

Muscle Recovery

DNA Health Report

REPORT CATEGORY —



Sample Client

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Table of Contents

03 How this works

- 04 Impact
- 05 Evidence
- 06 Some things to keep in mind

07 Introduction

08 Your genetics

09 Your recommendations

90 Next Steps

- 90 Your Lab Results

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

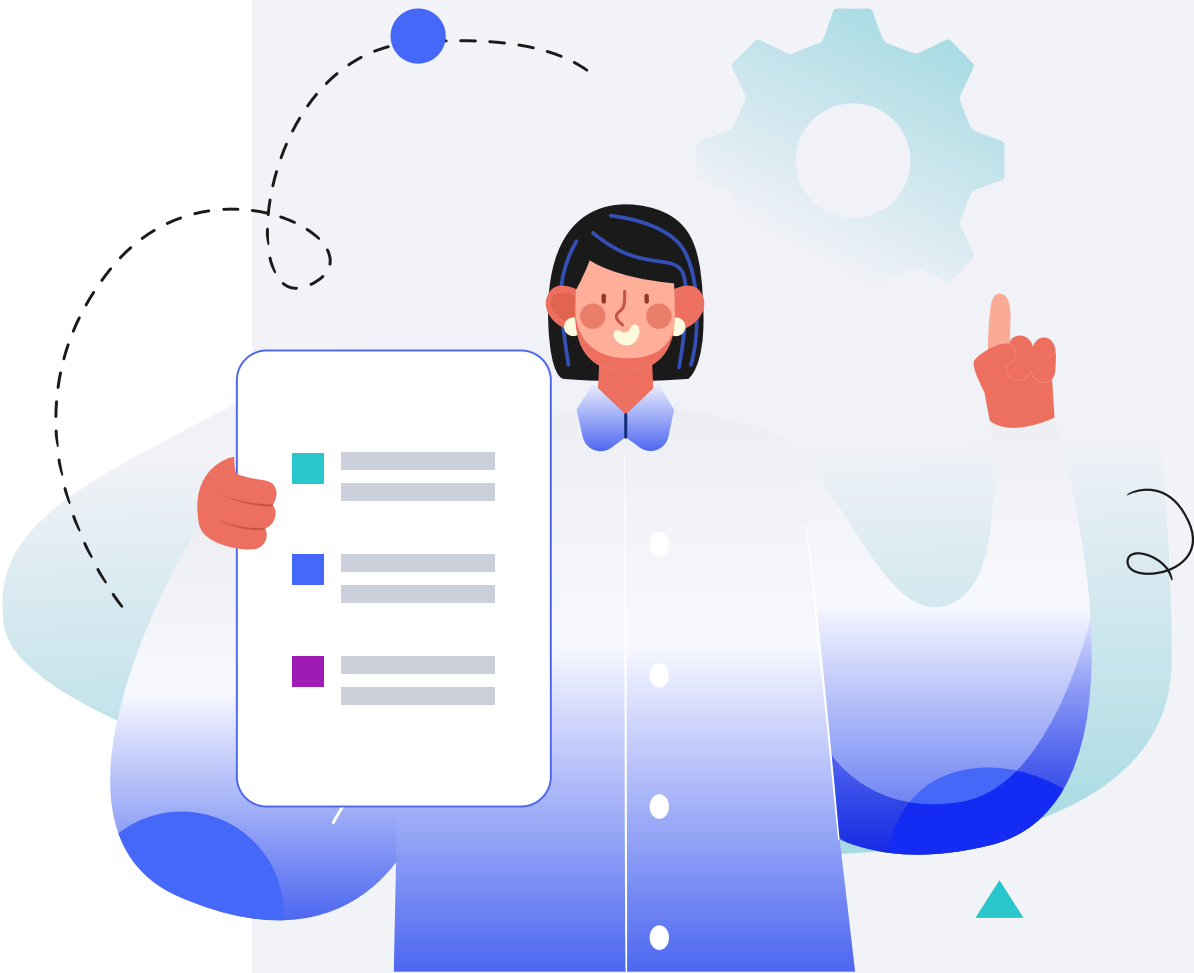
Male

HEIGHT

5ft 5" 165cm

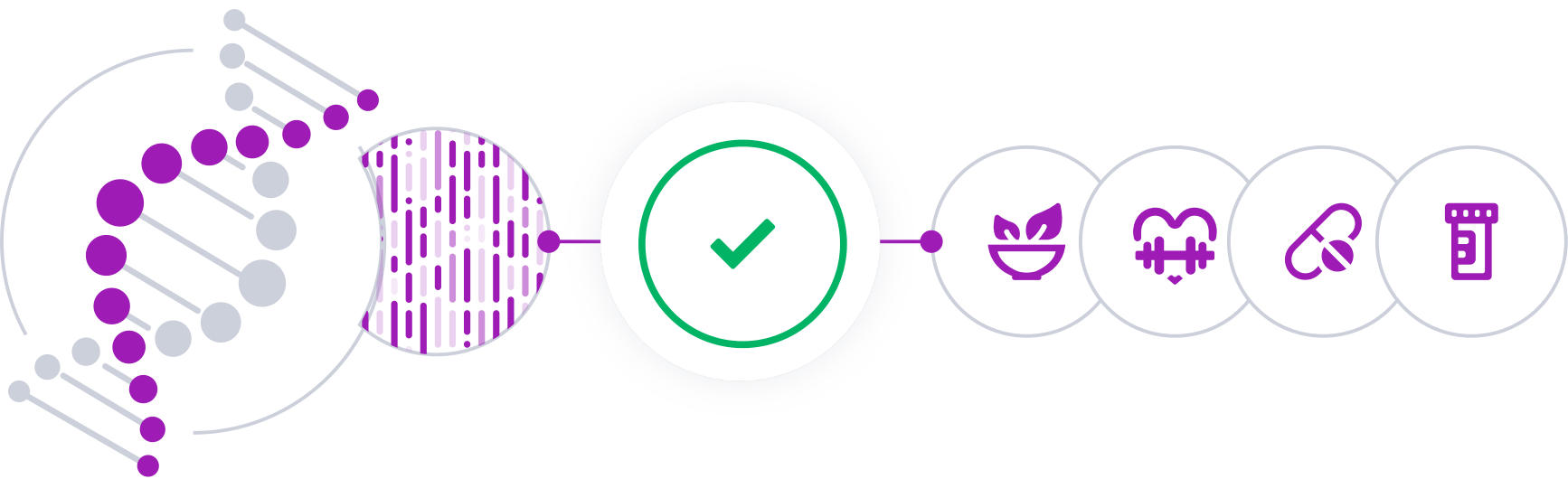
WEIGHT

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.

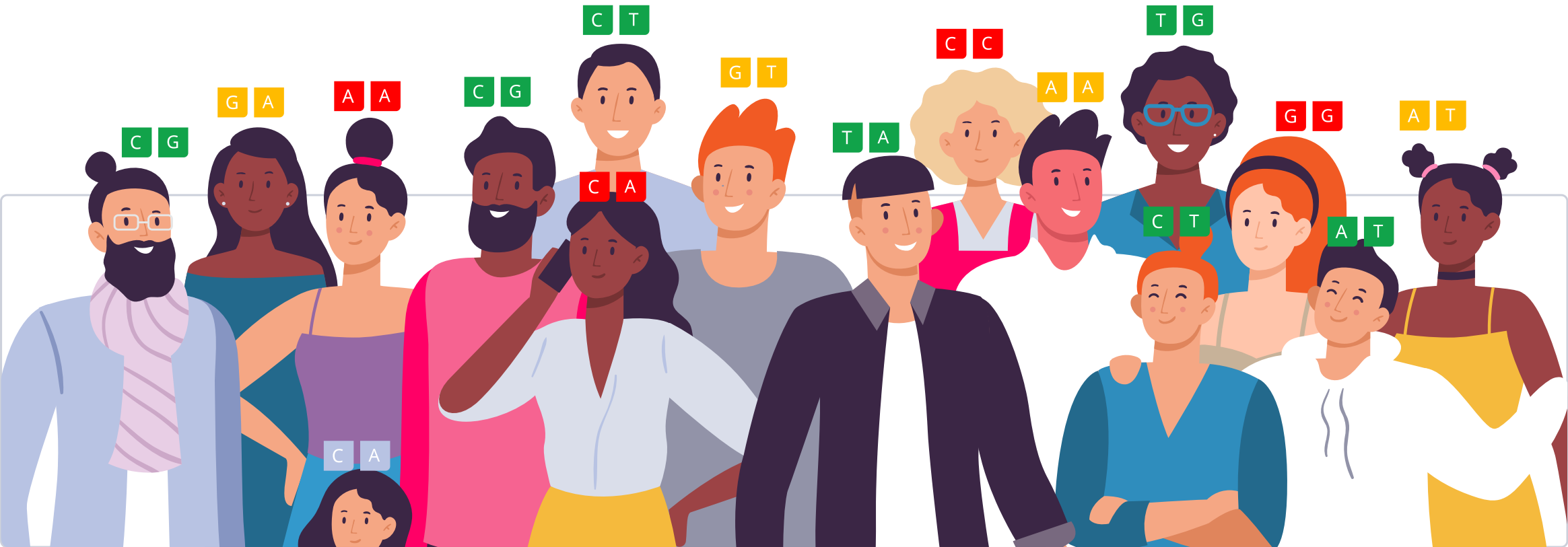


Similarly, our Trait Reports look at how your DNA influences your traits.



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

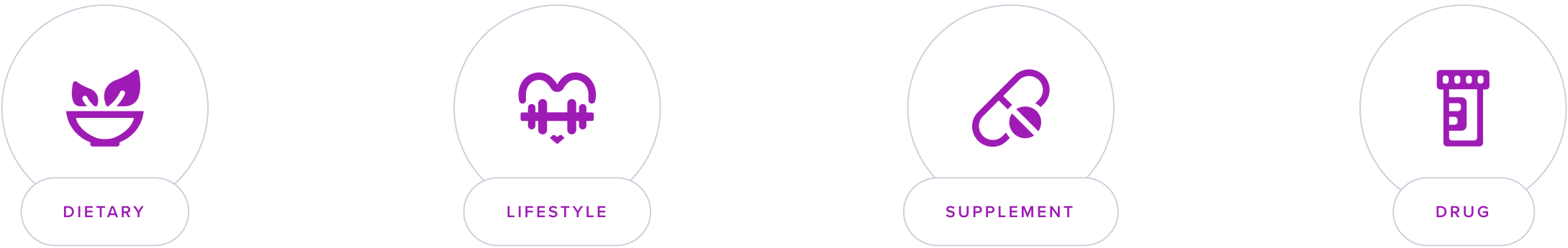
You have 2 risk alleles

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

Muscle recovery is the process that occurs after exercise. Your **body repairs the muscle fibers damaged or strained during a workout** or other intense physical activity. It is during this time that muscles actually grow and strengthen [\[R\]](#).

Muscle recovery includes the following stages:

- **Muscle damage:** Intense exercise causes microscopic tears in the muscle. This releases chemicals, such as creatine kinase and lactic acid, that signal the body that repair is needed [\[R\]](#), [\[R\]](#), [\[R\]](#).
- **Inflammation:** The immune system responds to muscle damage by releasing inflammatory cytokines, which promote muscle repair and growth [\[R\]](#), [\[R\]](#), [\[R\]](#).
- **Repair & regeneration:** In this stage, new muscle cells get created, to repair damaged muscle fiber or build new muscle tissue. Protein is needed to build and repair muscle. Carbs are needed to replenish glycogen, the main energy source in our muscles [\[R\]](#), [\[R\]](#), [\[R\]](#).
- **Remodeling:** This is a longer phase in which muscles get stronger and adapt to specific physical demands (e.g. frequent running or push-ups) [\[R\]](#), [\[R\]](#).

Factors Affecting Muscle Recovery

PERSONALIZED TO GENES

Based on the variants we looked at, you are predisposed to typical muscle recovery. However, factors such as nutrition, sleep quality, training intensity, and overall fitness level significantly influence how quickly your muscles recover after exercise.

Muscle recovery is when the **body repairs the muscle fibers damaged or strained during exercise**. It is during this time that muscles grow and become stronger.

The exact **genetic influences** on muscle recovery are still being researched. Several genes play a role in this process (e.g. ACTN3, CKM, IL6), through their effects on muscle growth, muscle repair and inflammation [\[R\]](#), [\[R\]](#).

Other factors that affect muscle recovery, include [\[R\]](#), [\[R\]](#):

- Intensity and type of exercise
- Nutrition and hydration
- Sleep quality
- Stress
- Aging

Popular methods to aid muscle recovery include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Light stretching
- Massage
- Applying heat or cold to the muscle
- Compression

Adequate nutrition and hydration are important for muscle health. Our bodies need enough protein to repair and build new muscle, and enough carbs to restore depleted energy stores [\[R\]](#), [\[R\]](#), [\[R\]](#).

Interestingly, drinking cherry juice several days before exercise may help improve muscle recovery [\[R\]](#).



