SelfDecode™

Muscle Mass

DNA Health Report

REPORT CATEGORY

FITNESS

Sample Client

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Personal information

NAME

Sample Client

SEX AT BIRTH

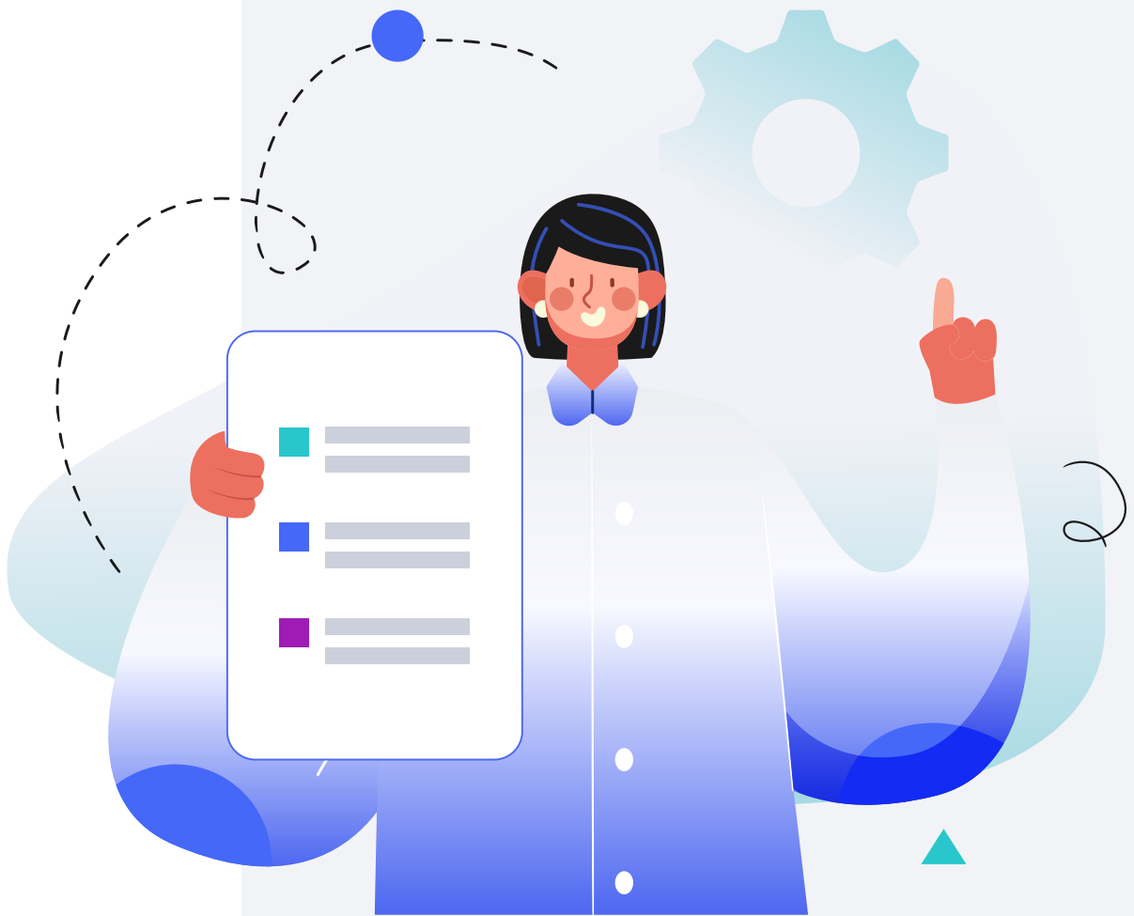
Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

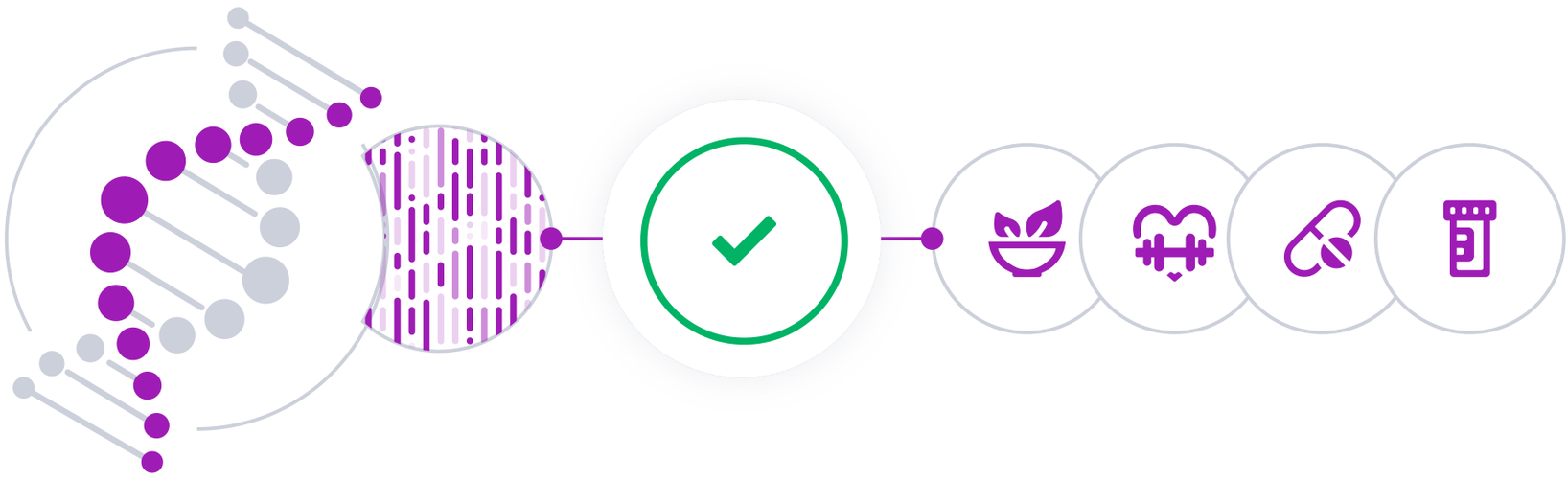


DISCLAIMER

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

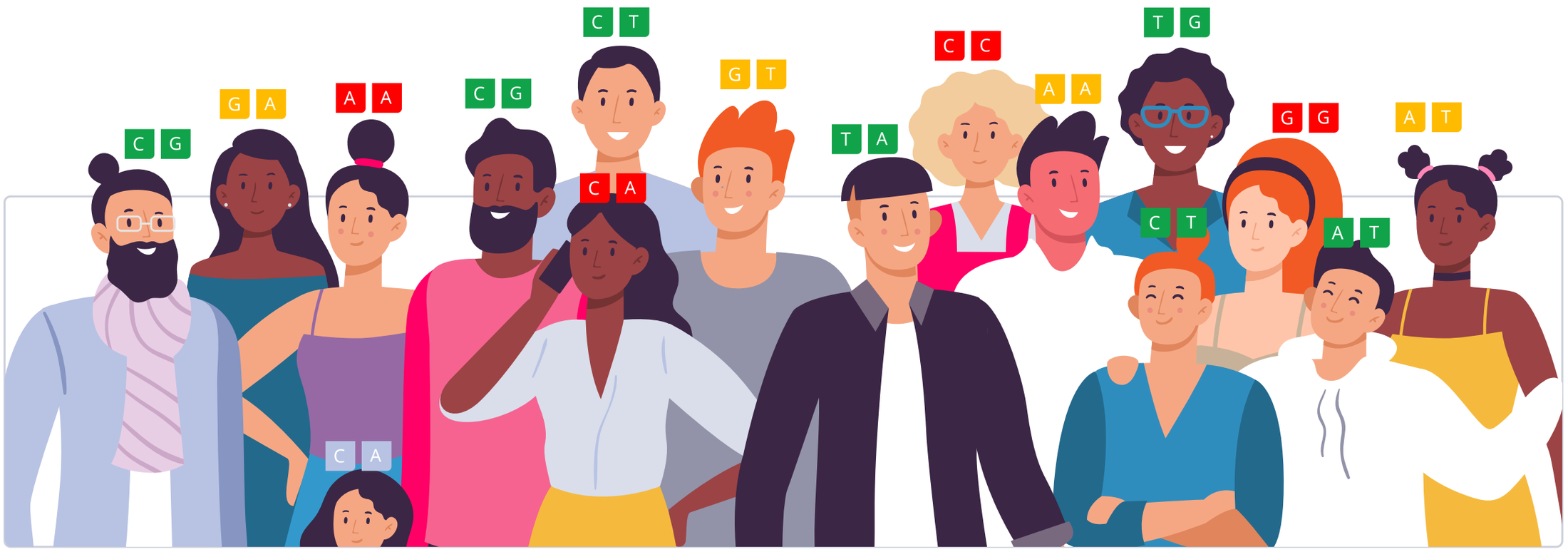
Our Wellness Reports analyze how your DNA influences your health.
We then use this analysis to give you personalized risk estimates and recommendations.



