

## Body Mass Index (BMI)

Body mass index (BMI) is used to estimate your total amount of body fat. It is calculated by dividing your weight in kilograms by your height in metres squared (m<sup>2</sup>).

Differences in BMI between people of the same age and sex are usually due to body fat. However there are exceptions to this rule, which means a BMI figure may not be accurate.

BMI calculations will overestimate the amount of body fat for:

- Body builders
- Some high performance athletes
- Pregnant women.

BMI calculations will underestimate the amount of body fat for:

- The elderly
- People with a physical disability who are unable to walk and may have muscle wasting.

BMI is also not an accurate indicator for people with eating disorders like anorexia nervosa or people with extreme obesity.

BMI is not the best measure of weight and health risk. A person's waist circumference is a better predictor of health risk than BMI.

### **BMI and children**

The healthy weight range for adults of a BMI of 20 to 25 is not a suitable measure for children.

For adults who have stopped growing, an increase in BMI is usually caused by an increase in body fat. But as children grow, their amount of body fat changes and so will their BMI. For example, BMI usually decreases during the preschool years and then increases into adulthood.

For this reason a BMI calculation for a child or an adolescent must be compared against age and gender percentile charts.

In 2005, Victoria introduced new BMI-for-age percentile charts specifically for children aged from two years to 18 years, in addition to the regular range of updated weight and height growth charts.

The new BMI charts for children have been developed by the US Centre for Disease Control.

The charts are useful for the assessment of overweight and obesity in children aged over two. However they should be used only as a guide to indicate when make small lifestyle changes, and when to seek further guidance from a doctor or an Accredited Practising Dietitian (APD).

### **Calculating your BMI**

BMI is an approximate measure of the best weight for health only. To calculate your BMI, you need to know:

- Your weight in kilograms
- Your height in metres.

Now you can use our handy BMI calculator.

### **What your BMI means**

Once you have measured your BMI, you can determine your healthy weight range.

If you have a BMI of:

- Under 18 – you are very underweight and possibly malnourished.
- Under 20 – you are underweight and could afford to gain a little weight.
- 20 to 25 – you have a healthy weight range for young and middle-aged adults.
- 26 to 30 – you are overweight.
- Over 30 – you are obese.

For older Australians over the age of 74 years, general health status may be more important than being mildly overweight. Some researchers have suggested that a BMI range of 22-26 is acceptable for older Australians.

### **Some exceptions to the rule**

BMI does not differentiate between body fat and muscle mass. This means there are some exceptions to the BMI guidelines.

- **Muscles** – body builders and people who have a lot of muscle bulk will have a high BMI but are not overweight.
- **Physical disabilities** – people who have a physical disability and are unable to walk may have muscle wasting. Their BMI may be slightly lower but this does not necessarily mean they are underweight. In these instances, it is important to consult a dietitian who will provide helpful advice.
- **Height** – for people who are shorter (for example Asian populations), the cut-offs for overweight and obesity may need to be lower. This is because there is an increased risk of diabetes and cardiovascular disease, which begins at a BMI as low as 23 in Asian populations.

### **Being overweight or underweight can affect your health**

The link between being overweight or obese and the chance you will become ill is not definite. The research is ongoing. However, when data from large groups of people are analysed, statistically there is a greater chance of developing various diseases if you are overweight. For example, the risk of death rises slightly (by 20–30 per cent) as BMI rises from 25 to 27. As BMI rises above 27, the risk of death rises more steeply (by 60 per cent).

### **Risks of being overweight and physically inactive**

If you are overweight (BMI over 25) and physically inactive, you may develop:

- Cardiovascular (heart and blood circulation) disease
- Gall bladder disease
- High blood pressure (hypertension)
- Diabetes
- Osteoarthritis
- Certain types of cancer, such as colon and breast cancer.

### **Risks of being underweight**

If you are underweight (BMI less than 20), you may be malnourished and develop:

- Compromised immune function
- Respiratory disease
- Digestive disease
- Cancer
- Osteoporosis
- Increased risk of falls and fractures.

### **Body fat distribution and health risk**

A person's waist circumference is a better predictor of health risk than BMI. Having fat around the abdomen or a 'pot belly', regardless of your body size, means you are more likely to develop certain obesity-related health conditions. Fat predominantly deposited around the hips and buttocks doesn't appear to have the same risk. Men, in particular, often deposit weight in the waist region.

Studies have shown that the distribution of body fat is associated with an increased prevalence of diabetes, hypertension, high cholesterol and cardiovascular disease. Generally, the association between health risks and body fat distribution is as follows:

- Least risk – slim (no pot belly)
- Moderate risk – overweight with no pot belly
- Moderate to high risk – slim with pot belly
- High risk – overweight with pot belly.

### **Waist circumference and health risks**

Waist circumference can be used to indicate health risk.

For men:

- 94cm or more – increased risk
- 102cm or more – substantially increased risk.

For women:

- 80cm or more – increased risk
- 88cm or more – substantially increased risk.

### **Genetic factors**

The tendency to deposit fat around the middle is influenced by a person's genes. However, you can take this genetic tendency into account and do something about it.

Being physically active, avoiding smoking and eating unsaturated fat instead of saturated fat have been shown to decrease the risk of developing abdominal obesity.

### **Where to get help**

- Your doctor
- Maternal & Child Health nurse
- An Accredited Practising Dietitian (APD) [www.daa.asn.au](http://www.daa.asn.au)

### **Things to remember**

- BMI is an approximate measure of your total body fat.
- Being underweight or overweight can cause health problems, especially if you are also inactive.
- Your waist circumference is a better predictor of health risk than BMI.

### **Want to know more?**

For references, related links and support group information, go to More information.

### **This page has been produced in consultation with, and approved by:**

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