

Shoulder Impingement

DNA Health Report

REPORT CATEGORIES —



JOINT & TENDON
HEALTH



INJURIES

Sample Client

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Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

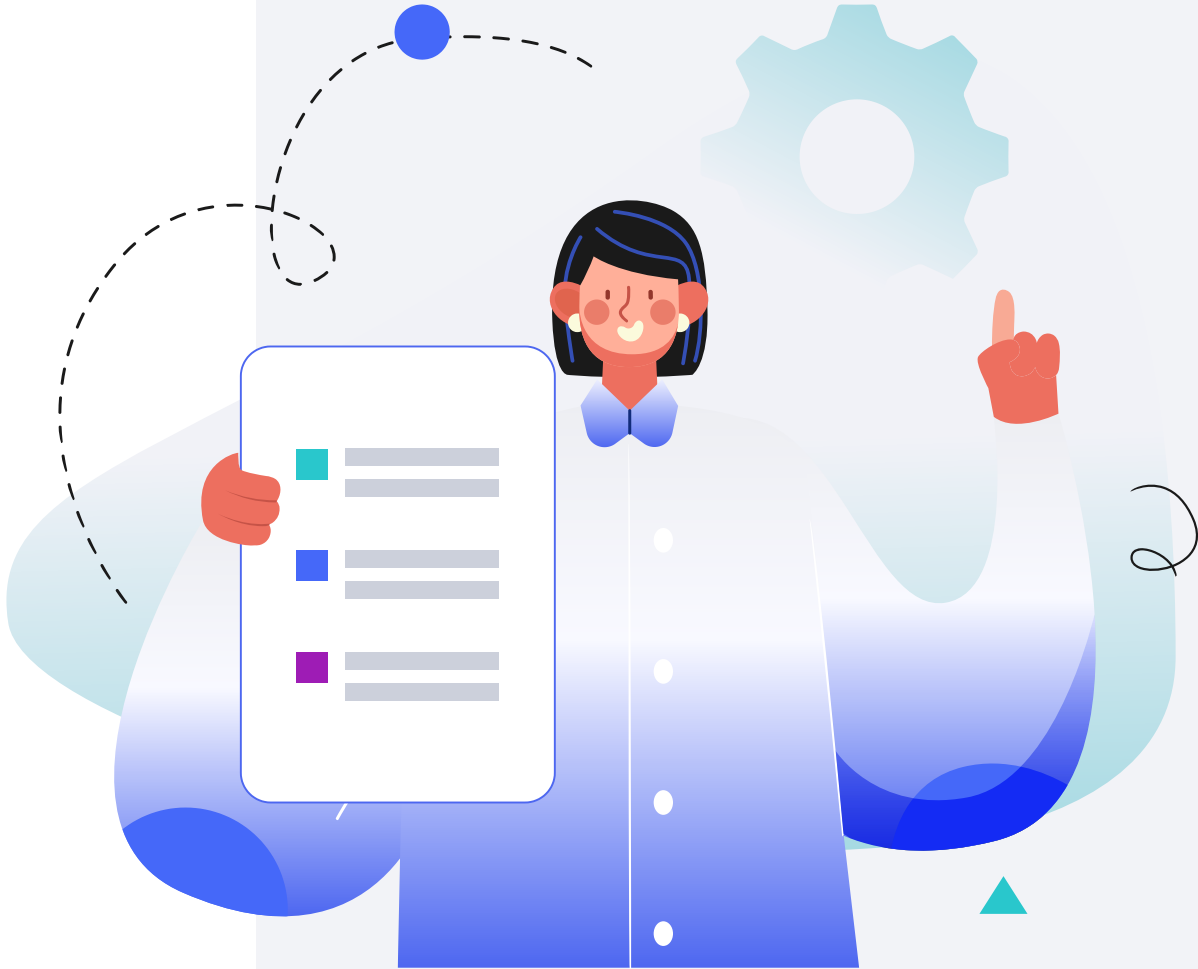
5ft 5" 165cm

WEIGHT

137lb 62kg

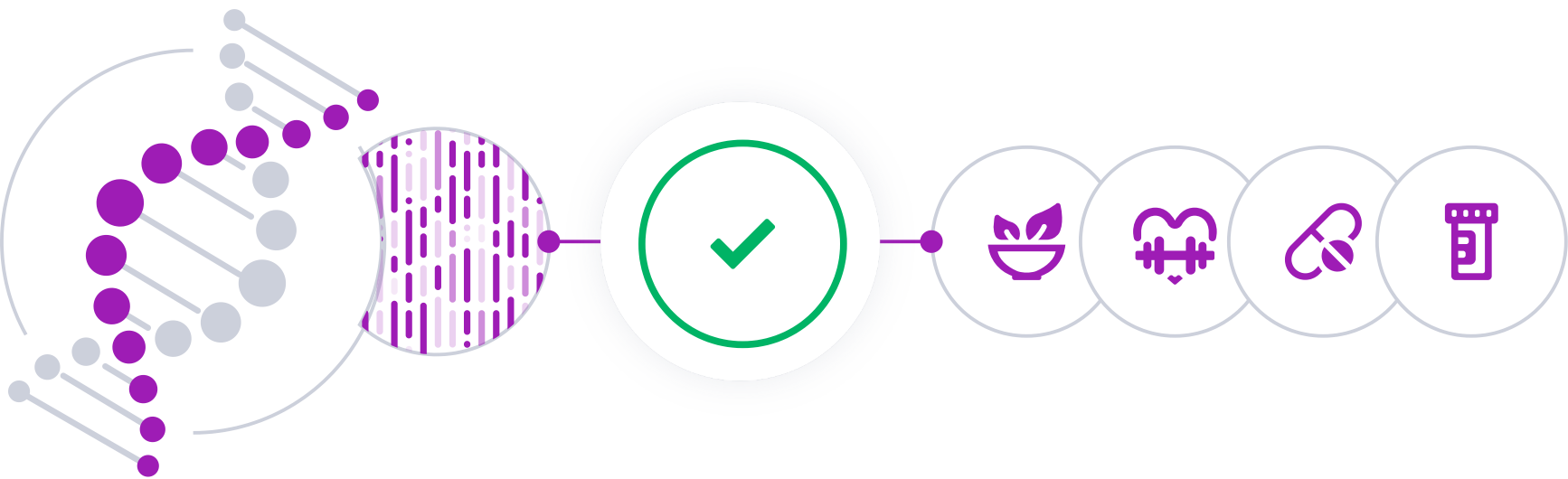
DISCLAIMER

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.

