

Muscle Soreness

DNA Health Report

REPORT CATEGORY —



Sample Client

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Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg

DISCLAIMER

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



How this works

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



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



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

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



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

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 soreness is a common experience, particularly after starting a new exercise routine, increasing physical activity levels, or performing intense physical work. It's a natural result of strain placed on muscles, leading to small, microscopic tears in the muscle fibers. This is not harmful but part of how muscles strengthen and build.

Muscle soreness can be:

- **Acute:** This type occurs during or immediately after exercise. It's caused by the temporary buildup of lactic acid, which produces a burning feeling that usually fades shortly after exercise.
- **Delayed-Onset (DOMS):** This type develops 12-24 hours after exercise and can peak around 48 hours post-workout. It's characterized by a feeling of muscle tenderness, stiffness, and a reduction in muscle strength, usually resolving within a few days.

Muscle soreness typically manifests itself as:

- A feeling of general muscle aches
- Temporary muscle swelling
- Stiffness in the affected muscles
- Slight swelling
- Decrease in muscle strength
- Pain when touching the muscle
- Reduced range of motion due to discomfort

Management and Prevention

Management of muscle soreness includes:

- Rest: Allowing muscles time to recover is crucial; gentle stretching can also help.
- Proper nutrition and hydration: Eating a balanced diet rich in antioxidants and staying hydrated can support muscle recovery.
- Ice Packs: Applying ice packs in the first 24-72 hours can help reduce inflammation.
- Heat therapy: After the initial 72 hours, using heat can increase blood flow and aid the healing process.
- Massage: Gentle massage may increase blood flow and relieve symptoms.
- Active recovery: Engaging in low-intensity exercise like walking or light cycling can help alleviate symptoms by stimulating blood flow.
- Over-the-counter pain relief: NSAIDs (non-steroidal anti-inflammatory drugs) like ibuprofen can help reduce pain and inflammation.

Alternatively, the following tips may help prevent or reduce muscle soreness:

- Warm up properly: Before engaging in strenuous activities, warming up helps prepare the muscles.
- Progress gradually: Increasing the intensity, duration, and frequency of exercise gradually over time can help minimize soreness.
- Cool down: Engaging in a cool-down period after intense activity can help remove lactic acid buildup.
- Stay hydrated and maintain nutrition: Proper hydration and nutrition support muscle function and recovery.

If muscle soreness is particularly severe, persists for more than a few days without signs of relief, or is accompanied by severe muscle weakness, it is advisable to seek medical attention. These could be signs of a more serious condition, such as a muscle strain or rhabdomyolysis (a severe breakdown of muscle tissue).



LESS LIKELY

Less likely to experience muscle soreness based on 6 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ACTN3	rs1815739	TC
IGF2	rs680	CT
CCR2	rs3918358	AA
IGF2	rs3213220	AA
MYLK	rs28497577	TT
CCR2	rs1799865	TT

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	Topical Arnica	2	Whole-Body Cryotherapy2 minutes
3	Topical CBD	4	Sleep for 7+ Hours
5	Stretching15 minutes	6	Maintain Optimal Vitamin D Levels1000 iu
7	Massage30 minutes		

1



Topical Arnica

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Apply arnica cream or gel to the affected area 2 to 3 times daily for up to 3 weeks. Ensure the skin is clean and unbroken before application.

Description

Arnica is a natural plant-derived remedy often used topically for its potential to reduce bruising, inflammation, and muscle soreness. It can be applied to areas of the body experiencing minor injuries or trauma.

[Arnica](#) is a daisy-like flower that grows in the mountains. People use arnica creams for [\[R\]](#), [\[R\]](#):

- Muscle or joint pain
- Swelling
- Bruises

How it helps

In a clinical trial on 20 people, 2.5 g of a 1% arnica flower gel applied every 4 hours after a downhill run **reduced muscle soreness better than placebo**, but only after 3 days [\[R\]](#).

2



Whole-Body Cryotherapy

IMPACT

0 / 5

EVIDENCE

0 / 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

Cold temperature exposure through cryotherapy can decrease inflammation and alleviate muscle soreness.

3



Topical CBD

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Apply a CBD-infused cream or ointment to the affected area of the skin 2-3 times per day, gently massaging it into the skin until fully absorbed. Continue this regimen for at least 4 weeks to assess effectiveness.

Description

CBD, derived from the cannabis plant, is used topically in various skincare products for its potential anti-inflammatory and soothing effects on the skin. It is applied to address skin conditions like acne, eczema, and psoriasis.

[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 [\[R\]](#)

Topical CBD products are also available. People use them for skincare, joint problems, and more [\[R, R\]](#).

How it helps

Topical CBD can help reduce inflammation and pain, providing relief for sore muscles through its interaction with the endocannabinoid system.

4



Sleep for 7+ Hours

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

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

Description

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

[Sleep](#) supports your body and mind [\[R, R\]](#). More precisely, sleep helps:

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

Ways to sleep better include [\[R\]](#):

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

How it helps

Good sleep helps the body heal and recover, reducing muscle soreness and promoting muscle repair.

5



Stretching

IMPACT

0 / 5

EVIDENCE

0 / 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

Stretching increases flexibility and blood flow to sore muscles, which can reduce pain and speed up recovery.

6



Maintain Optimal Vitamin D Levels

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

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

TYPICAL STARTING DOSE

1000 iu

Description

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

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

- Mood
- Immunity
- Heart health
- Blood sugar control

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

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

How it helps

Vitamin D can help reduce muscle soreness by improving muscle function and reducing inflammation. It plays a role in muscle repair and recovery.

7



Massage

IMPACT

0 / 5

EVIDENCE

0 / 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 helps increase blood flow to the muscles, reduce tension, and promote relaxation, which can alleviate muscle soreness.

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.