TYPICAL

Predisposed to typical muscle recovery based on 15 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ACTN3	rs1815739	TC
CCR2	rs1799865	TT
IGF2	rs2230949	GG
SLC30A8	rs13266634	CC
IGF2	rs680	CT
IGF2	rs3213221	GC
COL2A1	rs2070739	TC
COL5A1	rs12722	TC
TRIM63	rs2275950	CT
SOD2	rs4880	GG
CCR2	rs3918358	AA
CCL2	rs3917878	CC
TNF	rs1800629	GG
IGF2	rs7924316	GG
IGF2	rs4244808	GG

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		DOSAGE			
1	Physical Therapy	30 minutes	2	Cold Applications	15 minutes
3	Low-Level Laser Therapy (LLLT)	30 seconds	4	BCAAs (Branched-Chain Amino Acids)	5 g
5	Whole-Body Vibration	15 minutes	6	Dietary Polyphenols	
7	Contrast Water Therapy		8	Massage	30 minutes
9	Curcumin	500 mg	10	Hot Applications	20 minutes
11	Creatine	4 g	12	Kinesio Taping	
13	Carbohydrates		14	Tart Cherries	
15	Hydroxymethylbutyrate (HMB)	3 g	16	Vitamin E	200 iu
17	Dietary Protein		18	Watermelon	
19	Red Light Therapy	20 minutes	20	Myofascial Release	5 minutes
21	Beetroot		22	Eggs	
23	Compression Therapy		24	L-Citrulline	3 g
25	Omega-3 (Fish Oil)	2000 mg	26	Ashwagandha	120 mg
27	Berries		28	Acupuncture	1 hour
29	Whey Protein	25 g	30	Alpha-Lipoic Acid	100 mg
31	Cold Exposure	1 minutesute	32	Beetroot Juice	

33	L-Carnitine	500 mg	34	Spinach	
35	Beta-Alanine	2 g	36	Coenzyme Q10 (CoQ10)	100 mg
37	L-Lysine	1000 mg	38	Tribulus	250 mg
39	Carnosine	1000 mg	40	Colostrum	20 g
41	Mangiferin and Quercetin	150 mg	42	American Ginseng	200 mg
43	Palmitoylethanolamide (PEA)		44	Pomegranate Juice	
45	Shilajit	500 mg	46	Methylsulfonylmethane (MSM)	1 g
47	Alpha-Ketoglutarate (AKG)	1 g	48	Leucine-Enriched Essential Amino Acids	2 g
49	Blackcurrant Juice		50	Streptococcus Thermophilus & Bifidobacterium Breve	10 billion CFU
51	Spirulina	500 mg	52	Shock Wave Therapy	
53	Saffron	20 mg	54	Tai Chi	1 hour
55	Lactobacillus Plantarum	10 billion CFU	56	Ginger	500 mg
57	Boswellia And Curcumin	600 mg	58	Bananas	
59	CBD	10 mg	60	Lemon Verbena	
61	Quercetin	200 mg	62	PEMF	30 minutes
63	Blackcurrants		64	Lactobacillus Helveticus	10 billion CFU
65	Garlic Supplement	200 mg	66	Lactobacillus Paracasei	10 billion CFU
67	Bacillus Coagulans		68	N-acetylcysteine (NAC)	1200 mg
69	Pycnogenol	100 mg	70	Magnesium	250 mg
71	Collagen Peptides	10 g	72	Sulforaphane	30 mg

73	Glutamine	5 g	74	Date Seeds	
75	Brazilian Green Propolis	70 mg	76	Pomegranate Extract	250 mg
77	D-Ribose	15 g	78	Boswellia	350 mg
79	Purple Sweet Potatoes Leaves		80	Curcumin Longvida	1 g
81	Curcumin Theracurmin	180 mg	82	Hydrogen Water	
83	Strength Training	1 hour	84	Whole-Body Cryotherapy	2 minutes
85	Stretching	15 minutes	86	Velositol	
87	Streptococcus Thermophilus	10 billion CFU	88	Agmatine	1 g
89	Bifidobacterium Breve	10 billion CFU			

1

Physical Therapy

IMPACT

4 / 5

EVIDENCE

4 / 5

How to implement

Attend physical therapy sessions 2-3 times per week for a duration of 4-6 weeks, depending on your specific condition and the advice of your healthcare provider. Each session typically lasts about 30-60 minutes, where a licensed therapist will guide you through targeted exercises, stretches, and possibly other treatments like electrical stimulation or ultrasound therapy.

TYPICAL STARTING DOSE

30 minutes

Description

Physical therapy is a therapeutic practice focused on optimizing physical function and mobility through specialized exercises, manual techniques, and therapeutic modalities. It helps individuals recover from injuries, manage chronic conditions, and improve overall physical well-being by enhancing strength, flexibility, and pain management.

Physical therapy (physiotherapy) helps people regain or maintain their ability to move [\[R\]](#).

Physical therapy can involve [\[R\]](#):

- Joint or muscle exercises
- Corrective movements
- Massage
- Education and advice

People mainly use physical therapy to help with [\[R\]](#), [\[R\]](#):

- Pain and injury
- Stroke recovery
- Chronic health conditions
- Headaches

Mirror therapy uses a mirror placed between the arms or legs. The image of a moving arm or leg gives the illusion of normal movement in the affected one. This therapy stimulates different brain regions and aims to improve mobility [\[R\]](#).

Constraint-induced movement therapy is another type of physical therapy. It consists of restraining the healthy leg or arm to increase the use of the affected one [\[R\]](#).

How it helps

The following types of physical therapy may improve exercise recovery:

- **Low-level laser therapy (LLLT)** [\[R\]](#), [\[R\]](#), [\[R\]](#)
- **Massage** [\[R\]](#), [\[R\]](#)
- Compression therapy [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Kinesio Taping [\[R\]](#)
- Vibration therapy [\[R\]](#), [\[R\]](#), [\[R\]](#)

They may help by:

- Reducing muscle soreness, swelling, and damage
- Improving muscle performance

However, some studies didn't confirm the above benefits and some were of low quality [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

2



Cold Applications

IMPACT

4 / 5

EVIDENCE

4 / 5

How to implement

Apply a cold pack or a bag of frozen peas wrapped in a towel to the affected area for 15-20 minutes, every 2-3 hours during the first 48 hours of experiencing pain or swelling.

TYPICAL STARTING DOSE

15 minutes

Description

Cold applications, such as ice packs, can help reduce inflammation, alleviate pain, and promote muscle recovery after injuries or intense physical activity. Applying cold can provide temporary relief from discomfort and support the body's natural healing processes.

People use cold applications to relieve pain, reduce inflammation, and more [\[R, R\]](#).

Types of cold applications include [\[R, R\]](#):

- Ice packs
- Ice baths
- Cryotherapy

How it helps

Cooling down with a dip in cold water or a session in a cryogenic chamber may boost exercise recovery by improving [\[R, R, R, R, R, R, R\]](#):

- Perceived exertion
- Muscle soreness
- Muscle function
- Endurance and sprint performance
- Flexibility

It may provide greater benefits than rest, active recovery, contrast water therapy (alternating hot and cold water), and warm water immersion. However, some studies found **contrast water therapy** equally beneficial [\[R, R, R, R\]](#).

Consider the following tips [\[R, R, R, R, R\]](#):

- Cooling down for **11-15 minutes at 11-15°C** may be most effective.
- **Whole-body** cold exposure may be better than local application.
- This approach may be especially beneficial after **endurance workouts**.

3



Low-Level Laser Therapy (LLLT)

IMPACT

4 / 5

EVIDENCE

3 / 5

How to implement

Use a low-level laser therapy device, as directed by its manual or a healthcare professional, on the affected area. Generally, treatment involves applying the laser for a specified duration, often between 30 seconds to several minutes, per treatment area. Sessions can be conducted 2-3 times per week for a period of 4-12 weeks, depending on the condition being treated and the device used.

TYPICAL STARTING DOSE

30 seconds

Description

Low-level laser therapy (LLLT), also known as photobiomodulation, is a type of light therapy that uses low-intensity lasers to promote healing. It has been shown to be effective in treating a variety of conditions, including pain, inflammation, and wound healing.

How it helps

Low-Level Laser Therapy (LLLT) boosts the body's natural healing process by stimulating cell activity and increasing blood circulation. This aids in muscle recovery by reducing inflammation and pain, and promoting tissue regeneration.

Low-level laser therapy (LLLT) before exercise may [\[R\]](#), [\[R\]](#):

- Enhance workout performance
- Reduce muscle soreness and damage

Some studies found LLLT more effective than cold therapy at improving muscle strength and reducing soreness after high-intensity exercise [\[R\]](#).

In a 2015 review of 13 RCTs, phototherapy (LLLT or LEDT) showed significant performance improvements when applied before exercise. Results were strongest with red or infrared wavelengths, power outputs of 50-200 mW, and doses of 5-6 J per point [\[R\]](#).

A 2018 review of 39 trials with 861 participants showed some evidence favoring phototherapy (LLLT or LEDT) within exercise protocols for performance improvement but emphasized the need for more rigorous studies due to methodological issues and variable parameters. Positive effects were seen with wavelengths from 655 to 950 nm, energy doses of 20-60 J for small muscles and 60-300 J for large muscles, and a maximal power output of 200 mW per diode [\[R\]](#).

A 2022 review of 24 studies in athletes found that LLLT before exercise improved lower-limb muscle strength, reduced soreness, and positively affected various biochemical markers. More robust trials are needed before making strong recommendations [\[R\]](#).

4



BCAAs (Branched-Chain Amino Acids)

IMPACT3 / 5

EVIDENCE4 / 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.

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

BCAA supplementation (6-20 g/day for 3-11 days) may improve muscle soreness and damage after exercise. However, it may not improve muscle performance after exercise [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

It may be most effective **at doses below 255 mg/kg/day and in trained individuals** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

BCAA may help by building and repairing muscle tissue [\[R\]](#), [\[R\]](#).

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* [\[R\]](#).

5



Whole-Body Vibration

IMPACT3 / 5

EVIDENCE3 / 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

Vibration therapy may improve delayed-onset muscle soreness at 24-72 h post-exercise, pain tolerance 72 h post-exercise, CK levels at 24-48 h post-exercise, and lactate dehydrogenase levels 24 h post-exercise. Pre-exercise vibration therapy also improves delayed-onset muscle soreness (at 24-48 h post-exercise), pressure pain threshold (at 24 h), CK (at 24-72 h), and lactate dehydrogenase (at 24 h) [\[R, R, R\]](#).

6



Dietary Polyphenols

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Incorporate foods rich in dietary polyphenols into your daily diet. This can include consuming a variety of fruits like berries, apples, and grapes; vegetables such as onions and broccoli; nuts and seeds; as well as beverages like green tea and coffee. Aim for at least five servings of fruits and vegetables per day to achieve a beneficial intake of polyphenols.

Description

Polyphenols are antioxidants found in foods like fruits, vegetables, and tea, which may offer various health benefits, including reduced inflammation and improved heart health.

Polyphenols are plant components with antioxidant properties. They help reduce [oxidative stress](#) [R].

High levels of oxidative stress can damage our cells. Oxidative stress plays a role in many health conditions, including [R]:

- High blood sugar
- Type 2 diabetes
- Heart disease

You can get most polyphenols and other antioxidants from fresh fruits and vegetables [R, R].

How it helps

Consuming polyphenol-rich foods may support exercise recovery by improving [R, R, R]:

- Post-exercise muscle strength
- Muscle soreness

The effects may be largest **48-72 h** after exercise.

Good dietary sources of polyphenols include [R]:

- Fresh fruits and vegetables (especially berries and cherries)
- Tea and coffee
- Cocoa
- Nuts

Green and black tea extracts rich in polyphenols may improve exercise recovery. However, the evidence is mixed and of low quality [R, R, R, R, R].

7



Contrast Water Therapy

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

To perform contrast water therapy, alternate between hot and cold water during your shower. Start with hot water for about 3-4 minutes, then switch to cold water for about 1 minute. Repeat this cycle 3-5 times, always ending with cold water. Do this daily or after intense physical activity for the best results.

Description

Contrast water therapy involves alternating between hot and cold water treatments, which may help reduce muscle soreness and promote recovery after intense physical activity. This therapy can support musculoskeletal health and improve circulation, contributing to overall physical well-being.

How it helps

Contrast water therapy (alternating between cold and hot water) improves muscle soreness at 6-96 h better than passive recovery according to an analysis of 18 studies. It may be as effective as other recovery methods such as cold water immersion or compression therapy [R].

8



Massage

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Schedule a massage session, ideally with a licensed therapist, for 30-60 minutes, once a week. Choose a type of massage that suits your specific needs, such as Swedish for relaxation or deep tissue for muscle tension.

TYPICAL STARTING DOSE

30 minutes

Description

Massage therapy involves the manipulation of soft tissues to relax muscles, reduce stress, and alleviate pain. It can improve circulation, promote relaxation, and provide relief from various physical and mental health concerns.

If you’ve ever had a professional [massage](#), then you probably know how much good it can do. Massages may help with [R, R, R]:

- Anxiety
- Pain
- Fatigue

Reflexology is a type of massage. It involves applying pressure to specific parts of your feet or hands. In theory, by pressing on these areas, you can relieve tension from other parts of the body [R].

Acupressure is a similar technique, in which pressure points are used to help with stress and pain [R, R].

How it helps

Massage may reduce muscle soreness and support performance recovery. **Short massages (5-12 minutes)** may be most effective [R, R, R].

9



Curcumin

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Take a 500 mg curcumin supplement daily with food. To enhance absorption, take it with a meal that contains fats or oils since curcumin is fat-soluble.

TYPICAL STARTING DOSE

500 mg

Description

Curcumin is a compound found in turmeric known for its anti-inflammatory and antioxidant properties. It has been studied for its potential to reduce inflammation, support joint health, and contribute to overall well-being.

[Turmeric](#) is a yellow spice from India. It may reduce inflammation and [oxidative stress](#) [\[R\]](#).

The most important active compound in turmeric is **curcumin**. People use curcumin for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Joint pain
- Hay fever
- Mood
- High blood sugar
- Gut health
- Liver health

How it helps

Supplementation with curcumin (150-400 mg/day for up to 2 months) may [\[R\]](#), [\[R\]](#):

- Reduce muscle damage, soreness, and inflammation
- Increase muscle strength and joint flexibility

Note that curcumin is hard to absorb. Look for supplements with *bioavailable* curcumin, which is easier to absorb. Combining it with [piperine](#) (a compound in black pepper) may also help [\[R\]](#), [\[R\]](#).

***Please note:** curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).*

10



Hot Applications

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Apply a hot pack, heating pad, or a warm towel to the affected area for 15-20 minutes at a time. Do this several times a day, especially before activities that increase pain.

TYPICAL STARTING DOSE

20 minutes

Description

The use of hot applications, such as heating pads or warm compresses, can help relieve muscle tension, reduce pain, and improve blood flow to affected areas. It is a common approach for managing muscular discomfort and promoting relaxation.

People use hot applications to relieve pain, improve blood flow, and help muscles relax [\[R, R\]](#).

Types of hot applications include [\[R, R\]](#):

- Heating pads
- Hot baths
- Saunas

How it helps

Hot pack application may reduce muscle pain and soreness after exercise [\[R\]](#).

However, cold applications and contrast water therapy (alternating hot and cold water) may be more effective [\[R, R, R, R\]](#).