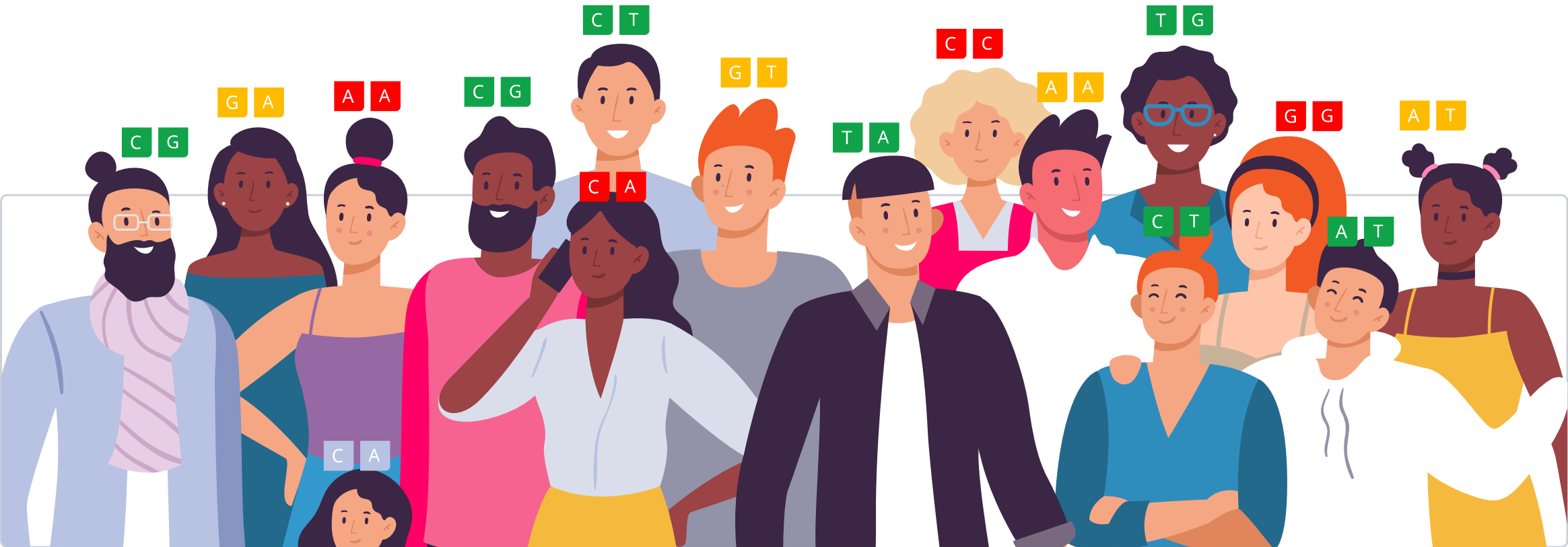


Similarly, our Trait Reports look at how your DNA influences your traits.



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

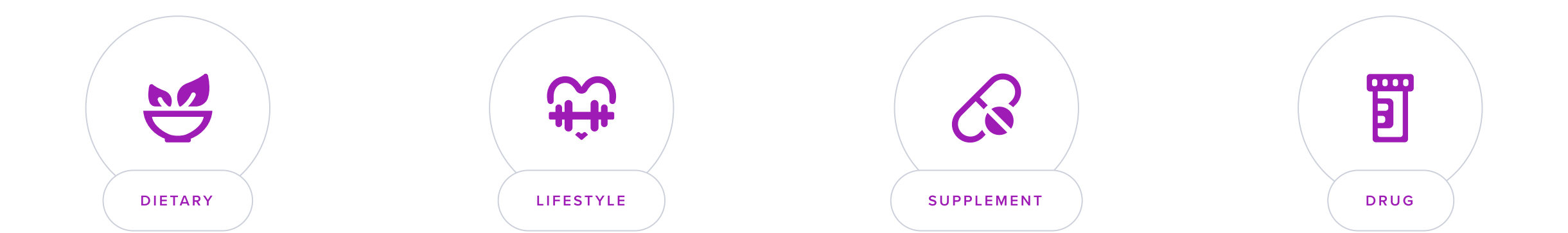
You have 2 risk alleles

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

Shoulder impingement syndrome, also known as subacromial impingement, occurs when the tendons of the rotator cuff muscles become irritated and inflamed as they pass through the subacromial space, the passage beneath the acromion.

Symptoms of shoulder impingement include [\[R\]](#):

- Pain when lifting the arm, which may radiate from the front of the shoulder to the side of the arm.
- Pain while lying on the affected shoulder.
- Weakness in the arm and shoulder.
- Difficulty with activities that place the arm behind the back, like buttoning or zippering.

The following strategies may help prevent shoulder impingement:

- Proper warm-up and strength training of the shoulder muscles to prevent injury.
- Ensuring proper technique in sports and occupational activities.
- Modifying activities that cause symptoms.

Risk Factors and Treatment

Risk factors for shoulder impingement include [\[R\]](#):

- Age: It is more common in middle-aged and older adults due to wear and tear.
- Activities: Overhead activities common in some sports and jobs can lead to impingement.
- Trauma: A fall or blow to the shoulder can initiate impingement symptoms.
- Genetics

There isn’t a strong genetic component linked to shoulder impingement syndrome. However, the anatomy of the shoulder joint, which can be influenced by genetics, may predispose individuals to develop impingement. For example, variations in the shape of the acromion or the genetic collagen makeup affecting tendon quality could make some people more susceptible.

The goal of treatment for shoulder impingement syndrome is to reduce your pain and restore shoulder function. Treatments for impingement syndrome include [\[R\]](#):

- Resting the shoulder and avoiding activities that cause pain.
- Physical therapy exercises to strengthen the muscles around the shoulder and improve the range of motion.
- Anti-inflammatory medications or steroid injections to reduce inflammation and pain.
- In persistent cases, surgical intervention may be necessary to increase the size of the subacromial space and relieve pressure on the rotator cuff.