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.

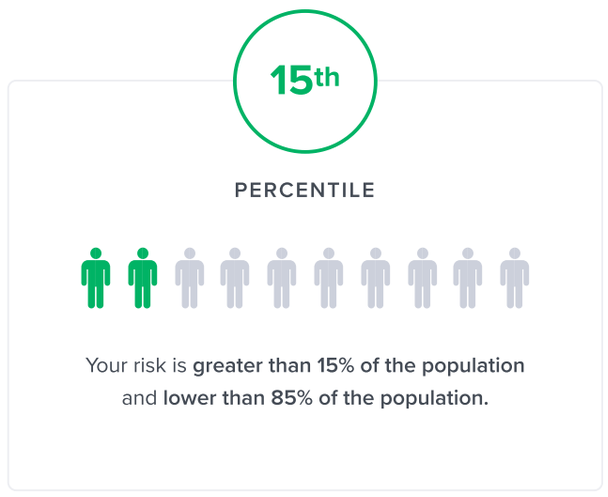
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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

Muscle mass is the total amount of all the muscles in your body. It is composed of skeletal muscle (for voluntary movement), smooth muscle (in internal organs), and cardiac muscle (in the heart) [R, R, R].

Skeletal muscles are crucial for movement, posture, and strength, while **smooth muscles** help your organs function [R, R].

Having a healthy level of muscle mass is vital for your overall health and quality of life. Muscles provide many benefits and are important for:

- **Metabolic health**: The more muscle mass you have, the more calories you burn. This makes it easier to manage your body weight. In addition, muscles help control blood sugar levels. Higher muscle mass decreases the risk of developing type 2 diabetes and other metabolic disease [R, R, R].
- **Strength, mobility and injury prevention**: We need adequate muscle mass for strength and stability in our everyday lives. This gets especially pronounced as we get older. Losing muscle, which often happens with age, increases the risk of falls and injuries [R, R].
- **Cognitive function**: Higher muscle mass can guard against cognitive decline as we age. Physical activity and resistance exercise have wide-ranging beneficial effects on cognitive function, even in younger people [R, R, R].
- **Mood**: Exercise and physical activity stimulate the release of endorphins, which improve mood. Higher muscle mass and strength have been linked to lower incidents of anxiety and depression [R, R, R].
- **Longevity**. People with greater muscle mass tend to live longer and healthier lives [R, R, R].

What Affects Muscle Mass?

PERSONALIZED TO GENES

Based on the genetic variants we looked at, you likely have lower muscle mass. In other words, you may have less muscle mass and more fat tissue.

Take steps to increase and maintain your muscle mass. Practice strength (resistance) training and increase the amount of protein in your diet.

Muscle mass is the total amount of all the muscles in your body [R, R].

Your **physical activity and diet** have a great impact on your muscle mass. But some of it is also due to your genetics. Twin studies suggest **about 50-80% of people's differences in muscle mass are due to genes** [R, R, R].

Genes associated with muscle mass affect processes such as [R, R]:

- Muscle growth
- Growth and sex hormone levels
- Energy metabolism

Other factors that affect muscle mass include aging and certain health conditions [R, R, R].

To maintain and build your muscle mass:

- **Do regular resistance training,** such as weightlifting or bodyweight exercises (e.g. push-ups or squats). Aim for 2 or more sessions of strength training per week.
- **Get enough protein.** Make sure you get enough protein in your diet to support muscle growth and repair.
- **Be physically active.** Staying active throughout the day helps maintain muscle mass, beyond resistance training. Walking, cycling and other activities contribute to overall muscle health.
- **Get sufficient rest.** Muscles grow while you are resting. Getting enough sleep and recovery time between workouts supports muscle growth and repair.

LOWER

Predisposed to lower muscle mass based on 7,086,143 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
IL1B	rs1143634	GG
RPN1	rs111804884	TT
GJB2	rs73442383	TT
STEAP1B	rs10242595	GA
MTCH2	rs4752856	GA
RASSF10	rs543716802	GG
LDB2	rs573762110	GG
NDUFA12	rs529529785	GG
PPARGC1A	rs752744147	TT
AOAH	rs78185366	TT
LEO1	rs190878891	AA
USP34	rs183237934	TT
MARCHF1	rs150541056	TT
CCDC171	rs117635839	AA
ZMAT4	rs184622626	AA
AQP6	rs706798	AA
FTO	rs9939609	TT
ZNF648	rs190210789	AA
/	rs557373392	CC
/	rs774160312	GG
/	rs758954781	CC
PRELID2	rs574519712	CC
/	rs758566456	TT
DOCK3	rs551736560	GG
ATG7	rs193172711	GG
TSC22D1	rs554766983	GG
MYL12B	rs141372016	GG
DRD5	rs182591441	TT
ACTR3B	rs138921315	GG
LMX1B	rs144076261	CC
DLG2	rs558729974	TT
KCNH7	rs74698413	GG

GENE	SNP	GENOTYPE
FTO	rs9972653	GG
EPHA3	rs72913870	GG
METTL21A	rs111556242	CC
ZDHHC14	rs749547	GG
SVBP	rs111455041	CC
PRUNE2	rs11145045	CC

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	Strength Training	1 hour
2	Exercise At Least One Hour a Day	1 hour
3	Whey Protein	25 g
4	Beef Protein	20 g
5	Creatine	2 g
6	Power Training	1 hour
7	Soy Protein	20 g
8	Protein Supplement	20 g
9	Blood Flow Restriction Training	15 minutes
10	Eccentric Exercise	
11	Aquatic Exercise	1 hour
12	Essential Amino Acids (EAA)	10 g
13	Taekwondo	90 minutes
14	Dietary Protein	
15	Keto Diet	
16	Leucine	2 g
17	BCAAs (Branched-Chain Amino Acids)	5 g
18	Whole-Body Vibration	15 minutes
19	Red Meat	
20	Fasting Mimicking Diet	
21	Carnivore Diet	
22	Probiotics	10 billion
23	Betaine (TMG)	500 mg
24	Lactobacillus Plantarum	10 billion CFU
25	Ashwagandha	120 mg
26	Kelp	500 mg
27	Hydroxymethylbutyrate (HMB)	3 g
28	Resveratrol	150 mg
29	DIM (Diindolylmethane)	100 mg
30	Icelandic Yogurt	
31	Alpha-Ketoglutarate (AKG)	1 g
32	Krill Oil	1 g

33	Yoga	30 minutes	34	Colostrum	20 g
35	Hesperidin	500 mg	36	Shock Wave Therapy	
37	Hydrolyzed Keratin	500 mg	38	Mangosteen Rind and Cinnamomum Tamala	
39	Chia Seeds		40	Beef	
41	Milk		42	Fish	
43	Practice Exercise Snacks	1 minutesute	44	Eggs	
45	Maintain Optimal Vitamin D Levels	1000 iu	46	Chicken	
47	Velositol		48	DHEA (Dehydroepiandrosterone)	25 mg
49	Resistant Starch	40 g	50	Beta-Alanine	2 g
51	Greek Yogurt		52	Agmatine	1 g
53	Zumba	1 hour	54	Butyrate	300 mg

1

Strength Training

IMPACT 5 / 5

EVIDENCE 5 / 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

Strength training increases muscle mass while burning fat [R, R, R, R, R, R].

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.
- Time of the day when exercise is performed doesn’t affect muscle gains.
- Machine and free weight exercises seem to 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 muscle loss [R, R, R, R, R, R, R, R, R]:

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

PERSONALIZED TO YOUR GENES

Strength training may increase muscle mass more in people with your *LEPR* gene variant [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
LEPR	**rs1137101**	AG	●●●○○

2

Exercise At Least One Hour a Day

IMPACT ●●●●● 5 / 5

EVIDENCE ●●●●● 5 / 5

How to implement

Dedicate a minimum of 60 minutes to moderate-intensity activities such as brisk walking, swimming, or cycling. Do this most days of the week, aiming for at least 5 days to optimize benefits.

TYPICAL STARTING DOSE

1 hour

Description

Exercise can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [R].

There are many ways you can be active. You can walk, run, swim, dance, or play team sports. **Everything counts, and it's never too late to start!**

Try to get at least **60 minutes of moderate physical activity on most days**, including walking. **Getting a mix of cardio (min 150 min/day) and strength training (min 2 times a week) may be optimal**.

How it helps

Regular exercise is crucial for building and maintaining muscle mass. Not using your muscles regularly leads to a gradual muscle loss - “use it or lose it” [R, R].

