SelfDecode™

Underweight

DNA Health Report

REPORT CATEGORIES

WEIGHT & BODY FAT

NUTRITION

Sample Client

Report date: 15 January 2026

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Table of Contents

Personal information

NAME

Sample Client

SEX AT BIRTH

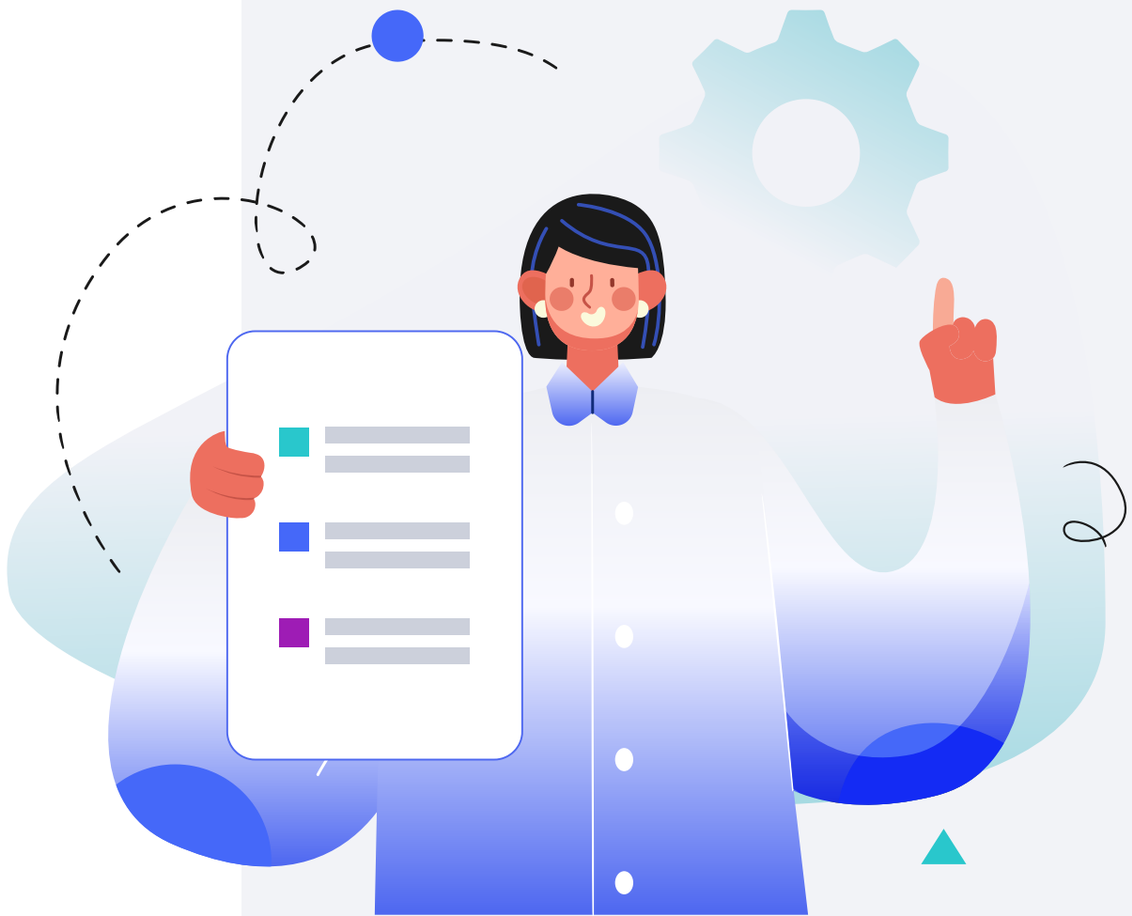
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

