

# Overweight

## DNA Health Report



REPORT CATEGORY —



Sample Client

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## Personal information

NAME

**Sample Client**

SEX AT BIRTH

**Male**

HEIGHT

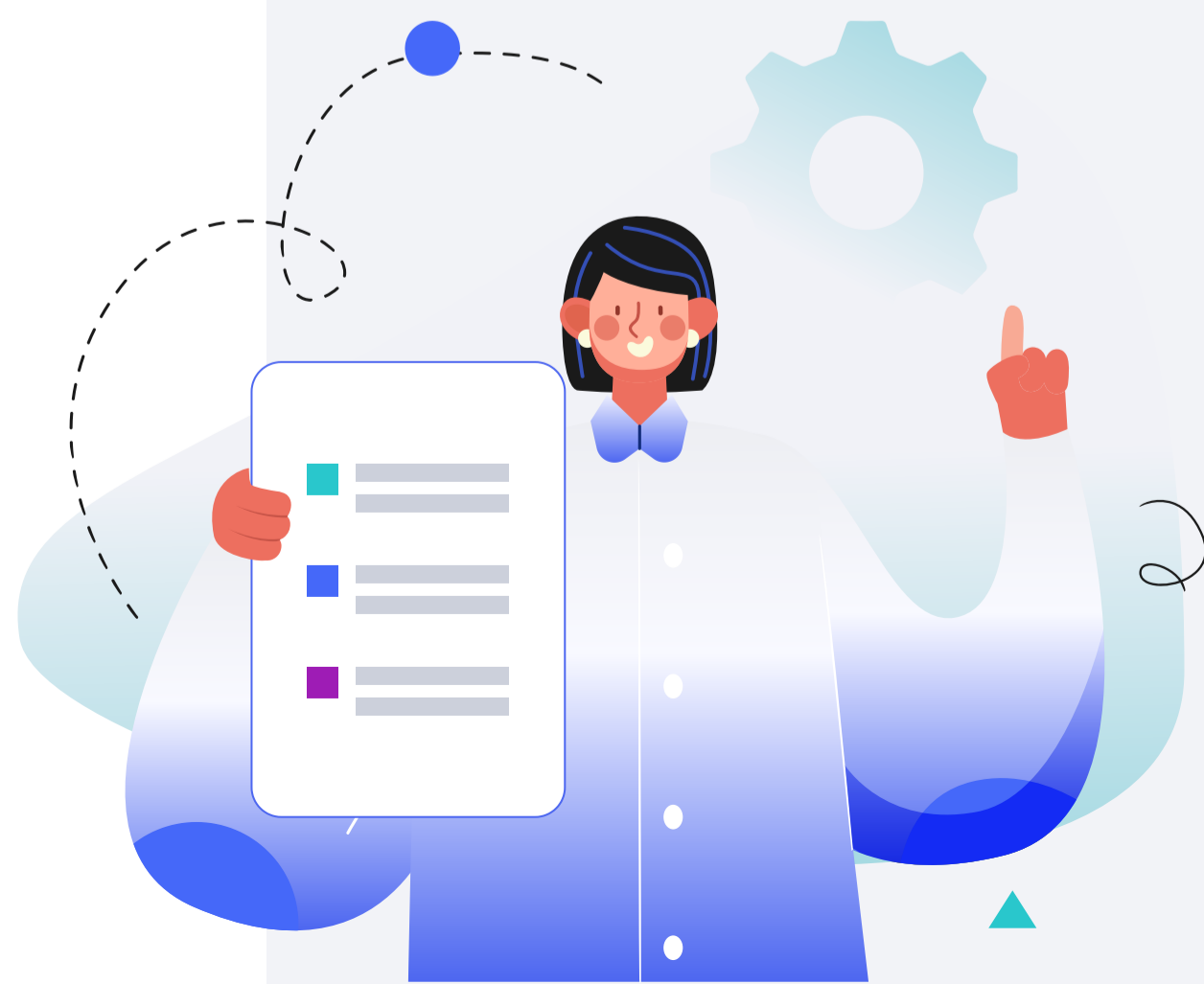
**5ft 9" 175.0cm**

WEIGHT

**165lb 75.0kg**

### DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.



# Introduction

Weight loss doesn't always feel like a level playing field. Some people lose or gain weight more easily than others.

While this can be frustrating, we now understand better than ever that the explanation for these inequalities lies within our DNA. As much as 70% of differences in weight may be attributed to your genes, not just how much you eat and exercise [\[R, R, R\]](#)!

There are more than 100 different genes that may influence weight, but none are better studied than the [FTO](#) gene. The *FTO* gene was the first gene linked to weight gain and is widely believed to have the largest effect [\[R, R, R, R, R\]](#).

Although we don't know exactly how this gene contributes to obesity risk, it might be by influencing other weight-related genes and increasing your appetite [\[R, R, R, R\]](#).

One particularly well-studied variant of the *FTO* gene, [rs9939609](#), has been linked to:

- Eating more [\[R, R, R, R\]](#)
- Eating higher calorie foods [\[R, R, R, R, R\]](#)
- Food cravings [\[R\]](#)
- Emotional and binge eating [\[R\]](#)

So if you happen to carry this variant, you're already fighting a bit of an uphill battle compared to others when it comes to managing your weight. There is good news, though. Research has also shown that **certain weight loss methods may work better for you than for others.**

Exercise is a great example. Scientists have observed that those who carry this specific *FTO* variant were significantly less likely to be overweight than others if they exercised. The Mediterranean diet may also be more beneficial if you carry this variant [\[R, R\]](#).

