

Femoral Head Necrosis

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

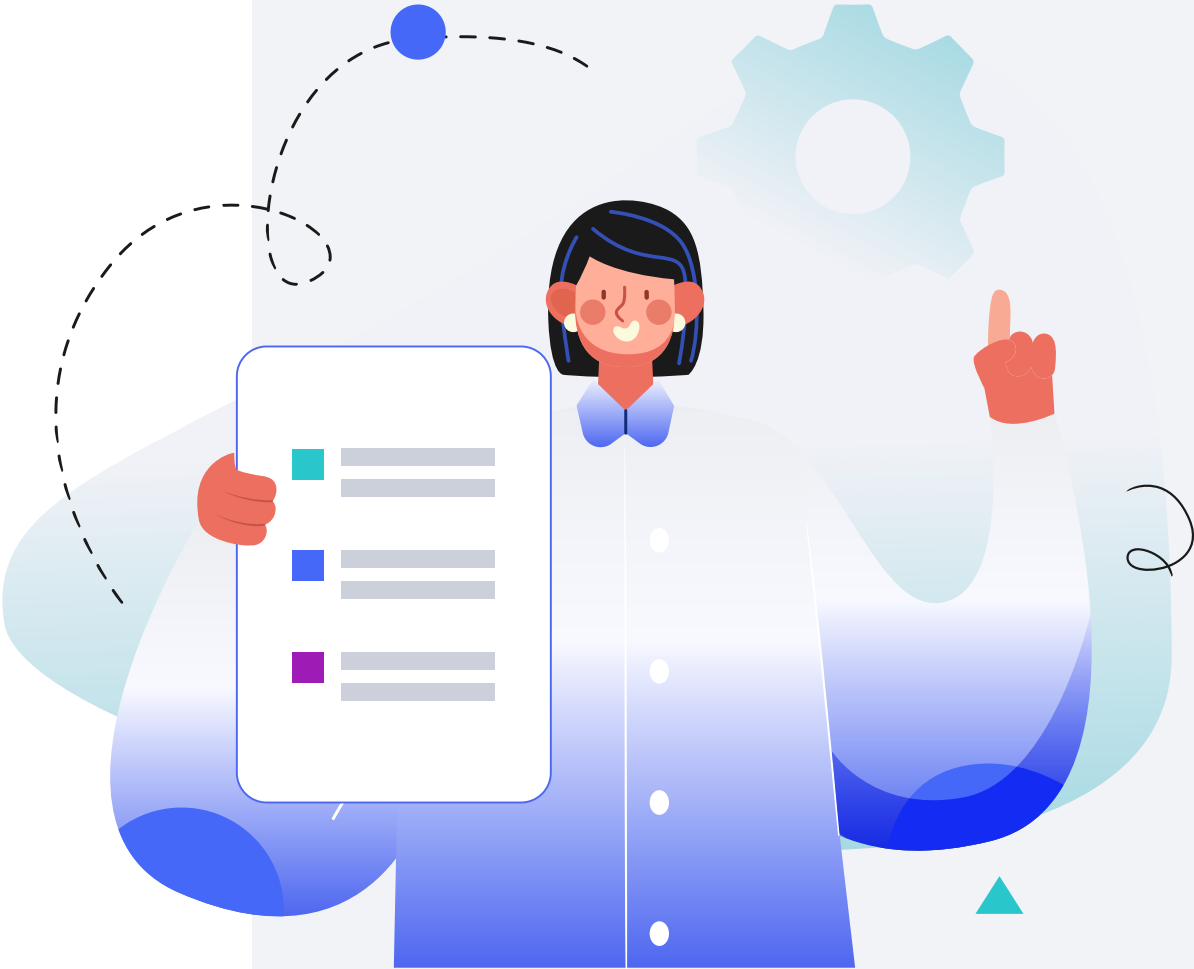
Male