11



Creatine

IMPACT

3 / 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

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

Supplementation with creatine (5-40 g/day for 5-28 days) reduces muscle soreness, exercise-induced muscle damage markers (CK, lactate dehydrogenase, and myoglobin), and oxidative markers as an acute training response but increases them as a chronic training response [\[R, R, R\]](#).

12



Kinesio Taping

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Apply kinesio tape directly to the skin over the affected muscle or joint area. The tape should be stretched slightly to create tension after being applied over the pre-cleaned skin. Typically, kinesio tape can be worn for 3 to 5 days, including during showering, before it needs to be replaced.

Description

Kinesio taping involves the application of special tape to support injured muscles and joints. It can help reduce pain, improve circulation, and enhance overall mobility when used correctly.

Kinesio Taping is a physical therapy technique that uses special tapes to help support muscles and tendons. People use Kinesio Taping to help with [R](#), [R](#):

- **Musculoskeletal injuries**
- Swelling due to lymph fluid buildup (lymphedema)
- Muscle stiffness

How it helps

A meta-analysis of 8 trials and 289 participants concluded that Kinesio taping reduces muscle soreness at 48-72 h post-exercise and increases muscle strength at 72 h post-exercise. However, it did not affect CK levels [R](#)

13



Carbohydrates

IMPACT

2 / 5

EVIDENCE

3 / 5

How to implement

Incorporate a variety of carbohydrates into your daily meals, aiming for at least 130 grams per day, which is the recommended daily amount for the average adult. Focus on whole grains, fruits, vegetables, and legumes, spreading intake evenly throughout the day to maintain energy levels and support bodily functions.

Description

Carbohydrates are a primary source of energy in the diet and are essential for brain function and physical activity. Choosing complex carbohydrates like whole grains and vegetables can provide sustained energy and support overall nutritional well-being.

How it helps

Consuming carbs between or after exercise sessions may boost muscle recovery [R](#).

Sugars and other simple carbs are preferred during and after exercise because your body can digest them quickly. **However, your overall diet should still be low in sugar** [R](#), [R](#).

14



Tart Cherries

IMPACT

2 / 5

EVIDENCE

3 / 5

How to implement

Consume about 200 grams (7 ounces) of tart cherries or drink 240 ml (8 ounces) of tart cherry juice daily. This can be done at any time of the day but consuming it in the evening might improve sleep quality. It is recommended to continue daily consumption for at least 4 weeks to observe benefits such as reduced muscle pain, improved sleep, and potential reduction in inflammation.

Description

Tart cherries, often available in the form of juice or supplements, has vitamin C, as well as anthocyanins and melatonin, known for their potential to reduce inflammation and improve sleep quality. They are rich in antioxidants and may aid in recovery from exercise-induced muscle soreness.

Cherries are stone fruits with numerous species. Tart or “sour” cherries (*Prunus cerasus*) are native to parts of Europe and Asia [\[R\]](#), [\[R\]](#).

They are close to regular, sweet cherries (*Prunus avium*) but more acidic. Hence, people do not eat them fresh but dried or in syrups, salads, pies, or liqueurs.

People consume tart cherries to help with [\[R\]](#):

- Gout
- Exercise recovery
- Blood sugar control
- Blood pressure

How it helps

Eating tart cherries after strenuous exercise may [\[R\]](#):

- Slightly improve muscle soreness and inflammation
- Moderately improve muscle performance recovery

However, one small study found no benefits of tart cherry juice for exercise recovery in men [\[R\]](#).

15



Hydroxymethylbutyrate (HMB)

IMPACT2 / 5

EVIDENCE3 / 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

Supplementation with HMB (3 g/day for 6-12 weeks) may reduce muscle damage after exercise. HMB may help by building muscle tissue [\[R\]](#).

16



Vitamin E

IMPACT

2 / 5

EVIDENCE

3 / 5

How to implement

Take 200 IU of Vitamin E daily as a supplement, preferably with a meal that contains fat to enhance absorption.

TYPICAL STARTING DOSE

200 iu

Description

Vitamin E is a fat-soluble antioxidant found in various foods, such as nuts and seeds. It is known for its ability to protect cells from oxidative damage, support immune function, and may play a role in skin health. Vitamin E supplements are used to bolster antioxidant defenses and may be beneficial for conditions related to oxidative stress.

[Vitamin E](#) is an antioxidant important for the immune system and for heart health [\[R\]](#).

Plant-based foods have the most vitamin E. These include [\[R\]](#):

- Wheat germ
- Sunflower seeds
- Almonds
- Plant oils

Adults need about **15 mg** of vitamin E per day [\[R\]](#).

How it helps

Supplementing with vitamin E (up to 500 IU/day for up to 2 months) may reduce muscle damage after exercise. Vitamin E may help by combating oxidative stress [\[R\]](#).

Please note: *While dietary vitamin E is generally considered safe, vitamin E supplements have been linked to prostate cancer. They may also not be the best option for pregnant people. Those who have heart disease, bleeding disorders, or other conditions may also need to avoid them. Consult your doctor before taking vitamin E supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).*

17



Dietary Protein

IMPACT

2 / 5

EVIDENCE

2 / 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

Consuming protein in doses of around 30 grams post-exercise may maximize muscle protein synthesis rates during recovery from endurance exercise. This supports the body's whole-body protein metabolism and muscle recovery [\[R\]](#).

Protein ingestion before sleep is also effective, improving muscle protein synthesis rates overnight, which eases recovery and increases muscle mass and strength gains during prolonged resistance-type exercise training [\[R\]](#).

In frail elderly people, protein supplementation during the recovery phase may improve physical performance, although it may not always increase skeletal muscle mass. This demonstrates the role of protein in aiding recovery and enhancing muscle function [\[R\]](#).

18



Watermelon

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate fresh watermelon into your diet, aiming to consume about 1-2 cups of cubed watermelon daily, either as a snack or part of your meals. It is best consumed fresh to maximize its hydrating effects and nutritional benefits.

Description

Watermelon is a refreshing fruit known for its high water content and being a good source of vitamins A and C. It is used to help stay hydrated and may support skin health due to its antioxidant properties.

How it helps

A study demonstrated that natural watermelon juice (500 mL) alone and enriched with L-citrulline (1.17 g) helped reduce recovery heart rate and muscle soreness after 24 hours in athletes. This suggests that watermelon juice may be a functional drink for reducing muscle soreness among athletes [R].

Similarly, consumption of watermelon juice enriched in L-citrulline and pomegranate ellagitannins demonstrated a positive effect on maintaining force during exercise and a decrease in the rating of perceived exertion and muscle soreness after exercise in a study involving high-intensity physical activity [R].

However, another study analyzed the effects of a single pre-exercise dose of watermelon juice on submaximal post-exercise heart rate recovery, blood lactate, blood pressure, blood glucose, and muscle soreness in healthy adults. While it did not improve recovery metrics compared to a placebo, watermelon juice helped maintain lower post-exercise systolic and diastolic blood pressure in women [R].

19



Red Light Therapy

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Position yourself or the specific area of your body that needs treatment about 6 inches away from a red light therapy device. Use the device for 10 to 20 minutes daily. It is recommended to continue this daily regimen for at least several weeks to notice benefits.

TYPICAL STARTING DOSE

20 minutes

Description

Red light therapy involves exposure to low-level red or near-infrared light, which may promote skin rejuvenation, reduce inflammation, and improve circulation when used for therapeutic purposes in skin care and wellness treatments.

How it helps

In a placebo-controlled trial of 40 healthy untrained men undergoing intensive exercise, those receiving red light therapy had **significantly improved performance, decreased soreness, and reduced indicators of muscle damage**. Red light therapy also significantly **improved recovery after high-intensity exercise** in a placebo-controlled trial of 40 volunteers [R, R].

20



Myofascial Release

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate myofascial release into your routine by using tools like foam rollers or massage balls, focusing on tense areas for about 5-20 minutes daily. You can also seek professional myofascial release therapy sessions, which typically last about 30-60 minutes, 1-2 times per week for targeted treatment.

TYPICAL STARTING DOSE

5 minutes

Description

Myofascial release is a type of massage therapy that can help to improve range of motion, reduce pain, and increase circulation. It can also help to improve posture and reduce stress.

How it helps

Myofascial Release assists in muscle recovery by releasing tension and improving blood circulation in the fascia, the connective tissues surrounding muscles. This improved circulation reduces muscle soreness, accelerates healing, and increases overall muscle performance after exertion.

A meta-analysis of 22 studies found that self-myofascial release acutely increases flexibility, reduces muscle soreness, and improves cardiovascular and parasympathetic nerve function [R].

21



Beetroot

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate beetroot into your diet by eating it raw in salads or drinking beetroot juice. Aim for a serving of about one small beetroot or 200-250 ml of beetroot juice daily. You can maintain this dietary practice consistently as part of your regular diet.

Description

Beetroot is a vegetable rich in dietary nitrates, which may help improve cardiovascular health and exercise performance.

How it helps

Eating beetroot can enhance muscle recovery due to its high nitrate content, which improves blood flow and oxygen delivery to muscles, speeding up the recovery process. Additionally, the antioxidants in beetroot help minimize muscle damage and inflammation, allowing for quicker repair and recovery.

Consuming beetroot juice may support exercise recovery by [R]:

- Improving strength recovery (after 72h)
- Improving muscle performance (after 24-72h)
- Reducing muscle pain (after 48-72h)

Beetroot juice is rich in nitrates, which help promote blood flow [R].

22



Eggs

IMPACT

2 / 5

EVIDENCE

2 / 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

Consuming whole eggs after resistance exercise may stimulate myofibrillar protein synthesis, more so than consuming the equivalent amount of protein from egg whites alone. This suggests that the nutrients found in the yolks may enhance the muscle recovery process [\[R\]](#).

The comparison between eating raw versus boiled eggs during post-exercise recovery shows no difference in postprandial myofibrillar protein synthesis rates. Both forms of eggs, when consumed after resistance exercise, may effectively support muscle recovery [\[R\]](#).

Whole eggs may promote greater muscle protein synthesis than egg whites alone during recovery from resistance exercise. Although limited evidence suggests no difference in muscle hypertrophy between whole egg and egg white consumption over time, the acute anabolic responses are better with whole eggs [\[R\]](#).

23



Compression Therapy

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Wear compression stockings or sleeves daily, especially during long periods of standing or sitting. Choose a compression level appropriate for your condition (mild, moderate, or high), as advised by a healthcare professional. Start wearing them in the morning before swelling occurs and keep them on until bedtime.

Description

Compression therapy involves wearing specialized garments that apply pressure to the limbs, promoting better circulation and reducing swelling. It is commonly used to manage conditions like venous disorders and can help alleviate symptoms, improve vascular health, and enhance overall well-being.

In compression therapy, different methods are used to apply pressure to the legs. These methods include [\[R\]](#):

- Bandages
- Wraps
- Compression stockings
- Pneumatic pressure devices

Compression therapy supports blood flow. It may help [\[R, R, R\]](#):

- Prevent blood clots and deep vein thrombosis (DVT)
- Reduce some kinds of swelling
- Reduce symptoms of restless legs syndrome

How it helps

Wearing compression garments during or after exercise reduces lactate dehydrogenase levels, CK, muscle swelling, and perceptual measurements, while increasing muscle power and strength recovery. However, not all studies found these benefits [\[R, R, R, R\]](#).

24



L-Citrulline

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 1.5 to 5 grams of L-citrulline supplements per day, orally, with or without food. This dosage can be taken all at once or divided into two to three smaller doses throughout the day. It's generally recommended to start at the lower end of the dosage range and adjust based on your body's response.

TYPICAL STARTING DOSE

3 g

Description

L-citrulline is an amino acid that may help improve blood flow and reduce muscle soreness, making it a popular supplement for athletes and individuals with certain cardiovascular conditions. Its potential to enhance nitric oxide production supports vascular health and overall circulation.

[Citrulline](#) is an amino acid (protein building block). Citrulline can be found in foods like [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Watermelon
- Pumpkins
- Cucumber
- Bitter melon

The body uses L-citrulline to produce nitric oxide, a compound that helps widen blood vessels. It is important for heart and sexual health [\[R\]](#), [\[R\]](#), [\[R\]](#).

L-citrulline is commonly used as supplement to support [\[R\]](#):

- Blood vessel health
- Muscle health
- Metabolic health
- Sexual health

How it helps

Supplementation with a single dose of L-citrulline (8 g, up to 2 h before exercise) may reduce perceived effort and muscle soreness after exercise. However, the effects may not last longer than 2 days [\[R\]](#).

Please note: *There is not enough safety data for long-term L-citrulline supplementation at doses above 6 g/day.*

25



Omega-3 (Fish Oil)

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take 1-2 g of omega-3 (fish oil) supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

2000 mg

Description

Omega-3 fatty acids are essential fats found in fatty fish like salmon, flaxseeds, and walnuts. They are known for their potential cardiovascular and brain health benefits, including reducing the risk of heart disease and supporting cognitive function.

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA [\[R\]](#), [\[R\]](#).

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

Supplementation with fish oil, which is high in omega-3 fatty acids, may optimize the recovery of jump performance and reduce muscle soreness following strenuous exercises. This suggests that omega-3 fatty acids may play a role in accelerating recovery processes [\[R\]](#).

Intake of fish oil rich in EPA immediately after exercise has been shown to ameliorate functional declines following exercise-induced muscle damage, suggesting a role in faster recovery [\[R\]](#).

Omega-3 supplementation may reduce muscle soreness after exercise, helping to maintain muscle function and mitigate the negative effects of exercise-induced muscle damage. This is seen particularly with supplementation that combines omega-3 fatty acids with protein in athletes engaged in intense training [\[R\]](#).

26



Ashwagandha

IMPACT

2 / 5

EVIDENCE

2 / 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. This herb is known as an *adaptogen* because it helps people adapt to stress [\[R\]](#), [\[R\]](#).

How it helps

A study found that ashwagandha supplementation increased muscle strength and size, enhanced recovery, and reduced muscle damage as indicated by the stability of serum creatine kinase. This suggests that ashwagandha may help recover from muscle injuries and fatigue [\[R\]](#). Another study showed that ashwagandha root extract improved cardiorespiratory endurance and enhanced recovery by reducing exercise-induced fatigue. This may improve muscle recovery and overall physical performance [\[R\]](#).