MORE LIKELY

More likely to have shoulder impingement based on 1,676 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ASTN2	rs562775223	CC
SIPA1L2	rs789644	CA
CPNE1	rs2104009	AA
/	rs555376144	CC
QKI	rs55958453	GA
AOAH	rs3807160	GG
RFC3	rs7139664	AG
C5ORF63	rs145648292	GG
S100A12	rs143640806	AA
LONRF1	rs17769850	TT
FRMPD4	rs144371252	A
KBTBD3	rs505416	GG
PLCB1	rs6140637	AA
EGFLAM	rs60486174	TT
ANXA1	rs74821598	TT
/	rs750968	CG
STK24	rs912336	CG
LPIN1	rs192110159	CC
/	rs533950411	CC
USP6NL	rs3847425	CC
/	rs761804508	G
RORB	rs72727137	GG
CCDC110	rs11727025	GG
RBMS2	rs117991841	CC

GENE	SNP	GENOTYPE
ABCA9	rs9302983	TG
CPE	rs138457734	CC
SLC39A8	rs13107325	CC
ALG13	rs185496698	C
ZNF519	rs117141423	GG
STOML3	rs147482720	TT
/	rs144414988	AA

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

Your Recommendations

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

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

DOSAGE		DOSAGE	
1	Reduce Tendon Strain	2	Physical Therapy30 minutes
3	Exercise Therapy1 hour	4	Good Posture
5	Tai Chi1 hour	6	Vitamin C2000 mg
7	Kinesio Taping	8	Low-Level Laser Therapy (LLLT)30 seconds
9	Eccentric Exercise	10	Deep Heat Topicals
11	Compression Therapy	12	Shock Wave Therapy
13	Avoid High-Impact Exercise	14	Manual Therapy
15	Methylsulfonylmethane (MSM)1 g	16	Inositol2 g
17	Glycine3 g		

Reduce Tendon Strain

IMPACT

5 / 5

EVIDENCE

5 / 5

How to implement

To reduce tendon strain, modify your daily activities to avoid motions that cause discomfort or pain. If you engage in repetitive tasks or sports, take regular breaks, approximately every 30 minutes, to rest or gently stretch the affected tendon. Additionally, ensure to properly warm up before any physical activity and cool down afterwards.

Description

Repetitive or intense strain on the tendons of the upper and lower limbs can cause their inflammation or breakdown. Reducing tendon strain entails avoiding repetitive movements or overuse of specific muscles and tendons, which can help prevent injuries such as tendinitis and support overall musculoskeletal health.

Repetitive or intense strain on the tendons of the upper and lower limbs can cause their inflammation or breakdown. Certain sports, especially if practiced using improper technique or equipment, are most commonly associated with tendon injuries. These include [R, R, R, R, R]:

- Baseball
- Basketball
- Bowling
- Golf
- Running
- Swimming
- Tennis
- Gymnastics

On the other hand, tendon injuries can also occur in the workplace. Works involving repetitive movements, awkward positions, forced movements, using vibrating tools, and overhead reaching may lead to tendon injuries. Examples of tasks that increase the risk include [\[R, R, R\]](#):

- Gardening
- Lifting
- Landscaping
- Painting
- Scrubbing
- Shoveling
- Typing
- Woodworking

Working on a chair, keyboard, or desktop that are positioned incorrectly for your height, arm length, and the tasks may also lead to tendon injuries [R, R].

How it helps

Tendon inflammation is more common in people whose jobs involve [R]:

- Repetitive motions
- Awkward positions
- Frequent overhead reaching
- Vibration
- Forceful exertion

You may be more likely to develop tendon inflammation if you participate in certain sports that involve repetitive motions, especially if your technique isn't optimal. This can occur with [R](#), [R](#), [R](#), [R](#):

- Baseball
- Basketball
- Bowling
- Golf

- Running
- Swimming
- Tennis

Experts recommend reducing strain to prevent tendon inflammation. Strategies that may help include [\[R\]](#), [\[R\]](#):

- Limiting repetitive activities, especially if performed for long periods of time
- Making sure the workplace is ergonomically adjusted
- Stretching and strengthening the muscles
- Alternating high-impact sports with low-impact ones (e.g., alternating running with walking)
- Avoiding exercising on hard, uneven, or slippery surfaces
- Using proper equipment (e.g., well-fitting, cushioned running shoes)
- Slowly increasing the intensity of the activity