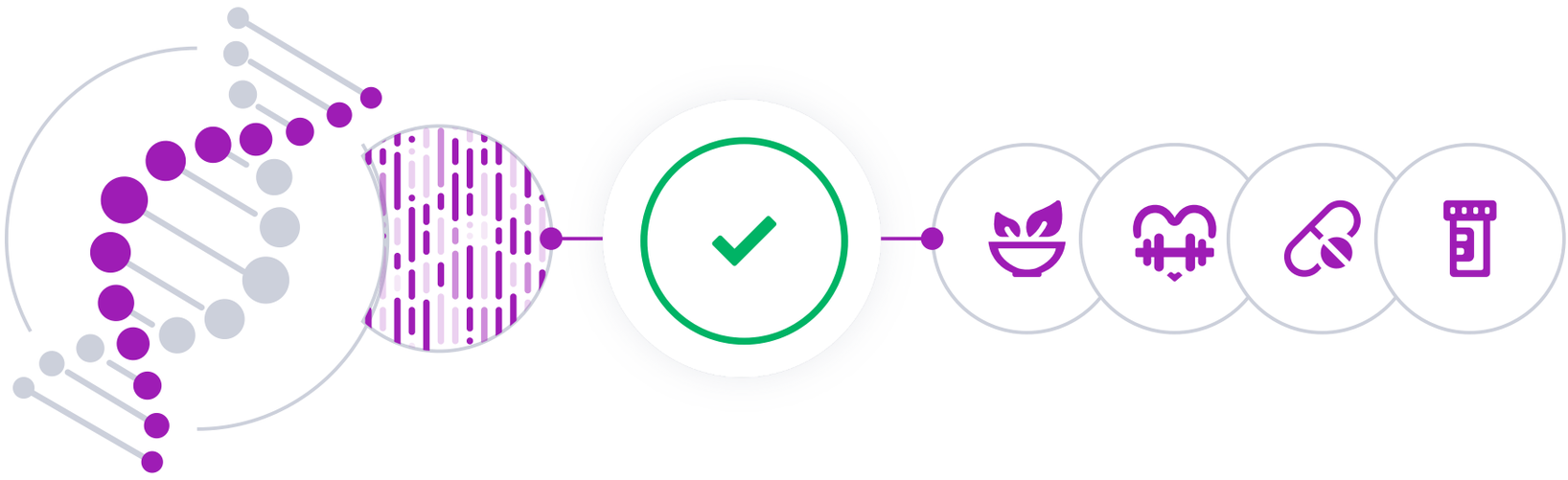


DISCLAIMER

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.

How this works

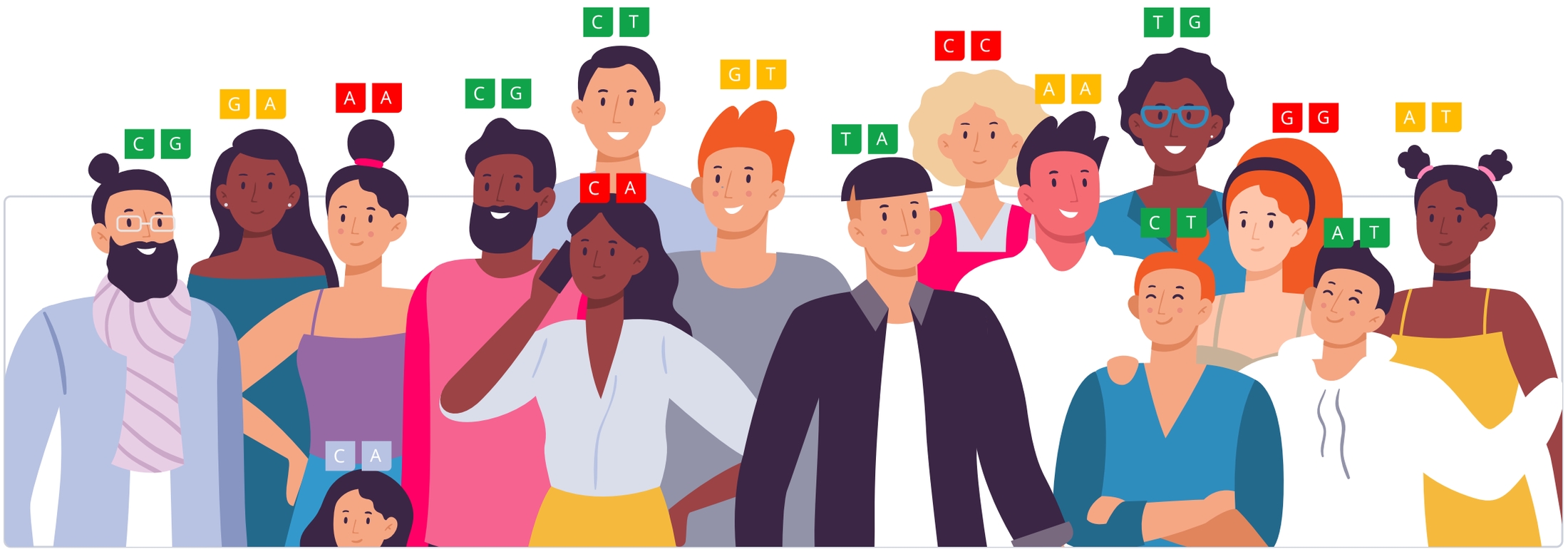
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