Some other *FTO* variants work in a similar way as [rs9939609](#). People carrying these variants are more likely to benefit from [\[R, R, R\]](#):

- Psychotherapy
- High-fiber diets
- High-protein diets

**Each of our weight struggles is unique. The information hidden in your DNA may help predict the best weight-loss strategies for you, helping you to live a healthier and happier life.**

**This report focuses on the genetics of your weight. Read more to find out:**

- **The effects of your genes on your weight**
- **Your genetic risk score based on over 450,000 variants**
- **Personalized recommendations based on your DNA**

# About Weight

## Key Takeaways:

- Up to **70%** of people's differences in weight may be due to genetics.
- Up to **42% of adults** and **19% of children** in the US meet the medical criteria for obesity.
- Weight gain affects conditions like high blood sugar and heart disease. However, it is highly modifiable by diet and exercise. So, even if your genetic risk is high, there's a lot you can do to reduce its impact.
- Click the **Recommendations** tab for useful weight control tips and **next steps** for relevant labs.

People are finding it harder than ever to manage their weight. **Global obesity rates have skyrocketed** [\[R, R, R\]](#).

Some health experts even say we're in an "obesity epidemic." **Up to 42% of adults and 19% of children in the US meet the medical criteria for obesity** [\[R, R, R\]](#).

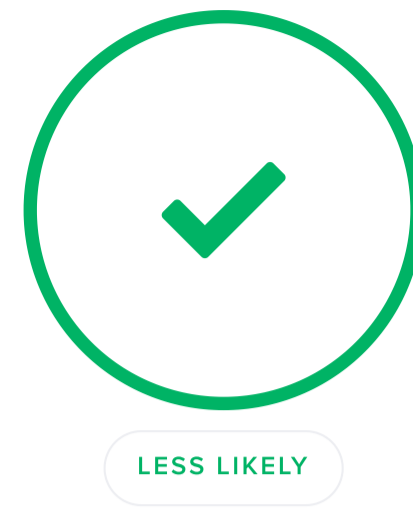
Doctors can use *body mass index* (BMI) to tell if someone is obese. To calculate your BMI, divide your weight by the square of your height (kg/m<sup>2</sup>). There are many online calculators that can help you do this [\[R, R\]](#).

In Western countries, people with a **BMI of 25 and over** are considered **overweight**. A **BMI of 30 or greater** is considered **obese**. In some Asian countries, a BMI of 25 and over is considered obese [\[R, R, R\]](#).

**BMI isn't the only important measure of healthy weight, however.** Body composition is also important because muscle is more dense than fat. Thus, a muscular athlete and an obese person can have similar BMIs [\[R, R\]](#).

For this reason, doctors and researchers often use other body weight measurements, including [\[R, R\]](#):

- Waist circumference (WC)
- Waist-to-hip ratio (WHR)



**Less likely to be overweight or obese based on 455,505 genetic variants we looked at**



**Your top variants that most likely impact your genetic predisposition:**

GENE	SNP	GENOTYPE
LEPR	rs1805096	GG
MC4R	rs2229616	CC
TCF7L2	rs7903146	CT
LPCAT2	rs2285053	CC
LEPR	rs1137101	AG
SEC16B	rs591120	CC
NPY	rs16147	TT
POMC	rs6713532	TT
NEGR1	rs3101336	CC
ADRB2	rs1042713	GA
PEX11A	rs894160	CT
CLOCK	rs1801260	AG
UCP1	rs1800592	TC
UCP2	rs659366	CT
ANKK1	rs1800497	GA
NEGR1	rs2815752	AA
GIPR	rs2287019	CC
CDKAL1	rs2206734	CC
GP2	rs12597579	CC
KLF9	rs11142387	CC

- Percentage of body fat (%BF)
- Lean (muscle) mass

Some people worry about body weight because they value how they look. However, **body weight impacts both mental and physical health**. Obesity may increase the risk of [\[R, R\]](#):

- High blood pressure
- High [cholesterol](#)
- Heart disease
- [High blood sugar](#)
- Reproductive issues and erectile dysfunction
- Breathing problems during sleep
- Joint and bone disorders
- Some cancers

In theory, you gain weight when you consume more calories than you burn. Your body stores the extra energy as fat [\[R, R, R\]](#).

**In reality, it's more complicated than that.** To stick to a healthy weight, you'll need to manage many factors, including [\[R, R, R\]](#):

- **Diet.** Pay attention to the amount and type of food you eat, meal timing, and portion size.
- **Lifestyle.** It's better to live an "active" lifestyle than a "sedentary" one and to allow your body to get the sleep it needs.
- **Environment.** What are your family habits? Do you have social support? What is your stress level? These things have a surprising effect on weight management.
- **Medical conditions.** Anything that changes your metabolism or ability to exercise can also affect body weight.
- **Genetics.** Some gene variants may make it easier or harder to manage your weight.

Doctors may recommend a variety of strategies to help reach and maintain a healthy weight. These include [\[R\]](#):

- Reducing how much food you eat
- Choosing low-calorie foods
- Choosing more plant-based foods
- Exercising
- Counseling or support groups

Your genes may help determine how well you respond to these strategies.

