

NATIONAL SURVEY OF ADULT ORAL HEALTH

New South Wales Height, Weight, and Waist Circumference Module

TRAINING MANUAL

*This manual was adapted from information provided
by the International Diabetes Institute*

NSW  HEALTH

BACKGROUND

Rationale

The prevalence of overweight and obesity in Australia has more than doubled in the past 20 years. Over one-half of adults and one-quarter of children in Australia are overweight and/or obese. Overweight and obesity are major risk factors for coronary heart disease, stroke, congestive heart failure, type 2 diabetes, some cancers, and arthritis, each of which is associated with increased morbidity and mortality and major socioeconomic costs. An estimated 4.3 per cent of the burden of disease in Australia is attributed to overweight and obesity.

For reasons of convenience and cost-effectiveness, many jurisdictions collect self-reported height and weight data on which to measure Body Mass Index (BMI). However, differences between self-reported data and measured data make self-reported data unreliable. In such surveys, there is evidence that women systematically underestimate their weight and men systematically overestimate their height, which can result in up to 20 per cent underestimation of true BMI and therefore the true prevalence of overweight and obesity at the population level.

The New South Wales Height, Weight, and Waist Circumference Module of the *National Survey of Adult Oral Health* provides an opportunity to obtain measures of overweight and obesity in the New South Wales population. Self-reported population survey data may underestimate the true prevalence of overweight and obesity, and overweight and obesity have not been measured in an Australian population survey since 2000. Because of the epidemic of overweight and obesity sweeping Australia, it is important that steps be taken to accurately and regularly monitor its prevalence.

The last Australian comparisons between self-reported data and measured data of height and weight were based on a survey conducted in 1995. Given the changes in Australian society, in particular around body image, an updated analysis of the relationship between self-reported data and measured data would be valuable.

Benefits

The New South Wales Height, Weight, and Waist Circumference Module of the *National Survey of Adult Oral Health* will provide measured data on BMI for adults in New South Wales, which will: contribute to the ongoing monitoring of healthy weight of the New South Wales population; assist in the targeting and evaluation of interventions; and provide a comparison with other jurisdictions. There may also be an opportunity to investigate the relationship between oral health and overweight and obesity.

From the information obtained through this module, we plan to produce:

- a report on the distribution of the BMI of adults in New South Wales, including trend analysis and an analysis against dietary patterns;
- a report on the difference between self-reported and measured height and weight;
- a report on the consumption of food groups that are indicators of nutritional health;
- an analysis of the relationship between BMI categories and oral health status.

EQUIPMENT

Materials provided

Measuring rod
Digital scales
Soft steel measuring tape
Safeguard box
Marking pen
Alcohol wipes
Healthy weight range information brochure
Feedback (Post-it) notes
Screwdriver

SET-UP AND PREPARATION

Measuring rod

Place the measuring rod on a hard floor (preferably) or a floor with the thinnest and hardest carpet. Unscrew the screw on the rod base. Connect the top rod onto the black block using the guides. Screw the screw back into the rod base passing through the hole in base of the top rod. Ensure that the top rod extension can move freely.

Scales

Place the scales on a hard floor (preferably) or a floor with the thinnest and hardest carpet. When scale reads LO the batteries are low and need to be replaced. Use the alcohol wipes to clean the scale either routinely or if the subjects are concerned about standing without shoes on the scales after the previous subject.

Waist circumference

Place the tape, marking pen and a chair in the area where the measurements are to be made.

Place the equipment at least half a metre apart (if possible) so that you can easily move around them.

ELIGIBILITY

All subjects will undergo height, weight, and waist measurement **except** those who:

- are chairbound
- are pregnant
- have a colostomy or ileostomy.

A note needs to be recorded in the comments field why the subject was not eligible for measurement.

Instruct the subject to remove their shoes, heavy garments such as jackets and cardigans, heavy jewellery, loose change, belts, and keys. The safety box is provided for jewellery, loose change and keys to be held while the subject is being measured.

HEIGHT PROCEDURE

- a) Manoeuvre the measuring arm to allow sufficient room for the subject to stand underneath. The subject should stand with their feet flat on the centre of the base plate, feet together, and heels against the ruler. If possible, ensure that the head, back and buttocks are in contact with the ruler. They should be facing forwards, with arms hanging loosely by their sides.
- b) Place the measuring arm just above the subject's head (Figure 1).
- c) Move the subject's head so that the Frankfort Plane is in a horizontal position (parallel to the floor). The Frankfort Plane (Figure 2) is an imaginary line passing through the external ear canal and across the top of the lower bone of the eye socket, directly under the eye. This position is important if an accurate reading is to be obtained. The measuring plate should be lowered onto the scalp to give the correct level.