Similarly, our Trait Reports look at how your DNA influences your traits.

Your DNA is like an instruction manual — it contains a lot of information.
You can think of it as a blueprint for your body.

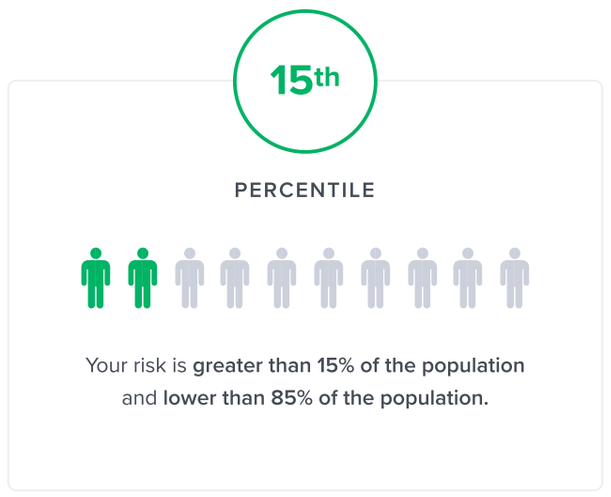
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



We use artificial intelligence and machine learning to analyze all this information. We then summarize your results as a risk score or display it on a gauge.

When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:

In total, we analyze up to 83 million genetic variants.



Genotype color info: AA You don't have any risk alleles | AA You have 1 risk allele | AA You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:

Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):

Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

0 / 5

No evidence in humans.

Genotype-specific Evidence

High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, afew large clinical trials, or a meta-analysis).

Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

People have a healthy weight when they don't have too much or too little body fat [R].

Body mass index (BMI) can help determine body fat levels. Your BMI is your mass (in kg) divided by the square of your height (in meters) [R].

In general [R]:

- People with a BMI **under 18.5** tend to be **underweight**
- People with a BMI **between 18.5 and 25** tend to have a **healthy weight**
- People with a BMI **between 25 and 30** tend to be **overweight**
- People with a BMI **over 30** tend to be **obese**

While being slightly underweight is not necessarily a health problem, being severely underweight can lead to various health issues such as [R, R, R, R, R, R]:

- Bone and joint problems
- Hair loss, dry or thinning skin
- Heart disease
- Decreased immune function
- Fatigue
- Anemia
- Malnutrition
- Irregular periods and infertility
- Slow or impaired growth in children and teenagers

Risk Factors and Management

There are a variety of reasons why a person may be underweight. Sometimes, multiple underlying causes may be related. Causes of being underweight include:

- Dietary restrictions or lack of access to nutritious foods.
- High physical activity level.
- Medical conditions that accelerate metabolism, decrease appetite, or cause vomiting such as thyroid disorders, diabetes, cancer, or digestive diseases.
- Mental health issues that affect appetite and body image such as depression, anxiety, or eating disorders like anorexia nervosa and bulimia.