GENE	SNP	GENOTYPE
RFC4	rs17300539	GG
TAS1R2	rs35874116	TT
NPC1	rs1808579	CT
MTCH2	rs10838738	AG
NPC1	rs1805081	TC
KCTD15	rs29941	AG
SH3YL1	rs6548238	TC
LEPR	rs1137100	AG
ADRB2	rs1042714	GC
GNB3	rs5443	CT
IL6R	rs4845623	GG
IL6R	rs2228145	CC
LEPR	rs11208659	TT
LEP	rs2167270	AA
LEP	rs3828942	GG
LEP	rs10244329	TT
SOCS3	rs9892622	AA
CRP	rs1205	CC
STEAP1B	rs10242595	GA
STAT3	rs9891119	AA
PYY	rs162431	GG
PGS1	rs4969170	GA
TMC8	rs4969168	GA
UCP2	rs2075577	GA
GNPDA2	rs16858082	TT
UCP2	rs647126	AG
RFC4	rs266729	GC
UCP2	rs660339	GA
STMN4	rs140901272	CC
IL1B	rs1143634	GG

The number of "risk" variants in this table doesn't necessarily reflect your overall result.

Rarely, obesity can become a serious health problem. In these cases, doctors may prescribe [weight loss](#) drugs or surgery [\[R\]](#).

**Up to 70% of differences in weight may be attributed to genetics.** Genes that may contribute to body weight influence [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Food choices ([FTO](#), [IRX4](#))
- Appetite ([LEP](#), [POMC](#), [MC4R](#), [NPY](#))
- Meal timing ([CLOCK](#))
- Fat and sugar metabolism ([FTO](#), [UCP2](#), [TCF7L2](#))

Genetically high bioavailable testosterone may be causally associated with a high risk of obesity (in women). In contrast, genetically high choline, omega-3 fatty acids, and DHA may be causally associated with a lower risk of obesity [\[R\]](#), [\[R\]](#).

# Your Recommendations

Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

You'll likely find common healthy recommendations at the top of the list because they are often the most impactful and most researched.

	DOSAGE		DOSAGE		
1	Strength Training	1 hour	2	Limit Calorie Intake	
3	High-Intensity Interval Training (HIIT)	30 minutes	4	Practice Exercise Snacks	1 minutesute
5	Low-Carbohydrate Diet		6	Keto Diet	
7	Eat More Protein and Less Carbs		8	Running	
9	Soccer	30 minutes	10	Whey Protein	25 g
11	Intermittent Fasting		12	Low-Fat Diet	
13	Limit Saturated Fat		14	Sleep for 7+ Hours	
15	Mediterranean Diet				

1



## Strength Training

IMPACT

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EVIDENCE

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## How to implement

Engage in strength training exercises, such as weight lifting or bodyweight exercises, for 60 minutes per session, 2 to 3 times per week. Ensure you work all major muscle groups and rest each muscle group for at least 48 hours before exercising it again.

TYPICAL STARTING DOSE

1 hour

## Description

Strength training, also called resistance or *anaerobic* training, contracts the muscles against an external resistance for short periods of time. This helps gain muscle strength, tone, and mass. This can include activities like weight lifting, pushups, and crunches.

Strength training, also known as resistance training, is a type of physical exercise that uses resistance to build strength, anaerobic endurance, and size [\[R\]](#). Some of the most common strength training methods include [\[R\]](#):

- Weight lifting
- Bodyweight exercises like push-ups, pull-ups, squats, and lunges.
- Resistance bands
- Plyometrics or explosive force exercises

The benefits of strength training are numerous, and include [\[R\]](#):

- Increased muscle strength
- Improved bone health
- Reduced risk of injury
- Improved balance and coordination
- Enhanced mood
- Boost metabolism

Consult with a doctor before starting any new exercise program, especially if you have any health conditions.

## How it helps

**Most experts agree that getting 150-300 minutes of exercise per week can help you control your weight.** For best results, try to push yourself a bit with **moderate or intense exercise** [\[R, R\]](#).

Exercise helps by burning calories and boosting your metabolism. It may also lower your appetite [\[R, R\]](#).

Multiple meta-analyses (the most recent one with 43 trials and 3,552 participants) found that both **aerobic and resistance training are equally effective for weight loss**. Exercise programs lasting 8-40 weeks **reduced weight (by 1.6-1.7 kg), waist circumference (by 1.95-2.12 cm), and belly fat area (by 5.39-13.05 cm<sup>2</sup>)** [\[R, R, R, R, R\]](#).

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## Limit Calorie Intake

IMPACT

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EVIDENCE

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## How to implement

Consume fewer calories than your body needs for maintenance. Calculate your daily caloric needs using an online calculator based on your sex, age, weight, height, and activity level, then reduce that number by 500-1000 calories per day to safely lose 1-2 pounds per week. Adjust the caloric intake as needed based on your progress.

## Description

People often limit their calorie intake to help them lose weight [\[R, R\]](#).

However, moderate calorie restriction may also help you stay healthier and age better [\[R, R, R, R, R\]](#).

There are different ways to take in fewer calories. You can:

- **Eat low-calorie foods**, such as those rich in proteins, fiber, and water. Avoid fatty and sugary foods, which tend to be high in calories [\[R\]](#).
- Try [intermittent fasting](#), which involves changing how often you eat [\[R\]](#).

If you are restricting your calories, make sure your diet remains healthy and balanced. Experts also recommend being physically active, to prevent the loss of muscle and bone mass.

## How it helps

**To promote weight loss, experts recommend lowering your calorie intake by 30% of your daily requirement** [\[R, R\]](#).

Eating fewer calories and intermittent fasting may support short-term weight loss equally. On the other hand, people who eat fewer calories may maintain their weight loss better in the long run [\[R, R, R, R, R, R\]](#).

Types of intermittent fasting that may be especially helpful for weight loss include:

- **Alternate-day fasting:** fasting every other day [\[R\]](#)
- **Time-restricted eating:** eating within a certain time frame each day [\[R, R, R, R, R\]](#)

A good way to limit calorie intake is to eat more low-calorie foods. These include soups and foods rich in protein and fiber. You can also try eating a low-calorie snack before a meal [\[R, R, R\]](#).

