

How much weight do you really need to lose?

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Waist Measurement. Credit: Adrian Clark/Flickr

Most people are aware that being overweight and sedentary is commonly associated with being unhealthy. This has spurred a growth in the sales of fitness trackers with 25 million [being sold](#) globally last year. Fitness

trackers and connected scales may help in measuring your progress to achieve certain goals but they typically don't tell you what those goals should be or the best way to get there.

Public health messages and health professionals also may emphasise a need to not be overweight in order to reduce the risk of one of a range of chronic diseases, including heart attack or stroke. However, these messages are often packaged for impact and simplicity and the patient is often left not having understood what all of the numbers that underlie the risk actually mean, how they are all related, and what it actually takes to change them.

Part of the problem is that there is still a range of opinions about levels of risk associated with being a particular weight and whether other measures such as waist circumference, hip to waist ratio, waist to height ratio are more [important](#).

The case of the average male and female

So if we take the [average male](#) in Australia who is 1.76 m tall and weighs on average 85.9 kg, their BMI is 27.86. According to their BMI, to be in the health range of less than 25, they should have a weight of about 76.7 kg for a BMI of 24.9. This means they need to lose 9.2 kg.

By another measure however of waist circumference, the Australian male had an [average](#) waist circumference of 97.9 cm. By one measure, getting that into the safer zone below 94 cm (see below) would need dropping 3.9 cm in circumference by losing 4.3 kg. However, [another indicator](#) suggests that the waist to height ratio shouldn't exceed 0.5, which means that the average male should have a waist circumference of 88 cm, which would take losing 9.9 cm and 11 kg. If the person lost 11 kg, their maximum BMI would be 24.2.

Confused? Yes, it seems that advice varies from losing 4.3 kg to losing a massive 11 kg, and this is just for the average Australian male.

For the [average](#) Australian woman who is 161.8 cm tall and weighs 71.1 kg, their BMI of 27.4 is still over the recommended 25. They would need to lose 5.8 kg to get down to 65.3 kg to be out of the higher risk category. Based on their [average](#) waist circumference of 87.7 cm, they would need to lose 8.6 kg to drop 7.7 cm from their waist to get below the risk cutoff of 80 cm. In the case of the average Australian woman, using the waist to height ratio of 0.5 gives roughly the same cutoff of 80.9 cm.

In both cases, just using BMI would underestimate the amount of weight needed to be lost. What is not in doubt however is that the combination of being overweight, having too much fat around the middle of the body, and not being active greatly increases the risk of illness.

The measures

BMI (Body Mass Index) is a measure that compares height to weight and is measured by taking weight / (height x height), where weight is in kg and height in metres. So somebody weighing 75 kg and having a height of 175 cm would have a BMI of:

$$24.5 = 75 / (1.75 * 1.75)$$

[According](#) to the World Health Organisation (WHO), a BMI of 30 and over is considered obese and between 25 and 30, overweight. There is an online [calculator](#) that allows you to calculate your BMI easily.

The problem with BMI though is that people with a normal BMI can be still at high risk because their body fat is concentrated around their middle. A better measure of a weight problem can be measured using a

person's **waist circumference**. This is measured halfway between the bottom of the ribs and the top of the hip bone.

The [target points](#) for waist circumference are for an increased levels of risk

Men: 94 cm and Women: 80 cm

and greatly increased risk

Men: 102 cm and Women: 88 cm

There are other measures such as the **waist to height ratio** that have been claimed to be a [better measure](#) than waist circumference alone. The cutoffs for this measure is 0.5 for increased risk and 0.6 for greatly increased risk for both men and women. In the example above, for a man of height 175 cm, his waist circumference would need to be below 87.5 which is a full 6.5 cm less than the Heart Foundation's [recommendation](#) of 94 cm.

What to do?

Knowing these targets however leaves the question of what someone who is overweight has to do to actually get to a safe weight. Surprisingly, fitness tracking software like that of [Fitbit's](#) doesn't actually call out these target ranges and only handles targets in terms of absolute weight loss.

So if you had a waist circumference of 99 cm and were 186 cm tall, what would you need to do to get your waist to 93 cm, or in other words, a waist to height ratio of less than 0.5?

The rough guide is that for every 1 kg that you lose, you will reduce your

waist circumference by 0.9 cm for both [men](#) and [women](#). So to lose 6 cm off your waist, you would need to lose $6 / 0.9 = 6.7$ kg

In order to lose 6.7 kg, you would need to burn an extra 214,000 kilojoules over and above what you consume. This is based on the energy content of fat which is [about](#) 37 kJ per gram or 37,000 kJ per kg.

Assuming you eat 2,000 kilojoules less a day (or increased your exercise by the same amount), it would take 107 days ($214,000 / 2,000$) or 15 weeks to lose 6.7 kg.

Of course, everyone is going to be different, and losing weight will in itself change how the body loses [weight](#) as it keeps adapting to new levels of energy input and output. But it is not capable of creating energy from nowhere and so a continued increase in activity and decrease in energy input will keep resu

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