2

Physical Therapy

IMPACT

4 / 5

EVIDENCE

5 / 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

Experts say exercise therapy is the most effective strategy to improve pain, physical function, and quality of life in people with tendon injuries, including tendon inflammation. Exercise therapy may help with inflammation of the [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Achilles tendon [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Rotator cuff [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Lateral elbow tendons [\[R\]](#), [\[R\]](#)
- Kneecap [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Glutes [\[R\]](#)

The following physical therapy techniques may also help with rotator cuff tendon injuries:

- Manual therapy [\[R\]](#), [\[R\]](#)
- Kinesio taping [\[R\]](#), [\[R\]](#)

3



Exercise Therapy

IMPACT4 / 5

EVIDENCE4 / 5

How to implement

Begin by consulting with a physical therapist to assess your condition and create a personalized exercise plan. Follow the prescribed exercises consistently, focusing on areas needing improvement, such as strength, flexibility, or mobility. Start with gentle exercises, gradually increasing the intensity as you build strength. Ensure you perform the exercises correctly to avoid injury. Regularly check in with your therapist to adjust the plan based on your progress and feedback. Stay committed to the routine for the best results.

TYPICAL STARTING DOSE

1 hour

Description

Exercise therapy is a tailored approach to physical activity designed to improve mobility, strength, and overall health. It is often used to rehabilitate injuries, manage chronic conditions, and promote cardiovascular fitness.

How it helps

Experts say exercise therapy is the most effective strategy to improve pain, physical function, and quality of life in people with tendon injuries, including tendon inflammation. Exercise therapy may help with inflammation of the [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Achilles tendon [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Rotator cuff [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Lateral elbow tendons [\[R\]](#), [\[R\]](#)
- Kneecap [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Glutes [\[R\]](#)

4



Good Posture

IMPACT

3 / 5

EVIDENCE

2 / 5

How to implement

Ensure your back is straight, shoulders pulled back but relaxed, and your head is aligned above your shoulders when sitting or standing. When sitting, keep your feet flat on the ground, and use a chair that supports your lower back. Do this continuously throughout the day, reminding yourself to adjust your posture whenever you notice it lapsing.

Description

Maintaining good posture helps prevent musculoskeletal problems, reduces the risk of back and neck pain, and supports overall spinal health. Proper posture can also enhance self-confidence and improve breathing and digestion.

Good posture may help lessen strain on your body. It involves keeping your head, shoulders, and hips aligned [\[R\]](#).

Forward head posture is a type of poor posture in which the head is pushed forward or tilted down toward the chest. This posture is common when using computers or smartphones [\[R\]](#).

Poor posture may lead to [\[R\]](#), [\[R\]](#):

- Muscle pain
- Headaches
- Breathing problems

How it helps

Maintaining good posture reduces unnecessary strain on tendons, which can aid in the prevention of further injury.

Tendinitis is more common in people whose jobs involve [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Repetitive motions
- Awkward positions
- Frequent overhead reaching
- Vibration
- Forceful exertion
- Prolonged sitting

If possible, get an ergonomic assessment of your workspace and adjust your chair, keyboard, and desktop as recommended for your height and arm length. This will help protect all your joints and tendons from excessive stress [\[R\]](#).

You may also be more likely to develop tendinitis if you participate in certain sports that involve repetitive motions, especially if your technique isn't optimal.

5



Tai Chi

IMPACT

2 / 5

EVIDENCE

2 / 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 offers gentle movements that can improve circulation and flexibility, aiding tendon recovery. While there is no direct evidence specifically addressing the effectiveness of tai chi for tendinopathies, this technique has beneficial effects on various musculoskeletal and chronic pain conditions, which may indirectly suggest its potential utility for managing pain and improving physical function in individuals with tendinopathies [\[R\]](#), [\[R\]](#), [\[R\]](#).

6



Vitamin C

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Take 500-2000 mg of vitamin C supplement daily. It can be taken at any time of the day, with or without food, according to personal preference or tolerance.

TYPICAL STARTING DOSE

2000 mg

Description

[Vitamin C](#) is an essential nutrient. This means that our bodies can’t produce it on their own, so we have to get it from food or supplements [\[R\]](#).

Foods rich in Vitamin C include: [\[R\]](#)

- Citrus Fruits
- Peppers
- Brussel sprouts
- Kiwi
- Broccoli
- Tomato
- Cantaloupe
- Cauliflower
- Spinach

Vitamin C has antioxidant properties. It supports immunity, heart health, and wound healing [\[R\]](#), [\[R\]](#).