These methods can help make you feel more full and thus eat less [\[R, R, R\]](#).

**Please note:** *Limiting calorie intake too much or fasting for too long can cause malnutrition, anemia, eating disorders, and other health problems. Children, pregnant women, and people with certain chronic conditions or substance abuse disorders shouldn't do intermittent fasting. Talk to your doctor before implementing any drastic calorie restriction* [\[R\]](#).



PERSONALIZED TO YOUR GENES

People with your **UCP3** gene variant may lose more weight on a low-calorie diet [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
UCP3	rs1800849	GG	



## High-Intensity Interval Training (HIIT)



## How to implement

Engage in HIIT workouts for at least 30 minutes per session, 3 times a week. Each session should include short bursts of intense exercise, such as sprinting or fast cycling, for 30-60 seconds followed by a period of rest or lower-intensity exercise for 1-2 minutes. Adjust intensity and duration based on personal fitness level.

TYPICAL STARTING DOSE

**30 minutes**

## Description

HIIT is a time-efficient form of exercise that involves short bursts of intense activity followed by brief rest periods. It can help improve cardiovascular fitness, burn calories, and build muscle strength in a shorter amount of time compared to traditional steady-state cardio workouts.

**HIIT (high-intensity interval training) is a type of interval training** that alternates short bouts of intense anaerobic exercise with short periods of rest or low-activity exercise for recovery. Popular examples include **CrossFit and Tabata**.

HIIT improves all types of muscle performance faster than other fitness modalities. HIIT is also more effective at improving heart health and burning fat than other, lower-intensity workouts.


To make the most gains from HIIT, make sure to allow for sufficient resting times. Otherwise, you won't be able to fully recover.


## How it helps


Numerous studies highlight the effectiveness of HIIT in reducing body fat, especially in women and overweight/obese individuals. HIIT outperformed MICT, with sprint interval training showing promise. Combining HIIT with fasting or a Low-Carb High-Fat (LCHF) diet yielded favorable results, improving body composition and VO2max. HIIT was beneficial for obese adolescents and individuals with Type 2 diabetes, enhancing weight, BMI, blood pressure, and metabolic markers [\[R, R, R, R, R, R, R, R\]](#).

HIIT exercises can help by burning a significant amount of calories in a short amount of time and improving your metabolic rate. Additionally, they boost the body's ability to burn fat, even hours post-workout.

**Please note:** Intense exercise may not be suitable for people with chronic health conditions. Talk to your doctor before starting a new exercise regimen [\[R\]](#).

4  **Practice Exercise Snacks**

**IMPACT**  4 / 5

**EVIDENCE**  5 / 5

## How to implement

Integrate short bursts of physical activity, each lasting about 1 to 2 minutes, into your daily routine at least two to three times a day. These 'exercise snacks' can include activities like doing a set of stairs, rapid bodyweight exercises, pull-ups, push-ups, sit-ups, or brisk walking.

**TYPICAL STARTING DOSE**

**1 minutesute**

## Description

Staying physically active is essential for maintaining overall health and well-being. **Exercise snacks** are brief, frequent bursts of physical activity integrated into daily routines, helping combat the health risks associated with prolonged sitting and sedentary behavior, such as obesity and cardiovascular issues. Examples include taking the stairs or doing quick exercises during work breaks.

**Staying active can do wonders for your health.** It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).

Exercise snacks are short, quick bursts of physical activity performed throughout the day, designed to break up prolonged periods of sitting or inactivity. These brief bouts of exercise can be as short as a few minutes and are incorporated into daily routines to boost overall physical activity levels.

Exercise snacks are crucial for health because they combat the negative effects of sedentary behavior, such as prolonged sitting, which is associated with an increased risk of obesity, cardiovascular diseases, diabetes, and musculoskeletal issues. They help improve blood circulation, regulate blood sugar levels, and enhance mood and cognitive function.


Examples of exercise snacks include taking the stairs instead of the elevator, doing a few minutes of bodyweight exercises (e.g., squats or push-ups) during work breaks, or walking briskly for a few minutes after meals. These short, frequent bursts of activity contribute to a more active lifestyle and can significantly benefit overall health by reducing the risks associated with excessive sitting.

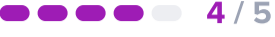
## How it helps


Sedentary people have an approximately 50% higher risk of being obese [\[R\]](#).

In line with this, **most experts agree that getting 150-300 minutes of exercise per week can help you control your weight.** For best results, try to push yourself a bit with **moderate or intense exercise** [\[R, R\]](#).

Exercise helps by burning calories and boosting your metabolism. It may also lower your appetite [\[R, R\]](#).

5  **Low-Carbohydrate Diet**

**IMPACT**  
 4 / 5

**EVIDENCE**  
 5 / 5

## How to implement

Limit your daily intake of carbohydrates to less than 26% of your total daily calories. For a standard 2000-calorie diet, this means consuming no more than 130 grams of carbohydrates per day. Focus on including non-starchy vegetables, lean proteins, and healthy fats in your meals while minimizing the intake of sugars, bread, pasta, and other high-carb foods.

## Description

Low-carbohydrate diets can promote weight loss, improve blood sugar control, and support heart health. They may also be beneficial for individuals with certain medical conditions, such as epilepsy or metabolic syndrome.

## How it helps

Four meta-analyses (the largest one with 17 trials) concluded that low-carb diets decrease body weight, fat mass, BMI, and waist circumference. Very low-carbohydrate diets may be the most effective [\[R, R, R, R\]](#).

