

Power

DNA Health Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026

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 omicsege

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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.

Personal information

NAME

Sample Client

SEX AT BIRTH

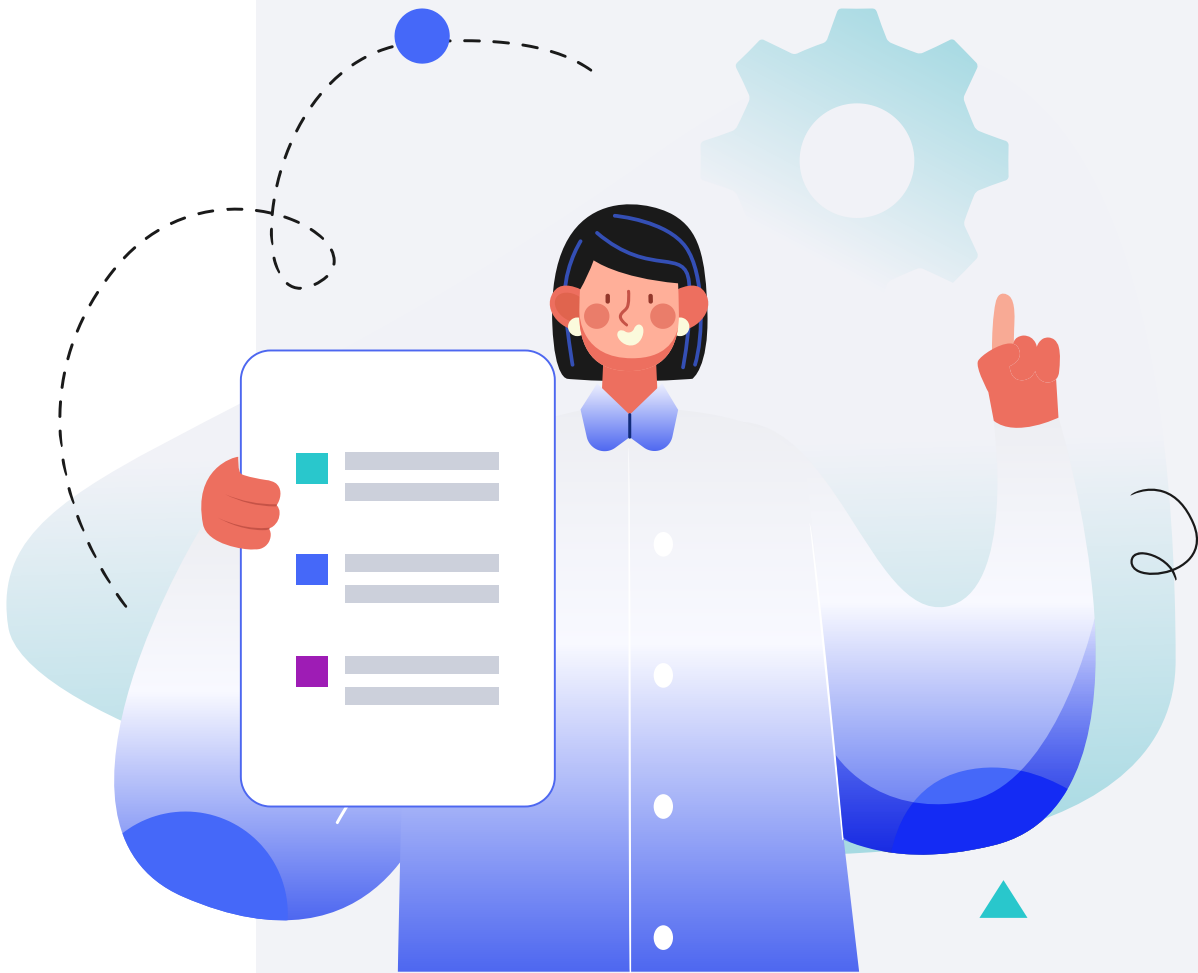
Male

HEIGHT

5ft 5" 165cm

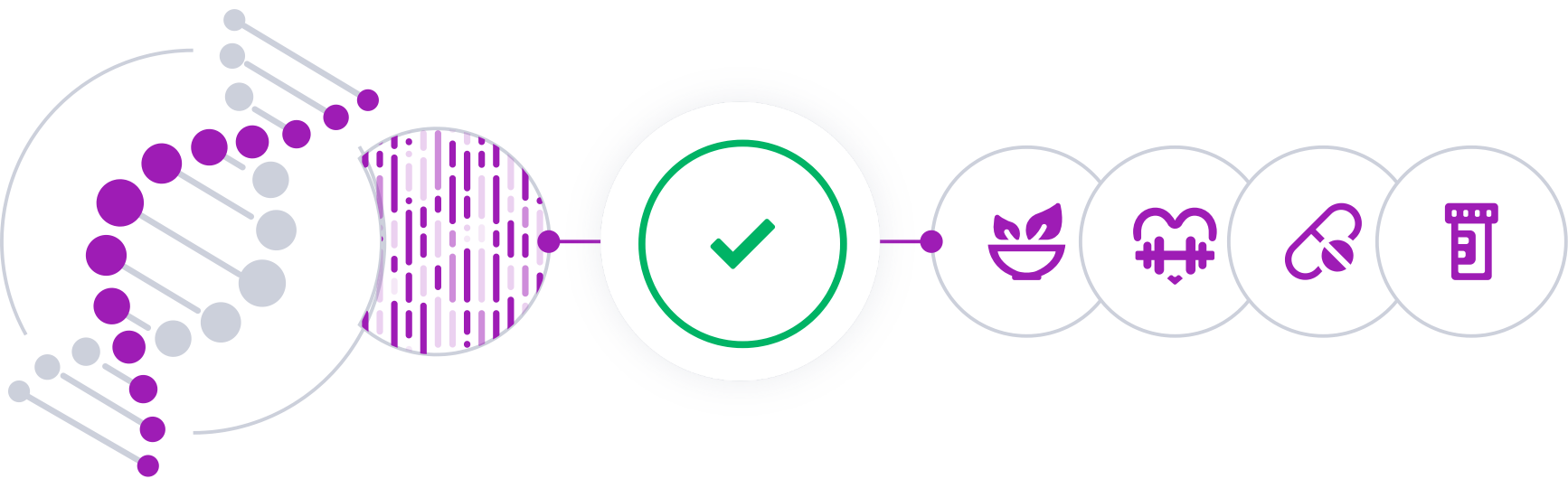
WEIGHT

137lb 62kg



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.