Vitamin C deficiency is called *scurvy*. In the past, many sailors suffered from it [\[R\]](#).

How it helps

Vitamin C, particularly when used in combination with other supplements, may offer benefits for tendinopathies and connective tissue injuries by [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Enhancing collagen production
- Reducing inflammation
- Improving tendon healing

7



Kinesio Taping

IMPACT

2 / 5

EVIDENCE

2 / 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

Kinesio taping may improve pain-free range of motion and quality of life in people with rotator cuff tendinopathy. However, the certainty of the evidence is very low [\[R\]](#), [\[R\]](#).

8



Low-Level Laser Therapy (LLLT)

IMPACT

2 / 5

EVIDENCE

2 / 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

A meta-analysis of 17 randomized controlled trials on shoulder tendinopathy found that low-level laser therapy (LLLT) significantly reduced pain as monotherapy and with exercise, and showed greater improvement when part of physiotherapy treatment. LLLT was ineffective with inadequate doses, also improving shoulder function when used alone [\[R\]](#).

9



Eccentric Exercise

IMPACT

2 / 5

EVIDENCE

2 / 5

Description

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

How it helps

Meta-analyses across various studies indicate that eccentric exercise is more effective than concentric exercise, stretching, splinting, frictions, and ultrasound for improving pain, function, and patient satisfaction in chronic tendinopathy [R].

10



Deep Heat Topicals

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Apply a thin layer of a deep heat topical cream or gel to the affected area, ensuring to cover it completely without excessively thick application. Gently massage it into the skin until it is fully absorbed. This should be done up to three times daily, especially before bedtime or after showers when the skin can absorb the treatment more efficiently. Avoid applying it on open wounds or sensitive areas such as the eyes and mouth.

Description

Deep heating topical creams are over-the-counter or prescription products designed to provide localized relief from muscle pain, stiffness, and soreness. These creams typically contain active ingredients like menthol, capsaicin, or salicylates, which create a warming or heating sensation when applied to the skin. The sensation is meant to increase blood flow to the area and promote relaxation of the muscles, helping to alleviate discomfort. Deep heating creams are commonly used for conditions such as muscle strains, arthritis, and sports-related injuries.

How it helps

A study investigated the efficacy of the heated lidocaine/tetracaine patch compared to subacromial corticosteroid injections for SIS pain. The results indicated that the patch provided similar pain relief and improvements in shoulder function to that achieved by steroid injections, suggesting it as a noninvasive alternative treatment for SIS pain [R].

11



Compression Therapy

IMPACT

1 / 5

EVIDENCE

1 / 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

A combination of integrative modalities, including compression therapy, can help relieve chronic pain from tendonitis [\[R\]](#).

12



Shock Wave Therapy

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

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

Description

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

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

How it helps

In a [non-placebo-controlled trial of 60 patients with unilateral shoulder impingement syndrome](#), adding extracorporeal shock wave therapy to conventional physical therapy **produced greater benefits than adding corticosteroid injections** [\[R\]](#).

13



Avoid High-Impact Exercise

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Opt for low-impact activities such as swimming, cycling, or walking instead of running or jumping exercises. Engage in these alternative exercises for at least 150 minutes per week, spread out over several days to ensure rest periods between sessions.

Description

For individuals with certain medical conditions or joint issues, avoiding high-impact exercise can help prevent injuries and joint strain. Choosing lower-impact activities like swimming or cycling can provide similar cardiovascular benefits while minimizing the risk of overuse injuries.

How it helps

Athletes involved in sports requiring repetitive overhead use of the arm, such as tennis players, swimmers, and baseball pitchers, often develop shoulder impingement. The condition arises from repetitive stress and high impact on the shoulder, which can lead to degeneration and tears of the rotator cuff [\[R\]](#).

14



Manual Therapy

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Schedule a session with a certified manual therapist, such as a physical therapist or chiropractor, once a week for at least 3 to 6 weeks. During these sessions, allow the therapist to apply hands-on techniques to manipulate muscles and joints aiming to improve mobility and reduce pain.

Description

Manual therapy encompasses various hands-on techniques used by healthcare professionals, including physical therapists and massage therapists, to alleviate pain, improve mobility, and promote overall musculoskeletal health. It can be effective for addressing a wide range of conditions, from muscle tension to joint disorders.