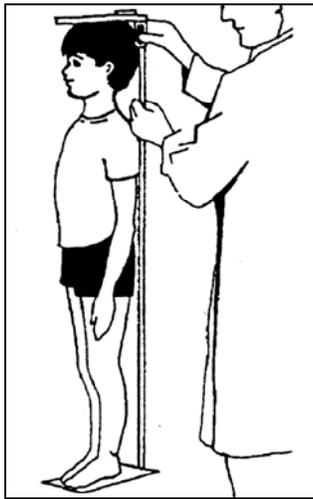


Figure 1

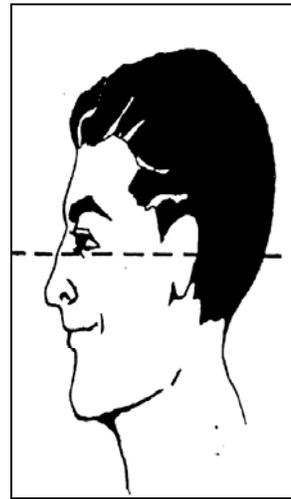


Figure 2

- d) Instruct the subject to keep their eyes focused on a point straight ahead, to breathe in deeply, and to stretch to their fullest height. If after stretching the subject's head is no longer horizontal, repeat the procedure.
- e) Ensure that the measuring plate is horizontal and obtain the reading at the top of the red line. Be sure your eyes are level with the arm.
- f) Record height to the **nearest 0.1 centimetre** and record the result in the height field on the computer.

Additional points

- If the subject cannot stand upright with their back against the stadiometer and have their heels against the rod (for example, those with protruding bottoms), give priority to standing upright.
- If the subject has a hairstyle that stands well above the top of their head, bring the head plate down until it touches the head. If it is a hairstyle that can be altered (for example, a bun), ask them to change or undo it.
- If the subject is tall, it can be difficult to line up the Frankfort Plane. When you think that the plane is horizontal, take one step back to check it from a short distance.
- As the measuring rod can be unstable, assist or attend to participants in stepping on and balancing. Make an effort to ensure they are stable.

WEIGHING PROCEDURE

- a) Turn the scale on by tapping Button 1 with your toe. When 0.0 appears, have subject step on the scale and stand still. The subject's arms should be hanging loosely at their sides with head facing forward. Ensure that they keep looking forward as it may be tempting for the subject to look down at their weight. The posture of the subject is important. If they do not have their weight evenly spread, it can affect the reading.
- b) Wait for the scale to beep and record the displayed weight to the **nearest 0.1 kilogram** into the weight field on the computer. If the subject is greater than 200 kg then OL will appear in the scale display. If OL appears write nothing in the weight field on the computer and write OL in the comments field.
- c) To turn the scale off, tap Button 5 with your toe. The scale will also automatically turn off after two minutes.

WAIST CIRCUMFERENCE PROCEDURE

- a) Ensure that the subject is standing erect in a relaxed manner and breathing normally. Weight should be balanced evenly on both feet, with feet approximately 25–30 cm apart, arms hanging loosely at their sides.
- b) If possible, either kneel or sit on a chair to the side of the subject.
- c) The waist (Figure 3) is located as the point midway between the iliac crest (hip bone) and the costal margin (lower rib). An approximate indicator of this level may be ascertained by asking the subject to bend sideways (to see or feel rib and/or hip).

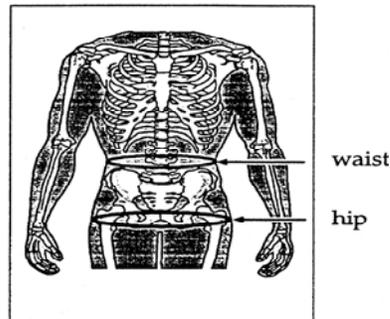


Figure 3

- d) Once you find the point mark the iliac crest (hip bone) and the costal margin (lower rib) using the marking pen and then measure the mid point between the two marks.
- e) Do not try to avoid the effects of waistbands by measuring the circumference at a different position or by lifting or lowering clothing items. If the waistband is at the correct level of the waist (midway between the lower rib margin and the iliac crest) measure the waist circumference over the waistband.
- f) Using both hands, pass the tape around the body of the subject. If the subject is large, ask him or her to pass the tape around rather than having to 'hug' them or hold the tape at the mid-section, and have subject turn around. Remember to check the tape is placed correctly for the measurement and that it is horizontal all the way around.

- g) Ensure the tape is horizontal. Check that the tape is level horizontally by peering around the subject's back. Ask subject to breathe out gently and to look straight ahead (to prevent holding of one's breath). Take the measurement at end of a normal expiration.
- h) Hold the tape flat firmly against the body, but **do not** tighten it around the subject or pull the tape towards you as this will lift the tape away from the subject's body and affect the measurement.
- i) All measurements should be taken to the **nearest 0.1 centimetre** and recorded in the computer in the first waist circumference field.
- j) This procedure should then be repeated and recorded in the computer in the second waist circumference field. If there is variation greater than 2 cm between duplicate readings then a third will be need to be taken and recorded in the third waist circumference field.
- k) If you believe that clothing, posture, or any other factor is significantly affecting the waist measurement, record this in the comments field.

Additional points

- If you have problems palpating the rib, ask the subject to breathe in very deeply. Locate the rib and as the subject breathes out, follow the rib as it moves down with your finger.
- It is essential that the waist measurement is taken midway between the iliac crest and the lower rib and that the tape is horizontal. Therefore, adjust any clothing items to ensure measurement taken per above guidelines: that is, ensure tape measure follows body lines not clothing lines.

FEEDBACK

At the completion of the measurements, provide each subject with the healthy weight range brochure and their measurements on a Post-it note.

CONTACT

Any issues regarding the measurements, or problems with equipment, or to return the equipment at the end of the survey, please contact:

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