All types of exercise may be beneficial, especially:

- Strength training [R]
- Power training [R]
- Aquatic exercise [R]
- Taekwondo [R]

3

Whey Protein

IMPACT 4 / 5

EVIDENCE 4 / 5

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

Muscle tissue consists mainly of protein. Protein supplementation may boost muscle mass, especially when combined with strength training [R, R, R, R, R, R, R, R, R].

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 µm2), and mid-femur cross-sectional area (by 7.2 mm2)**. 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].

4

Beef Protein

IMPACT 4 / 5

EVIDENCE 3 / 5

How to implement

Incorporate a beef protein supplement into your diet by adding one scoop (approximately 20-25 grams) of beef protein powder to 8-12 ounces of water or your preferred beverage. Mix thoroughly until the powder is fully dissolved. This can be consumed once or twice daily, ideally post-workout or between meals as a nutritional supplement to support muscle growth and recovery.

TYPICAL STARTING DOSE

20 g

Description

Beef protein provides a source of high-quality protein that can support muscle growth and recovery. It is often used by athletes meet their protein needs and promote muscle health.

Foods high in protein include [R, R]:

- Lean meats
- Eggs
- Soy
- Beans

Certain protein sources may provide more beneficial protein depending upon the need. Beef protein is often used to help boost muscle building.

How it helps

Muscle tissue consists mainly of protein. Protein supplementation may boost muscle mass, especially when combined with strength training [R, R, R, R, R, R, R, R, R].

According to some studies, **beef protein** may be as effective as whey protein for this purpose [R].

5

Creatine

IMPACT 4 / 5

EVIDENCE 3 / 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

2 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].

6

Power Training

IMPACT 4 / 5

EVIDENCE 3 / 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

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

7

Soy Protein

IMPACT 4 / 5

EVIDENCE 3 / 5

How to implement

Include 20 grams of soy protein in your daily diet. This can be achieved by consuming soy-based products such as tofu, soy milk, or soy nuts throughout the day.

TYPICAL STARTING DOSE

20 g

Description

Soy protein is a high-quality plant-based protein derived from soybeans. It is commonly used in vegetarian and vegan diets and may support muscle growth, weight management, and overall nutritional needs.

Soy is a common food in many cuisines around the world, especially Asian cuisines [R].
It's a great source of [R, R]:

- Plant-based protein
- Fiber
- Omega-3 fats
- Antioxidants (isoflavones)

Soy-based foods include [R]:

- Tofu
- Tempeh
- Edamame
- Miso
- Natto

Soy protein and soy isoflavones are also available as supplements.

How it helps

Muscle tissue consists mainly of protein. Protein supplementation may boost muscle mass, especially when combined with strength training [R, R, R, R, R, R, R, R, R].

According to some studies, **soy protein** may be as effective as whey protein for this purpose [R].

8

Protein Supplement

IMPACT 3 / 5

EVIDENCE 4 / 5

How to implement

Mix one scoop (approximately 20-25 grams) of protein powder with 8-12 ounces of water, milk, or a beverage of your choice. Consume this mixture 1-2 times daily, preferably after workouts and between meals to aid in muscle repair and growth.

TYPICAL STARTING DOSE

20 g

Description

A protein supplement is a product designed to increase protein intake in the diet, typically in the form of powders or shakes. It can help individuals meet their protein needs, especially for athletes or those with specific dietary requirements.

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].

A **protein supplement** can come in numerous forms from tablets, to powders, and shakes, in order to meet needs not achieved through diet. The recommended daily allowances are 56 g/d for men and 46 g/d for women.

You should choose high-quality foods that give you the “best” version of each macronutrient. For example, too much saturated fat and protein from animal sources may increase the risk of heart disease [R, R].

How it helps

Muscle tissue consists mainly of protein. Protein supplementation may boost muscle mass, especially when combined with strength training [R, R, R, R, R, R, R, R, R].

Supplementation alone may not be able to increase muscle mass in older people [R].

The most widely used protein supplement for this purpose is **whey protein**. Some studies found **beef and soy protein** similarly effective [R, R].

9

Blood Flow Restriction Training

IMPACT 3 / 5

EVIDENCE 4 / 5

How to implement

Wrap a blood flow restriction (BFR) band or cuff around the upper portion of your limbs (arms or legs) at a pressure that feels tight but not painful, aiming for a perceived tightness of 7 out of 10. Engage in low-intensity resistance training, such as lifting weights that are 20% to 30% of your one-rep max, or perform bodyweight exercises. Do this for 15-30 minutes, 2-3 times a week. Always release the bands after each exercise set to restore normal circulation.

TYPICAL STARTING DOSE

15 minutes

Description

Blood flow restriction (BFR) training is a specialized fitness and rehabilitation technique that involves applying pressure to restrict blood flow to specific muscles during exercise. This is typically achieved using cuffs or wraps placed on the limbs and then inflated to a controlled pressure. By temporarily reducing blood flow while allowing arterial inflow, BFR training creates a unique physiological response. It induces metabolic stress and muscle fatigue, leading to muscle growth and strength gains, even with lighter weights.

BFR is widely used in rehabilitation settings to aid in the recovery of injured individuals, helping them rebuild muscle strength without overloading compromised areas. It also has applications in improving muscular endurance and may have potential cardiovascular benefits, such as lowering blood pressure and enhancing vascular function. However, it should be performed under the guidance of a trained professional, as it's not suitable for everyone and has specific safety considerations.

How it helps

Multiple meta-analyses highlight the benefits of BFR training on muscle size. Low-load BFR training effectively increases muscle size and strength in both proximal (e.g., chest, shoulders) and distal (e.g., biceps, triceps) limb muscles, outperforming volume-matched exercise without BFR. Additionally, BFR training has been shown to enhance muscular strength, hypertrophy, and endurance. It may be less effective than high-intensity resistance training but superior to low-intensity resistance training. This training approach is particularly beneficial for older individuals, promoting muscle hypertrophy and strength gains, especially in the lower limbs. Furthermore, BFR training post-knee surgery has demonstrated the ability to improve quadriceps muscle bulk, emphasizing its potential for rehabilitation and recovery [R, R, R, R, R, R].

10

Eccentric Exercise

IMPACT 3 / 5

EVIDENCE 3 / 5

Description

Eccentric exercise is a type of exercise where the muscle lengthens as it contracts. It has been shown to have a number of health benefits, including increased muscle strength, improved bone density, and reduced risk of injury.

How it helps

A meta-analysis found that high-intensity eccentric exercise yields greater increases in muscle strength and mass compared to concentric training, especially in terms of total and eccentric strength. Strength gains from eccentric training were more specific to velocity and mode of contraction, suggesting a link to the higher loads and specialized neural patterns of eccentric actions. Another meta-analysis (19 trials and 618 participants) also found eccentric exercise more effective than concentric exercise at improving muscle strength. Similarly, eccentric cycling training increases knee extensor strength and vastus lateralis fiber cross-sectional area according to a meta-analysis of 14 studies [R, R, R].

11

Aquatic Exercise

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Participate in aquatic exercise sessions, such as swimming or water aerobics, for 60 minutes, 3 to 5 times per week. Ensure the exercise intensity is moderate, allowing you to talk but not sing during the activity. Consistency over time is key, so aim to incorporate this into your weekly routine for at least 3 to 6 months to observe benefits.

TYPICAL STARTING DOSE

1 hour

Description

Aquatic exercise involves physical activity performed in water, such as swimming, water aerobics, or aquatic therapy. It is gentle on the joints, making it suitable for individuals with mobility issues, and can help improve cardiovascular fitness and muscle strength.

Aquatic exercise is any type of low-impact physical activity performed in a pool. In this type of cardio exercise, water helps the body float, which reduces gravity and makes the practice more comfortable and tolerable [R, R].

Compared to land-based exercise, aquatic exercise may be better by [R]:

- Reducing the stress and impact on joints
- Lowering fracture risk

Hence, it is usually **recommended for the elderly**. Aquatic exercise is also suitable for people who don't know how to swim [R].

How it helps

Aquatic exercise for at least 120 min/week may increase muscle mass while burning fat [R].

12

Essential Amino Acids (EAA)

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Take a supplement containing all nine essential amino acids, aiming for a total of 10-20 grams per day. This can be divided into 2-3 doses throughout the day, ideally around exercise sessions or with meals. Continue as long as you are seeking to enhance muscle recovery, growth, or overall protein intake.

TYPICAL STARTING DOSE

10 g

Description

Essential amino acids are crucial for building and repairing tissues, supporting immune function, and maintaining overall health. Obtaining these amino acids through a balanced diet or supplementation can promote muscle growth, better immune response, and overall well-being.

How it helps

Studies show essential amino acids (EAAs) play a vital role in muscle health [R, R, R, R, R]:

In the elderly, both EAA and balanced amino acids enhance muscle protein synthesis. Resistance exercise combined with EAAs improves muscle mass and quality of life in older individuals. Low-dose leucine-rich EAAs benefit muscle anabolism in older women.