27



Berries

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Incorporate a variety of berries such as strawberries, blueberries, raspberries, and blackberries into your daily diet. Aim for at least one cup of fresh or frozen berries every day, either as a snack, part of your breakfast (such as in oatmeal or yogurt), or as a dessert.

Description

Berries, such as strawberries, blueberries, and raspberries, are packed with antioxidants, vitamins, and fiber. Regular consumption of berries may support heart health, improve cognitive function, and contribute to overall well-being.

How it helps

Consuming a blueberry smoothie before and after exercise-induced muscle damage has been shown to accelerate the recovery of muscle peak isometric strength. This effect appears to be related to an up-regulation of endogenous antioxidant processes rather than the direct antioxidant capacity of the berries themselves [\[R\]](#). Anthocyanins, which are abundant in berries, have antioxidative and anti-inflammatory actions that improve recovery from exercise. These compounds may also affect vasoactive properties, such as decreasing arterial blood pressure and increasing vasodilation during exercise, which may further aid in muscle recovery and performance [\[R\]](#).

28



Acupuncture

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Visit a licensed acupuncturist for a session, typically lasting between 30 to 60 minutes, once or twice a week. Depending on your specific condition, a course of treatment might range from a few weeks to several months.

TYPICAL STARTING DOSE

1 hour

Description

Acupuncture is a part of traditional Chinese medicine. It involves inserting thin needles at specific points on the body. People use it to relieve pain and allergies, as well as reduce nausea and improve sleep.

[Acupuncture](#) is a part of traditional Chinese medicine. It involves **inserting thin needles at specific points on the body**. People use it to [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Relieve pain
- Improve sleep quality
- Relieve allergies
- Reduce nausea

How it helps

A study investigated the effects of acupuncture on the recovery abilities of male elite basketball athletes. It found that acupuncture reduced heart rate, oxygen consumption, and blood lactic acid levels after exercise, suggesting improved recovery ability. The athletes in the acupuncture group showed a faster recovery from muscle fatigue compared to those in the sham and control groups [\[R\]](#).

A systematic review of studies on acupuncture's effects on exercise performance and post-exercise recovery found preliminary support for its use. The review suggests that acupuncture may enhance exercise performance and expedite recovery, although it noted limitations in the available studies, including small sample sizes and varying methodologies [\[R\]](#).

Another study analyzed the effects of traditional Chinese medicine acupuncture and pressing on the recovery of delayed muscle soreness in athletes. The results showed reductions in serum creatine kinase levels and rapid decreases in perceived exertion and pain scores in the acupuncture group compared to a control group, indicating effective recovery from exercise-induced fatigue [\[R\]](#).

29



Whey Protein

IMPACT2 / 5

EVIDENCE2 / 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

Supplementation with whey protein (20-98 g) may moderately improve muscle function within **1-4 days** after exercise [\[R\]](#).

Please note: *There is not enough safety data for long-term whey protein supplementation at doses above **30 g/day**.*

30



Alpha-Lipoic Acid

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 600-1800 mg of alpha-lipoic acid daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

100 mg

Description

[Alpha-lipoic acid](#) is a natural antioxidant found in almost every cell in your body. People use alpha-lipoic acid to help with issues like skin aging, weight loss, and high blood sugar [\[R\]](#), [\[R\]](#), [\[R\]](#).

People use alpha-lipoic acid to help with [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Complications of high blood sugar
- Skin aging
- Weight loss
- Carpal tunnel syndrome

How it helps

In a study with 13 trained and 20 untrained men, alpha-lipoic acid (ALA) supplementation (600 mg/day for 8 days) reduced oxidative damage. ALA didn't eliminate differences in the glutathione antioxidant system but influenced the response to muscle-damaging exercise in trained individuals [\[R\]](#).

In another study of 55 trained men, alpha-lipoic acid (ALA) administration (1.2 g/day for 3 days) enhanced plasma antioxidant status and reduced oxidative damage markers after muscle-damaging exercise [\[R\]](#).

In a double-blind, randomized, controlled crossover trial with 17 male athletes, alpha-lipoic acid (ALA) showed a moderate reduction in muscle damage and inflammation during a high-intensity training week. ALA preserved back squat performance, but no significant antioxidant effects were observed [\[R\]](#).

Alpha-lipoic acid helps muscle recovery by reducing inflammation and oxidative stress that comes with strenuous workouts. By aiding in such recovery, it allows muscles to repair and grow stronger effectively.

31



Cold Exposure

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Gradually expose yourself to cold temperatures for short periods, starting with 1-2 minutes and increasing up to 5-10 minutes. This can be achieved through cold showers, outdoor exposure in cold weather, or ice baths. Aim to do this 2-3 times per week.

TYPICAL STARTING DOSE

1 minutesute

Description

Cold exposure, when done safely and gradually, can have potential health benefits like increased calorie burn, improved circulation, and enhanced resilience to cold temperatures. Cold exposure techniques, such as cold showers or outdoor winter activities, may help boost metabolism and promote overall well-being when practiced mindfully.

Please note: rapid instead of gradual cold exposure causes dangerous, and even fatal, changes in the breath and heart rates, known as the cold shock response. Be cautious with any form of sudden temperature change in your environment, especially if you have heart disease or other chronic conditions [\[R\]](#).

How it helps

Four trials in physically active young adults found very low-quality evidence regarding whole-body cryotherapy (WBC). WBC seemed to reduce muscle soreness at 1 hour post-exercise but yielded inconclusive results at 24, 48, and 72 hours. One small trial suggested less soreness than infrared therapy at 1 hour but no difference at 24 or 48 hours [\[R\]](#).

Another study found that cold water immersion significantly reduced delayed-onset muscle soreness (DOMS) and ratings of perceived exertion (RPE) symptoms after 24 hours but had no impact on objective recovery variables during a 96-hour recovery period [\[R\]](#).

In a crossover study with 24 subjects, cycling followed by recovery in ice-cold water (ICW) reduced blood plasma lipid peroxidation (TBARSpl) 40 minutes post-exercise compared to room temperature recovery (RT). ICW also lowered TBARSpl compared to baseline. Short-term ICW baths decreased post-exercise lipid peroxidation [\[R\]](#).

However, other studies found cryotherapy ineffective and another found that low-level laser therapy may be a more effective option for muscle recovery [\[R, R, R\]](#).

Exposure to cold temperatures reduces inflammation and swelling that can cause discomfort after a workout. It can also promote faster healing of microtears in the muscle tissue that occur during intense exercise.

Please note: *Rapid cold exposure can cause life-threatening changes to your breathing and heart rate. This is called the cold-shock response. Be cautious of any form of sudden temperature change to your environment, especially if you have heart disease or other health conditions* [\[R\]](#).

32



Beetroot Juice

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Consume 200-250ml of beetroot juice daily, at least 1-2 hours before engaging in physical activity or as part of your breakfast routine. This regimen should be maintained consistently for at least 2 weeks to start noticing benefits in terms of increased stamina and blood pressure regulation.

Description

Beetroot juice is a concentrated source of dietary nitrates, known for their potential to enhance athletic performance and improve blood pressure regulation. It is often consumed by athletes to enhance stamina and aid in recovery.

Beetroot (*Beta vulgaris*) contains iron, nitrates, sodium, potassium, and betalaine [\[R\]](#).

Beets are an inexpensive and mineral-rich vegetable that are widely used in Western cooking. Compared to other vegetables with high iron content, beets have a low price and are easy to store [\[R\]](#).

How it helps

Consuming beetroot juice may support exercise recovery by [\[R\]](#):

- Improving strength recovery (after 72h)
- Improving muscle performance (after 24-72h)
- Reducing muscle pain (after 48-72h)

Beetroot juice is rich in nitrates, which help promote blood flow [\[R\]](#).

33



L-Carnitine

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 500 mg of L-carnitine supplement daily with a glass of water, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

500 mg

Description

L-carnitine is an amino acid-like compound that plays a role in energy metabolism and helps prevent toxic substances from building up in cells. It is often used in dietary supplements for its potential to support muscle recovery, reduce fatigue, and enhance athletic performance.

[L-carnitine](#) is a compound that helps you burn fat. It also prevents toxic substances from building up in cells [\[R\]](#).

Your body can usually make enough carnitine to meet its needs. You can also get it from **meat and dairy products** [\[R\]](#).

People use L-carnitine for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart problems
- Overactive thyroid
- Fertility problems
- Blood sugar control
- Weight control

How it helps

Supplementation with L-carnitine (1-3 g/day for 1-4 weeks) may improve muscle soreness and damage up to **5 days** after exercise [\[R\]](#).

Please note: *Supplementing with L-carnitine at approximately 3 g/day may cause nausea, vomiting, abdominal cramps, diarrhea, and a "fishy" body smell* [\[R\]](#).

34



Spinach

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Incorporate one cup of fresh spinach or half a cup of cooked spinach into your daily diet. You can add spinach to salads, smoothies, omelets, or pastas to easily increase your intake.

Description

Spinach is a leafy green vegetable packed with essential nutrients, including vitamins A and K, iron, and folate. Incorporating spinach into the diet supports eye health, bone health, and overall nutrition.

Spinach is a good source of molybdenum, folate, calcium, and iron, as well as vitamins A, C, and K1. A ½ cup serving provides 8 mcg of molybdenum or 18%DV.

How it helps

In a placebo-controlled trial of 20 well-trained men, supplementation with spinach (1 g/kg/day) for 14 days **reduced muscle damage and oxidative stress markers after a half-marathon** [\[R\]](#).

Spinach is rich in magnesium and iron, essential nutrients that help repair and rebuild muscle tissues. It also has anti-inflammatory properties that can help reduce muscle soreness after intense workouts.

35



Beta-Alanine

IMPACT1 / 5

EVIDENCE2 / 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 augments muscle carnosine content and has been shown to attenuate fatigue during repeated bouts of exhaustive dynamic contractions, which may indirectly aid in muscle recovery. However, this effect does not extend to isometric endurance or race performance times, highlighting its specific benefits for dynamic muscle recovery scenarios [\[R\]](#).

Another study examined beta-alanine's effects on muscle function during recovery from resistance exercise and found no improvement in recovery metrics such as muscle soreness or creatine kinase levels, suggesting that beta-alanine may not enhance recovery in the context of resistance training [\[R\]](#).

A comprehensive review indicated that while beta-alanine may improve high-intensity exercise performance, its effects on muscle recovery are not as well documented, with more evidence supporting its role in enhancing performance rather than recovery [\[R\]](#).

36



Coenzyme Q10 (CoQ10)

IMPACT1 / 5

EVIDENCE2 / 5

How to implement

Take a 100 mg Coenzyme Q10 (CoQ10) supplement once daily with a meal that contains fat for better absorption.

TYPICAL STARTING DOSE

100 mg

Description

Coenzyme Q10 (CoQ10) is a naturally occurring antioxidant that plays a crucial role in cellular energy production. It is often taken as a supplement to support heart health, improve energy levels, and provide antioxidant protection, especially for individuals with certain medical conditions or as they age.

[Coenzyme Q10](#) (CoQ10) is a compound that helps enzymes work better. By doing so, CoQ10 helps improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Energy levels
- Antioxidant protection
- Heart health
- Muscle strength
- Blood sugar control

The amount of CoQ10 made by your body decreases as you get older. Luckily, you can also get it from food or supplements. Good sources of CoQ10 include [\[R\]](#), [\[R\]](#):

- Organ meats
- Fatty fish
- Whole grains

How it helps

Coenzyme Q10 (CoQ10) aids in muscle recovery as it plays an integral role in the production of energy in your cells, which could alleviate muscle fatigue post-workout. Its potent antioxidant properties also help reduce oxidative stress in the body, supporting faster recovery and improved muscle performance.

In research involving Finnish cross-country skiers, Coenzyme Q10 (CoQ10) supplementation at 90 mg/day significantly improved physical performance indexes (AET, ANT, and VO2Max). 94% of athletes reported performance and recovery benefits compared to 33% on a placebo [\[R\]](#).

Elite Japanese kendo athletes in another study, taking 300 mg/day of CoQ10, showed lower serum creatine kinase (CK), myoglobin (Mb), and lipid peroxide levels compared to the placebo group after intense kendo practice [\[R\]](#).

During a pre-swimming competition phase, no significant differences were observed among biomarker levels. However, post-competition, CoQ10 supplementation showed better results in preventing myocardial damage and oxidative stress [\[R\]](#).

In a study involving sedentary men, CoQ10 supplementation at 100 mg/day reduced malondialdehyde levels after exercise and partially prevented lipid peroxidation increase during repeated short-term supramaximal exercise [\[R\]](#).

However, 2 studies found that coenzyme Q10 does not prevent exercise-induced muscle damage and oxidative stress in sedentary men or with recommended dosages [\[R\]](#), [\[R\]](#).

37



L-Lysine

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take an L-lysine supplement of 1,000 to 1,500 mg per day, divided into two or three doses, with meals to avoid stomach upset. This regimen can be ongoing for individuals looking to support general health or for specific conditions as advised by a healthcare provider.

TYPICAL STARTING DOSE

1000 mg

Description

A **lysine supplement** of 38 mg/kg/d can be taken to meet daily needs not achieved through diet. This typically is in the form of L-lysine and comes in tablets from 500-1000mg.

How it helps

Lysine supplementation may increase the rate of wound healing [\[R\]](#).

38



Tribulus

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 250-1500 mg of Tribulus terrestris extract daily, divided into one to three doses, with meals. Start with the lower dose to assess tolerance and gradually increase as needed. This regimen can be followed for up to 90 days, after which a break or reassessment is recommended.

TYPICAL STARTING DOSE
250 mg

Description

Tribulus is an herb commonly used in traditional medicine for its potential to enhance athletic performance and libido. It is believed to contain active compounds like protodioscin, which may contribute to its aphrodisiac and adaptogenic effects.

[Tribulus](#) (*Tribulus terrestris*) grows in parts of Europe, Asia, and Africa. It’s been used in traditional Chinese and Indian medicine for centuries [\[R\]](#), [\[R\]](#).

Today, people use tribulus to potentially help with [\[R\]](#), [\[R\]](#):

- High blood pressure
- Sexual dysfunction and infertility

How it helps

Tribulus supplement is believed to increase the body's natural testosterone levels which can help accelerate muscle repair and growth, enhancing the muscle recovery process. However, more clinical research is needed to confirm this benefit.

