

Body Mass Index (BMI)

Assessment Overview

Assessment Area

ICF Domain:

Body Structures

Subcategory:

Digestive, Metabolic and Endocrine

You Will Need

Length:

Less than 5 minutes

Scoring:

The patient's mass in kilograms is divided by the square of the patient's height in metres to give the BMI score. (e.g., $80\text{kg}/1.8\text{m}^2 = 24.69$).

Summary

The Body Mass Index (BMI) is a measure of physical health that compares a person's weight with their height. A person's BMI can be self-determined by referencing their height and weight in a BMI chart.

Individuals with SCI with a BMI less than 25 are normal, those with a BMI of 25-29 are overweight, those with a BMI of 30-39 are obese, and those with a BMI of 40 or over are extremely obese.

Though no norms have been established in SCI, it will be important to adjust and consider a person's BMI score in accordance with their SCI.

Availability

Full BMI Chart:

https://www.nhlbi.nih.gov/health/educational/lose_wt/BMI/bmi_tbl.pdf

Assessment Interpretability

Minimal Clinically Important Difference

Not established in SCI

Statistical Error

Not established in SCI

Typical Values (SCI)

Male:

Mean BMI (SD) = 26.21 (5.9)

BMI categorization:

Underweight = 5.8%

Normal weight = 36.6%

Overweight = 35.1%

Obese = 21.0%

Female:

Mean BMI (SD) = 24.46 (6.7)

BMI categorization:

Underweight = 11.0%

Normal weight = 51.2%

Overweight = 22.6%

Obese = 12.8%

(Alschuler et al. 2012; n=488 with SCI, 324 males, 164 females; mean age: 55.84 years; AIS A-D)

Measurement Properties

Validity – **Low to High**

High Correlation of BMI with abdominal fat (kg):

$r = 0.92$

High Correlation of BMI with total fat (kg):

$r = 0.91$

High Correlation of BMI with abdominal fat (%):

$r = 0.80$

High Correlation of BMI with total fat (%):

$r = 0.77$

Low Correlation of BMI with CVD risk (Framingham risk score):

$r = 0.29$

(Cragg et al. 2015; n=27, 70% males; 30% females; mean age (SD): 40 (11) years; ASIA A-D; injury level: 59% cervical, 41% thoracic; mean time since injury (SD): 14 (10) years)

Moderate Correlation of BMI with bioelectrical impedance analysis (another way to estimate obesity):

$r = 0.51$

(Eriks-Hoogland et al. 2011; n=23; 100% males; mean age (SD): 43.3 (12) years; 22 ASIA A and 1 ASIA B; mean time since injury (SD): 14.6 (13.3) years)

Number of studies reporting validity data: 9

Reliability – **Not established in SCI**

Not established in SCI

Number of studies reporting reliability data: 0

Responsiveness

Floor/Ceiling Effect:

Not established in SCI

Effect Size:

Not established in SCI

Number of studies reporting responsiveness data: 0