



Inclusive Approach to Anthropometric Body Measurement Assessments

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“Inclusive Approach to Anthropometric Body Measurement Assessments” is an open educational resource (OER) created for undergraduate nursing students at the introductory level. The resource introduces students to body measurements, but does so in an inclusive manner. This resource is a unique contribution to nursing education as content is theoretically informed by an inclusive approach to assessment that incorporates culturally-responsive techniques related to race/ethnicity, gender/sex/sexual orientation, body sizes/types, and ability/disability. It is part of the first health assessment resource that is informed by clinical judgment with the goal to facilitate students’ clinical decision making and ability to prioritize care by recognizing and acting on cues and signs of clinical deterioration. Interactive clinical judgment activities and formative assessments to evaluate a student’s learning are integrated throughout the resource. The integration of clinical judgment throughout this resource will support students’ capacity to enhance patient safety and equitable health outcomes as well as their success in writing national nursing exams to become licensed to work as a Nurse.

This OER builds on existing open resources specific to health assessment including:

Physical examination techniques: A nurse's guide: <https://pressbooks.library.torontomu.ca/ippa/>

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Acknowledgments

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Learning Outcomes

- Apply skills related to anthropometric body measurements.
- Understand the racist origins of anthropometric body measurements.
- Examine the impact of unreliable anthropometric body measurements.
- Integrate inclusive and anti-racist approaches to anthropometric body measurements.

Introduction to Anthropometric Body Measurement Assessments

Anthropometric body measurements are **non-invasive** and **quantitative** measurements related to body size and **adipose tissue**. Examples of measurements discussed in this chapter include: height, weight, body mass index (BMI), waist and hip circumference, waist-to-hip ratio, and waist-to-height ratio.

It is important to first note that these measurements are **not diagnostic tools** and should never be used alone in assessing a person's health. Anthropometric body measurements are important in healthcare and are assessed and evaluated for several reasons:

- Broadly speaking, these measurements can provide information about a client's state of health, nutritional status, and help evaluate risks associated with certain diseases.
- In particular, these measurements help determine a client's growth throughout the lifespan (e.g., development and patterns) and potential growth problems such as growth delays in children.
- In primary care or long-term care, these measurements help evaluate **trends** over time such as weight loss or weight gain or height loss associated with aging and disease processes.
- In acute care and also with chronic illnesses, weight measurements can provide information about fluid gain and fluid loss and are also important in relation to the calculation of certain medication dosages particularly with children.
- Sometimes, it is important to elicit a baseline weight which is then reassessed at each healthcare visit and in certain cases, daily.

In this chapter, we will problematize anthropometric body measurements and discuss an inclusive approach

Contextualizing Inclusivity

The dominant discourse about health and well-being in nursing and medicine is one that focuses on weight-centred discussions (O'Hara & Taylor, 2018). And yet, these discussions negate a myriad of factors related to health and well-being. Additionally, it has been found that dieting is a strong predictor of weight gain (O'Hara & Taylor, 2018). Thus, we need to shift these discussions so that they are **focused on health and well-being**, the social determinants of health, and factors contributing to **health equity** (O'Hara & Taylor, 2018).

Clinical Tips

The limitation of one-time body measurement assessments is that they are restricted to one point in time. It is best to consider trends in body measurements across a period of time.



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.library.torontomu.ca/bodymeasurements/?p=22#h5p-1>

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Problematizing Anthropometric Body Measurement Assessments

It is important to **problematize** the assessment and evaluation of anthropometric body measurements and reflect on **how these measurements are used** since they are **biased and not neutral**. For example, these body measurements may bring to the forefront body image issues that are closely related to one's personal identity (Puhl, 2022). Additionally, the origins of these measurements are deeply embedded in racist, sexist, and ableist discourse. Evidence concerning how to use these measurements has shifted and is continuing to shift. We delve into this evidence in this chapter.

It is important to be **attentive and critical** of how weight and health are constructed within society, and especially within the media. In Western society, dominant body ideals of thinness have existed for many years. In many of today's cultures (including Western society), a thinner body often suggests an **illusion of health** (Farrell, 2011). But this is not necessarily true, and it is important to NOT assume someone is healthy just because they are thin. Additionally, when a person does not fit this thin ideal, their body image and personal identity can be adversely affected leading to and/or exacerbating physical and mental health issues.

We live in a culture where fat shaming is normalized; people who are overweight and obese are stigmatized and made to feel ashamed of and blamed for their body size and medical issues that may arise (Dolezal & Spratt, 2022; Spratt, 2021). The cultural stigma surrounding weight/obesity inhibits the ability to fully examine health issues and health outcomes (Farrell, 2011). This stigma can limit individuals (such as healthcare providers) to identify and

recognize medical concerns versus aesthetic concerns (Farrell, 2011).