Genetics can play a role in determining your natural body type and metabolism. People with a family history of being naturally thin or underweight might have a higher tendency to be underweight themselves [R].

It is best to see your healthcare provider if you lose weight unexpectedly. Your provider or a dietitian can help you develop a plan to gain weight in a healthy way. The plan should include [R]:

- Eating regular snacks (5 to 6 smaller meals during the day) with a focus on proteins, carbohydrates, and healthy fats.
- Adding extras to your dishes for more calories, focusing on nutrient-rich and calorie-dense foods.
- Trying smoothies and shakes with a blend of high-calorie, nutritious ingredients. Meal replacement drinks may also be part of your weight-gain effort.
- Watching what and when you drink. Drinking enough throughout the day is important but beverages can make you feel full. If that's the case for you, avoid drinking during a meal or before.
- Exercise, especially strength training, to help you gain weight by building up your muscles and stimulating your appetite.

TYPICAL LIKELIHOOD

Typical likelihood of being underweight based on 1,665 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs6833159	TT
NRXN3	rs12882679	GG
ANK2	rs7656666	AG
ADGRB3	rs117763955	CC
PCGF2	rs118080693	CC
DPF3	rs17180754	GG
DCC	rs35721894	AA

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

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
1	Sufficient Calorie Intake	
2	Strength Training	1 hour
3	Power Training	1 hour
4	Creatine	4 g
5	Hydroxymethylbutyrate (HMB)	3 g
6	Zinc	15 mg
7	Leucine	2 g
8	Uridine	150 mg

1

Sufficient Calorie Intake

IMPACT 5 / 5

EVIDENCE 5 / 5

How to implement

Consume a daily amount of calories that meets your body's energy needs based on your age, sex, weight, height, and physical activity level. Use an online calorie calculator or consult a dietitian to determine your specific caloric needs. Aim to distribute your calorie intake evenly across meals throughout the day.

Description

Calories measure the amount of energy supplied by food. Your body needs this energy to support all of its functions [R].

You get calories from eating foods rich in carbs, fat, and protein. These calories can be used for energy or stored as fat. Fat is used for energy during a calorie deficit. This may happen when there's a low intake of calories or when calories are lost with exercise [R].

The average adult needs 30-40 calories per kilogram of body weight to have enough energy for the day. Exact needs can vary widely depending on age, gender, and physical activity. Not eating enough calories may result in [R, R, R, R]:

- Weight loss
- Nutrient deficiency
- Fatigue

How it helps

Experts recommend eating sufficient calories to gain weight in underweight people. An adequate meal plan for gaining weight should include [R]:

- Eating regular snacks (5 to 6 smaller meals during the day) with a focus on proteins, carbohydrates, and healthy fats.
- Adding extras to your dishes for more calories, focusing on nutrient-rich and calorie-dense foods.
- Trying smoothies and shakes with a blend of high-calorie, nutritious ingredients. Meal replacement drinks may also be part of your weight-gain effort.
- Watching what and when you drink. Drinking enough throughout the day is important but beverages can make you feel full. If that's the case for you, avoid drinking during a meal or before.

Teaching people about nutrition may help reduce the risk of eating disorders and achieve a healthy, balanced diet to promote weight gain in those who are underweight [R, R].

Nutritional interventions ensuring sufficient calorie intake may also promote weight gain in malnourished children and underweight patients with heart failure or cancer [R, R, R].

2

Strength Training

IMPACT 4 / 5

EVIDENCE 4 / 5

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

Experts recommend supervised exercise to gain muscle mass in underweight people [R].