How it helps

In people with rotator cuff tendinopathy, manual therapy may decrease pain. However, it’s unclear if it can also improve physical function [\[R\]](#), [\[R\]](#).

15



Methylsulfonylmethane (MSM)

IMPACT

0 / 5

EVIDENCE

0 / 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

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

MSM is known for its anti-inflammatory properties, which might be beneficial for tendon health. It may help in reducing inflammation and pain associated with tendon inflammation or injury.

Additionally, MSM is believed to improve the flexibility and strength of tendons by supporting the production of collagen, a key component of tendon tissue. This may aid in the healing process and potentially reduce the risk of future tendon injuries.

MSM may also support tendon health by improving joint and muscle recovery [\[R\]](#), [\[R\]](#).

16



Inositol

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take inositol as a daily supplement, usually available in powder or capsule form. The typical dosage ranges from 2 grams to 18 grams per day, divided into smaller doses taken with meals and water to aid absorption. It's important to start with a lower dose and gradually increase to avoid digestive side effects.

TYPICAL STARTING DOSE

2 g

Description

Inositol is a naturally occurring compound that plays a role in cell signaling and neurotransmitter function. It has been studied for its potential in promoting mental health and managing conditions like anxiety and depression when used as a supplement under the guidance of a healthcare professional.

Inositol is a type of sugar that our bodies need to function. It was considered a vitamin (vitamin B8) until it was discovered that our bodies can make it from another common sugar, glucose [\[R\]](#).

[Myo-inositol](#) is the most common form of inositol. It plays a role in [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart health
- Normal blood sugar levels
- Mental health
- Cognitive function
- Reproductive health

Myo-inositol can convert to [D-chiro-inositol](#) in the body. These two forms of inositol are often combined in supplements. People use them to improve blood sugar control and PCOS [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

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

Inositol, a type of sugar that influences insulin and several neurotransmitter systems, might help with tendinopathy through its potential anti-inflammatory and insulin-regulating properties. These effects could aid in reducing inflammation and improving blood sugar control, potentially enhancing tendon healing and reducing pain.

However, specific research on inositol for tendinopathy is limited, so its effectiveness in this context isn't well-established. Always consult a healthcare professional before starting any new supplement, especially for specific conditions like tendinopathy.

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Glycine

IMPACT

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EVIDENCE

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How to implement

Take 3 to 5 grams of glycine supplement per day with water, preferably before bedtime for sleep improvement or spread throughout the day for general health benefits. Continue indefinitely as needed, but consult a healthcare provider for long-term use beyond three months.

TYPICAL STARTING DOSE

3 g

Description

Glycine is an amino acid that may have calming and anti-inflammatory effects, potentially benefiting sleep quality and joint health.

If you can't get enough glycine from food sources, glycine supplements are available. Daily doses of up to **6 g** have been safely used for up to **4 weeks**. Consult your doctor before supplementing.

How it helps

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

Here's how glycine may be beneficial:

- Anti-Inflammatory Effects.** Glycine is known for its anti-inflammatory properties, and glycine may help reduce the inflammatory response.
- Collagen Production.** Glycine is an essential component of collagen. By promoting collagen synthesis, glycine may help in the repair and strengthening of damaged tissues.
- Tissue Repair.** Glycine is involved in metabolic processes including tissue repair and regeneration. It may facilitate the healing of damaged tendon tissue in tennis elbow.

It's important to note that while glycine may have potential benefits for tennis elbow, it should be considered as part of a comprehensive treatment plan.

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 Lifestyle Assessments

Ever heard of the term Nature vs. Nurture?

The thing is, both DNA and environment play a role in determining your health risks. The following assessments shows how much of an impact your lifestyle, environment and medical history are having on your health risks.



LIFESTYLE

You have a **slightly increased risk** of shoulder impingement based on the answers you provided.

Low

Decreased

Average

Increased

High

Your Lifestyle Risk

Factors impacting your risk:

What is your ethnicity? Ashkenazi Jewish	Increasing Risk 
What is your age? 41	Increasing Risk 
Do you have a job that requires you to do physically demanding or repetitive work? No	Decreasing Risk 
What is your sex? Male	Decreasing Risk 
Are you a professional athlete in swimming, baseball, volleyball, or tennis? No	Decreasing Risk 

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