting the respondent's foot in the palm of the examiner's hand. The moveable blade of the caliper is placed on the anterior surface of the right thigh, above the condyles of the femur, about two inches above the patella. The shaft of the caliper is held parallel to the shaft of the tibia so that the shaft of the caliper passes over the lateral malleolus of the fibula and just posterior to the head of the fibula. Pressure is applied to compress the tissue. The examiner checks the position of the leg and the caliper. Knee height is recorded to the nearest 0.25 inch.

Standing Height

Ask the respondent to stand upright on the floor board of the stadiometer with his or her back to the vertical backboard of the stadiometer. The weight of the participant should be evenly distributed on both feet. The heels of the feet are placed together with both heels touching the base of the vertical board. Place the feet pointed slightly outward at a 60 degree angle. If the respondent has knock knees, the feet are separated so that the inside of the knees are in contact but not overlapping. The buttocks, scapulae and the head positioned in contact with the vertical backboard of the stadiometer. It may not be possible for some older persons to place their heels, buttocks, scapulae and the posterior aspect of the head against the backboard while maintaining normal stature. Such respondents are positioned so that only the heels and buttocks are in contact with the vertical board, and the body is positioned vertically above the waist. The arms hang freely by the sides of the trunk with palms facing the thighs.

The respondent is asked to inhale deeply and to stand fully erect without altering the position of the heels. The respondent's head is maintained in a position of a straightforward gaze while the examiner lowers the horizontal bar comfortably to the crown of the head with sufficient pressure to compress the hair. Hair ornaments, buns, braids, etc. must be removed to obtain an accurate measurement. The bar is locked in place and the measurement is read by the examiner and recorded to the nearest 0.25 inch.

Body Weight

The respondent is asked to remove their shoes or heavy jewelry, and carefully step on to the weight scale. If it is necessary to steady the person do so, but when taking the body weight measurement they must not be assisted or leaning against any object such as a wall or chair. The respondent is asked to look straight ahead, to stand very still, and

remain on the scale until the body weight number on the scale does not move. For safety reasons, it may be necessary to assist the respondent with stepping off of the scale.

Timed Single Leg Stand

This test was developed as a simple procedure for detecting problems with balance and mobility. The respondent is asked to stand on one leg and maintain their balance, *without holding on to a chair or other object*, for about 10 seconds. Before the actual test, the examiner should carefully explain and demonstrate the test. The participant can choose whatever leg they wish to stand on. The respondents should be given a chance to practice before administering the actual test. The respondents are reminded that if at any time they feel too unsteady they should stop the procedure immediately. Before beginning the test remind the respondent that this is a timed test. They will be told when to begin and when to stop. And, once again if they feel unsteady at any time they should stop. Instructions for administering the single leg stand test are as follows:

1. Stand to the side and slightly behind the respondent
2. Remind them to choose the leg that they will stand on.
3. Remind them that unless they feel as though they will fall that they can not hold on to an object while taking the test.
4. Tell the respondent that when you say start they should raise their leg slightly above the ground and that you will count to 10 and then you will say “stop” and then they can put their foot down.
5. Stop the stopwatch when the raised foot touches the ground or if the respondent grabs onto something for balance, record to the nearest 10th of a second if they step out of the test before 10 seconds.

Timed Get up and Go Test Overview

The Get up and Go Test was developed as a screening device for detecting balance problems in older persons. In this test, propensity for falling is observed while the person is performing elementary mobility tasks. The individual is asked to sit in a chair, stand up, briefly maintain static bipedal standing balance, walk a distance of 3 meters, turn around without support, walk back to the chair, and sit down in the chair. Regular footwear is worn and if the respondent normally uses a walker or a cane they may use this during the test.

The timed Get up and Go Test is a modified version of the get up and go test. In addition to observing the respondent’s performance as described above, the examiner times the client with a stopwatch. Note, the respondent is given one trial run to become familiar with the task before the performance is timed.

The examiner must first count out 10 feet. Place a chair on a flat and safe surface. Ask the respondent to demonstrate a one leg stand and to hold this for 20-30 seconds (use a timer). This will determine if they will actually be able to do the test. Demonstrate the procedure to the respondent and allow them a one time trial run of the procedure. The instructions for the Timed Get up and Go test are as follows:

1. Sit in a straight backed chair.

2. Rise from the chair without holding the sides (cross arms over chest to avoid gripping the sides of the chair).
3. Stand still for a moment to get balance.
4. Walk up to fluorescent tape marked area on the wall and do not touch the wall once you have reached it.
5. Turn around and walk back to the chair.
6. Turn around and sit down in the chair.

The procedure is as follows: ask the respondent to sit comfortably in a chair and instruct them that upon rising they do not grip the sides of the chair to support them in their rising. Remind them that this is a timed test. Prepare timer for 30 seconds. Ask them if they are ready to begin. Begin the test/start stopwatch. Watch carefully and stop the watch once the person sits down. Record the number of seconds that the stopwatch indicates.

Measuring Handicapped Respondents

Individuals that are restricted due to physical disability i.e., scoliosis, muscular dystrophy, missing or atrophied limb may not be able to participate in some measurement.

Safety procedures including movement, positioning and emergencies

Because the majority of respondents will be older persons caution must be taken when conducting anthropometric measures and the mobility test. It is advised to carefully watch for fatigue, confusion, lack of balance or frustration that may occur before or during the testing. If it appears that the respondent may be in danger of falling or becoming weak it is advised to discontinue the procedure. In the event of a medical emergency consult the interviewers manual for guidelines.