In [2 placebo-controlled trials of 60 CrossFit-trained men](#), supplementation with Tribulus (770 mg/day) for 6 weeks **failed to improve exercise performance or body composition but improved exercise recovery and testosterone levels while decreasing exercise-induced oxidative stress, muscle damage, and inflammation** [\[R\]](#), [\[R\]](#).

In a [placebo-controlled trial of 18 healthy non-athlete men](#), supplementation with Tribulus (500 mg/day) **reduced the muscle damage enzymes CPK and LDH following high-intensity circuit resistance exercise** [\[R\]](#).

39



Carnosine

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 500 mg of carnosine twice daily with meals. Continue this regimen for at least 2 to 4 weeks to start noticing benefits. It can be taken as a capsule or powder form mixed with water or juice.

TYPICAL STARTING DOSE
1000 mg

Description

Carnosine is a naturally occurring compound found in muscle tissues and certain foods. It is believed to have antioxidant properties and may support muscle function and overall cellular health.

[Carnosine](#) (β -alanine-l-[histidine](#)) is a compound naturally produced by the body. We also get it from eating meat and fish. Carnosine is abundant in our [\[R\]](#), [\[R\]](#):

- **Muscles**
- Heart
- Brain
- Nose

Carnosine has several important functions in the body, including [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Being an antioxidant
- Improving muscle function
- Removing toxic metals

During exercise, **carnosine may prevent muscle fatigue and boost athletic performance**. It may also help improve sugar metabolism [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

Carnosine can enhance muscle recovery by helping to reduce the accumulation of lactic acid, which is often responsible for muscle fatigue. Additionally, it possesses antioxidant properties that can help repair damage to muscle tissue, improving recovery times.

Fourteen male athletes from the Polish national kayak and canoe teams took part in a placebo-controlled study, taking 4 g/d of carnosine for 14 days. Carnosine didn't affect RO/NS generation but protected against exercise-induced glutathione loss and reduced oxidation/nitration markers and SOD activity [\[R\]](#).

In a study involving twelve healthy participants, ingesting Carn-BA (L-carnosine and β -alanine) before exercise improved MVC and CMJ performance after fatiguing activity. It also reduced perceived effort and increased muscle pain 24 hours later [\[R\]](#).

40



Colostrum

IMPACT1 / 5

EVIDENCE1 / 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 supplementation provides growth factors and essential nutrients, which can aid in muscle repair and growth after intense exercise. It also contains immune-boosting components that reduce inflammation, thus accelerating recovery.

In a study of 30 physically active males, those who consumed 60 g/day of intact powder during 8 weeks of running training did not show increased plasma IGF-I levels or improved performance in an initial running test. However, a 5.2% improvement in performance during a second bout of exercise after supplementation suggests potential recovery enhancement [R].

In a double-blind, randomized, placebo-controlled study, soccer players who received 3.2 g/day of whey protein (WP) or bovine colostrum (BC) showed potential benefits. BC administration post-exercise may reduce muscle injury and better maintain performance after LIST (low-intensity steady-state training) in soccer players [R].

41



Mangiferin and Quercetin

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

To implement this recommendation, take a supplement containing mangiferin and quercetin daily. The typical dose is 150-300 mg of mangiferin and 500-1000 mg of quercetin, preferably with meals to enhance absorption. It's advisable to start with the lower dose and adjust based on tolerance and effectiveness. Continue this regimen consistently for at least 4-6 weeks to evaluate its benefits.

TYPICAL STARTING DOSE
150 mg

Description

Mangiferin is a natural compound found in mangoes and several other plants.

Researchers are interested in its potential benefits for blood sugar control, liver health, heart health, and more. However, the available evidence to support its use as a supplement is limited [\[R\]](#).

Quercetin is a plant-based antioxidant. It supports the immune system and helps lower inflammation [\[R\]](#), [\[R\]](#).

Good sources of quercetin include [\[R\]](#):

- Apples
- Onions
- Tea

People mainly use quercetin supplements to relieve allergies [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

The combination of quercetin (140 mg) and mangiferin taken 1 hour before a 10-km running competition and every 8 h thereafter for 24 h reduced muscle pain and damage and accelerated the recovery of muscle performance in a study of 57 people [\[R\]](#).

Please note: quercetin may inhibit the production of the thyroid hormone T4 (thyroxine). Individuals with thyroid disorders, particularly hypothyroidism or low T4 levels, should exercise caution when using quercetin and always consult with a healthcare provider before taking this supplement [\[R\]](#).

Please note: quercetin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using quercetin supplements [\[R\]](#).

42



American Ginseng

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 200-400 mg of American ginseng extract daily, preferably with a meal to enhance absorption. This regimen can be followed continuously for up to 12 weeks, after which a break or reassessment of the need to continue should be considered.

TYPICAL STARTING DOSE

200 mg

Description

American ginseng is a perennial herb native to North America, particularly regions of the United States and Canada. It is valued for its potential health benefits, including immune system support, stress reduction, and enhanced cognitive function, with the primary active compounds being ginsenosides.

[Ginseng](#) is a plant people use to improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Sexual function
- Immunity
- Fatigue
- Attention

There are many different types of ginseng. The most common ones are [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Korean red ginseng, also called Asian ginseng (*Panax ginseng*)
- [American ginseng](#) (*Panax quinquefolius*)
- Chinese notoginseng, also called Sanchi (*Panax notoginseng*)

How it helps

American Ginseng helps with muscle recovery by reducing inflammation and oxidative stress, promoting faster healing after workouts. Additionally, it increases energy production which can boost overall performance and recovery.

In [2 placebo-controlled trials of 25 physically active men](#), supplementation with American ginseng extract (1.6 g/day) for 28 days before a downhill running challenge **attenuated the increments in creatine kinase, 8-iso-PGF2α, and IL-4 levels due to exercise** [\[R\]](#), [\[R\]](#).

43



Palmitoylethanolamide (PEA)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

For managing pain and inflammation, take 300mg to 1,200mg of palmitoylethanolamide (PEA) in divided doses throughout the day, preferably with meals to enhance absorption. This regimen should be followed for at least 6 weeks to evaluate its effectiveness.

Description

Palmitoylethanolamide (PEA) is a naturally occurring fatty acid amide. It is a compound found in various tissues of animals, including humans. PEA has been a supplement for the past couple of decades, and is utilized for its potential anti-inflammatory and pain-relieving properties.

[Palmitoylethanolamide](#) (PEA) is a compound naturally made by the body to help combat inflammation [\[R\]](#).

It’s also made by plants and other animals. Good sources of PEA include [\[R\]](#):

- Soy lecithin
- Soybeans
- Egg yolk
- Peanuts

How it helps

In a placebo-controlled trial of 28 healthy volunteers, supplementation with liquid PEA improved muscle recovery from repeat bouts of leg press. It might have helped by reducing myoglobin and lactate concentration [\[R\]](#).

PEA may help by reducing inflammation and pain. It also enhances cellular repair, aiding in the healing process after muscle strain or injury.

44



Pomegranate Juice

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Drink 8 ounces (about 240 milliliters) of 100% pomegranate juice daily, ideally in the morning to incorporate it into your daily routine. Continue this practice regularly as part of your daily diet.

Description

Pomegranate juice is made from the seeds and pulp of the fruit. It is rich in nutrients, including vitamin C, vitamin K, folate, potassium, and dietary fiber., and provides a source of dietary antioxidants that may provide addition benefits for inflammation and heart health.

[Pomegranates](#) are red fruits that contain seeds covered by edible sweet coats. They are rich in antioxidants [\[R, R\]](#).

Pomegranate may reduce inflammation and support heart health. People use pomegranate seed oil and peel in cosmetics and traditional medicine [\[R, R\]](#).

How it helps

Drinking pomegranate juice (250 mL, 2-3x/day) may help with exercise recovery. It may [\[R, R, R, R\]](#):

- Reduce muscle soreness, weakness, and damage after resistance training
- Enhance recovery from high-intensity workouts
- Fight exercise-induced oxidative stress

However, the evidence is mixed and of low quality [\[R, R\]](#).

45



Shilajit

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a pea-sized portion (approximately 500mg) of purified shilajit resin and dissolve it in warm water, tea, or milk. Consume this once daily, ideally in the morning on an empty stomach for best absorption. Continue this routine daily for 6 to 8 weeks to observe benefits.

TYPICAL STARTING DOSE
500 mg

Description

[Shilajit](#), also known as shilaras or bitumen, is a tar-like substance that oozes from sedimentary rocks worldwide, especially in the Himalayas. It is made of rock humus, minerals, and organic substances (e.g., marine organisms) decomposed by microbes and compressed by layers of rock [\[R\]](#).

Shilajit is called a rasayana (rejuvenator) and a maharasa (super-vitalizer) in Ayurveda (indigenous Indian medicine). It is traditionally used to [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Boost energy levels
- Improve memory and focus
- Fight stress
- Manage male reproductive disorders

Shilajit is sold as capsules or powder [\[R\]](#).

How it helps

Shilajit can promote muscle recovery as it provides essential minerals and fulvic acid, which aid in reducing inflammation and muscle damage. When used regularly, it enhances physical performance and stamina, helping to prevent excessive muscle strain.

In a [placebo-controlled trial of 63 recreationally active men](#), supplementation with shilajit (250-500 mg/day) for 8 weeks **promoted the retention of maximal muscular strength following fatiguing exercise** [\[R\]](#).

Shilajit (250 mg, 2x/day) taken for 8 weeks **increased the expression of genes that control muscle mechanotransduction, elasticity, repair, and regeneration** in a [placebo-controlled trial of 16 overweight and obese subjects](#) [\[R\]](#).

46



Methylsulfonylmethane (MSM)

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 1 to 3 grams of Methylsulfonylmethane (MSM) per day, divided into three doses. This can be in the form of capsules or powder that is mixed with water. It is recommended to start with a lower dose to assess tolerance, then gradually increase to the desired dose over a period of 1 to 2 weeks.

TYPICAL STARTING DOSE
1 g

Description

MSM is a naturally occurring sulfur compound found in foods and used in dietary supplements. It has anti-inflammatory properties and may be used to support joint health and reduce exercise-related muscle soreness.

A molecule of MSM is broken down in the body into a sulfate (sulfur) group and two methyl groups.

The following may increase people’s needs for sulfur and methyl groups: physical activity, recovery from injuries, inflammation, infections/sickness, toxins, etc.

People also need more sulfur when taking hormones (DHEA, pregnenolone, etc.), drugs (Aspirin, Tylenol, NSAIDs, birth control, etc.) or supplements (flavonoids & polyphenols - resveratrol, quercetin, curcumin, etc.) that undergo sulfation.

How it helps

Methylsulfonylmethane (MSM) is potentially beneficial for muscle damage and exercise recovery through several mechanisms. Its anti-inflammatory properties may reduce inflammation resulting from intense physical activity, aiding in muscle recovery and reducing pain and stiffness.

MSM's antioxidant effects can neutralize exercise-induced free radicals, thus reducing oxidative stress and muscle damage. It has been shown to alleviate muscle pain and soreness post-exercise, which can help maintain a consistent exercise routine.

MSM may support immune function, which is important during heavy training periods when the immune system can be suppressed. It is thought to boost glutathione levels, a crucial antioxidant for reducing oxidative stress and aiding in cellular repair and recovery post-exercise.

Additionally, MSM is a source of sulfur, which may support muscle recovery through the following mechanisms:

- **Sulfur-Containing Amino Acids:** Sulfur is an essential component of certain amino acids, particularly cysteine and methionine. These amino acids are crucial for the formation of muscle proteins and the overall synthesis of proteins in the body. Protein synthesis is vital for muscle repair, growth, and recovery after exercise-induced damage.
- **Collagen Formation:** Sulfur-containing amino acids contribute to the formation of collagen, a structural protein found in connective tissues, including tendons, ligaments, and the extracellular matrix of muscles. Collagen is essential for maintaining the integrity of these tissues and supporting their repair. Proper sulfur intake can, therefore, help ensure the structural health of muscles and related connective tissues.
- **Detoxification:** Sulfur-containing compounds are involved in various detoxification processes in the body, including the removal of waste products and metabolic byproducts generated during strenuous exercise. Efficient detoxification can help reduce muscle soreness and aid in recovery by eliminating harmful substances from muscle tissues.

In a double-blind, placebo-controlled study, participants were divided into two groups: MSM (M) (N=9) and placebo (P) (N=9). They consumed either a placebo (200 mL water) or an MSM supplement (50 mg/kg MSM in 200 mL water) daily for 10 days. The results suggest that 10-day MSM supplementation may reduce muscle damage by enhancing antioxidant capacity [R].

MSM supplementation was not associated with a decrease from pre-training levels of oxidative stress or muscle damage associated with an acute bout of exercise. MSM supplementation attenuated post-exercise muscle and joint pain at clinically, but not statistically significant levels [R].

A study in 18 men showed that taking 50 mg of MSM powder per kg of body weight for 10 days significantly reduced exercise-induced muscle damage and increased antioxidant activity following an 8.7-mile (14 km) run [R].

In one study, 22 healthy women received 3 grams of MSM or a placebo per day for three weeks leading up to a half marathon. The MSM group reported less muscle soreness and joint pain than the placebo group [R].

Another study found that athletic men taking 3 grams of MSM daily for two weeks had lower levels of IL-6 and less muscle pain after intense resistance exercise [R].

47



Alpha-Ketoglutarate (AKG)

IMPACT1 / 5

EVIDENCE1 / 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].

48



Leucine-Enriched Essential Amino Acids

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement containing leucine-enriched essential amino acids daily, aiming for a dose between 2 to 3 grams of leucine per serving. It is best taken immediately after exercise to optimize muscle recovery and growth.

TYPICAL STARTING DOSE
2 g

Description

Leucine-enriched amino acids are dietary supplements or formulations that contain a higher concentration of the essential amino acid leucine compared to other amino acids. Leucine is one of the nine essential amino acids, meaning that the body cannot produce it on its own and must obtain it through the diet.