EAAs also boost muscle hypertrophy and architecture during heavy-load training. Additionally, EAAs, when combined with leucine, are as effective as complete protein in stimulating post-exercise muscle protein synthesis. These findings underscore the importance of EAAs in maintaining and enhancing muscle health across different age groups and exercise scenarios.

13

Taekwondo

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Attend a Taekwondo class 2 to 3 times per week. Each session should last about 60 to 90 minutes. Continue this routine for several months to fully experience the benefits of improved physical fitness, flexibility, and mental discipline.

TYPICAL STARTING DOSE

90 minutes

Description

Taekwondo is a Korean martial art that combines self-defense techniques, physical fitness, and mental discipline. Practicing taekwondo can improve cardiovascular health, flexibility, and self-confidence while enhancing self-defense skills.

Taekwondo is a Korean martial art developed during the 1940s and 1950s based on the ancient, indigenous Korean fighting styles of taekkyeon, gwonbeop, and subak. The name translates to “the art (or way) of kicking and punching”.

Some of the benefits of practicing Taekwon-Do include:

- Improved physical fitness including strength, flexibility, and cardiovascular health
- Self-defense
- Self- confidence
- Discipline
- Mental focus

How it helps

Many studies have confirmed the ability of taekwondo to boost muscle mass while burning fat [R].

14

Dietary Protein

IMPACT 2 / 5

EVIDENCE 4 / 5

How to implement

Include a variety of protein sources such as meat, fish, eggs, dairy, beans, and nuts in your diet every day, aiming for at least 0.8 grams of protein per kilogram of body weight. For more active individuals or those looking to build muscle, increase intake to 1.2 to 2.0 grams per kilogram of body weight daily, spread out over all meals to maximize absorption.

Description

Protein is essential for building and repairing tissues, supporting muscle growth, and maintaining overall bodily functions. Adequate protein intake is crucial for overall health and well-being.

Foods that are high in protein include:

- Eggs
- Nuts
- Beef
- Chicken
- Fish
- Yogurt
- Tofu
- Pork
- Cottage cheese

How it helps

Increasing protein intake helps build muscle, especially when combined with strength training. The following daily intakes may be beneficial:

- **1.2-1.6 g/kg** of body weight in older people (>65 y)
- At least **1.6 g/kg** of body weight in younger people

Some studies found animal and plant protein equally effective in boosting muscle mass. Other studies favored animal protein, especially in younger people [R, R].

15

Keto Diet

IMPACT 2 / 5

EVIDENCE 3 / 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 may help increase muscle mass. It’s usually rich in protein, a crucial nutrient for muscle growth [R].

Please note: *Consult a doctor before changing your diet. The keto diet can significantly lower blood sugar levels, so people with diabetes should be carefully monitored in case their blood sugar levels become too low. Following this diet for too long may affect the liver, bones, and kidneys and may increase the risk of nutrient deficiencies* [R].

16

Leucine

IMPACT 2 / 5

EVIDENCE 3 / 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].

Two meta-analyses (the largest one with 16 studies and 999 participants) found that leucine supplementation increases lean body mass (by 0.99 kg) and the synthesis rate of muscle proteins, especially in older participants with sarcopenia [R, R].

However, supplementation with leucine (3-5 g, 2x/day for 12 weeks) failed to increase whole-body skeletal muscle mass or strength in 2 placebo-controlled trials of 75 untrained, college-aged males and 25 resistance-trained men [R, R].

17

BCAAs (Branched-Chain Amino Acids)

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Take a BCAA supplement that provides about 5-10 grams of branched-chain amino acids, divided into 2-3 doses per day, preferably around your workout times or between meals. This regimen can be followed daily, especially on training days for muscle support and recovery.

TYPICAL STARTING DOSE

5 g

Description

BCAAs, or branched-chain amino acids, are a group of three essential amino acids: **leucine, isoleucine, and valine**. They are found in dietary protein sources, especially meat, dairy, and legumes [R].

BCAAs play a vital role in protein synthesis, muscle growth, and energy production. People use BCAA supplements to support exercise and muscle performance, liver health, and more [R, R].

How it helps

A meta-analysis of 35 studies concluded that supplementation with BCAAs improves muscle strength, muscle mass, physical performance, and handgrip strength in older people [R].

In a placebo-controlled trial of 20 combat sports athletes, supplementation with BCAAs (5 g/day) for 4 weeks improved muscle mass [R].

BCAAs are essential for muscle protein synthesis.

Please note: *There is not enough safety data for long-term BCAA supplementation at doses above **12 g/day**. Increased BCAA intake may be linked to type 2 diabetes* [R].

18

Whole-Body Vibration

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Stand, sit, or lie on a machine with a vibrating platform for about 15 minutes a day, three times a week. Make sure to start with a lower intensity and gradually increase as you get more accustomed to the vibrations.

TYPICAL STARTING DOSE

15 minutes

Description

Whole-body vibration involves standing, sitting, or lying on a vibrating platform to stimulate muscle contractions. It's used in fitness routines and rehabilitation for improving muscle strength, circulation, and balance, and may benefit conditions like osteoporosis. No specific chemical compound or nutrient is associated with whole-body vibration.

Whole-body vibration is a form of exercise and treatment utilizing a vibrating platform upon which a person stands or performs various exercises. It creates vertical, oscillating vibrations with frequencies and amplitudes that can be controlled by the user [R].

Whole-body vibration is used for a variety of purposes, including [R]:

- Weight loss
- Boosting strength
- Improving balance/coordination
- Boosting mood

How it helps

Whole-body vibration may lower total fat mass (by 0.76 kg and 0.61%), indirectly increasing muscle mass. However, its effects on fat mass percentage may be clinically insignificant [R].

Whole-body vibration essentially shakes the body, stimulating muscles and potentially helping to build strength and improve muscle mass.

19

Red Meat

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Limit your red meat consumption to no more than three portions per week, with each portion being about 3-4 ounces (85-113 grams), roughly the size of a deck of cards. Opt for leaner cuts of meat and consider replacing some red meat meals with poultry, fish, or plant-based protein sources.

Description

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].

You should choose high-quality foods that give you the “best” version of each macronutrient. For example, too much saturated fat and protein from certain animal sources may increase the risk of heart disease and infertility [R, R, R].

Red meat can be part of a balanced diet when consumed in moderation. It is a rich source of essential nutrients, including high-quality protein, which helps build and repair tissues, and important vitamins like B12, crucial for nerve health and red blood cell formation. Red meat also contains iron in its heme form, which is more readily absorbed by the body compared to non-heme iron from plant sources. This can be especially beneficial for individuals with iron deficiencies or higher iron needs.

However, it’s important to opt for lean cuts and control portion sizes to reduce the intake of saturated fats. Balance your diet by also incorporating a variety of protein sources such as poultry, fish, and legumes.

How it helps

Red meat is a rich source of high-quality protein, containing all essential amino acids required for muscle growth, tissue repair, and overall body function. Consuming adequate protein is particularly important for maintaining muscle mass, especially as we age [R].

20

Fasting Mimicking Diet

IMPACT 2 / 5

EVIDENCE 2 / 5

How to implement

Adopt a fasting mimicking diet for 5 consecutive days per month, consuming between 750 and 1,100 calories per day consisting mostly of plant-based soups, vegetables, nuts, seeds, and herbal teas. Ensure adequate hydration. Resume a normal, healthy diet for the remaining days of the month.

Description

The fasting mimicking diet is a dietary approach that involves cycles of fasting and calorie restriction to potentially promote longevity and metabolic health. It is currently an area of research interest for its possible health benefits.

How it helps

In various non-placebo-controlled trials, fasting-mimicking diets showed promising effects on body composition. They led to reductions in body weight, and total body and trunk fat, especially in those at risk of disease. In obese women, this diet was as effective as continuous energy restriction for weight loss but had additional benefits like improved body composition, increased ghrelin and NPY levels, and reduced basal metabolic rate. In physically active men, it reduced body mass without affecting neuromuscular parameters. Combining a fasting-mimicking diet with psychotherapy lowered BMI in patients with depression, and it also lowered BMI and waist circumference in patients with type 2 diabetes [R, R, R, R, R].

The fasting-mimicking diet encourages your body to enter a state of ketosis, which can help preserve muscle mass while shedding fat.

21

Carnivore Diet

IMPACT 2 / 5

EVIDENCE 1 / 5

How to implement

Choose high-quality meats and gradually reduce carbohydrates to help your body adapt. Keep meals simple by including a variety of meats and organ meats for essential nutrients. Stay hydrated and monitor electrolyte levels due to the lack of plant-based foods. Pay attention to how your body responds, adjusting as needed, and track your progress to stay motivated. Listening to your body and ensuring nutrient variety are key to successfully following the Carnivore diet.