HEIGHT

5ft 5" 165cm

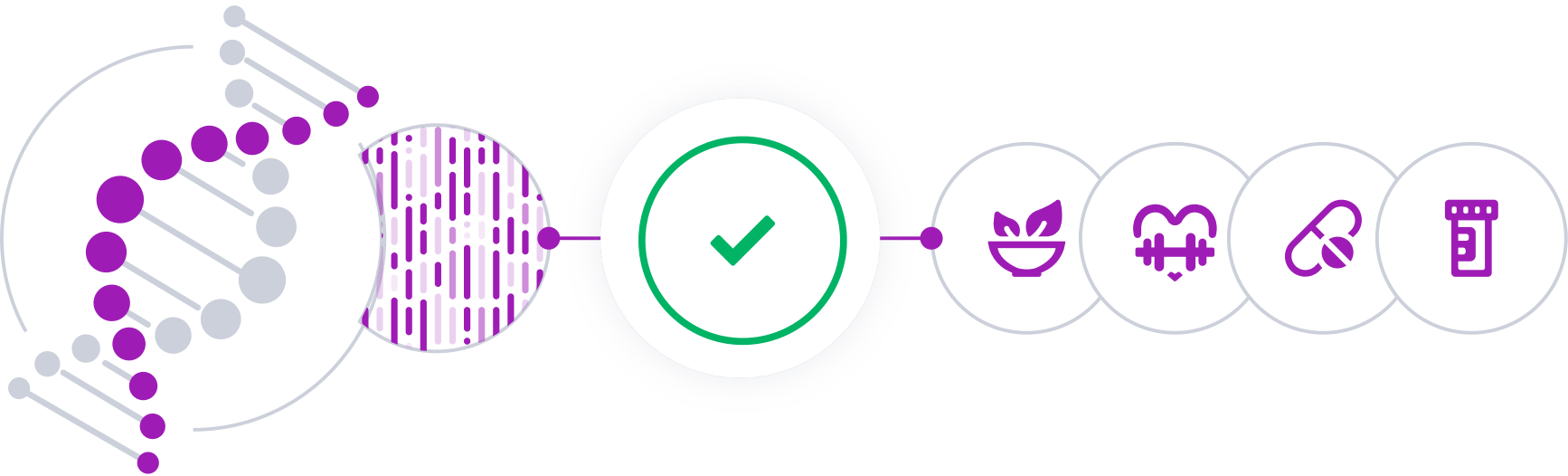
WEIGHT

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.