A meta-analysis of 32 studies found that the short-term effects of low-carb diets on weight parameters persist in the long term, but to a small degree. Another meta-analysis (25 trials) found significant effects of low-carb diets on body weight at 3-8 months, but not at 10-30 months, and on BMI at 3-4 months but not at other time points [\[R, R\]](#).

Low-carb diets help in part with weight loss by **increasing energy expenditure** according to a meta-analysis of 29 trials [\[R\]](#).

The combination of low-carb diets with exercise further decreases waist circumference, body weight, and BMI according to 2 meta-analyses. However, a meta-analysis of 8 studies found no added benefits in trained individuals [\[R, R, R\]](#).

Six meta-analyses (the largest one with 38 trials) found low-carb diets more effective than low-fat diets for reducing weight. In line with this, a meta-analysis of 48 trials comparing different diets found the low-carb diet had the largest effect on weight loss. However, 3 meta-analyses found both diets similarly effective at reducing body weight and waist circumference [\[R, R, R, R, R, R, R, R, R, R\]](#)

In patients with type 2 diabetes, the low-carb dietary pattern is the most effective one at lowering body weight according to 2 meta-analyses [\[R, R\]](#).



## Keto Diet

IMPACT

 4 / 5

EVIDENCE

 5 / 5

## How to implement

Adopt a diet that consists of about 70-80% fat, 10-20% protein, and 5-10% carbohydrates. Eliminate or significantly reduce the intake of sugar and starches like bread, pasta, rice, and potatoes, focusing instead on high-fat foods like meats, fatty fish, eggs, butter, and healthy oils, as well as low-carb vegetables like leafy greens. This dietary pattern should be maintained consistently for a period of at least 3-4 weeks to achieve ketosis, after which it can be adjusted based on individual goals and responses.

## Description

The keto diet is a high-fat, low-carbohydrate eating plan designed to induce a state of ketosis in the body, where it primarily burns fat for energy. It is often used for weight loss and managing certain medical conditions.

The ketogenic diet, or the 'keto' diet, is rich in fat and restricts carb intake [\[R, R\]](#).

On the ketogenic diet, 50 g of carbs or less are consumed per day. Around 55-80% of the calories come from fat [\[R\]](#).

The ketogenic diet depletes the body of sugars like glucose. When people fast or eat very little carbs, the body makes less insulin. In response, the body starts using fat for energy.

When the body only uses fat for energy, molecules called ketones are formed. This state is called *ketosis*.

The ketogenic diet may help with:

- Seizures [\[R\]](#)
- Excess weight [\[R\]](#)
- Diabetes [\[R, R\]](#)

## How it helps

The Keto diet works by reducing your intake of carbs and increasing healthy fats, leading your body to a metabolic state called ketosis which uses fat as a primary fuel source. This, along with the fact that fats are more satisfying and reduce hunger, often leads to weight loss.

Multiple meta-analyses (the largest one with 18 studies) concluded that eating a very low-carbohydrate ketogenic diet lowers body weight (by 2.87-15.6 kg), BMI (by 1.44-5.3 kg/m<sup>2</sup>), waist circumference (by 3.23-12.6 cm), fat mass (by 1.40 kg), fat-free mass (by 0.81 kg), lean body mass (by 0.63 kg), and body fat percentage (by 2.81%). This diet may be more effective than other weight-loss interventions [\[R, R, R, R\]](#).

The combination of exercise and low-carbohydrate ketogenic diets decreases waist circumference according to a meta-analysis of 7 trials and 278 overweight and obese participants. Similarly, a meta-analysis of 13 trials and 244 participants found that combining strength training with a ketogenic diet decreases body mass (by 3.67 kg), fat mass (by 2.21 kg), fat-free mass (by 1.26 kg), BMI (by 1.37 kg/m<sup>2</sup>), and body fat percentage (by 2.27%) [\[R, R\]](#).

A meta-analysis of 14 studies concluded that eating a ketogenic diet lowers fasting glucose weight (by 8.66 kg), waist circumference (by 9.17 cm), and BMI (by 3.13 kg/m<sup>2</sup>) in patients with type 2 diabetes. Another meta-analysis (8 studies and 648 patients) found that very low-carbohydrate ketogenic diets decrease weight at 3 months (by 2.91 kg) and 6 months (by 2.84 kg) in people with this condition. In overweight patients with type 2 diabetes, ketogenic diets significantly decrease body weight and waist circumference according to a meta-analysis of 8 studies. A meta-analysis of 14 studies found that ketogenic diets lower weight in diabetic patients regardless of diabetic status [\[R, R, R, R\]](#).

Ketogenic diets also lower body fat percentage in athletes according to a meta-analysis of 8 studies [\[R\]](#).

In cancer patients, ketogenic diets reduce body weight (by 2.99-3.992 kg), fat mass (by 1.48 kg), and BMI (by 1.08 kg/m<sup>2</sup>) according to 3 meta-analyses (the largest one with 10 trials) [[R](#), [R](#), [R](#)].

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## Eat More Protein and Less Carbs

IMPACT

 4 / 5

EVIDENCE

 4 / 5

### How to implement

Include a source of lean protein such as chicken, fish, beans, or tofu in each meal, aiming for 20-30 grams per serving, while reducing carbohydrate-rich foods like bread, pasta, and sweets, aiming to make proteins about 30-40% of your daily caloric intake. Replace at least one carbohydrate-heavy meal or snack with a high-protein option daily.

### Description

A diet that includes more protein and fewer carbohydrates can promote weight management and satiety, potentially aiding in weight loss efforts. Protein-rich foods can help control hunger and support muscle maintenance.