Strength training may be particularly effective for building muscles. Here are some facts to consider [R, R, R, R, R, R, R, R]:

- Higher weight loads aren’t necessarily more effective for building muscles.
- Increasing the number of sets may boost muscle gains, but doing too many sets can be counterproductive.
- The time of the day when exercise is performed doesn’t affect muscle gains.
- Machine and free-weight exercises may be equally effective.
- Training to failure or training in hypoxia may not provide additional benefits.
- Eccentric training may be more effective than concentric training.

Besides athletes, strength training may also boost muscle mass in the following groups at risk of underweight [R, R, R, R, R, R, R]:

- Older people, including postmenopausal women
- People with chronic health conditions (cancer, HIV, joint pain, etc.)

In people with **anorexia, supervised exercise** may improve symptoms and mental health [R].

Exercise may help by building muscle and increasing appetite [R].

3

Power Training

IMPACT 4 / 5

EVIDENCE 4 / 5

How to implement

Engage in power training exercises, such as squats, lunges, and bench presses, at least twice per week. Each session should include 3-5 sets of 6-10 repetitions for each exercise, with a focus on explosive, powerful movements. Rest for at least 48 hours between power training sessions to allow for muscle recovery.

TYPICAL STARTING DOSE

1 hour

Description

Power training, also known as strength or resistance training, involves exercises designed to increase muscle strength and power. It contributes to improved muscle tone, bone density, and overall physical fitness.

Power training involves exercises that utilize strength and speed. Optimal power indicates how quickly you can exert force to produce the desired movement. While an obvious form of training for sports activities, it can also apply to simple, daily tasks like how fast you can walk across a street to increasing your reaction times to help prevent a fall if you trip [R].

Some power training exercises include [R]:

- Explosive push-ups
- Squat jumps
- Split jumps
- Medicine ball slams
- Reverse lunges
- Lateral jumps

Benefits of power training include [R]:

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

Due to the potential stress and intensity of power training, consult with your doctor or a fitness professional before including it in your workout routine.

How it helps

Experts recommend supervised exercise to gain muscle mass in underweight people [R].

According to some studies, power training may be as beneficial as strength training for boosting muscle mass in older people [R].

In people with **anorexia, supervised exercise** may improve symptoms and mental health [R].

Exercise may help by building muscle and increasing appetite [R].

Please note: *It is important not to over-exercise and follow your doctor's exercise recommendations if you have an eating disorder. This is especially true if you have anorexia.*

4

Creatine

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take 4 grams of creatine supplement daily, ideally mixed with water or juice. This dosage can be maintained consistently without needing specific periods of cycling on or off.

TYPICAL STARTING DOSE

4 g

Description

Creatine is a popular dietary supplement among athletes and bodybuilders, known to enhance muscle performance during short bursts of high-intensity activities. It may help improve exercise performance and support muscle growth when used as directed.

Creatine is a compound naturally produced by the body. It's stored in the muscles and brain [R].

During exercise, creatine is released to boost performance and help build muscles. For this reason, it's a popular supplement among athletes [R, R].

Sources of creatine include [R]:

- Red meat
- Seafood
- Supplements

How it helps

When combined with strength training, creatine is one of the most effective supplements for increasing muscle mass, [R, R].

It may work well in both younger and older people. However, some studies found no benefits in older women [R, R, R].

5

Hydroxymethylbutyrate (HMB)

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take hydroxymethylbutyrate (HMB) as a supplement in a dose of 3 grams per day. This can be split into three 1-gram servings taken with meals throughout the day to help with muscle strength and body composition. Continuation typically ranges from weeks to months, depending on fitness goals and personal response.

TYPICAL STARTING DOSE

3 g

Description

HMB is a metabolite of the amino acid leucine. It is often used as a dietary supplement to support muscle recovery and reduce muscle breakdown during intense physical training.