Description

The carnivore diet, also called "zero carb", is exactly what it sounds like: **its adherents eat only meat**. Some people are more strict than others about what counts as meat; animal products like milk, cheese, and eggs are a topic of debate. Some people salt their food, while others claim not to need it.

Most people who eat a carnivore diet are likely to say that they eat this way to avoid the “toxins” or antinutrients in plant matter. They point to compounds like **gluten, oxalates, lectins, histamine**, and other potentially inflammatory compounds found in plant-based foods, which may cause serious illness in people who are sensitive to them. **Many specialized diets, such as the lectin avoidance diet, aim to eliminate specific antinutrients and potentially prevent certain inflammatory conditions** [R, R, R].

Critics of the carnivore diet say that it destroys the intestines and can’t provide all the nutrients the human body requires. Meanwhile, some proponents of the carnivore diet may point to people like **the Maasai and Inuit, who eat traditional diets of almost exclusively meat** [R, R].

How it helps

Bodybuilders, strength trainers, and other athletes seem to be drawn to the carnivore diet. Some people claim that eating only meat increases muscle strength and endurance, increases lean mass, and improves mental performance during high-intensity exercise.

Researchers have not investigated the effect of a carnivore diet on athletic performance. People on the carnivore diet regularly eat up to a kilogram of protein per day, which is much higher than in most formal studies. Your total protein intake depends on the type and amount of meat you eat [R].

That being said, **strength-training athletes need a lot of high-quality protein every day** to maintain muscle mass and power and to recover from performance or injury. Researchers recommend 1.4-2.4 g of protein per kg of body weight per day, or 127-218 g per day for a 200 lb athlete [R, R].

Animal-based proteins provide all the essential amino acids and are digested more easily than plant-based proteins. Meat is high in vitamin B12, B6, and iron, which is especially important for female athletes who are at a greater risk of deficiency. Lastly, plant-based foods contain antinutrients (such as lectins and tannins) that reduce the absorption of proteins [R, R].

In turn, **athletes who ate meat gained more lean muscle mass** than those who follow vegetarian diets, even when vegetarians include milk and eggs [R].

These benefits are not limited to athletes: in older people eating omnivorous diets, **higher red meat intake was linked with increased muscle mass and function** [R, R].

22

Probiotics

IMPACT 2 / 5

EVIDENCE 1 / 5

How to implement

Take a probiotic supplement containing 10 billion or more live cultures once daily, preferably with a meal or as directed by the packaging or a healthcare provider.

TYPICAL STARTING DOSE

10 billion

Description

Probiotics are live beneficial bacteria and yeasts that can support gut health and digestive function when consumed as supplements or found in fermented foods like yogurt and sauerkraut. They may be beneficial to gut health, immune function, blood sugar, and mood.

Probiotic bacteria are "good" bacteria found mainly in the large intestine. They support your body and mind by [R, R, R, R, R, R, R, R]:

- Maintaining gut health
- Supporting a healthy immune system
- Improving your mood
- Helping to maintain healthy blood sugar

Prebiotics are certain types of fiber and other complex carbs that serve as food for gut bacteria. **They support gut health by helping boost the activity and growth of "good" bacteria** [R, R].

Prebiotics are also added to foods and supplements. Common prebiotic ingredients are [R, R]:

- Oligo-fructose
- Oligo-galactose
- Inulin

Mixtures of probiotics and prebiotics are known as **synbiotics** [R].

How it helps

Several studies confirmed the potential of probiotics to increase muscle mass. Studied probiotics include [R]:

- *Lactobacillus paracasei*
- *Bifidobacterium breve*
- *L. delbrueckii*
- *Streptococcus thermophilus*
- *L. plantarum*

23

Betaine (TMG)

IMPACT 2 / 5

EVIDENCE 1 / 5

How to implement

To take Betaine (TMG) as a supplement, consume 500-2000 mg daily, preferably with a meal to enhance absorption. It is recommended to start at the lower end of the dosage range and adjust based on personal tolerance and effectiveness. This supplement can be taken indefinitely for ongoing support of heart health and liver function.

TYPICAL STARTING DOSE

500 mg

Description

Betaine is a compound found in various foods and used in dietary supplements for its potential to support liver health and contribute to healthy homocysteine levels.

How it helps

Betaine supplementation has been studied in various exercise contexts with mixed results [R, R, R, R, R, R, R]:

Dosage: Betaine supplementation in different studies ranged from 2-2.5 g/day for 2-14 weeks.

Health Effects:

- Some studies suggest betaine supplementation may increase testosterone and the testosterone to cortisol ratio (T/C).
- Betaine supplementation in certain trials improved parameters such as maximal oxygen uptake (VO2max), anaerobic peak power, and muscular strength.
- In some cases, betaine supplementation appeared to reduce perceived exertion and subjective measures of fatigue.
- However, in several studies, betaine supplementation did not lead to significant changes in body composition, muscle mass, strength, or cell hydration.

Overall, the effects of betaine supplementation on exercise performance and body composition seem to vary depending on the study and population, and more research is needed to establish its consistent benefits and optimal dosages for different exercise contexts.

Please note: *Doses above 4 g/day may increase LDL and triglyceride levels. TMG supplementation can cause a person's urine and sweat to smell fishy* [R, R].

24

Lactobacillus Plantarum

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take a probiotic supplement containing *Lactobacillus plantarum* 299V daily. The typical dosage is 10 billion colony-forming units (CFUs). Continue for at least 4 weeks to assess benefits on digestive health.

TYPICAL STARTING DOSE

10 billion CFU

Description

Lactobacillus plantarum is a probiotic bacterium found in many fermented plant products such as sauerkraut, pickles, brined olives, and Korean kimchi [R].

People take *L. plantarum* supplements to improve [R, R, R, R]:

- Diarrhea
- Skin appearance
- IBD
- High cholesterol

How it helps

Based on a single study, L. plantarum TWK10 (3-9 x 1010 CFU/day for 6 weeks) may boost muscle mass and performance while reducing body fat [R].

In 2 placebo-controlled trials of 70 healthy adults, supplementation with L. plantarum TWK10 (3-9 x 1010 cfu/day) for 6 weeks **increased endurance performance, muscle mass, glucose content in a maximal treadmill running test while reducing fatigue and body fat** [R, R].

**CFU (colony forming units) = the number of active bacteria in one probiotic serving*

25

Ashwagandha

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 250-600 mg of ashwagandha supplement daily. It can be consumed with water or a meal, depending on your preference or as advised by a healthcare provider.

TYPICAL STARTING DOSE

120 mg

Description

[Ashwagandha](#) (*Withania somnifera*) is an herb used in traditional Indian medicine. This herb is known as an *adaptogen* because it helps people adapt to stress.

How it helps

In a placebo-controlled trial of 57 young men, supplementation with ashwagandha (300 mg, 2x/day) for 8 weeks increased muscle strength on the bench press (by 19.6 kg) and leg extension (by 4.7 kg) exercises, muscle size in the arms (by 3.3 cm2) and chest (by 1.9 cm2), and testosterone levels (by 78.2 ng/dL), while reducing exercise-induced muscle damage as indicated by the stabilization of serum creatine kinase (by 157 U/L) and body fat percentage (by 2%) [R].

In a placebo-controlled trial of 38 recreationally active men, supplementation with ashwagandha (500 mg/day) for 12 weeks improved muscle strength on squat (by 9.1 kg) and bench press (by 4.8 kg), average squat power, peak bench press power, 7.5 km time trial performance, and perceived recovery scores [R].

26

Kelp

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take a kelp supplement daily, ensuring the dosage aligns with the product's label, typically ranging from 600 to 1000 micrograms of iodine. It's important to not exceed the recommended dosage to avoid potential thyroid issues. Use for ongoing nutritional support, especially if your diet lacks iodine.

TYPICAL STARTING DOSE

500 mg

Description

Kelp is a type of seaweed rich in iodine and other minerals. Incorporating kelp into the diet may help support thyroid function and provide essential nutrients.

Kelp is a source of iodine, vitamins K, A, C, E, and B-vitamins, along with some thiamin, riboflavin, and niacin. The highest type is kombu kelp, which contains 2,984 mcg of iodine per seaweed sheet (1 gram).

How it helps

In a placebo-controlled trial of 50 overweight participants, supplementation with kelp (6 g kelp powder, 30 tablets/day) for 8 weeks decreased body fat percentage, body weight, and BMI [R].

27

Hydroxymethylbutyrate (HMB)

IMPACT 1 / 5

EVIDENCE 1 / 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

Studies observed the benefits of HMB for increasing muscle mass as follows [R, R, R, R, R, R, R]:

- Elderly: May increase, especially with frailty or sarcopenia.
- Athletes: May increase with suboptimal protein intake.
- Young People: No significant effect.
- General: Mixed evidence, small effects.