How it helps

In a randomized, double-blind, placebo-controlled, parallel-group design, twenty recreationally active males consuming a controlled diet were supplemented thrice daily with 4 g of leucine-enriched essential amino acids (LEAAs, containing 1.6 g leucine) or isocaloric placebo for four days following an acute bout of lower-body resistance exercise (RE). LEAAs moderately attenuated muscle damage [\[R\]](#).

Essential amino acids may help rebuild and repair muscle tissue that's broken down during exercise. This accelerates recovery, reduces muscle soreness, and improves strength and athletic performance.

49



Blackcurrant Juice

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Drink 200-250 ml of blackcurrant juice daily, ideally in the morning or with a meal to optimize nutrient absorption. Continue this practice daily for at least 4-6 weeks to observe potential health benefits.

Description

Blackcurrant juice is a flavorful beverage rich in vitamin C and antioxidants, which can help support the immune system and protect cells from oxidative stress.

How it helps

Blackcurrant juice is rich in anthocyanins, a type of antioxidant that helps reduce inflammation. It can thus speed up muscle recovery by reducing muscle damage and stress after intensive exercise.

16 college students were randomly assigned to drink either 16 oz of black currant nectar or a placebo twice a day for eight consecutive days. A bout of eccentric knee extensions was performed on the fourth day. The results demonstrate that consumption of BCN prior to and after a bout of eccentric exercise attenuates muscle damage and inflammation. There were no differences in reported soreness [\[R\]](#).

50



Streptococcus Thermophilus & Bifidobacterium Breve

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Consume a probiotic supplement containing *Streptococcus thermophilus* and *Bifidobacterium breve* once daily, preferably in the morning on an empty stomach or as directed by the product label. Continue this routine daily for at least one month to assess improvements.

TYPICAL STARTING DOSE
10 billion CFU

Description

Streptococcus thermophilus is a probiotic bacterium used in the fermentation of dairy products like yogurt. It contributes to improved gut health by aiding in the digestion of lactose and promoting the growth of beneficial gut bacteria. *Bifidobacterium breve* is another probiotic strain that can contribute to digestive health and support a balanced gut microbiome. People use *B. breve* as a supplement to improve skin health and combat allergies and infection.

How it helps

A study showed that a specific combination of probiotics, including *Streptococcus thermophilus* FP4 and *Bifidobacterium breve* BR03 (for 3 weeks before muscle-damaging exercise) may attenuate performance decrements and muscle tension following the exercise. This effect is attributed to a decrease in circulating interleukin-6 (IL-6) for up to 48 hours post-exercise and an overall enhancement in isometric peak torque production during the recovery period [\[R\]](#).

51



Spirulina

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 1-8 g of spirulina supplements daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

500 mg

Description

Spirulina is a blue-green algae. It is rich in nutrients like protein, vitamins, and minerals, particularly vitamin B12 and iron, and is a source of antioxidants, chlorophyll, and phycocyanin. It can be found in powdered or tablet form as a supplement, and is often used to boost energy, support the immune system, and enhance overall nutrition. Additionally, spirulina.

[Spirulina](#) is a supplement made from blue-green algae that grows in fresh and marine water [\[R\]](#), [\[R\]](#).

Dried spirulina is up to 70% protein. It’s also rich in vitamins, antioxidants, and healthy fats. This makes it a great source of nutrition for both people and livestock [\[R\]](#), [\[R\]](#), [\[R\]](#).

People use spirulina supplements to reduce [\[R\]](#), [\[R\]](#):

- Cholesterol
- Blood pressure
- Blood sugar

How it helps

Spirulina is high in protein and antioxidants, which support the repair and growth of muscle tissue, speeding up muscle recovery after exercise. It also reduces inflammation and fatigue, enhancing your overall exercise performance.

In a [placebo-controlled trial of 17 elite male Rugby Union players](#), supplementation with spirulina (5.7 g/day) for 7 weeks **prevented lipid peroxidation, inflammation, and skeletal muscle damage induced by exhaustive exercise** and **sped up the restoration of normal F2-Isop, CRP, and CK levels** [\[R\]](#).

In a [non-placebo-controlled trial of 16 volunteers](#), supplementing the diet with spirulina for 3 weeks **prevented skeletal muscle damage, extended time to exhaustion, and improved antioxidant status** [\[R\]](#).

However, spirulina (6 g) **failed to confer any beneficial effects on redox status, muscle performance, or damage** following a muscle-damaging protocol in a [placebo-controlled trial of 24 healthy, recreationally trained men](#) [\[R\]](#).

52



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 [placebo-controlled trial of 46 participants](#), receiving focused extracorporeal shock wave at 7 equidistant points along the biceps muscle **relieved delayed-onset muscle soreness, increased force, and improved impairment of daily living** [\[R\]](#).

53



Saffron

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 20 mg of saffron supplement daily. This can be taken at any time of the day, with or without food.

TYPICAL STARTING DOSE

20 mg

Description

Saffron is a spice derived from the stigma of the saffron crocus flower, and is native to the Mediterranean and Asia. Its main compounds include crocin, picrocrocin, and safranal, which may contribute to its antioxidant properties and potential mood-enhancing effects.

[Saffron](#) is a yellow spice praised for its color, taste, and potential health benefits [\[R\]](#).

Saffron is rich in antioxidants such as *crocin*. Researchers are looking into its potential benefits for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Gut conditions
- Heart health
- Mental health

How it helps

Saffron is packed with antioxidants, which helps in reducing inflammation and muscle pain, hence assisting in muscle recovery. Additionally, its potential analgesic properties can provide relief from muscle soreness, thereby preventing further discomfort.

In a study with nonactive male university students, 10-day saffron supplementation (300 mg/day) significantly reduced creatine kinase (CK) and lactate dehydrogenase (LDH) levels. Saffron prevented a decline in muscle forces and pain after eccentric exercise, suggesting a preventive effect on delayed-onset muscle soreness (DOMS) [\[R\]](#).

54



Tai Chi

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Practice Tai Chi for 30 to 60 minutes at least twice a week. Choose a quiet, spacious area and follow along with a qualified instructor, either in person at a class or through an online video tutorial, to ensure proper technique and maximum benefit.

TYPICAL STARTING DOSE

1 hour

Description

Tai Chi is a traditional Chinese mind-body practice involving slow, flowing movements and deep breathing. It is known for its potential to reduce stress, improve balance, and enhance overall physical and mental well-being.

Tai chi involves gentle movements and breathing to strengthen and relax the mind and body. Practicing tai chi may help [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Manage pain
- Improve fitness
- Increase well-being
- Improve sleep and mood

How it helps

Tai Chi may reduce heart rate, oxygen consumption, and blood lactic acid levels after exercise, indicating a faster recovery from muscle fatigue. This was particularly noted in a study involving male elite basketball athletes, suggesting that Tai Chi may be an effective recovery aid [\[R\]](#).

55



Lactobacillus Plantarum

IMPACT1 / 5

EVIDENCE1 / 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

In a [placebo-controlled trial of 8 recreational runners](#), supplementation with L. plantarum PS128 (6 × 10¹⁰ CFU/day) for 4 weeks **reduced muscle damage (myoglobin, creatine phosphokinase) and kidney damage (BUN) markers while increasing SOD after a half-marathon** [\[R\]](#).

56



Ginger

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a 500 mg ginger supplement daily, preferably with a meal to enhance absorption and minimize potential stomach discomfort.

TYPICAL STARTING DOSE

500 mg

Description

Ginger is a versatile spice known for its potential anti-inflammatory and digestive benefits. It may help alleviate nausea, reduce muscle soreness, and support gastrointestinal comfort when consumed as part of a balanced diet.

[Ginger root](#) is a cooking spice and a traditional remedy. People mostly use it to relieve [\[R\]](#):

- Nausea
- Menstrual cramps
- Joint pain

How it helps

Consuming ginger root (1.5-4 g/day for 5 days) may **reduce muscle soreness and improve strength recovery**. However, it **may not improve muscle damage** [\[R\]](#), [\[R\]](#).

57



Boswellia And Curcumin

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement that combines boswellia and curcumin, consuming between 300 to 500 mg of each ingredient, twice daily with meals. Continue this regimen for at least 8 to 12 weeks to evaluate its effectiveness.

TYPICAL STARTING DOSE
600 mg

Description

Boswellia is an herbal remedy derived from the resin of certain trees. It's known for its potential anti-inflammatory properties and is often used to support joint health. Curcumin is a compound found in turmeric with well-documented anti-inflammatory and antioxidant properties.

How it helps

Boswellia and curcumin supplements contain anti-inflammatory properties that reduce muscle inflammation, promote healing, and speed up recovery time. Essentially, they help to reduce muscle soreness and stiffness after intense workouts which aids efficient muscle recovery.

Please note: curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

58



Bananas

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate 1-2 bananas into your daily diet. Bananas can be eaten as a standalone snack, added to cereal, oatmeal, or smoothies, or used as an ingredient in baking. Aim to include them regularly for ongoing dietary benefits.

Description

Bananas are a nutrient-rich fruit packed with potassium, fiber, and essential vitamins. They are a convenient and healthy snack option that can help support heart health, digestive regularity, and overall well-being.

Bananas are a good source of vitamins B6 and C, as well as numerous minerals, including potassium, copper, and magnesium. A single banana provides 0.4 mg of vitamin B6 or 25%DV.

How it helps

A study showed that acute banana ingestion during intensive cycling may mitigate pro-inflammatory markers significantly. This indicates a role for bananas in reducing inflammation which may aid muscle recovery following intense physical activity [\[R\]](#).

59



CBD

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a CBD supplement in a dosage ranging from 10 to 40 milligrams per day. Start with the lowest dose and gradually increase it based on your body's response. This can be taken orally in the form of capsules, edibles, or oil drops under the tongue. For ongoing issues, such as anxiety or chronic pain, it may be used daily, while for acute issues, it might be used as needed.

TYPICAL STARTING DOSE

10 mg

Description

CBD is a non-psychoactive compound found in cannabis plants and is used in various forms, including oils and creams. It may have potential benefits for pain relief, anxiety reduction, and overall relaxation, although more research is needed to fully understand its effects.

[Cannabidiol](#) (CBD) is a compound found in cannabis. Unlike its cousin THC, CBD is not psychoactive and can’t get you “high” [\[R\]](#).

People use CBD to:

- Reduce anxiety [\[R, R\]](#)
- Relieve pain [\[R, R, R\]](#)
- Prevent seizures [\[R\]](#)
- Improve sleep [\[R\]](#)

How it helps

CBD may aid in muscle recovery by reducing inflammation, a key factor in muscle soreness and damage. Additionally, it may improve sleep quality, providing the body essential downtime for healing and recovery.

In a placebo-controlled trial of 16 well-trained participants, drinking 60 mg CBD in 250 mL water after resistance training led to small but significant beneficial effects on muscle damage and recovery of squat performance after 72 h. However, supplementation with CBD (150 mg) after exercise had no beneficial effects on noninvasive markers of muscle damage in the upper extremity in a placebo-controlled trial of 13 untrained men [\[R, R\]](#).

Please note: *CBD can interact with medications and raise the levels of liver enzymes. It may not be safe for pregnant women. Never use CBD without consulting your doctor. Also, make sure to verify the legality of CBD in your country or state* [\[R, R, R, R, R\]](#).

60



Lemon Verbena

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take lemon verbena as a supplement in capsule or liquid extract form. For general use, consume 500mg to 1500mg daily, usually split into two or three doses throughout the day. It's advisable to follow the specific dosage instructions on the product's label or consult a healthcare provider.

Description

Lemon verbena is an herbal remedy often used to alleviate digestive discomfort and reduce inflammation. It may also have antioxidant properties that support overall health.

[Lemon verbena](#) is a citrusy herb used for cooking and in cosmetics [\[R\]](#).

It may help with [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Inflammation and pain
- Muscle damage
- Obesity
- Insomnia

How it helps

Supplementation with lemon verbena extract (400 mg/day for 15 days) may support exercise recovery by [\[R\]](#), [\[R\]](#):

- Reducing muscle pain and damage
- Reducing oxidative stress and inflammation
- Improving strength recovery

61



Quercetin

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 250-1000 mg of quercetin supplement daily with a glass of water, preferably with a meal to aid in its absorption.

TYPICAL STARTING DOSE

200 mg

Description

Quercetin is a natural plant flavonoid found in various foods, particularly in fruits and vegetables like apples, onions, and broccoli. It is used as a dietary supplement and is valued for its potential antioxidant and anti-inflammatory properties.

[Quercetin](#) is a **plant-based antioxidant**. It supports the immune system and helps lower inflammation [\[R\]](#), [\[R\]](#).

Good sources of quercetin include [\[R\]](#):

- Apples
- Onions
- Tea

People mainly use quercetin supplements to relieve allergies [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

12 young men ingested quercetin (1 g/day) or placebo for 14 days in a study and then underwent an eccentric-induced muscle damaging protocol. After quercetin supplementation, there was a more marked increase in IGF-I levels. Quercetin significantly reduced plasma markers of cell damage (CK, LDH, and Mb) and IL6 levels during recovery [\[R\]](#).

Two studies by the same authors came to similar conclusions [\[R\]](#), [\[R\]](#).

Ten young men took either 1g of quercetin or a placebo 3 hours before resistance training in another study. Quercetin improved knee extensor torque velocity, reduced MVIC loss, increased torque development, and neuromuscular efficiency [\[R\]](#).

Please note: *quercetin may inhibit the production of the thyroid hormone T4 (thyroxine). Individuals with thyroid disorders, particularly hypothyroidism or low T4 levels, should exercise caution when using quercetin and always consult with a healthcare provider before taking this supplement* [\[R\]](#).

Please note: *quercetin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using quercetin supplements* [\[R\]](#).

62



PEMF

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Use a PEMF (Pulsed Electromagnetic Field) device for 30 minutes to 2 hours daily. Position the device as directed by the manufacturer, typically over the area of concern or discomfort. It can be part of your daily routine, such as during rest or activity, without a specific end date unless advised by a healthcare professional.

TYPICAL STARTING DOSE

30 minutes

Description

PEMF, or Pulsed Electromagnetic Field therapy, involves the use of electromagnetic fields to stimulate cellular activity within the body. This therapy is believed to help improve circulation, reduce pain and inflammation, and enhance cellular function.