HMB, or beta-hydroxy-beta-methylbutyrate, is a compound naturally produced in the body and available as a supplement. It helps build muscle tissue.

Athletes use HMB to support muscle growth, reduce muscle damage, and enhance recovery.

How it helps

Supplementing with HMB may improve muscle mass in people who practice strength training. However, some studies found only trivial effects or even no effects at all [R, R, R].

HMB may also help those with various health conditions and age-related muscle loss [R, R, R, R].

6

Zinc

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take a 15 mg zinc supplement daily, ideally with a meal to enhance absorption.

TYPICAL STARTING DOSE

15 mg

Description

Zinc is an essential mineral found in various foods, including meat, dairy, and nuts. It is crucial for immune function, wound healing, DNA synthesis, and maintaining healthy skin and nails. Zinc supplements are sometimes used to support immune health and manage zinc deficiencies.

Zinc is an essential mineral. Your body needs it to [R, R]:

- Defend against disease
- Protect DNA from damage
- Heal wounds
- Control blood sugar

Some of the best sources of zinc include **shellfish, pork, beef, and beans**. It is also available as a supplement [R].

Adults should get **8-11 mg of zinc** per day [R].

How it helps

In people with **anorexia**, **zinc (up to 40 mg/day)** may support weight gain [R, R, R, R].

It may help by promoting food intake. Zinc deficiency can alter taste perception and decrease appetite, which may make eating disorders worse [R, R, R, R, R].

Please note: *A high intake of zinc may cause stomach pain and gut irritation. Medical bodies recommend against taking more than **40 mg** of zinc per day* [R, R].

7

Leucine

IMPACT 1 / 5

EVIDENCE 2 / 5

How to implement

Take 2 to 3 grams of leucine supplement per day, with meals to enhance its absorption, particularly after resistance exercise to stimulate muscle protein synthesis. Consistency is important, so continue daily for at least several months to gauge effectiveness.

TYPICAL STARTING DOSE

2 g

Description

Leucine is an essential, branched-chain amino acid found in protein-rich foods that plays a key role in muscle protein synthesis and overall muscle health. It is commonly used by athletes and fitness enthusiasts to support muscle recovery and growth.

Leucine is a branched-chain amino acid (BCAA). It's essential, which means we can't produce it and must get it from food. Leucine is found in all protein-rich foods, such as [R]:

- Red meat and poultry
- Fish
- Dairy products
- Eggs
- Legumes (e.g., beans and peas)
- Nuts (e.g., pistachios, almonds, and cashews)
- Cereals (e.g., corn, millet, semolina, and spelt)

How it helps

Leucine supplementation may increase muscle mass by about 1 kg in people with age-related muscle loss [R, R].

However, it may not help young, well-trained people [R, R, R].

8

Uridine

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take uridine as a supplement in the form of uridine monophosphate (UMP) capsules. The usual dosage is 150-250 mg, taken orally once or twice daily, preferably with food to enhance absorption. This supplement regimen can be continued indefinitely, but it's recommended to evaluate its effects periodically, every 3-6 months, with your healthcare provider.

TYPICAL STARTING DOSE

150 mg

Description

Uridine is a nucleotide that plays a role in RNA synthesis and is found in various foods. It is used as a dietary supplement to support cognitive function, enhance memory, and promote overall brain health.

How it helps

Supplementation with uridine monophosphate (0.5-1 g) increased appetite and caloric intake in 2 placebo-controlled trials of 39 healthy volunteers [R].

Next Steps

Remember, your genes only tell one important part of your health story!

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

Your lab results

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.

Protein, Total	7.4 g/dL	6.1 – 6.6 – 7.8 – 8.1	9 Nov 2025
Zinc	17.12 umol/L	7.65 – 9.18 – 12.24 – 19.89	9 Nov 2025
Albumin	4.3 g/dL	3.4 – 4.4 – 5.5	9 Nov 2025