28

Resveratrol

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 150-500 mg of resveratrol as a supplement daily, preferably with meals to enhance absorption. This dosage range is based on studies for various health benefits, and it's advised to not exceed 500 mg per day without medical supervision.

TYPICAL STARTING DOSE

150 mg

Description

Resveratrol is a natural compound found in red grapes, red wine, and some berries. It is known for its potential antioxidant properties and its role in promoting heart health.

Resveratrol is an antioxidant found mainly in [R]:

- Berries
- Red grapes
- Red wine
- Peanuts

It’s purported to have anti-inflammatory and antioxidant effects [R, R, R].

How it helps

In a placebo-controlled trial of 30 older subjects, supplementation with resveratrol (500 mg/day) for 12 weeks as an add-on to exercise improved knee extensor muscle peak torque (by 8%), average peak torque (by 14%), power (by 14%), mean fiber area (by 45.3%) and total myonuclei of the vastus lateralis (by 20%) [R].

Resveratrol may help by improving mitochondrial function, which gives your muscles energy, and reducing inflammation, which can slow down muscle repair and growth.

29

DIM (Diindolylmethane)

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take a DIM (diindolylmethane) supplement daily with water during a meal to aid absorption. Dosages typically range from 100 to 200 mg per day, but always start with the lower dose to assess your body's response before increasing.

TYPICAL STARTING DOSE

100 mg

Description

DIM is a natural compound found in cruciferous vegetables like broccoli and cauliflower. It is known for its potential to support hormonal balance and may be used in supplements for its estrogen-regulating properties.

How it helps

In a placebo-controlled trial of 60 premenopausal women, supplementation with DIM (75 mg/day) for 30 days **decreased body fat percentage** [R].

30

Icelandic Yogurt

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Incorporate Icelandic yogurt, also known as skyr, into your diet by consuming about 1-2 cups daily. You can have it for breakfast, as a snack, or use it as a base in smoothies or as a substitute for sour cream in recipes.

Description

Icelandic yogurt, also known as Skyr, is a dairy product packed with protein and probiotics. Consuming Icelandic yogurt can support gut health, aid in digestion, and provide a source of essential nutrients.

How it helps

Icelandic yogurt, rich in protein, helps in the repair and growth of muscle tissues, which can lead to increased muscle mass when combined with regular exercise. It also contains essential nutrients, like calcium and vitamin D, vital for bone health, which supports your muscles.

Thirty healthy untrained older males (age = 68 ± 4 years) were randomly assigned to Icelandic yogurt (IR; n 15, 18 g of protein) or an iso-energetic placebo (PR; n 15, 0 g protein) immediately following resistance training (3×/week) for 8 weeks. The addition of Icelandic yogurt consumption to a resistance training programme improved lean mass, strength and altered skeletal muscle regulatory factors in healthy untrained older males compared with placebo [R].

31

Alpha-Ketoglutarate (AKG)

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take alpha-ketoglutarate (AKG) as a dietary supplement in a dose of approximately 1-2g per day, preferably with meals to aid in its absorption. The exact dosage may vary based on the specific product and individual health needs, so it's important to follow the label instructions or consult a healthcare provider for personalized advice. This supplementation can be ongoing, with periodic evaluations to assess its effects on your health.

TYPICAL STARTING DOSE

1 g

Description

Alpha-ketoglutarate (AKG) is a key molecule in the Krebs cycle, crucial for energy production in cells. It plays a role in amino acid synthesis and nitrogen transport. In supplement form, it's claimed to improve athletic performance and support recovery, but the scientific evidence for these benefits is limited.

How it helps

AKG plays a crucial role in the Krebs cycle, aiding in efficient energy production, which is vital for muscle growth and maintenance. AKG also stimulates protein synthesis as a source of glutamine and glutamate, promoting anabolic processes. It serves as a nitrogen transporter, helping in the synthesis of amino acids, the building blocks of protein.

Additionally, AKG can enhance cellular energy and reduce oxidative stress in muscle tissue, supporting muscle endurance and recovery. These combined effects contribute to muscle hypertrophy and help in mitigating muscle atrophy, especially in aging or muscle-wasting conditions.

In 21 people who underwent surgical trauma, supplementing alpha-ketoglutarate in a controlled trial prevented muscle breakdown and increased protein synthesis [R].

Abdominal surgery reduces muscle protein synthesis and increases fatigue. In 22 adults who had stomach surgery, supplementing alpha-ketoglutarate improved glutamine supply in the muscles and prevented muscle loss [R].

32

Krill Oil

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 1 to 3 grams of krill oil daily as a dietary supplement, preferably with a meal to enhance absorption. It's often available in soft gel form, making it easy to swallow. Continue this regimen consistently for best results, typically reviewing its effectiveness and any need for adjustments with a healthcare provider after a few months.

TYPICAL STARTING DOSE

1 g

Description

Krill oil is a source of omega-3 fatty acids, primarily in the form of phospholipids. It can promote cardiovascular health, joint comfort, and may have anti-inflammatory properties.

How it helps

In a placebo-controlled trial of 94 older participants, supplementation with krill oil (4 g/day) for 6 months increased knee extensor maximal torque (by 9.3%), grip strength (by 10.9%), and vastus lateralis muscle thickness (by 3.5%) [R].

Krill oil is rich in omega-3 fatty acids, which help increase muscle protein synthesis. Additionally, the anti-inflammatory properties of krill oil can assist in muscle recovery and mitigate muscle damage.

33

Yoga

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Practice yoga for at least 20 to 30 minutes a day, most days of the week. Choose a style that matches your fitness level and goals, and consider attending a class or using online resources to guide your practice.

TYPICAL STARTING DOSE

30 minutes

Description

Yoga is a mind-body practice that combines physical postures, breathing exercises, and meditation. It enhances flexibility, strength, and mental well-being and is used for stress reduction, relaxation, and overall health improvement.

Yoga combines breathing, stretching, and relaxation techniques. Practicing yoga may help [R, R, R]:

- Reduce stress
- Improve fitness
- Lower blood pressure and heart rate
- Manage pain

How it helps

A 12-week yoga program improved body muscle mass percentage among other anthropometric parameters in a non-placebo-controlled trial of 60 women with abdominal obesity [R].

Yoga combines stretching with strength-building poses that challenge the muscles, supporting muscle tone and mass.

34

Colostrum

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take colostrum supplements orally, typically 20 to 60 grams daily, split into two to three doses. It is recommended to start with a lower dose and gradually increase as needed. This supplement can be taken for varying durations, from a few weeks to several months, depending on the health goals and responses observed.

TYPICAL STARTING DOSE

20 g

Description

Colostrum is the first milk produced by mammals, including humans, after giving birth. It is rich in nutrients and antibodies and is believed to support newborns' immune systems and overall health.

Colostrum, or “first milk,” is the very first type of milk produced right after a mammal gives birth. It supports the newborn’s immune system and provides a rich source of nutrients and growth factors [R].

People take colostrum to boost immunity and exercise performance [R].

How it helps

Colostrum is rich in growth factors like IGF-1, which promotes muscle growth and repair, making it beneficial for muscle mass. It also boosts recovery and helps decrease muscle damage, which is key for muscle gain.

In a study involving 40 older adults, colostrum supplementation (60g/day) during resistance training increased leg press strength more than whey protein, and reduced bone resorption. Both groups improved upper body strength, muscle thickness, lean tissue mass, and cognitive function. No significant changes in IGF-1 or CRP were observed [R].

In a study, subjects were assigned to a placebo (whey protein) and colostrum group (20g/day in powder form). The colostrum group showed a significant increase in bone-free lean body mass, with a mean increase of 1.49 kg [R].

However, in a double-blind study, physically active men (R group and E group) were given either a placebo (maltodextrin) or bovine colostrum (20g daily) within one month between treatments. Bovine colostrum increased serum essential amino acids but didn't affect strength performance or protein net balance during recovery after strength training [R].

35

Hesperidin

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take 500 mg of hesperidin supplement daily with water, preferably with a meal for better absorption. This should be maintained for at least a few weeks to gauge effectiveness, and adjustments should be made based on personal tolerance and results.

TYPICAL STARTING DOSE

500 mg

Description

Hesperidin is a flavonoid, a type of plant compound that has antioxidant and anti-inflammatory properties. It is found in citrus fruits, such as oranges, grapefruits, lemons, and tangerines.

People take hesperidin to reduce [R, R, R, R, R]:

- Inflammation
- Blood sugar
- Cholesterol

How it helps

Based on a single study, hesperidin (500 mg/day for 2 months) may increase muscle mass by 1% while reducing body fat [R].