How it helps

PEMF (Pulsed Electromagnetic Field) therapy can speed up muscle recovery by stimulating cell regeneration and promoting increased circulation of oxygen- and nutrient-rich blood into the muscle. This may reduce inflammation and muscle soreness, and speed up healing.

In a placebo-controlled trial of 30 healthy men, applying PEMF improved recovery of perceived muscle soreness, MDF, and EMD during isometric contraction [\[R\]](#).

63



Blackcurrants

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Incorporate about 1/2 cup of fresh or frozen blackcurrants into your daily diet. You can add them to your morning yogurt, oatmeal, or smoothies. For those who prefer, blackcurrant juice or preserves can also be consumed, but be mindful of added sugars in processed forms.

Description

Blackcurrants are small, nutrient-dense berries packed with vitamins, minerals, and antioxidants. They are known for their potential to promote heart health, improve cognitive function, and provide essential nutrients for overall vitality.

How it helps

Consumption of New Zealand blackcurrant extract before and after eccentric exercise attenuates muscle damage and improves functional recovery. This was evidenced by faster recovery of baseline maximal voluntary contraction (MVC), reduced muscle soreness, and lower serum creatine kinase concentration following exercise-induced muscle damage [\[R\]](#).

Evidence also suggests potential muscle-fiber-specific effects of blackcurrant extract on fatigue and recovery during isometric exercises, although these findings need further exploration [\[R\]](#).

However, another study found no effect of New Zealand blackcurrant extract on muscle damage recovery following a half-marathon, indicating that the benefits may depend on the type of exercise and the study population involved [\[R\]](#).

64



Lactobacillus Helveticus

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a supplement containing Lactobacillus helveticus, usually available in capsule or powder form. Follow the manufacturer's instructions, commonly involving taking one to two capsules daily, preferably with a meal or as directed by a healthcare provider. Continue this regimen daily for at least 8 to 12 weeks to potentially see benefits.

TYPICAL STARTING DOSE

10 billion CFU

Description

Lactobacillus helveticus is a beneficial probiotic strain that can support digestive health and contribute to a balanced gut microbiome. It may help improve gut function, enhance nutrient absorption, and bolster the immune system, promoting overall well-being.

How it helps

Lactobacillus Helveticus contributes to muscle recovery by reducing inflammation and promoting the production of proteins that help mix muscle fibers after exercise. Additionally, it may enhance the absorption of amino acids like leucine, which is crucial for muscle protein synthesis and growth.

In a placebo-controlled trial of 18 healthy men, drinking milk fermented with *L. helveticus* before and after resistance exercise (5 sets of leg and bench presses at 70–100%, 12 repetition max) suppressed muscle soreness and improved glucose metabolism [R].

65



Garlic Supplement

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a garlic supplement, such as a garlic extract or aged garlic supplement, in a dosage of 600-1,200 mg per day, divided into separate doses. This should be taken with meals to minimize digestive issues. Continue daily for at least 8-12 weeks to evaluate its effects on health markers like blood pressure or cholesterol.

TYPICAL STARTING DOSE

200 mg

Description

Garlic is a pungent herb known for its potential health benefits, including cardiovascular support and immune system enhancement. It contains bioactive compounds that may help reduce the risk of chronic diseases and support overall well-being.

[Garlic](#) is a delicious aromatic herb that adds flavor to your food. But did you know that garlic has been a part of traditional medicine for thousands of years? **From ancient Egypt and Rome to China, people have praised garlic for its many health benefits.** Today, we can trace many of those benefits to sulfur-rich compounds found in garlic. People take garlic to help control their blood pressure and cholesterol [\[R\]](#).

Please note: *Garlic can interact with blood thinners (like aspirin, Plavix, Coumadin). If you are on blood thinners, consult your doctor before supplementing with garlic [\[R\]](#).*

How it helps

Supplementation with garlic extract (1000 mg/day for 4 weeks) may support exercise recovery by reducing [\[R, R\]](#):

- Oxidative stress and inflammation
- Muscle soreness and damage

Please note: *Garlic can interact with blood thinners (such as aspirin, Plavix, and Coumadin). In addition, garlic can irritate the stomach in some people. Talk to your doctor before taking garlic extract [\[R, R\]](#).*

66



Lactobacillus Paracasei

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement containing Lactobacillus paracasei daily, with a dose of around 10 billion colony-forming units (CFUs). Consume the supplement with or without food, but consistently at the same time each day for at least 4 weeks to observe beneficial effects.

TYPICAL STARTING DOSE

10 billion CFU

Description

Lactobacillus paracasei is a beneficial probiotic strain that can support digestive health and contribute to a balanced gut microbiome. It may help improve gut function, enhance nutrient absorption, and bolster the immune system, promoting overall well-being.

[Lactobacillus paracasei](#) is a type of bacteria naturally found in the intestine. It is considered a [probiotic bacteria](#), which means “good” bacteria that has health benefits when taken in adequate amounts [\[R\]](#).

L. paracasei is used in the production of the following fermented foods [\[R\]](#):

- Yogurt
- Cheese
- Sauerkraut

It may help [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Improve gut and skin health
- Boost immunity
- Fight allergies

How it helps

In a placebo-controlled trial of 105 healthy participants, supplementation with *L. paracasei* (L-PS23, 2×10^{10} cfu/day), both live and heat-killed, for 6 weeks before completing 100 maximal vertical jumps reduced muscle strength loss and the production of muscle injury and inflammation markers [\[R\]](#).

L. paracasei may help by reducing inflammation in the muscles.

67



Bacillus Coagulans

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a Bacillus coagulans supplement containing 1 to 2 billion CFUs (colony forming units) daily, with a glass of water, preferably with meals. This routine should be consistently followed for at least four weeks to potentially see benefits.

Description

Bacillus coagulans is a probiotic strain believed to support digestive health and boost the immune system. It's used in various probiotic supplements and may aid in maintaining gut balance.

How it helps

Bacillus Coagulans supplementation may enhance muscle recovery by reducing inflammation caused by intense exercise. This could potentially accelerate tissue repair, reducing muscle soreness and promoting faster recovery.

In a placebo-controlled trial of 26 soldiers undergoing 40 days of intense military training, supplementation with bacillus coagulans GBI-30, 6086 as an add-on to β -hydroxy- β -methylbutyrate calcium **maintained muscle integrity better than CaHMB alone** [\[R\]](#).

68



N-acetylcysteine (NAC)

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 600 mg of N-Acetylcysteine (NAC) supplement daily with water. It can be taken at any time of the day, but try to take it at the same time each day for best results.

TYPICAL STARTING DOSE
1200 mg

Description

NAC is a supplement that contains a form of the amino acid cysteine, a protein building block that your body uses to make the antioxidant glutathione. It is used for its potential antioxidant properties and its ability to support lung, gut, and mental health.

[N-acetylcysteine](#) (NAC) is converted to cysteine in the body. Cysteine is a protein building block (amino acid) that helps make the antioxidant glutathione [\[R\]](#).

People take NAC to potentially support [\[R\]](#), [\[R\]](#):

- Mental health
- Ovarian health and pregnancy outcomes
- Lung health
- Gut health

How it helps

In a study of 55 trained men, NAC supplementation (1.8 g/day for 3 days) enhanced plasma antioxidant status and reduced oxidative damage markers after muscle-damaging exercise [\[R\]](#).

69



Pycnogenol

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 100 mg of pycnogenol supplement daily. This can be taken in a single dose or divided into two doses of 50 mg each, one in the morning and one in the evening.

TYPICAL STARTING DOSE

100 mg

Description

Pycnogenol (pine bark extract) is derived from the bark of the maritime pine (Pinus pinaster). It has been used in traditional n European folk medicine for centuries, and more recently as a supplement. The extract contains a group of bioactive compounds known as proanthocyanidins, which may be beneficial in supporting cardiovascular health, promoting skin health, and aiding in the management of various conditions related to inflammation and oxidative stress.

Pycnogenol comes from the bark of pine trees that grow in the Mediterranean [\[R\]](#), [\[R\]](#).

It may improve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Athletic performance
- Seasonal allergies
- Cognitive function
- Joint health
- Varicose veins

How it helps

In a study of 20 healthy men, supplementation with pine bark extract (800 mg/day) for 14 days before exercise and 2 days post-exercise reduced oxidative stress postexercise [\[R\]](#).

In a study of 145 volunteers, supplementation with pycnogenol (100 mg/day for 8 weeks) during a training program decreased oxidative stress. In another placebo-controlled trial of 54 athletes training for a triathlon from the same study, supplementation with pycnogenol (150 mg/day for 4 weeks) decreased post-triathlon cramps, pain, and oxidative stress, while speeding up recovery [\[R\]](#).

70



Magnesium

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take up to 350 mg of magnesium daily as a supplement, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

250 mg

Description

Magnesium is an essential mineral involved in various bodily functions, including muscle contractions, nerve signaling, and bone health. Maintaining adequate magnesium levels through diet or supplements can support overall well-being and reduce the risk of magnesium deficiency-related health issues.

[Magnesium](#) is an essential mineral. Your body needs it for [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Muscle, nerve, and bone function
- Blood sugar and blood pressure control
- DNA and protein production
- Strong immunity

Women need **310-320 mg** of magnesium per day, while men need **400-420 mg** [\[R\]](#).

Foods rich in magnesium include **nuts, seeds, and leafy greens**. Magnesium is also available as a supplement [\[R\]](#).

How it helps

A placebo-controlled trial of 22 college-aged participants found that taking 350 mg of magnesium daily for 10 days reduced muscle soreness, perceived exertion, and improved recovery [\[R\]](#).

Magnesium may help by reducing inflammation and lactic acid build-up, which are common causes of muscle soreness, and by promoting protein synthesis, a process that aids in muscle repair and recovery.

71



Collagen Peptides

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 10-20 grams of collagen peptides daily, mixing the powder into a glass of water, juice, or a smoothie. It is recommended to consume this supplement on an empty stomach to improve absorption, ideally first thing in the morning or right before bedtime for a period of at least 8-12 weeks to observe beneficial effects.

TYPICAL STARTING DOSE

10 g

Description

Collagen peptides are a form of collagen that is broken down into smaller, more easily absorbed molecules. They are commonly used in supplements and skincare products for their potential to promote skin elasticity, hair strength, and nail health.

[Collagen](#) is a protein that helps build skin, bones, and joints [\[R\]](#), [\[R\]](#).

People use collagen supplements for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Joint pain
- Skin health
- Hair growth

How it helps

Collagen peptides, when taken as a supplement, help with muscle recovery by promoting the synthesis of proteins needed for muscle growth and repair. Plus, they aid in reducing inflammation and pain, speeding up the recovery process after intense workout sessions.

In resistance-trained males, taking 15g/day of CP (collagen peptides) after exercise led to better maintenance of jump height 24 hours post-exercise compared to the placebo group. CP didn't significantly affect muscle soreness or collagen biomarkers [\[R\]](#).

72



Sulforaphane

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a sulforaphane supplement, typically available in capsule form, with a dosage ranging from 30 to 60 milligrams per day. It is generally taken once daily, with or without food, according to the product's label instructions or a healthcare provider's advice. Continue this regimen daily for as long as you seek its benefits, but consult a healthcare provider for long-term use guidance.

TYPICAL STARTING DOSE

30 mg

Description

Sulforaphane is a natural compound found in cruciferous vegetables like broccoli and cauliflower. It is known for its potent antioxidant and anti-inflammatory properties, potentially offering protective effects against chronic diseases and promoting overall health.

How it helps

In a placebo-controlled trial of 10 healthy young men, supplementation with sulforaphane (30 mg/day) for 4 weeks **decreased creatine kinase and IL-6 levels caused by heavy resistance exercise** [\[R\]](#).

73



Glutamine

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 5 to 10 grams of glutamine powder, mixed with water or another beverage, daily. It can be divided into two servings, one in the morning and the other in the evening. This supplementation is generally considered safe for long-term use, but it's best to consult with a healthcare provider for personalized advice.

TYPICAL STARTING DOSE

5 g

Description

Glutamine is an amino acid that plays a role in various bodily functions, including immune support and gut health. It may help with muscle recovery and overall well-being, particularly for individuals engaging in strenuous exercise.

L-glutamine is an amino acid produced by the body. Its levels may decrease during periods of stress or illness. It is important for protein and energy production, and helps control kidney pH balance [\[R\]](#).

Some people take L-glutamine as a supplement to help with [\[R\]](#):

- Gut health
- Immunity
- Exercise recovery and muscle performance
- Brain health

How it helps

According to a single study, L-glutamine supplementation (0.3 g/kg/day for 3 days) may support muscle recovery after exercise. It may help by providing muscles with energy [\[R\]](#).

74



Date Seeds

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Grind dried date seeds into a fine powder and take half to one teaspoon of this powder mixed with water or added to your smoothie once daily. Continue this practice daily for at least a month to evaluate its benefits.

Description

Date seeds, often discarded, contain potential health benefits, including antioxidants and fiber. They can be ground into a powder and used in various culinary applications or herbal remedies.

How it helps

Date seeds are rich in antioxidants and dietary fiber which assist in reducing inflammation and speeding up muscle recovery after exercise. Moreover, they help dispel fatigue and promote a quicker return to normal function.

Thirty-six recreational runners were randomly assigned to consume 26 g/day of DSP or wheat bran powder during HIIT workouts for 14 days. During the 2 weeks of the HIIT protocol, the consumption of date seed powder by participants who had engaged in moderate or high physical activity alleviated inflammation and muscle damage [R].

75



Brazilian Green Propolis

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 70-200 mg of Brazilian green propolis extract daily, preferably divided into two doses. It can be taken with or without food. Continue this regimen for up to three months to assess its effectiveness for your needs.

TYPICAL STARTING DOSE

70 mg

Description

Brazilian green propolis is a resinous substance that bees collect from the leaves and buds of certain trees. It is rich in antioxidants and has been shown to have a variety of health benefits, including reducing inflammation, fighting infection, and improving gut health.

How it helps

Propolis is rich in antioxidants and anti-inflammatory compounds, which can expedite the healing process of muscle injuries by reducing inflammation and oxidative stress. Also, it might improve the overall immunity, enabling the body to better cope with physical strain and stress.

In a study, 18 young men consumed a formulation with high Brazilian green propolis dose (H-BGP), a formulation with low Brazilian green propolis dose, or a placebo, for 1 week before performing the fatigue task. The results suggest that oral administration of propolis promotes muscle fatigue recovery by reducing central fatigue [R].