**Proteins, fats, and carbs are macronutrients.** You need these nutrients in large ('macro') amounts. They provide your body with the energy it needs to function properly [\[R\]](#).

For a healthier diet, experts recommend eating foods that are higher in protein but lower in fat and carbs [\[R, R\]](#).

This is because simple carbs can spike your blood sugar levels. Likewise, too much saturated fat can increase "bad" (LDL) cholesterol [\[R, R, R, R, R, R\]](#).

Eating a lot of high-carb or high-fat foods may lead to conditions like diabetes, obesity, and heart disease [\[R, R, R, R\]](#).

Meanwhile, protein boosts muscle mass and helps control your weight [\[R\]](#).

### How it helps

**Most weight loss experts recommend following a diet that's high in protein but lower in carbs or fat** [\[R, R\]](#).

This is because protein [\[R, R\]](#):

- Boosts your metabolism
- Makes you feel more full
- Helps control your appetite

In contrast, carbs and fats make you crave junk food by activating the reward areas of your brain [\[R, R\]](#).



Simple carbs can also spike your [insulin](#), which is linked to a higher risk of obesity [\[R\]](#).

Some low-carb diets that may help you lose weight include:


- **Keto diet:** low-carb and high-fat diet [\[R, R, R\]](#)
- **Atkins diet:** low-carb diet [\[R, R, R, R, R\]](#)
- **Paleo diet:** hunter-gatherer diet (limited carbs, dairy products, and legumes) [\[R, R, R\]](#)
- **Zone diet:** meals consist of 40% complex carbs, 30% protein, and 30% fat [\[R\]](#)


**Sticking to a low-fat diet for 2-12 months may also support weight loss** [\[R, R, R, R, R\]](#). However, a **low-carb diet may be more effective** [\[R, R, R, R, R\]](#).

**Note:** *In the long run, high-protein diets may contribute to heart disease, calcium loss, constipation, and other health problems. If you have problems with kidneys or bones, consult your doctor or dietitian before adopting a high-protein diet* [\[R, R\]](#).



## Running

IMPACT  4 / 5

EVIDENCE  4 / 5

## How to implement

To implement running into your routine, start with shorter distances and gradually increase as your endurance improves. Aim for 3 to 5 sessions per week, each lasting 20 to 30 minutes. Wear appropriate running shoes to prevent injuries and choose varied routes to keep the activity engaging. Incorporate warm-up exercises before running and cool down with stretches afterward to enhance flexibility and recovery.

## Description

Running is a versatile and accessible form of aerobic exercise that improves cardiovascular health, strengthens muscles, and enhances mental well-being. It requires minimal equipment, can be done almost anywhere, and is effective for weight management. Regular running can increase endurance, reduce stress, and boost overall physical fitness, making it a popular choice for maintaining an active lifestyle.



## How it helps

**Most experts agree that getting 150-300 minutes of exercise per week can help you control your weight.** For best results, try to push yourself a bit with **moderate or intense exercise** [\[R, R\]](#).


Exercise helps by burning calories and boosting your metabolism. It may also lower your appetite [\[R, R\]](#).


However, it might take a while to see the results of your hard work. **The benefits of moderate or intense exercise may only show after 12 weeks** [\[R, R, R, R, R\]](#).

Note that exercise may be less effective at helping you lose weight than limiting your calorie intake. However, **it will likely help you maintain a lower weight in the long run** [\[R, R, R\]](#).



## Soccer

IMPACT  4 / 5

EVIDENCE  4 / 5

## How to implement

Engage in a game of soccer for at least 30 minutes, three times a week. This activity can be informal, such as playing with friends at a local park, or through structured league participation.

TYPICAL STARTING DOSE

30 minutes

## Description

Soccer is a popular sport that provides cardiovascular exercise, improves coordination, and improves strength and endurance.

**Soccer, also known as football, is the most popular sport in the world.** The objective is to score goals by kicking the ball into the opposing team's goal post.

Playing soccer helps improve cardiovascular fitness, coordination, strength, endurance and more. Additionally, soccer is a great way to boost self-confidence, teamwork, and social interaction.


## How it helps

A meta-analysis of 23 studies and 902 participants found that soccer interventions reduced weight (by 1.44 kg), BMI (by 0.88 kg/m<sup>2</sup>), waist circumference (by 0.77 cm), and body fat (by 1.8%) in adults [\[R\]](#).

Soccer practice reduces fat mass while increasing lean body mass in children according to a meta-analysis of 14 studies [\[R\]](#).

Soccer is an intense form of exercise that combines cardiovascular and strength training, contributing to weight management.

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Whey Protein

IMPACT

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EVIDENCE

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## How to implement

Mix one scoop (approximately 25-30 grams) of whey protein powder with 8-12 ounces of water, milk, or your preferred beverage. Consume this drink 1-2 times per day, ideally post-workout or as a meal replacement.

**TYPICAL STARTING DOSE**

**25 g**

## Description

Whey protein is a complete protein derived from milk during cheese production. It is rich in essential amino acids and is used to support muscle recovery, promote muscle growth, and provide a convenient protein source for athletes and fitness enthusiasts.

Whey is the liquid that separates from milk when cheese is made. [Whey protein](#) is full of amino acids (protein building blocks) that the body needs [\[R\]](#), [\[R\]](#).