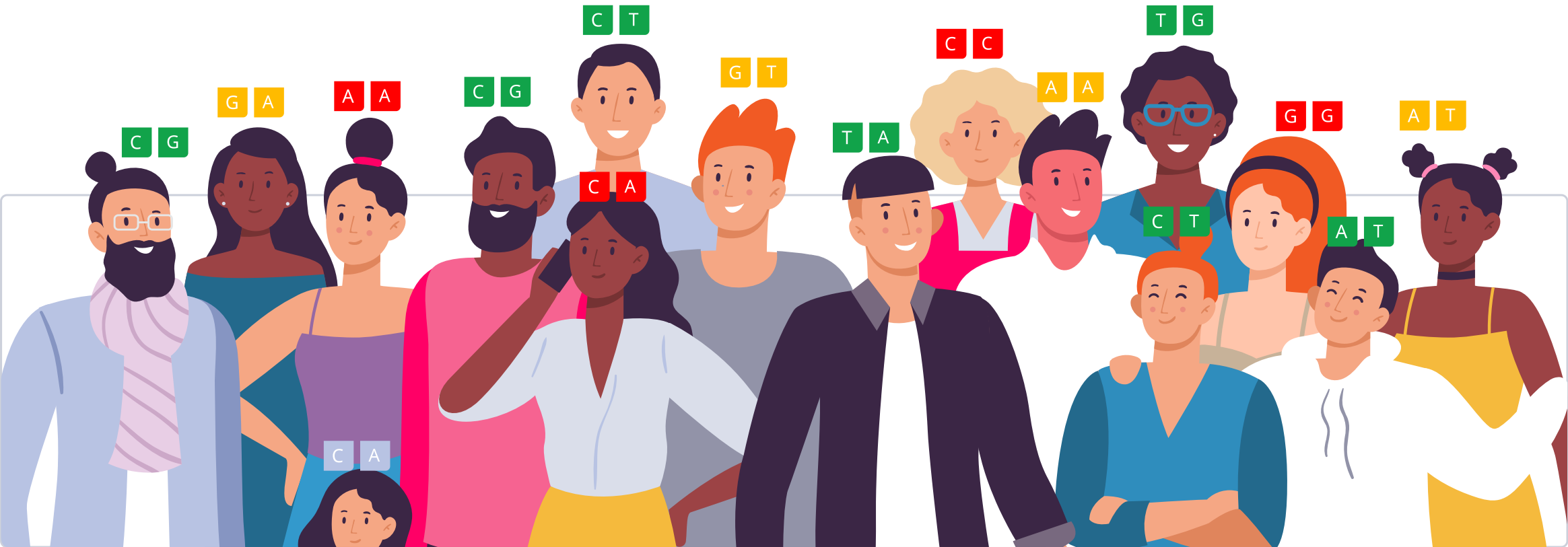


Similarly, our Trait Reports look at how your DNA influences your traits.



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.

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

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



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

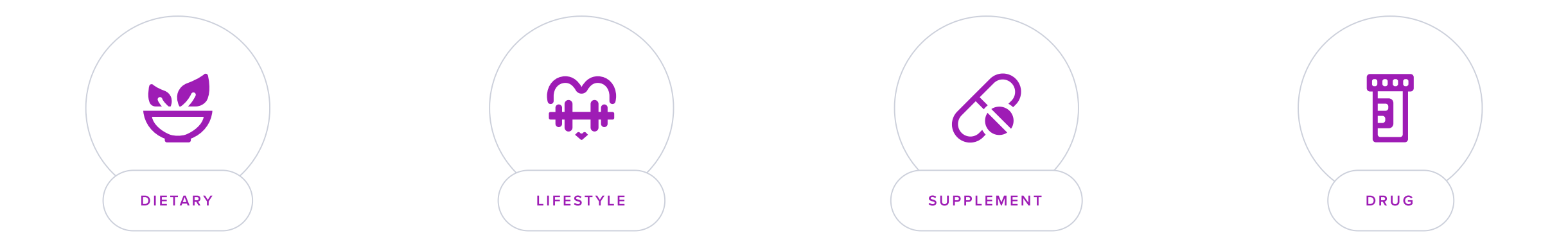
You have 2 risk alleles

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, a few 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

There are three main types of muscle performance [\[R\]](#):

- **Power: the ability to produce rapid, intense movements (e.g., sprinting, jumping, throwing)**
- Endurance: the ability to produce less intense movements for a longer period of time (e.g., cycling, running, swimming)
- Strength: the maximum force applied in one movement (e.g., in a single weight lift)

Our muscles are made up of fibers. The type of fibers determines what a muscle is good at. **Fast-twitch fibers support rapid movements, but they fatigue quickly. These fibers are more common in power athletes.** Slow-twitch fibers support milder long-term movements, and are more resistant to fatigue. They are more common in endurance athletes [\[R\]](#), [\[R\]](#).

The type of fibers in your muscles mostly depends on your genetics and exercise habits [\[R\]](#).

Genetics of Power

PERSONALIZED TO GENES

Based on the variants we looked at, you are likely to have typical power performance. However, strength training, explosive exercise practice, proper technique, nutrition, recovery, and consistent training significantly affect power output.

Power is the ability to produce a large amount of force in a short amount of time. This involves intense muscle movements over a short time interval (e.g., sprinting, jumping, throwing) [R].

Some people are better at power sports than others. **Up to 85% of people’s differences in muscle power may be due to genetics.** Genes associated with power affect [R, R, R, R, R, R, R]:

- Muscle composition and efficiency (fast-twitch vs. slow-twitch muscle fibers)
- Inflammation and recovery after exercise
- Energy metabolism
- Respiratory and cardiovascular fitness

However, fitness level and other lifestyle factors also strongly affect your muscle power.

