

## Calculating the correct calorie intake to meet our goals.

To be able to work out the correct calorie intake to meet your goals, whether that is maintaining your weight, losing, or gaining weight, you need to know how many calories your body needs for basic daily functioning and to support the level of activity and exercise you regularly undertake.

To calculate this, we need to know our Basal Metabolic Rate (BMR) & our Total Daily Energy Expenditure (TDEE).

### Your Basal Metabolic Rate

Your basal metabolic rate (BMR) is the minimum level of energy required to sustain vital organs and bodily functions such as breathing, digestion, brain function, cell function and circulation, whilst resting in a temperate environment. It is the equivalent of figuring out how much fuel an idle car consumes while parked. For most people, upwards of ~70% of total energy (calories) burned each day is due to upkeep. Physical activity makes up ~20% of expenditure and ~10% is used for the digestion of food, also known as thermogenesis. Your BMR isn't "good" or "bad." It's just a piece of information you can use to understand your health, and to create goals and strategies related to your weight. The BMR formula works out how many calories your body needs for basic daily functioning, considering an individual's age, weight, height and gender.

Then we consider the levels of activity and exercise we regularly undertake when assessing the number of calories our body uses per day. This is known as your **TDEE**, or 'total daily energy expenditure'. You can then use this to work out how much you need to eat to lose, maintain, or gain weight.

If you want to lose weight for example, you can work on lowering your basal metabolic rate, along with adjusting your calorie consumption to create a calorie deficit. If you want to gain weight, your BMR helps you understand the minimum number of calories your body needs, so you can work to consume more than that.

Essentially, losing weight is all about the calories you burn and the ones you eat. Remember however, that your BMR decreases as you lose weight. This is why the number of calories we are able to consume when in a calorie deficit varies for everyone. Loss of muscle may be partly responsible for some of the decrease in your BMR. You may, therefore, be able to offset some of the changes in your BMR with strength-training exercises to build muscle. It's recommended to work out your muscles two to three days a week using free weights, resistance bands or body resistance exercises such as squats, sit-ups and push-ups.

### Calculating Your BMR

There are several formulas for calculating your BMR. The formula below uses the Mifflin-St. Joer equation, which has been shown to be more accurate than the more commonly used Harris-Benedict equation.



To calculate your BMR, you should know your weight in kilograms and your height in centimetres and use the following formula: -

$$\text{Women: } 10 \times \text{weight (kg)} + 6.25 \times \text{height (cm)} - 5 \times \text{age (years)} - 161$$

Now you've calculated your BMR, you can calculate your total daily energy expenditure as shown below.

### How to Calculate TDEE

To calculate your TDEE, you need to look at the activities you do throughout the day. This is commonly expressed as your physical activity level (or your 'PAL'). Simply multiply your BMR by the PAL number that corresponds the most, to your daily activities in the table below.

Amount of Exercise	Daily Calories Needed
Sedentary	BMR x 1.2
Light Exercise (1-2 days per week)	BMR x 1.375
Moderate (3-5 days per week)	BMR x 1.55
Heavy (6-7 days per week)	BMR x 1.725
Athlete (2x per day)	BMR x 1.9 +

By calculating your TDEE, you know exactly how many calories it takes per day to maintain your bodyweight. Since maintaining a healthy bodyweight is linked with improved health across a range of markers, TDEE can be a useful tool for looking after your health. Knowing your TDEE also means that you can easily calculate how many calories you need to eat to lose weight or gain weight.

Typically...

- For **weight loss**: Calories per day = TDEE **minus** 500.
- For **weight gain**: Calories per day = TDEE **plus** 500.

Rather than feeling that you must stick rigidly to a daily allowance, it can help to take a weeklong view. Multiplying your calorie allowance by 7 (to calculate a week's worth) means that you can save some calories for a night out / special occasion without going off track. It's okay to have the occasional treat with the main balance of healthy choices being made.

There are approximately 3500kcal in 1 pound of fat, which means if you ate 500kcal less than your TDEE for 7 days, you should technically lose around 1 pound. This isn't completely accurate, however, as during periods of caloric deficit, your body will also use energy from muscle mass, which means you can lose lean tissue while dieting, too.

Two things are known to minimise the amount of muscle mass that you lose while dieting:

- Consuming enough dietary protein
- Weight training

Eating enough protein and training with weights is known to promote muscle-protein synthesis, i.e., muscle growth, which decreases the amount of muscle lost during calorie-restriction.

Additionally, after extended periods of dieting, the body typically adjusts to eating less and weight loss can often slow down. This is the body's way of preserving itself during periods of starvation, so unfortunately, weight loss isn't always a linear process. Stick with it, though – you may need to adjust your diet and exercise regime if you're not seeing any progress.

As you make changes in your eating pattern and exercise routine to change your body composition, remember it's a long-term, gradual process. Make small adjustments based on your results to fine-tune your nutrition and exercise plans to meet your goals.

### Online Calculators

You can also try online tools to calculate your BMR. These calculators usually involve inputting your sex, height, weight, and age to estimate your BMR. These calculators use the known formulas to make a guess based on your information.

### Factors That Influence Your BMR

Some situations temporarily affect your BMR, such as eating spicy foods or going out in really cold weather. But there are only a few things that can affect your BMR for the long term.

- Age: BMR usually decreases with age, which means many people may need to adjust their diet as they get older to avoid weight gain.
- Weight: Heavier individuals have a higher BMR.
- Height: The taller you are, the more mass you are likely to have, influencing BMR. Height compared to weight also helps determine how much fat-free vs. fat mass you have, which also affects BMR.
- Sex: Men typically have a higher BMR than women due to higher muscle mass and bone density.
- Genetics: Your genetics could influence your BMR. This is a factor that formulas cannot determine or account for.
- Body composition: Muscle mass expends more energy than fat mass. The higher your muscle mass, the higher your BMR can be, but this only accounts for a small amount of your energy expenditure.
- Menopause: If you're going through it or have been through it, you already know your BMR usually goes down during this period, meaning you're burning fewer calories.

### Can You Change Your BMR?

Changing body composition through weight training and, especially, high-intensity interval training (HIIT), can help, although during perimenopause and menopause you may prefer to opt for lower impact, low intensity training instead of the traditional HIIT.

Your BMR will increase while you exercise and for a time afterward, but this effect won't last. Building muscle mass increases your BMR somewhat, but this effect is minimal compared to other factors. Your best bet is to increase your activity level, which increases your TDEE, or the total number of calories you burn each day.

### **Finetuning Your Approach for You**

A 2005 meta-analysis study on BMR, showed that when controlling all factors of metabolic rate, there is still a 26% unknown variance between people. Essentially, an average person eating an average diet will have expected BMR values, but there are factors that are still not understood that determines BMR precisely.

Therefore, all BMR calculations, will not be perfectly accurate in their measurements. Not all human bodily functions are fully understood yet, so calculating total daily energy expenditure (TDEE) derived from BMR estimates are just that, estimates. When working towards any sort of health or fitness goal, BMR can aid in laying down the foundations, but from there on, it has little else to offer.

A calculated BMR and thus TDEE may result in unsatisfactory results because of their rough estimates, but maintaining a daily journal of exercise, food consumption, etc, can help track the factors that lead to any given results and help determine what works, as well as what needs to be improved upon. Tracking progress in a journal and adjusting over time as needed is generally the best indication of progress towards reaching personal goals.