Contextualizing Inclusivity

In the context of healthcare, a **neoliberal** discourse can be marginalizing because it can **negate** the influence of **social determinants of health**. It also reinforces a shaming/blaming discourse in which the individual is solely responsible for their weight. Similarly, while body positivity and the Health At Every Size movements have recently come to frame wellness as acceptance and empowerment, this also places an onus on the individual to achieve “health” and prove health through other forms of measurement such as blood pressure, heart rate, and cholesterol levels (Gibson, 2022). It is important to see how such discourses may place a moral obligation on individuals to project health, whilst ignoring the social and biological influences which may constrain efforts (Gibson, 2022).

These kinds of discourse can have a **negative impact** on physical and mental health in which the person may gain additional weight as a result of a negative feedback loop (Brewis & Wutich, 2019; Meulman, 2019). The stigma surrounding obesity can also lead to eating disorders and mental health conditions such as depression (Chakravorty, 2021; Puhl et al., 2014). It **assumes that obesity is a choice** and negates social

determinants of health such as structural and socioeconomic factors (Dolezal & Spratt, 2022). This neoliberal and shaming/blaming discourse is problematic because: it assumes a singular notion of health; it assumes that access to healthy food choices and healthy lifestyles is equal across populations; and does not address the complex causes of obesity (Spratt, 2021).

Knowledge Bites

See FoodShare TO's (2021) panel titled "[Dismantling fat shaming and weight stigma in health and wellness spaces.](#)" This panel discussion problematizes the singular notion of health and will help you understand the concept of "fat oppression" and "body liberation" and the important role you play in activism.

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Inclusive Approaches to Anthropometric Body Measurement Assessments

Although it is important to assess and evaluate anthropometric body measurements, **how you do so** is just as important in order to promote inclusivity. An **inclusive approach** to body measurement assessment is an approach that works towards ensuring that clients feel valued, involved, and heard. It is also an approach that aligns with and supports what is important to the client as opposed to what is important to you as a healthcare professional – these two do not always align.

An important component of inclusive approaches is **anti-racism**. Anti-racism involves an active approach to centring the voices of racialized people and dismantling all forms of racism including systemic and institutional racism (Hassen et al., 2021). It is important to recognize that racism affects every aspect of a racialized person's life (Prendergast, 2023). And that means, racism affects body measurement assessments and evaluations. Although we will get deeper into this discussion, you need to consider how you can engage in anthropometric measurements from a critical and anti-racist stance.

For example, in order to do so, one must critically examine and reflect upon concepts of **power and oppression**. An anti-racist approach must actively **challenge whiteness**: which “is not about being white ... [but about] the racial power which has claimed normative dominance” and continues to nurture, sustain, and reproduce racist institutions and systems (Patel, 2021). Recall the history and origins of these measurements and whether they apply to all bodies.

As a nursing professional, it is important to consider what you

can do to ensure body measurement assessments are performed in an inclusive manner. See **Table 1** for guiding principles of inclusive practice to anthropometric body measurement assessments.

Table 1: Principles of inclusive practice to anthropometric body measurement assessments

Principle	Considerations and examples
<p>Broaden your understanding of unconscious (implicit) biases surrounding weight</p>	<p>There is evidence showing the role of unconscious bias surrounding weight and racism (Lofton et al., 2023). This unconscious bias influences healthcare professionals' anti-fat attitudes (FitzGerald & Hurst, 2017). You should reflect on your own unconscious biases because they can have a negative effect on clients' health and wellness. For example, it has been found that Black clients who are overweight (in comparison to white clients who are overweight) report poorer healthcare provider communication including spending less time with them and explaining things less clearly (Wong et al., 2015).</p>
<p>Consider whether and how a body positive approach is appropriate</p>	<p>A body positive approach is the acceptance of all bodies at any size, shape, ability or any other characteristic. Focusing on a client's strengths is important, but it is also important to not lay the onus regarding health on the client solely. Thus, a body positive approach must be used cautiously. Keep in mind that there are many social determinants of health that influence health and wellness and that clients cannot fully control all factors that influence their body or these factors are outside of the control of clients (e.g., racism, safe housing, access to food). You should engage in conversations and assessment in ways that are non-judgmental and empathetic.</p>
<p>Actively listen to the client and amplify their voice</p>	<p>It is important to spend time listening to all clients and amplifying their voices. Their experiences and stories are vital to helping you understand factors in their life that may influence their health and body measurement findings. Additionally, what is important to them should help inform your thinking and approach.</p>
<p>Avoid generalizations when assessing clients</p>	<p>Normal anthropometric body measurements can sometimes be a misnomer considering the many factors that influence weight among other measurements. Thus, you should avoid generalizations in terms of merely inferring from broad principles and standards. Rather, you should consider each person as an individual and recognize variations.</p>

