

Bone Cancer

Disease Report

REPORT CATEGORIES —



BONE HEALTH



CANCER

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

10 Your recommendations

17 Next Steps

- 17 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

Bone cancer is a relatively rare condition that involves the formation of malignant tumors in the bone tissue. It can affect any bone in the body but is most commonly found in the bones of the arms and legs. Bone cancer can occur in people of all ages, but certain types are more common in children and young adults, while others primarily affect adults [\[R\]](#).

The main types of bone cancer are:

- Osteosarcoma: The most common type of bone cancer. It typically occurs in children and young adults, especially in the bones around the knee.
- Chondrosarcoma: This type of cancer originates in the cartilage and is more common in adults.
- Ewing sarcoma: Often found in younger people, this cancer usually starts in the bones of the legs, arms, or pelvis.
- Multiple myeloma: Although not a bone cancer in the traditional sense, this cancer affects the bone marrow and can lead to symptoms similar to those of bone cancer.

Symptoms of bone cancer include [\[R\]](#):

- Pain: The most common symptom, which may become more severe over time.
- Swelling and tenderness: Near the affected area.
- Fractures: Bones weakened by cancer may break more easily.
- Fatigue: A general feeling of tiredness and malaise.
- Weight loss: Unintended weight loss that is not due to dieting or exercise.

Risk Factors and Treatment

The exact causes of bone cancer are not well understood, but several factors can increase the risk [\[R\]](#):

- Genetic disorders: Certain inherited genetic disorders, such as hereditary retinoblastoma and Li-Fraumeni syndrome, are linked to a higher risk of bone cancer.
- Previous radiation therapy: Exposure to high doses of radiation, such as those used in previous cancer treatments, can increase the risk.
- Paget’s disease: This bone condition, mostly seen in elderly people, may increase the risk of developing osteosarcoma.
- Bone marrow transplantation: This medical treatment might slightly increase the risk of developing bone cancer later in life.

Treatment depends on the type, stage, location of the cancer, and the patient's overall health [\[R\]](#):

- Surgery: The primary treatment for bone cancer is surgically removing the entire tumor while preserving as much normal bone and function as possible.
- Chemotherapy: Often used before surgery to shrink the tumor and after to kill any remaining cancer cells.
- Radiation therapy: Used if surgical removal isn't possible, or to reduce symptoms in advanced cases.
- Targeted therapy: Drugs that specifically target cancerous cells without affecting normal cells are being developed and used in some types of bone cancer.

The prognosis for bone cancer depends on factors such as the type of cancer, the extent of its spread, and how well it responds to treatment. Early diagnosis and advanced treatments have improved the prognosis for many people with bone cancer, especially for those with localized disease.

Please note: This report is not diagnostic and can't be used to make any medical decisions. Most cancers are uncommon and have a strong environmental component. Even if your genetic predisposition is high, you will most likely not develop the disease. This report doesn’t test for hereditary cancer syndromes or ‘cancer genes’. These



MORE LIKELY

More likely to have bone cancer based on **24,472** genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TASOR2	rs2797501	AA
/	rs7591996	CA
PARM1	rs17248137	AA
LRMDA	rs17465450	AA
GLDC	rs55933544	CC
SNTB1	rs6986444	CC
MECOM	rs6797464	GG
GPD1L	rs4955138	AA
HSPB8	rs12146774	TC
ARVCF	rs9332377	CT
AGMO	rs7777171	CT
GRM4	rs1906953	TC
ADAMTS17	rs2086452	AG
ADAMTS6	rs17206779	TC
DLEU7	rs573666	CC

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

are usually caused by rare mutations that can't be analyzed by our test. If you're concerned about your risk of hereditary cancer, consider getting a specialized test at a reference laboratory.

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	Vitamin D and Calcium	2	Walking30 minutes
3	Strength Training1 hour	4	Dietary Omega-3 Fatty Acids
5	Mindfulness-Based Stress Reduction (MBSR)2 hours	6	Dietary Polyphenols
7	Support Groups		

1



Vitamin D and Calcium

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 600 IU of vitamin D and 1000 mg of calcium daily. For adults over 70 years, the vitamin D intake should be increased to 800 IU daily. These supplements can be taken together or separately, usually with a meal to enhance absorption, and it is advisable to continue this regimen as part of your daily routine indefinitely unless advised otherwise by a healthcare provider.

Description

Vitamin D plus calcium supplements typically combine vitamin D, often sourced from sunlight exposure or dietary sources, with calcium, primarily found in dairy products and leafy greens. This combination is used to promote bone health, reduce the risk of osteoporosis, and support overall musculoskeletal well-being.

How it helps

Combining Vitamin D with calcium is beneficial for bone health. Calcium is essential for maintaining bone structure, and Vitamin D helps the body absorb calcium efficiently. This combination may be particularly useful for bone health in people with bone cancer.

