

Bone Spurs

DNA Health Report

REPORT CATEGORY —



BONE HEALTH

Sample Client

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DISCLAIMER

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

Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg



How this works

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



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



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

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



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

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

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



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.
The following icons tell you which category a recommendation falls into:



Our team of scientists also ranks each recommendation.
We rank based on impact and the strength of evidence in the medical literature.

Impact shows how strongly a recommendation will affect your health in a certain area.
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

Recommendation Evidence

5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

0 / 5

No evidence in humans.

Genotype-specific Evidence

High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).

Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

Introduction

Bone spurs, also known as osteophytes, are bony growths that develop along the edges of bones, often where bones meet each other in the joints. While they can occur anywhere in the body, they are most commonly found in the spine, shoulders, hands, hips, knees, and feet [\[R\]](#).

Bone spurs themselves often do not cause any symptoms and may be discovered incidentally during an X-ray for another condition. However, when symptoms do occur, they typically arise from the bone spur interfering with nearby structures and may include [\[R\]](#):

- Pain and inflammation.
- Swelling and tenderness around the joint
- Reduced range of motion
- Nerve compression and associated symptoms (numbness, tingling, and weakness)

Causes and Management

Bone spurs develop as a result of bone and joint degeneration and are primarily associated with the aging process. However, they can also arise from underlying diseases and conditions that affect bone and joint health [\[R\]](#):

- **Osteoarthritis:** The most common cause of bone spurs, osteoarthritis involves the breakdown of cartilage, leading to joint damage and increased bone friction.
- **Spinal degeneration:** Bone spurs commonly occur in the spine as a result of the degeneration of discs and joints, often due to aging.
- **Mechanical stress:** Repeated stress or injuries to a joint can promote the formation of bone spurs as part of the body's attempt to heal or distribute force more evenly.
- **Inflammatory conditions:** Diseases such as rheumatoid arthritis or diffuse idiopathic skeletal hyperostosis (DISH) can lead to bone spur formation due to ongoing inflammation.
- **Genetic factors:** Genetic predispositions can influence the likelihood and locations of bone spur development.

Treatment for bone spurs depends on the severity of symptoms and the location of the spurs [\[R\]](#):

- **Medications:** Nonsteroidal anti-inflammatory drugs (NSAIDs) can help reduce pain and inflammation.
- **Physical therapy:** Exercises and stretches can improve flexibility and strength around the joint, reducing the symptoms caused by bone spurs.
- **Corticosteroid injections:** May be used to reduce inflammation in severe cases.
- **Surgical removal:** Considered if the bone spur is causing significant pain, mobility issues, or nerve compression, and conservative treatments have failed.

Managing bone spurs also involves lifestyle adjustments to help relieve symptoms and prevent further joint damage [\[R\]](#):

- **Weight management:** Reducing body weight can decrease stress on weight-bearing joints, alleviating symptoms.



LESS LIKELY

Less likely to have bone spurs based on 1,676 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs575997043	CC
/	rs139814879	TT
/	rs140162870	CC
FAT4	rs535192512	AA
ADAMTS8	rs149729817	GG
/	rs374462308	GG
/	rs181552316	GG
/	rs182756278	CC
DENND1B	rs190073601	AA
/	rs142291828	CC
GRAMD2B	rs190360312	GG
CAPRIN2	rs542887566	CC
NPAP1	rs577272962	AA
PIK3R1	rs143106204	CC
KCTD8	rs556962187	GG
/	rs142726098	TT
PPP1CB	rs193167778	CC
/	rs139575989	GG
PCDH9	rs369611135	TT
RGS1	rs181133730	GG
/	rs572272840	GG
LRRTM4	rs181483238	GG
DDC	rs145505700	AA
EVX2	rs184519785	GG

- Proper footwear: Choosing shoes with adequate support and cushion can relieve pain caused by bone spurs in the feet.
- Ergonomic adjustments: For spinal bone spurs, ergonomic changes to the working and living environments can help minimize symptoms.