In an 8-week double-blind trial, 2S-hesperidin (500 mg/d) led to a decrease in body fat percentage (-3.7%) and total body fat (-3.0%), while increasing muscle mass percentage (1.0%) in amateur cyclists compared to a placebo group [R].

36

Shock Wave Therapy

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Schedule and attend sessions for extracorporeal shock wave therapy (ESWT) with a qualified healthcare provider. Typically, treatments may involve 1 to 3 sessions a week over a span of 3 to 4 weeks, depending on the condition being treated and the severity of symptoms.

Description

Extracorporeal shockwave therapy is a medical treatment that uses shockwaves to stimulate healing and reduce pain in various musculoskeletal conditions. It is often used for conditions such as plantar fasciitis and tendinitis.

In extracorporeal shockwave therapy, sound waves are emitted and passed through parts of the body. Doctors use it to help reduce pain and stimulate tissue recovery in people [R, R].

How it helps

In a non-placebo-controlled trial of 18 patients undergoing hemodialysis, receiving radial extracorporeal shock wave therapy 1x/week for 12 weeks **increased leg lean mass and appendicular skeletal muscle mass, as well as performance at timed up-and-go test and sit-to-stand tests** [R].

37

Hydrolyzed Keratin

IMPACT 1 / 5

EVIDENCE 1 / 5

How to implement

Take hydrolyzed keratin supplements orally, usually available in capsule or tablet form, at a dosage of 500 mg once daily with a glass of water. It is recommended to continue this supplementation for at least 3 to 6 months to observe noticeable improvements in hair, skin, and nail health.

TYPICAL STARTING DOSE

500 mg

Description

Hydrolyzed keratin is a protein derived from hair, skin, and feathers. It is used in cosmetic products to strengthen and condition hair and nails.

How it helps

A study examined the effects of 4 weeks of soluble keratin consumption on endurance-trained males. Body composition results showed no significant changes in total body mass or body fat percentage. In contrast, there was a significant increase in bone-free lean mass, particularly in the legs [R].

Hydrolyzed keratin may help by providing a source of protein.

38

Mangosteen Rind and Cinnamomum Tamala

IMPACT 0 / 5

EVIDENCE 1 / 5

How to implement

Take a supplement that combines mangosteen rind and Cinnamomum tamala in capsule or powder form. Follow the manufacturer's instructions for dosage, typically once or twice a day with meals. Continue this regimen for at least 8 to 12 weeks to observe potential benefits.

Description

The combination of mangosteen rind and cinnamomoum tamala is sometimes used in traditional medicine for its potential to support digestive health and reduce inflammation. These natural remedies may offer relief from digestive discomfort and promote overall gastrointestinal well-being.

How it helps

In a placebo-controlled trial of 38 resistance-trained participants, supplementation with mangosteen fruit rind and *Cinnamomum tamala* leaf for 42 days **improved left arm circumference (by 0.41 cm), right arm circumference (by 0.39 cm), and lean mass (by 1.77 kg)** [R].

Mangosteen rind has anti-inflammatory properties which can aid in muscle recovery, growth, and reduce pain. Cinnamomum Tamala, on the other hand, could enhance insulin sensitivity which promotes muscle protein synthesis for muscle mass growth.

39

Chia Seeds

IMPACT 0 / 5

EVIDENCE 1 / 5

How to implement

Incorporate 1 to 2 tablespoons of chia seeds into your daily diet. You can add them to yogurt, smoothies, oatmeal, or salads. Do this regularly as part of your daily meals.

Description

Chia seeds are high in fiber, omega-3 fatty acids, and various vitamins and minerals. Adding chia seeds to your diet can support digestive health, provide essential nutrients, and contribute to overall nutritional wellness.

Chia seeds are a healthy source of omega-3s, calcium, as well as fiber, iron, magnesium phosphorus, and vitamins B1 and B3. A 1-ounce serving provides 5.06 g of ALA.

How it helps

Chia seeds are rich in protein and fiber, which aids in muscle repair and growth, improving muscle mass over time. They also contain Omega-3 fatty acids that can help reduce muscle inflammation post-workout.

40

Beef

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate lean beef into your diet 2-3 times per week, with a serving size of about 3-4 ounces (85-113 grams) per meal. Choose cuts like sirloin or round to minimize saturated fat intake.

Description

Beef is a rich source of high-quality protein, essential vitamins, and minerals like iron and zinc. Incorporating lean cuts of beef into a balanced diet can support muscle growth, overall nutrition, and iron intake.

Beef is an excellent source of many B-vitamins, protein, proline, and minerals like zinc and iron. Grass-fed uncharred beef is healthiest. Beef contains 34.82 mg of proline per gram.

How it helps

Beef is a high-quality protein source containing essential amino acids necessary for muscle repair and growth. It also provides iron and B vitamins that can help with energy production.

41

Milk

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate milk into your daily diet by drinking 1-2 glasses (around 8-16 ounces) each day, either as a beverage, mixed with cereal or coffee, or used in cooking and baking recipes. Choose a type of milk that suits your nutritional needs and dietary preferences, such as whole, skim, lactose-free, or plant-based alternatives.

Description

Milk is a nutrient-rich beverage that provides essential calcium, protein, and vitamins like vitamin D. It supports bone health, helps build and repair tissues, and can be a valuable part of a balanced diet.

How it helps

Milk provides both casein and whey proteins, which have been shown to enhance muscle hypertrophy and strength in combination with resistance training.

42

Fish

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate two servings of fish into your diet each week, focusing on oily fish like salmon, mackerel, or sardines for their high omega-3 fatty acid content. Each serving should be about 3.5 ounces cooked, or about ¾ cup of flaked fish.

Description

Fish, particularly fatty fish like salmon and mackerel, is an excellent source of omega-3 fatty acids, which support cardiovascular health, brain function, and inflammation management. Regular consumption of fish can promote heart health and overall well-being.

Fish is a great source of omega-3s, protein, and other essential nutrients. Omega-3s from fish (EPA and DHA) are some of the healthiest fats we can eat. They help reduce inflammation and **protect the heart, brain, and eyes** [R, R, R].

Fatty fish are rich in EPA and DHA. They include [R]:

- Salmon
- Tuna
- Herring
- Sardines

For optimal protection, try to get at least **two servings of fatty fish per week.** Fish oil supplements are available for those who don't eat fish regularly [R].

How it helps

Fish is not only a great source of protein but also rich in omega-3 fatty acids, which can decrease muscle protein breakdown and support muscle growth.

43

Practice Exercise Snacks

IMPACT 0 / 5

EVIDENCE 0 / 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

Staying active with regular movement throughout the day helps to maintain muscle mass and strength by keeping muscles engaged and preventing atrophy.

44

Eggs

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate eggs into your diet 3-4 times a week, preferably for breakfast or as part of a balanced meal. They can be boiled, scrambled, or made into omelets, ensuring they are cooked thoroughly.

Description

Eggs are a nutrient-dense food rich in protein, vitamins, and minerals. They support various aspects of health, including muscle development, brain function, and eye health.

Eggs are great nutrition sources, with protein, healthy fats, arachidonic acid, and numerous vitamins and minerals.

How it helps

Eggs contain high-quality protein and essential amino acids that are vital for muscle recovery and new tissue growth, alongside choline which supports metabolism.

45

Maintain Optimal Vitamin D Levels

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Check your vitamin D levels, they should ideally be in the 30-66 ng/mL range. If your levels are lower than that, take a vitamin D supplement, 1000-4000 IU daily, to reach an optimal range.

TYPICAL STARTING DOSE

1000 iu

Description

Vitamin D, often referred to as the "sunshine vitamin," can be synthesized by the skin when exposed to sunlight, as well as being found in fish, eggs, and fortified milk. It helps regulate calcium absorption, promoting strong bones and a healthy immune system. Vitamin D deficiency can lead to conditions like rickets in children and osteoporosis in adults.

Your body needs vitamin D for strong bones. Vitamin D also plays a role in [R]:

- Mood
- Immunity
- Heart health
- Blood sugar control

Sunlight is our main source of vitamin D. Experts recommend getting at least **5-15 minutes of midday sun, 2-3 times per week**. People with darker skin and those living at high latitudes may need longer periods of sun exposure [R, R].

Foods like fish, eggs, and fortified milk provide small amounts of vitamin D. **People lacking vitamin D should consider taking a supplement** [R].

How it helps

Genetically higher vitamin D levels may be associated with greater muscle mass [R, R].

Please note: *There is no evidence from controlled clinical trials to support this recommendation. It is included based on uncontrolled clinical trials, animal or cell studies, or non-scientific criteria. Please take this recommendation with a grain of salt until more research is available.*

46

Chicken

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate chicken into your meals 2-3 times a week, preferably opting for lean cuts like breast meat. Cook it through methods such as grilling, baking, or boiling to avoid adding excess fats. Aim for a portion size of about 3-4 ounces (85-113 grams) per serving.