2



Walking

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate at least 30 minutes of brisk walking into your daily routine, aiming for a minimum of five days a week. This can be done in one continuous session or broken into shorter periods, such as three 10-minute walks throughout the day.

TYPICAL STARTING DOSE

30 minutes

Description

Walking is a low-impact form of exercise that can contribute to cardiovascular fitness, weight management, and improved overall health. It is used to support physical activity goals, enhance mood, and promote better cardiovascular health.

How it helps

Regular walking can improve physical endurance, reduce fatigue, and enhance quality of life during cancer treatment.

3



Strength Training

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Engage in strength training exercises, such as weight lifting or bodyweight exercises, for 60 minutes per session, 2 to 3 times per week. Ensure you work all major muscle groups and rest each muscle group for at least 48 hours before exercising it again.

TYPICAL STARTING DOSE

1 hour

Description

Strength training, also called resistance or *anaerobic* training, contracts the muscles against an external resistance for short periods of time. This helps gain muscle strength, tone, and mass. This can include activities like weight lifting, pushups, and crunches.

Strength training, also known as resistance training, is a type of physical exercise that uses resistance to build strength, anaerobic endurance, and size [R]. Some of the most common strength training methods include [R]:

- Weight lifting
- Bodyweight exercises like push-ups, pull-ups, squats, and lunges.
- Resistance bands
- Plyometrics or explosive force exercises

The benefits of strength training are numerous, and include [R]:

- Increased muscle strength
- Improved bone health
- Reduced risk of injury
- Improved balance and coordination
- Enhanced mood
- Boost metabolism

Consult with a doctor before starting any new exercise program, especially if you have any health conditions.

How it helps

Strength training can improve muscle mass, balance, and overall physical function, which may be beneficial for individuals undergoing treatment for bone cancer.

4



Dietary Omega-3 Fatty Acids

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods high in omega-3 fatty acids into your diet daily. This includes eating fish such as salmon, mackerel, and sardines at least twice a week. Alternatively, include a tablespoon of flaxseed oil or chia seeds in your daily diet.

Description

[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. **EPA and DHA are vital for mental and heart health** [\[R\]](#), [\[R\]](#), [\[R\]](#).

Fatty fish are rich in EPA and DHA. They include [\[R\]](#):

- Salmon
- Tuna
- Herring
- Sardines

For optimal health, 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

Dietary Omega-3 Fatty Acids, found in fish and some plant oils, have anti-inflammatory effects that may help slow the progression of cancer. Studies suggest that omega-3s can inhibit cancer cell proliferation and induce apoptosis, or programmed cell death, in cancer cells.

5



Mindfulness-Based Stress Reduction (MBSR)

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Enroll in an 8-week MBSR course, which includes a weekly 2.5-hour class, one all-day class after the sixth week, and 45 minutes of daily home practice guided by assignments and instructional recordings.

TYPICAL STARTING DOSE

2 hours

Description

Mindfulness-Based Stress Reduction (MBSR) is a structured program that teaches mindfulness techniques to reduce stress and improve overall mental and emotional health. MBSR has been shown to help individuals cope with chronic pain, anxiety, and other stress-related conditions.

How it helps

MBSR practices can help reduce stress, anxiety, and improve quality of life in cancer patients. It involves mindfulness meditation and yoga, which can help in managing pain and emotional stress associated with cancer.

6



Dietary Polyphenols

IMPACT

0 / 5

EVIDENCE

0 / 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

Dietary polyphenols, found in fruits, vegetables, tea, and wine, exhibit anti-cancer properties by inhibiting cancer cell growth and inducing apoptosis. They also have antioxidant and anti-inflammatory effects, which can slow cancer progression.

7



Support Groups

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Attend a support group meeting related to your condition at least once a week. These meetings can be found through local hospitals, online platforms, or health organizations specific to your condition. Participation can be in-person or virtual, depending on what is offered and your preference.

Description

Support groups are gatherings of individuals facing similar challenges, where they can share experiences, emotions, and coping strategies. They offer emotional support, camaraderie, and valuable insights for those dealing with various health conditions or life circumstances.

Support groups involve people with similar struggles helping each other. Support groups usually take place in a casual setting. During sessions, people share their [\[R\]](#):

- Knowledge
- Experiences
- Coping strategies
- Understanding of the recovery process

Support groups may help support recovery from addictions [\[R\]](#).

How it helps

Participation in support groups provides emotional support, reduces feelings of isolation, and helps individuals manage the mental health difficulties that often accompany cancer diagnosis and treatment.

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.

	ALP	68 IU/L		9 Nov 2025
	Calcium, Ionized	1.1 mmol/L		9 Nov 2025
	Calcium	9.2 mg/dL		9 Nov 2025