GENE	SNP	GENOTYPE
NOX3	rs187052602	GG
OR2T5	rs142690927	CC

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

Your Recommendations

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

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

DOSAGE		DOSAGE			
1	Calcium Supplements	1000 mg	2	Stretching	15 minutes
3	Glucosamine	1500 mg	4	Chondroitin	800 mg
5	Boswellia	350 mg			

1



Calcium Supplements

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 500-600 mg of calcium supplement twice daily with food. For best absorption, do not exceed 600 mg at one time and ensure a total daily intake of 1000-1200 mg from all sources, including diet. Continue indefinitely for ongoing support of bone health.

TYPICAL STARTING DOSE
1000 mg

Description

Calcium supplements are commonly used to support bone health and prevent conditions like osteoporosis. Adequate calcium intake is essential for maintaining strong bones and teeth.

[Calcium](#) is the most abundant mineral in the human body. It is vital for the bones, heart, muscles, and nervous system [\[R\]](#).

Your body gets calcium from food and needs vitamin D to help absorb it. Calcium can be found in a variety of foods, including [\[R\]](#):

- Dairy products
- Green, leafy vegetables
- Fish with edible soft bones (e.g., sardines)
- Calcium-fortified foods and beverages

How it helps

Calcium supplements ensure adequate mineral intake, which supports bone density and health, potentially preventing the development of bone spurs by maintaining proper bone structure. This is crucial for individuals at risk of osteoporosis, as stronger bones can mitigate spur formation.

2



Stretching

IMPACT

1 / 5

EVIDENCE

1 / 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 helps alleviate discomfort associated with bone spurs by improving joint mobility and reducing muscle tension, which can ease the strain on surrounding tissues. This enhanced flexibility promotes better alignment, potentially reducing pain and improving overall function.

3



Glucosamine

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take glucosamine as a dietary supplement, commonly available in capsules or liquid form. The standard dose is 1500 mg per day, which can be taken all at once or divided into multiple doses throughout the day. It's often recommended to continue taking glucosamine for at least 3 to 4 months to evaluate its effectiveness in relieving joint pain or osteoarthritis symptoms.

TYPICAL STARTING DOSE

1500 mg

Description

Glucosamine is a supplement commonly used to support joint health and may help alleviate symptoms of osteoarthritis. It's believed to promote cartilage health and reduce joint discomfort, but individual responses can vary.

[Glucosamine](#) is a compound naturally made by the body. It helps keep the connective tissues, such as the cartilage in the joints, strong and elastic [\[R\]](#).

Many people use glucosamine supplements to support joint health [\[R, R, R\]](#).

How it helps

Glucosamine may enhance cartilage regeneration and support overall joint health, which can be beneficial for individuals with bone spurs by alleviating discomfort and improving joint function.

4



Chondroitin

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 400 mg of chondroitin sulfate orally, three times a day or 800 mg once daily. This supplement regimen is typically followed for up to 6 months to support joint health.

TYPICAL STARTING DOSE

800 mg

Description

Chondroitin is often used as a supplement to support joint health and reduce the symptoms of osteoarthritis. It may help improve joint mobility and reduce discomfort in individuals with joint-related issues.

Chondroitin is a major component of cartilage. It helps keep cartilage healthy, and it provides the building blocks for the body to produce new cartilage.

People often combine chondroitin with glucosamine as supplements for joint health [\[R\]](#), [\[R\]](#).

How it helps

Chondroitin aids in maintaining cartilage integrity and joint function, which can alleviate pain and discomfort associated with bone spurs. By enhancing lubrication within the joint spaces, it may improve mobility and reduce inflammation linked to bone spur formation.

5



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 may help manage pain associated with bone spurs by reducing inflammation in the affected joints, thereby improving mobility and overall joint function. Its anti-inflammatory properties can provide supportive relief, enhancing the quality of life for individuals suffering from this condition.