Whey protein usually comes in the form of a powder that can be added to soft foods and drinks. People often use it to help with [\[R\]](#), [\[R\]](#):

- Athletic performance
- Nutritional deficiencies


## How it helps

Six meta-analyses (the largest one with 49 studies and 1863 participants) concluded that supplementation with whey protein, especially if used as an add-on to resistance training, increases muscular strength, strength-one-repetition-maximum (by 2.49 kg), fat-free mass (by 0.3-0.46 kg), fat mass loss (by 0.62-0.96 kg), muscle size-muscle fiber cross-sectional area (by 310  $\mu\text{m}^2$ ), and mid-femur cross-sectional area (by 7.2  $\text{mm}^2$ ). Whey was more effective in healthy, young, resistance-trained individuals. In women, it was more effective when combined with calorie restriction [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

A meta-analysis of 14 studies and 626 participants found that whey protein combined with strength training lowers body weight (by 4.2 kg) and body fat (by 3.74 kg) while increasing lean body weight (by 2.24 kg) [\[R\]](#).

In overweight and obese participants, whey reduces body weight, lean mass, and fat mass, as well as improving SBP, DBP, glucose, HDL, and total cholesterol, according to a meta-analysis of 9 studies [\[R\]](#).

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## Intermittent Fasting

IMPACT

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EVIDENCE

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## How to implement

Limit your daily eating to a specific window of time, typically within an 8-hour period such as from 12 pm to 8 pm, and fast for the remaining 16 hours of the day. Repeat this daily or for at least 3-4 days per week.

## Description

Intermittent fasting is an eating pattern that involves cycling between periods of fasting and eating. It may help with weight management, improve metabolic health, and offer potential benefits for certain health conditions when done under proper guidance.

**Intermittent fasting** (IF) is a pattern of eating that alternates between periods of eating and fasting. The most popular IF method is called the 16/8 method, where you fast for 16 hours and eat during an 8-hour window.

People mainly practice IF to lose weight. Besides benefits related to weight reduction, IF may help lower the risk of [\[R\]](#):

- Alzheimer's disease
- Joint pain
- Asthma
- Multiple sclerosis
- Stroke

Some types of intermittent fasting, such as Ramadan fasting, are also practiced for religious reasons.


## How it helps

Intermittent fasting may reduce weight, but not BMI, better than continuous calorie restriction. Short-term intermittent fasting may also reduce weight. Intermittent fasting may also improve fasting blood glucose and HOMA-IR. In four studies with 355 participants, intermittent fasting led to better weight loss (1.70 kg). In six studies, significant reductions in BMI (1.56 kg/m<sup>2</sup>), fat mass (1.35%), fat-free mass (0.63%), body weight (2.49 kg), and waist circumference (-3.06 cm) were observed. In seven studies, IF decreased body weight by -1.89 kg, with greater effects in heavier populations and shorter studies ( $\leq 4$  months). However, intermittent fasting didn't significantly outperform other diets in a meta-analysis of 9 studies [\[R, R, R, R, R, R, R, R, R\]](#).

Eighty-five studies from 25 countries conducted between 1982 and 2019 found that Ramadan intermittent fasting led to a small but significant weight reduction (approximately 1.022 kg). Time-restricted feeding showed greater weight loss than control regimens, particularly in observational studies [\[R, R\]](#).

Intermittent fasting may help by reducing the amount of calories you consume and enhancing your body's fat-burning processes.

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Low-Fat Diet

IMPACT

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EVIDENCE

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## How to implement

Adopt a diet where less than 30% of your daily calories come from fat. Incorporate plenty of fruits, vegetables, whole grains, and lean proteins. Avoid or significantly limit high-fat foods like fried foods, processed snacks, and fatty meats. Aim for this dietary pattern consistently each day.

## Description

Low-fat diets are often recommended for heart health and weight management. They can help reduce the intake of saturated and trans fats, lowering the risk of cardiovascular disease.

A low-fat diet is a diet that provides **30% or less** of the daily energy requirement from fat [\[R\]](#).

This type of diet may be useful for **losing weight, reducing cholesterol levels, and lowering the risk of certain health conditions**, such as [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart disease
- Diabetes
- Certain types of cancer

Low-fat diets prioritize the following foods [\[R\]](#), [\[R\]](#):

- Vegetables and fruits
- Whole grains
- Legumes (e.g., beans, lentils, peas)
- Skinless poultry (e.g., chicken, duck, and turkey)
- Fish and seafood (e.g., salmon, lake trout, tuna, and herring)
- Egg whites
- Low-fat dairy products


## How it helps



Low-energy-density foods are foods that provide few calories per weight. Fatty and sugary foods are especially energy-dense, while those rich in proteins, fiber, and water reduce dietary energy density. In 4 non-placebo-controlled trials of 431 people on weight loss programs, those who ate less energy-dense foods lost more weight and maintained it better in the long term [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

In weight-loss interventions lasting 2-12 months, weight reduction increases by 0.37 kg for every 1% reduction of dietary fat according to a meta-analysis of 16 trials and 1,728 participants [\[R\]](#).

Five meta-analyses (the most recent one with 37 trials and over 57k participants) found that adopting a low-fat diet reduces weight (by 1.4-5.41 kg), BMI (by 0.5 kg/m<sup>2</sup>), waist circumference (by 0.3 cm), body fat (by 0.3-10.2%), and energy intake (by 1,138 kJ/day) when compared with the usual diet. Greater fat reductions resulted in greater weight loss [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

A low-fat diet reduces calorie intake, which can contribute to weight loss.

13  **Limit Saturated Fat**

**IMPACT**  **EVIDENCE** 

## How to implement

Reduce your intake of saturated fats by choosing lean cuts of meat, opting for low-fat or fat-free dairy products, and using cooking oils high in unsaturated fats (like olive or canola oil) instead of butter or lard. Aim to keep saturated fat to less than 10% of your total daily calories. For someone consuming 2000 calories a day, this means 20 grams or less of saturated fat per day.