76



Pomegranate Extract

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 250 to 500 mg of pomegranate extract once daily, preferably with a meal to enhance absorption. This should be continued consistently for at least 4 weeks to observe potential health benefits.

TYPICAL STARTING DOSE

250 mg

Description

Pomegranate extract is derived from the fruit of the pomegranate tree, a plant that has been used traditionally for thousands of years, from the Mediterranean to Asia. Pomegranate extract is often used today in supplements due to its high levels of antioxidants like punicalagins and anthocyanins, which may support heart health and reduce inflammation.

[Pomegranates](#) are red fruits that contain seeds covered by edible sweet coats. They are rich in antioxidants [\[R, R\]](#).

Pomegranate may reduce inflammation and support heart health. People use pomegranate seed oil and peel in cosmetics and traditional medicine [\[R, R\]](#).

How it helps

Supplementation with pomegranate extract (750-1300 mg/day for 9-15 days) may [\[R, R\]](#):

- Boost exercise performance
- Support muscle recovery

77



D-Ribose

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 5 grams of D-Ribose powder mixed with water or juice, three times a day. Start with this dosage for at least 3 weeks to help improve energy levels and heart function, then adjust as needed.

TYPICAL STARTING DOSE

15 g

Description

D-ribose is a sugar molecule that plays a role in energy production in cells. It is sometimes used as a supplement to support muscle recovery, reduce fatigue, and improve exercise performance.

[D-ribose](#) is a sugar involved in the production of energy in the body. It is also the structural basis of DNA and RNA [\[R\]](#).

People use it as a supplement to help with heart disease and [chronic fatigue syndrome](#) [\[R, R, R\]](#).

How it helps

D-ribose is a sugar that provides energy to your cells, so taking it as a supplement can help boost ATP (energy) production in your muscles. This could speed up recovery after intense exercise or muscular injury by replenishing energy stores and accelerating tissue repair faster.

In a placebo-controlled trial of 21 untrained male college students, supplementation with D-ribose (15 g) after a lower-limb plyometric exercise session reduced muscle soreness, improved recovery of muscle damage, and inhibited the formation of lipid peroxides. In another placebo-controlled trial (26 healthy subjects) supplementation with D-ribose (10 g/day) for 5 days maintained exercise performance while reducing rates of perceived exertion and serum creatine kinase levels in participants with low VO2max but not in those with high VO2max [\[R, R\]](#).

However, D-ribose (3-16 g/day) had no effects on exercise recovery or metabolic markers of muscle damage in 4 placebo-controlled trials of 81 participants [\[R, R, R, R\]](#).

Please note: *The long-term safety of D-ribose in daily doses above 36 mg/kg (2.5 g for a 70-kg person) is not unknown. Consult your doctor before supplementing* [\[R\]](#).

78



Boswellia

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a 350 mg Boswellia supplement daily, ideally with a meal to enhance absorption.

TYPICAL STARTING DOSE

350 mg

Description

Boswellia is an herbal remedy derived from the resin of certain trees. It's known for its potential anti-inflammatory properties and is often used to support joint health.

[Boswellia](#), also known as frankincense, is the hardened sap of the *Boswellia serrata* tree [\[R\]](#).

In traditional medicine, boswellia is used for joint pain and gut conditions [\[R\]](#).

Today, some people use boswellia for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Osteoarthritis
- IBD
- Skin aging
- Asthma
- Gum health

How it helps

Boswellia, a traditional herb, helps muscle recovery by reducing inflammation and swelling post-exercise via inhibiting pro-inflammatory enzymes. It also helps increase blood flow to your muscles, promoting faster healing and reducing soreness.

In a study involving 232 participants with moderate-to-severe exercise-induced musculoskeletal pain, they were randomized to receive either a single 1000 mg dose of TBF (turmeric and boswellia extracts) or a placebo. TBF showed a significant reduction in pain intensity, with a 97.85% improvement in cumulative responder analysis compared to 2.46% in the placebo group. Pain relief onset was rapid, with 99% of TBF group participants experiencing perceptible relief at 68.5 minutes and 96% experiencing meaningful relief at 191.6 minutes, in contrast to the placebo group [\[R\]](#).

79

Purple Sweet Potatoes Leaves

IMPACT

1 / 5

EVIDENCE

1 / 5

Description

Purple sweet potato leaves, traditionally used in Asian cuisines for their nutritional value, are a vibrant and healthy addition to any diet. These leaves are rich in essential vitamins, such as vitamin C, vitamin A, and B vitamins, and minerals like iron and calcium. They are also packed with antioxidants, which help protect the body against oxidative stress and may reduce the risk of chronic diseases [R].

Including purple sweet potato leaves in meals can promote better digestion due to their high dietary fiber content. Cooking them lightly, such as steaming or sautéing, helps retain their nutrients and vibrant color, making them a delicious and beneficial side dish [R].

How it helps

Consumption of purple sweet potato leaves may reduce exercise-induced oxidative stress and inflammation, suggesting potential benefits for muscle recovery. The study demonstrated that a diet high in purple sweet potato leaves prior to endurance exercise may enhance antioxidant status and decrease oxidative damage and inflammation, which are crucial for muscle recovery and overall health [R].

Please note: Purple sweet potato leaves may interact with blood thinners such as warfarin (Coumadin). If you are taking blood thinners, consult your doctor before consuming cranberry [R].

80

Curcumin Longvida

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 400-1000 mg of Longvida curcumin once daily, preferably with a meal to enhance absorption. It's recommended to continue this supplement intake daily for at least 8-12 weeks to evaluate its benefits.

TYPICAL STARTING DOSE

1 g

Description

Curcumin Longvida is a specialized formulation of curcumin designed for improved bioavailability and brain health support. It has been studied for its potential cognitive benefits and ability to cross the blood-brain barrier.

How it helps

In a placebo-controlled trial of 28 healthy volunteers, supplementation with curcumin Longvida (400 mg/day) 2 days before to 4 days after exercise-induced muscle damage reduced creatine kinase and IL-8 increments, but not quadriceps muscle soreness during recovery [R].

Curcumin Longvida contains compounds with anti-inflammatory properties that can reduce muscle pain and swelling. This may improve blood flow during physical activity, facilitating the delivery of nutrients and oxygen to the muscles to boost their repair and growth.

Please note: curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [R, R, R].

81



Curcumin Theracurmin

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 90 mg of Theracurmin curcumin twice daily with meals. Continue this regimen for at least 8 weeks to observe potential benefits.

TYPICAL STARTING DOSE

180 mg

Description

Curcumin Theracurmin is another formulation of curcumin designed for enhanced absorption and bioavailability. It may offer various health benefits, including anti-inflammatory and antioxidant effects.

How it helps

In a placebo-controlled trial of 14 untrained young men, supplementation with curcumin Theracurmin (150 mg) before and 12 h after each eccentric exercise bout attenuated MVC loss and creatine kinase increase [\[R\]](#).

Curcumin Theracurmin may help by reducing inflammation and oxidative stress that can occur after exercise.

Please note: curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

82



Hydrogen Water

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Drink 1.5 to 2 liters of hydrogen-rich water daily, spread out over the course of the day. It is best to start with a lower volume and gradually increase it to allow your body to adjust. This practice should be continued daily as a part of your lifestyle to maintain its potential benefits.

Description

Drinking hydrogen-rich water is believed to have antioxidant properties and may help combat oxidative stress in the body. Some studies suggest it could potentially support overall health and well-being.

How it helps

Hydrogen-rich water is believed to reduce inflammation and help muscles recover by neutralizing harmful free radicals produced during intense exercise. This may aid in speedy recovery and better performance.

In a placebo-controlled trial of 12 healthy men, drinking hydrogen-rich water (1260 mL) before resistance training improved muscle function reduced the lactate response, and alleviated delayed-onset muscle soreness. In another trial (12 healthy men), drinking hydrogen-rich water (600 mL) 30 min before a 10 min warm-up lowered blood lactate (by 1.1 mmol/L) and ventilatory equivalents for oxygen and RPE (by 2.7 and 0.7 points, respectively). However, neither lactate concentrations nor ratings of perceived exertion were significantly different after pre-exercise supplementation with hydrogen-rich water in a placebo-controlled trial of 16 male soccer players [R, R, R].

83

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

A study investigated the effects of an upper-limb strength training session the day after muscle-damaging exercise and found that it did not negatively affect recovery kinetics. The upper-body strength session after muscle-damaging exercise even accelerated the recovery of slow concentric force, suggesting that appropriately timed strength training may be beneficial for muscle recovery [R].

84

Whole-Body Cryotherapy

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Participate in whole-body cryotherapy sessions by entering a cryotherapy chamber for 2-3 minutes, where temperatures drop to between -100°C to -140°C (-148°F to -220°F). These sessions should be performed 2-3 times a week for optimal benefits.

TYPICAL STARTING DOSE

2 minutes

Description

Whole-body cryotherapy involves brief exposure to extreme cold temperatures in a controlled chamber. It is used to reduce inflammation, alleviate muscle soreness, and promote recovery in athletes and individuals seeking pain relief.

How it helps

Four trials in physically active young adults found very low-quality evidence regarding whole-body cryotherapy. It seemed to reduce muscle soreness at 1 hour post-exercise but yielded inconclusive results at 24, 48, and 72 hours. One small trial suggested less soreness than infrared therapy at 1 hour but no difference at 24 or 48 hours [R].

Another study found that cold water immersion significantly reduced delayed-onset muscle soreness and ratings of perceived exertion symptoms after 24 hours but had no impact on objective recovery variables during a 96-hour recovery period [R].

In a crossover study with 24 subjects, cycling followed by recovery in ice-cold water reduced blood plasma lipid peroxidation 40 minutes post-exercise compared to room temperature recovery and to baseline [R].

However, other studies found cryotherapy ineffective and another one found that low-level laser therapy may be a more effective option for muscle recovery [R, R, R].

Whole-body cryotherapy helps decrease inflammation and promote muscle recovery. It also stimulates blood circulation, speeding up the healing process in the muscles after a workout or injury.

Please note: Rapid cold exposure can cause life-threatening changes to your breathing and heart rate. This is called the cold-shock response. Be cautious of any form of sudden temperature change to your environment, especially if you have heart disease or other health conditions [R].

85



Stretching

IMPACT

0 / 5

EVIDENCE

3 / 5

How to implement

Incorporate stretching exercises into your daily routine, dedicating at least 10-15 minutes each day. Focus on major muscle groups such as the neck, shoulders, chest, back, hips, and legs. For best results, stretch both before and after other physical activities, holding each stretch for 15-30 seconds without bouncing.

TYPICAL STARTING DOSE

15 minutes

Description

Stretching involves gently elongating the muscles to improve flexibility, reduce muscle tension, and enhance joint mobility. Regular stretching can help prevent injuries, promote better posture, and increase overall physical comfort.

Stretching is a form of physical exercise that involves moving a muscle or group of muscles to their maximum range of motion. The most common types are **dynamic** (involving movement) and **static** stretching.

Stretching can help **improve flexibility, range of motion, and posture**. It may also relieve stress, reduce muscle soreness and tension, increase blood flow, and reduce the risk of injuries.

To get the most out of stretching, try to do it regularly, breathe deeply, and ease into the stretches.

How it helps

A systematic review and meta-analysis found that post-exercise stretching did not impact short-term or delayed recovery markers like strength, range of motion (ROM), and delayed onset muscle soreness (DOMS) compared to passive recovery or other recovery methods [R].

Another study highlighted that stretching before exercise does not reduce the risk of local muscle injury. The basic science literature and epidemiologic evidence support the conclusion that stretching before exercise does not prevent injuries [R].

86



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

A study in rats found that supplementation with velositol enhanced muscle remodeling and repair after exercise [\[R\]](#).

87



Streptococcus Thermophilus

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a supplement containing Streptococcus thermophilus according to the product's label, typically once or twice daily with a glass of water. It is commonly found in probiotic supplements and the exact dosage can vary, so following the manufacturer's guidelines is essential. Continue use as part of your daily routine or as directed by a health professional.

TYPICAL STARTING DOSE
10 billion CFU

Description

Streptococcus thermophilus is a probiotic bacterium used in the fermentation of dairy products like yogurt. It contributes to improved gut health by aiding in the digestion of lactose and promoting the growth of beneficial gut bacteria.

How it helps

A study showed that a specific combination of probiotics, including *Streptococcus thermophilus* FP4 and *Bifidobacterium breve* BR03 (for 3 weeks before muscle-damaging exercise) may attenuate performance decrements and muscle tension following the exercise. This effect is attributed to a decrease in circulating interleukin-6 (IL-6) for up to 48 hours post-exercise and an overall enhancement in isometric peak torque production during the recovery period [\[R\]](#).

88



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

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

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

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

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].

gmatine 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.

89



Bifidobacterium Breve

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a Bifidobacterium breve supplement according to the product's specific instructions, usually 1-2 capsules daily with water, ideally before meals for better absorption. This regimen should be followed for at least 2-4 weeks to start observing benefits.

TYPICAL STARTING DOSE
10 billion CFU

Description

Bifidobacterium breve is another probiotic strain that can contribute to digestive health and support a balanced gut microbiome. People use *B. breve* as a supplement to improve skin health and combat allergies and infection.

[Bifidobacterium breve](#) is a probiotic species found in human breast milk and the gastrointestinal tracts of infant and adult humans. As an individual ages, the total population of B. breve within their gut decreases [\[R\]](#).

People use *B. breve* as a supplement to improve skin health and combat allergies and infections [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

A study has shown that a specific combination of probiotics, including Streptococcus thermophilus FP4 and Bifidobacterium breve BR03 (for 3 weeks before muscle-damaging exercise) may attenuate performance decrements and muscle tension following the exercise. This effect is attributed to a decrease in circulating interleukin-6 (IL-6) for up to 48 hours post-exercise and an overall enhancement in isometric peak torque production during the recovery period [\[R\]](#).

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.

	Phosphorus	2 mg/dL		9 Nov 2025
	Vitamin D, 25-Hydroxy, Total	58.59 ng/mL		9 Nov 2025
	Creatine Kinase	173 IU/L		9 Nov 2025