Some tips that may help you build muscle power include:

- Doing regular resistance training to build up muscle strength
- Doing exercises that exert a lot of force in short time intervals. For example plyometrics (such as box jumps and burpees) or ballistic exercises (such as jumping with weights or throwing weights) increase explosive power.
- Focusing on maximum intent and quality rather than high repetition
- Eating a protein-rich diet to support muscle growth and repair
- Getting sufficient rest for muscle recovery



TYPICAL

Likely typical power performance based on 14 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ACTN3	rs1815739	TC
ACVR1B	rs2854464	AA
ACE	rs4343	AA
CKM	rs8111989	CT
ADRB2	rs1042713	GA
PKDREJ	rs4253778	GC
ADRB2	rs1042714	GC
NOS3	rs2070744	TC
PPARGC1A	rs8192678	TC
VDR	rs1544410	CT
VDR	rs731236	AG
HIF1A	rs2301113	AA
IL6	rs1800795	GG
HIF1A	rs11549465	CC
AGT	rs699	GG
AMPD1	rs17602729	GG

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

While general power training is beneficial, if you are training for a specific sport, you will need exercises that mimic the movements required in that sport.

Your Recommendations

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

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

DOSAGE		DOSAGE			
1	Creatine	4 g	2	Beta-Alanine	2 g
3	High-Impact Exercise	30 minutes	4	Power Training	1 hour
5	Protein Supplement	20 g	6	Whey Protein	25 g
7	Eccentric Exercise		8	Strength Training	1 hour

1



Creatine

IMPACT

1 / 5

EVIDENCE

1 / 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

Creatine enhances the availability of adenosine triphosphate (ATP), the primary energy carrier in cells, which supports increased power output during short-duration, high-intensity exercises in athletes and bodybuilders. This leads to improved performance and greater gains in muscle strength.

2



Beta-Alanine

IMPACT1 / 5

EVIDENCE1 / 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 aids in enhancing muscle power and endurance by increasing carnosine levels, which buffers lactic acid accumulation during high-intensity exercise. This allows athletes to perform at higher intensities for longer durations, improving overall workout efficiency.

3



High-Impact Exercise

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Engage in high-impact exercises like jogging, skipping rope, or playing sports such as basketball or volleyball for at least 30 minutes, 3 to 4 times a week. Ensure to include a warm-up and cool-down period of 5 to 10 minutes to prevent injuries.

TYPICAL STARTING DOSE

30 minutes

Description

High-impact exercise, such as running or jumping, can help improve cardiovascular fitness, bone density, and overall strength. It's an effective way to burn calories and promote physical health when performed safely and in moderation.

How it helps

High-impact exercise enhances neuromuscular efficiency and increases muscle fiber recruitment, crucial for improving power output. This tailored approach mitigates the risk of injury while promoting strength gains necessary for recovery and performance in demanding physical activities.

4



Power Training

IMPACT1 / 5

EVIDENCE1 / 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

Power training enhances neuromuscular coordination and recruits fast-twitch muscle fibers, essential for generating rapid, explosive movements. This results in improved performance and reduced risk of injury, making it crucial for managing power-related conditions.

5



Protein Supplement

IMPACT

1 / 5

EVIDENCE

1 / 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

Protein supplements enhance muscle protein synthesis, thereby promoting muscle repair and growth, which is crucial for improving muscle power. This increased muscle mass and strength can lead to enhanced performance in physical activities.

6



Whey Protein

IMPACT

1 / 5

EVIDENCE

1 / 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

Whey protein enhances muscle repair and growth due to its high content of essential amino acids, which are crucial for muscle recovery. This results in improved muscle power and performance, enabling athletes to train more effectively and recover faster.

7



Eccentric Exercise

IMPACT

1 / 5

EVIDENCE

1 / 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

Eccentric exercises specifically enhance muscle strength by promoting greater muscle fiber recruitment and adapting tendons, which increases the power of muscle contractions during high-intensity activities. This tailored approach aids in maximizing performance while minimizing the risk of injury.

8



Strength Training

IMPACT1 / 5

EVIDENCE1 / 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 enhances muscle power by promoting hypertrophy and neuromuscular adaptations, which are essential for improving performance in activities requiring explosive strength and rapid contractions.