## Description

Limiting saturated fat intake is crucial for managing cholesterol levels and reducing the risk of heart disease. Choosing lean protein sources and incorporating unsaturated fats into the diet supports cardiovascular health and overall well-being.


## How it helps

Low-energy-density foods are foods that provide few calories per weight. Fatty and sugary foods are especially energy-dense, while those rich in proteins, fiber, and water reduce dietary energy density. In 4 non-placebo-controlled trials of 431 people on weight loss programs, those who ate less energy-dense foods lost more weight and maintained it better in the long term [\[R, R, R, R\]](#).

In weight-loss interventions lasting 2-12 months, weight reduction increases by 0.37 kg for every 1% reduction of dietary fat according to a meta-analysis of 16 trials and 1,728 participants [\[R\]](#).

Five meta-analyses (the most recent one with 37 trials and over 57k participants) found that adopting a low-fat diet reduces weight (by 1.4-5.41 kg), BMI (by 0.5 kg/m<sup>2</sup>), waist circumference (by 0.3 cm), body fat (by 0.3-10.2%), and energy intake (by 1,138 kJ/day) when compared with the usual diet. Greater fat reductions resulted in greater weight loss [\[R, R, R, R, R\]](#).

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## Sleep for 7+ Hours

IMPACT

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EVIDENCE

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## How to implement

Ensure you allocate enough time in your schedule to achieve a minimum of 7 hours of sleep each night. This might involve going to bed earlier or adjusting your evening routine to promote relaxation and make it easier to fall asleep.

## Description

Optimizing sleep involves adopting healthy sleep habits and creating a sleep-conducive environment to ensure restorative and sufficient sleep duration. It supports cognitive function, mood stability, and overall physical health. Most experts recommend getting **at least 7 hours of good-quality sleep each night**.

**Sleep supports your body and mind** [R, R]. More precisely, sleep helps:

- Support brain health [R, R]
- Maintain a healthy weight and appetite [R, R, R]
- Regulate blood pressure [R, R]
- Balance blood sugar [R, R]

Ways to sleep better include [R]:

- Reducing your bright light exposure (screen time) in the evenings
- Sticking to a regular sleep schedule
- Avoiding hunger or large meals before bed
- Avoiding nicotine, caffeine, and alcohol before bed
- Maintaining a sleep area that's cool, dark, and quiet


## How it helps

**Adults who don't get enough sleep are 25-55% more likely to be overweight or obese.** In fact, the risk of obesity may increase by 9% for every hour of sleep lost [R, R, R, R].

Disrupting the natural sleep cycle may also promote weight gain. **People who work night shifts are more likely to be obese** [R, R, R].

**Sleep may be even more important for weight control in children.** The good news is that every 1-hour increase in sleep may lower their risk of weight gain by a whopping 21% [R, R, R, R, R].

Sleep helps keep hunger hormones like [ghrelin](#) and [leptin](#) in balance. Thus, lack of sleep may increase junk food cravings and total food intake [R, R, R].


PERSONALIZED TO YOUR GENES

**Your [NRXN3](#) gene variant is linked to higher weight. Sleep loss may have a stronger impact on weight gain in people with this variant** [R, R].

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
NRXN3	rs10146997	GA	<div style="display: flex; gap: 5px;"> <div style="width: 10px; height: 10px; background-color: #800080; border-radius: 50%;"></div> <div style="width: 10px; height: 10px; background-color: #800080; border-radius: 50%;"></div> <div style="width: 10px; height: 10px; background-color: #800080; border-radius: 50%;"></div> <div style="width: 10px; height: 10px; background-color: #ccc; border-radius: 50%;"></div> </div>

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Mediterranean Diet

IMPACT
EVIDENCE

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## How to implement

Incorporate a variety of primarily plant-based foods, such as fruits, vegetables, whole grains, nuts, and legumes, into every meal. Choose healthy fats, like olive oil, over saturated fats and consume fish and poultry at least twice a week. Limit red meat to a few times a month and include a moderate amount of dairy products. Opt for water and red wine in moderation as your beverages.

## Description

The [Mediterranean diet](#) is based on the traditional cuisine from the Mediterranean regions. It moderates the intake of red meat and dairy, while being rich in fruits and vegetables, whole grains, and healthy fats ([olive oil](#)).

The [Mediterranean diet](#) focuses on traditional cuisine from the Mediterranean regions. It's rich in [\[R\]](#):

- [Olive oil](#)
- Fruits and vegetables
- Whole grains
- Nuts and seeds
- Fish

This type of diet may **reduce inflammation and protect the brain and heart** [\[R, R, R, R\]](#).

Limited intake of animal products, saturated fat, and refined sugar likely contribute to the health benefits of the Mediterranean diet [\[R\]](#).

## How it helps

**The Mediterranean diet may support weight loss more than a low-fat diet.** Combining the Mediterranean diet with exercise and calorie restriction may even boost its effects on weight [\[R, R, R, R, R\]](#).

What makes the Mediterranean diet a great choice?

- It's low in saturated fat [\[R\]](#)
- It's rich in healthy fat sources like olive oil and fish [\[R, R\]](#)
- It's rich in fiber [\[R\]](#)

This diet may also support weight loss in people with type 2 diabetes [\[R, R, R, R\]](#).

PERSONALIZED TO YOUR GENES

**The Mediterranean diet is linked to lower weight in people with your [TCF7L2](#) gene variant [\[R, R\]](#).**

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
TCF7L2	rs7903146	CT	