<p>Avoid reliance on one measurement in time in assessment practices</p>	<p>An anthropometric measurement only provides a one-time snapshot of the client's health and well-being. Considering trends over time and over multiple anthropometric measurements provides a more comprehensive overview of their health and well-being. Also, considering that measurements can fluctuate (e.g., weight can fluctuate on a daily basis and throughout the day due to factors such as hormones and fluid intake), it is important to consider weight ranges. For example, you may ask the client: "what is your normal/usual weight range?"</p>
<p>Avoid reliance on one anthropometric body measurement related to clients</p>	<p>Evidence concerning the various anthropometric body measurements continues to shift in terms of which ones best predict disease and mortality. Currently, it is best to use a combination of body measurements (more to be discussed later in this chapter).</p>
<p>Recognize the multi-dimensional causes of obesity</p>	<p>There is the misperception that the sole cause of obesity is behavioural-related (i.e., eating too much and an inactive lifestyle) when in fact the causes of obesity are multi-dimensional and also much more complex. It is important to consider the social, economic, genetic, environmental, metabolic and hormonal dimensions as well as factors related to one's physical and mental health. For example, trauma can contribute to weight gain or weight loss.</p>

Contextualizing Inclusivity

Supporting a client's **agency and providing choice** is important in terms of sharing information with clients about their body measurements. For example, it may not be important to a client to know their weight. Rather,

they may monitor their weight/size by the fit of their clothes. Additionally, body measurements may not be important or even a factor in how clients monitor their health and quality of life.

As you reflect on the various anthropometric body measurements, it is important to recognize that the suggested norms vary based on sex, ethnicity, and age (WHO, 2008). In this chapter, a preliminary understanding of how these vary based on body size/frame, body composition, and body fat distribution is shared.

Knowledge Bites

An inclusive approach to anthropometric body measurements involves attention to **intersectionality** in terms of the interconnected nature of social identities (e.g., race-gender-sexuality-class-ability). For example, weight stigma is interwoven within these social identities and also the discrimination that may arise from them. Attention to intersectionality will help you understand how weight stigma is interwoven with multiple forms of oppression and institutional injustice; measures of the physical body are

deeply rooted in white superiority, patriarchy, ableism, capitalism and colonialism.

You should consider the **social determinants of health** when discussing anthropometric measurements, weight, and obesity management. **Food insecurity** is when individuals cannot access food, often due to financial reasons, and results in inadequate nutritional intake (Raphael et al., 2020). Food insecurity has become a major issue in Canada as the cost of inflation and groceries continue to rise, and clients who are food insecure may make choices that do not support their health and well-being including healthy weight and nutrition goals.

Clinical Tip

1. **Explain the purpose** of anthropometric body measurements and how information will be used (to determine the broader picture of a client's health).
2. Ask for **client consent** to collect information.
3. **Seek permission** to touch as needed to complete assessments and/or measurements.
4. **Listen** to the client to gain a better understanding of their health from their perspective, to identify any influencing factors, and their personal health goals.

5. **Be mindful** of your non-verbal cues/body language when measuring clients. You may come across as being judgemental without that intent.
6. **Avoid commenting** on a client's weight-related physical appearance, body shape and size (e.g. you have such skinny legs, you have a bit of a tummy).

Activity: Check Your Understanding



An interactive H5P element has been excluded from this version of the text. You can view it online here:

<https://pressbooks.library.torontomu.ca/bodymeasurements/?p=26#h5p-2>

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Weight and Height

Weight refers to the amount that a person weighs (ie., how heavy they are) and is typically reported in kilograms in Canada (metric system). However, if you ask clients their weight, they will probably provide it to you in pounds (imperial system). Thus, you may need to convert weight from the imperial to the metric system and vice versa. **1 kilogram = 2.2 lbs**. Thus, if a client tells you that they are 50 lbs, then to convert to kg, you would divide 50 by 2.2 which equals 22.7 kg.

Height refers to the distance upward (ie., how tall a person is) and is typically reported by healthcare professionals in metres/centimetres in Canada (metric system). However, if you ask clients their height, they will probably provide it to you in feet/inches (imperial system). Thus, you may need to convert height from the imperial to the metric system and vice versa. **1 metre = 3.28 feet = 39.37 inches** (1 foot = 12 inches). Thus, if a client tells you that they are 5.2, then to convert to metres, you would divide 5.2 by 3.28 = 1.58 metres.