Description

Chicken is a lean source of protein and essential nutrients like vitamin B12 and selenium. It can be a healthy part of a balanced diet that supports muscle growth and overall nutritional well-being.

Chicken and particularly dark meat like the thigh, is a good source of omega-6s that also contains protein, vitamins, and even needed trace minerals like selenium. One chicken thigh contains 3792 mg of omega-6.

How it helps

Chicken is another excellent source of lean protein which helps in repairing and building muscle tissue, making it beneficial for muscle mass.

47

Velositol

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Velositol is typically taken alongside a protein supplement to enhance its effects. The recommended dosage is 2 grams mixed with around 20 grams of protein, consumed either before or after a workout for optimal muscle protein synthesis. It can be added to protein shakes or smoothies. For best results, follow the guidelines on the product label, and consult with a healthcare professional if you have any concerns about dosage or combining it with other supplements.

Description

Velositol is a dietary supplement that combines amylopectin and chromium. When combined with protein intake, it enhances muscle protein synthesis.

People often take inositol to improve muscle growth, strength, and recovery after exercise. By increasing the efficiency of protein utilization, Velositol helps maximize the benefits of protein supplements, making it popular among athletes and fitness enthusiasts looking to boost muscle performance and recovery.

How it helps

Studies in animals show that supplementation with velositol may enhance exercise-induced muscle growth. Velositol may be most effective when combined with whey protein, soy protein, or branched-chain amino acids [R, R, R, R, R].

However, research in humans is lacking.

48

DHEA (Dehydroepiandrosterone)

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Take 25-50 mg of DHEA orally with water daily, preferably in the morning to mimic the body's natural rhythm of DHEA production. It is advisable to start at the lower dose to assess tolerance and adjust as needed. Consult a healthcare provider for personalized advice and before starting a new supplement regimen.

TYPICAL STARTING DOSE

25 mg

Description

DHEA is a hormone produced by the adrenal glands and has been used as a dietary supplement for various purposes, including supporting hormonal balance and energy levels. It may have potential benefits for specific individuals, but its use should be supervised by a healthcare professional due to its hormonal nature.

DHEA is a steroid hormone produced primarily by the adrenal glands. It is also produced to a much lesser extent by the testes and ovaries and, possibly, the brain [R, R].

DHEA helps make the sex hormones testosterone and estrogen. DHEA is important for [R, R, R, R]:

- Mood
- Immunity
- Muscle strength
- Bone health
- Skin health

DHEA is released in response to stress. In fact, one of DHEA's important roles is to protect against the adverse effects of prolonged and excessive exposure to cortisol, the stress hormone [R, R, R].

How it helps

Genetically higher DHEA-S levels may be associated with increased muscle mass [R].

49

Resistant Starch

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate 40g of Jo's resistant starch into your daily diet. This can be done by adding it to smoothies, yogurt, or baked goods. Ensure to spread the intake throughout the day for better tolerance.

TYPICAL STARTING DOSE

40 g

Description

Resistant starch is a type of starch that resists digestion in the small intestine, making it a prebiotic fiber that can benefit gut health. It can be found in foods like green bananas, legumes, and certain grains.

Resistant starch is starch that doesn't get digested in the small intestine [R, R].

Some types of resistant starch include [R]:

- **Type 1** occurs naturally in foods such as whole grains
- **Type 2** can be isolated from foods such as corn and green banana
- **Type 3** is created during the cooking and cooling process of starchy foods like potatoes

Resistant starch doesn't increase blood sugar like typical digestible starches do [R, R].

Instead, it feeds good bacteria in the colon that [R, R]:

- Support healthy gut function
- Support immunity
- Reduce inflammation

How it helps

A study of 416 children associated high fecal butyrate levels with increased muscle mass and quality [R].

Butyrate may help by promoting the growth of muscle cells [R, R].

Because resistant starch gets converted to butyrate in the body, its consumption may have similar beneficial effects.

50

Beta-Alanine

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Take 2-3 grams of beta-alanine supplement daily, ideally in divided doses throughout the day to minimize potential skin tingling sensations. This supplementation can be continued for at least 4 weeks to observe benefits in exercise performance and muscle endurance.

TYPICAL STARTING DOSE

2 g

Description

Beta-alanine is an amino acid that can enhance muscle endurance by increasing the body's buffering capacity against lactic acid accumulation during intense exercise. Supplementing with beta-alanine may help improve athletic performance and delay muscle fatigue.

How it helps

Beta-alanine supplementation can increase muscle carnosine levels, which in turn helps buffer acid in muscles, enhance endurance, and improve performance in high-intensity workouts. This can contribute to increased muscle mass over time through more intense training capacity.

51

Greek Yogurt

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Incorporate Greek yogurt into your diet by eating at least one serving (about 6 ounces or 170 grams) daily. You can enjoy it as a breakfast item, a healthy snack, mixed with fruits and nuts, or as a substitute for sour cream in recipes.

Description

Greek yogurt is a protein-rich dairy product that provides essential nutrients like calcium and probiotics for gut health. It's a nutritious addition to the diet that can support digestion and overall nutritional well-being.

How it helps

Greek yogurt has a high protein content, including a combination of fast-digesting whey protein and slow-digesting casein, which may aid muscle growth.

52

Agmatine

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Take agmatine as a dietary supplement in a dose of 1.6 to 6.4 milligrams per kilogram of body weight, daily. It can be consumed with or without food. For best results, continue taking it on a daily basis for at least two weeks to assess its effect on your body.

TYPICAL STARTING DOSE

1 g

Description

Agmatine is a naturally occurring compound found in the human body and in certain foods. It is sometimes used as a dietary supplement and is believed to have potential benefits for pain relief, mood regulation, and cognitive function.

How it helps

Agmatine increased fat burning, decreased fat composition, and increased muscle mass in rats [R].

Agmatine stimulated the production of luteinizing hormone (LH) in rats. Increased levels of LH increase testosterone levels. By increasing testosterone levels, agmatine contributed to an optimal hormonal environment for muscle growth and enhanced athletic performance [R].

It increased insulin sensitivity and uptake of glucose into the muscles of mice. Increased insulin sensitivity results in more effective shuttling of glucose and amino acids into muscles for growth and repair [R, R].

Agmatine also increased appetite in rats. An increased appetite can lead to increased caloric consumption, which is necessary for increasing muscle mass [R, R].

It may also aid muscle growth by enhancing nitric oxide (NO) production, which improves blood flow and nutrient delivery to muscles.

53

Zumba

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Participate in a Zumba class at least 3 times per week for a duration of one hour each session. Choose a class appropriate for your fitness level to ensure safety and effectiveness.

TYPICAL STARTING DOSE

1 hour

Description

Zumba is a fitness program that combines dance and aerobic movements set to energetic music. It's popular for its potential to improve cardiovascular fitness, coordination, and overall physical health through a fun and engaging workout.

How it helps

Zumba is a full-body workout that combines dance with fitness moves, which can lead to increases in muscle mass and endurance through repeated muscle exertion.

54

Butyrate

IMPACT 0 / 5

EVIDENCE 0 / 5

How to implement

Take butyrate supplements orally with a full glass of water, typically starting with a dose of 300 to 600 mg per day. It can be taken with or without food, but if stomach upset occurs, try taking it with meals. The specific dosage and duration of use should be based on the guidance of a healthcare professional, tailored to individual health needs.

TYPICAL STARTING DOSE

300 mg

Description

Butyrate is a short-chain fatty acid produced by gut bacteria during the digestion of dietary fiber. It plays a crucial role in maintaining gut health, supporting the integrity of the intestinal lining, and contributing to overall digestive well-being.

Butyrate is a short-chain fatty acid produced when the gut bacteria ferment indigestible fibers. It prevents inflammation in the gut and is essential for maintaining a healthy barrier between the large bowel and the bloodstream [R].

People take butyrate to support gut health, improve insulin sensitivity, and promote weight loss.

How it helps

A study of 416 children associated high fecal butyrate levels with increased muscle mass and quality [R].

Butyrate may help by promoting the growth of muscle cells [R, 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.

DHEA Sulfate	303 mcg/dL	70 200 464 650	9 Nov 2025
Zinc	17.12 umol/L	7.65 9.18 12.24 19.89	9 Nov 2025
Vitamin D, 25-Hydroxy, Total	58.59 ng/mL	10 20 30 75 150	9 Nov 2025
Homocysteine	12.84 umol/L	5 9 15 100	9 Nov 2025
Creatinine	1.08 mg/dL	0.6 0.7 1.1 1.2	9 Nov 2025
Creatine Kinase	173 IU/L	44 196	9 Nov 2025
Testosterone, Total	1500 ng/dL	150 300 916 1000	9 Nov 2025