These measurements are often assessed together particularly in childhood and adolescence and/or with a first healthcare visit. In adulthood, weight is often assessed as needed during preventative primary healthcare visits or at each visit with a specialist when undergoing long-term treatments for conditions such as cancer, diabetes, and heart failure.

Weight measurement

In a primary care setting, weight measurement is usually done on a **mechanical beam scale**, which has a balance bar as opposed to a digital scale. They have been shown to be more accurate than digital scales. **See Figure 1.**

If using a mechanical beam scale, the **steps in measuring weight** are:

1. Ensure accurate calibration by checking to see that the balance bar is in the middle of the balance bar window when the small and large weight indicators are at zero.
2. Ask the client to remove their shoes and any heavy garments such as a coat. If there are concerns, you may have the client wear a gown.
3. Ask the client to step on the scale. (when they do so, the balance bar will move up)
4. Now, you will move the large weight indicator followed by the small weight indicator until the balance bar is in the middle of the balance bar window. If the balance bar is above the middle of the balance bar window, you need to increase the weight indicators. If the balance bar is below the middle of the balance bar window, you need to decrease the weight indicators.
5. You can note the weight when you have adjusted the weight indicators until the balance bar is in the middle of the balance bar window. To note the weight, you should add the large and small weight indicators together.
6. For example, in **Figure 1**, the weight in pounds is 72.8 lbs. Since $1 \text{ kg} = 2.2 \text{ lbs}$, you would divide 72.8 lbs by 2.2 to get a weight of 33.09 kg.

Here is a [video](#) that shows you how to use a mechanical beam scale, although please note it is in pounds.

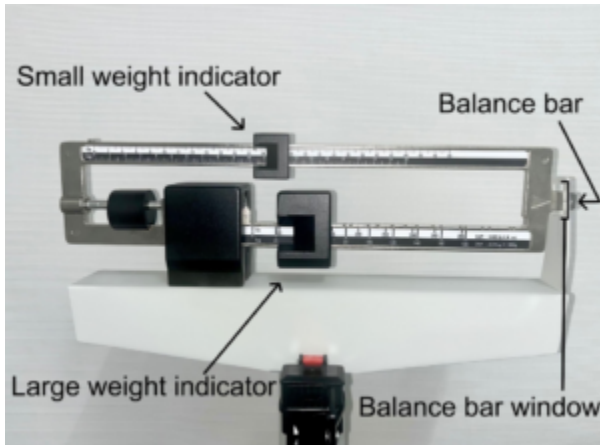


Figure 1: Mechanical beam scale (illustrated by Tayiba Rahman)

Height measurement

Height measurement can be done with a device that consists of a vertical ruler and an adjustable horizontal height rod that can be adjusted up or down so that the headpiece rests on the crown of the head (i.e., the top of the head). See **Figure 2**. This device is often attached to the mechanical beam scales in healthcare facilities particularly in primary care.



Figure 2: Height measurement (By Biswarup Ganguly, CC BY 3.0, <https://commons.wikimedia.org/w/index.php?curid=60558118>)

If using this device, **steps in measuring height** are:

1. Ask the client to remove their shoes, hat/head pieces, and bulky clothing.
2. Have them stand on the scale facing backwards with their head in a neutral position looking straight forward (the scale will be on a flat surface).
3. Have them stand with legs straight and arms straight and hanging at the side.
4. Pull the upper height rod up above their head and then pull the headpiece out so that it is at a right angle to the wall.
5. Lower the upper height rod until the headpiece touches the crown of the client's head and remains at a right angle to the wall.
6. Ask the client to step off the scale.
7. Note the client's height at the indicator line (where it says "read") on the lower height rod (ruler).

- If this device is not readily available, you can also measure a client's height with the back of their head, shoulders and buttocks touching the wall and use a flat ruler at a right angle to the wall/client to mark an area on the wall. Then, measure from that area down to the floor to determine the client's height.

Here is a [video](#) that shows how to use height rods, but please note that it is in feet/inches.

Contextualizing Inclusivity

It is always important to engage in respectful and open discussions with the client in order to ensure an inclusive assessment. This is particularly important when accommodations are needed. You should always be sensitive and responsive to the potential need for accommodations with clients. Some examples are:

- It is important that height measurement is at the crown of the head. However, some clients may have hair or a headpiece or head covering that is higher than the crown of their head.
- Some clients may feel uncomfortable removing clothing or head pieces/head coverings. For example, some female Muslim and Jewish clients may wear a head covering and feel uncomfortable removing it at all or removing it in the presence of the opposite gender. Although it may be viewed as