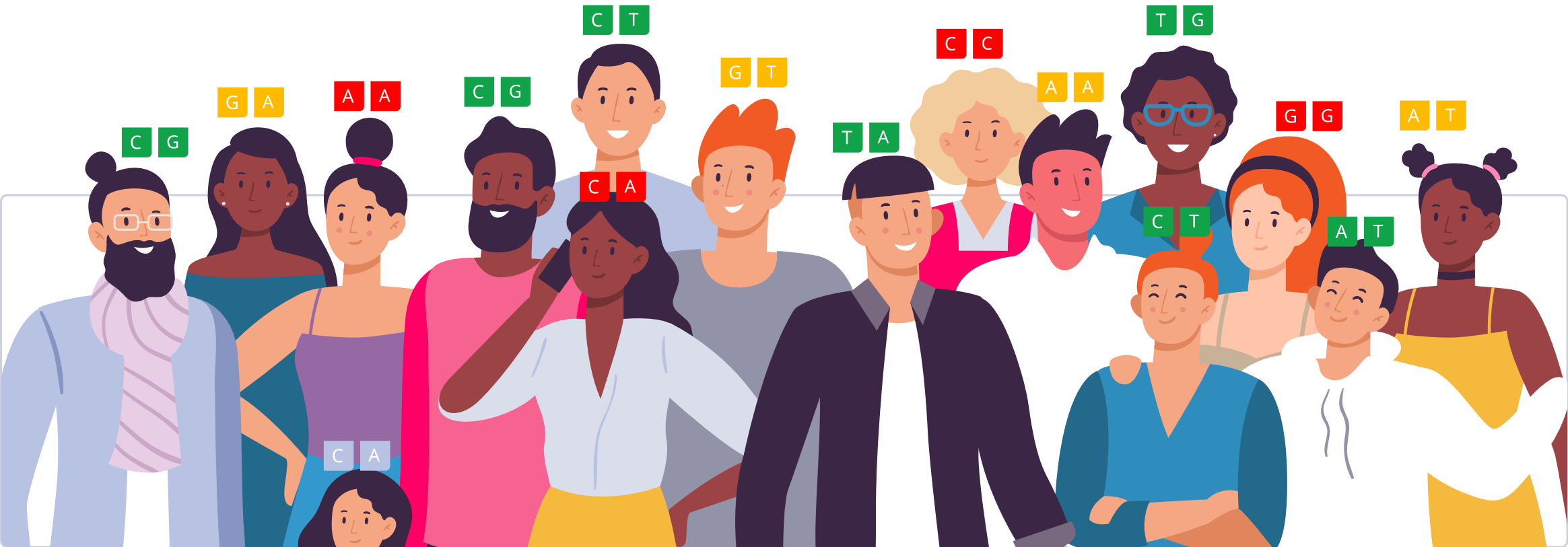


Similarly, our Trait Reports look at how your DNA influences your traits.



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

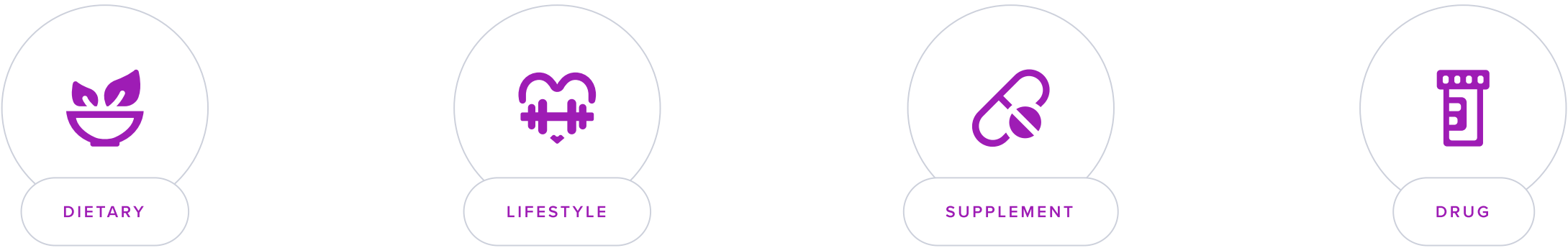
You have 2 risk alleles

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

Femoral head necrosis, also known as avascular necrosis (AVN) of the hip, is a condition characterized by the death of bone tissue due to a lack of blood supply. This disruption can lead to tiny breaks in the bone and the bone's eventual collapse. The femoral head, being part of the hip joint, is critical for normal movement and weight-bearing activities.

When it suffers from necrosis, it can significantly impair a person’s ability to walk and perform everyday tasks. This condition can develop in anyone, but is more commonly associated with individuals who have sustained a hip injury, have used high-dose steroids, or excessively consume alcohol.

Diagnosis and Treatment

Initial symptoms of femoral head necrosis may include joint pain and limited range of motion, particularly in the hip area. This pain might start off as mild and become more severe over time, particularly when weight is placed on the affected limb. As the condition progresses, the pain may become constant, even when resting.

Diagnosis typically involves imaging studies, such as MRI or X-rays, to observe changes in bone structure. Treatment for femoral head necrosis varies depending on the stage of the condition and can range from conservative approaches, such as physical therapy and medication, to surgical interventions like core decompression or joint replacement.



TYPICAL LIKELIHOOD

Typical likelihood of femoral head necrosis based on 23 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
QRICH2	rs117234581	GA
VPS50	rs10953090	AG
OPRM1	rs584709	TC
SEMA3D	rs10236649	CT
ZNF648	rs116468452	TT
SPATA18	rs138371993	AA
SYN2	rs112517560	AA
ZNF804B	rs2189071	AA
CTHRC1	rs7825223	GG
MR1	rs61811251	GG
RBFOX1	rs57220573	GG
PYGB	rs761440	CC
GPBP1	rs114703252	TT
FBXO25	rs145185972	CC
PI4K2B	rs112467115	CC
PRDX6	rs149415799	GG
MEOX2	rs111529765	CC
SH3GL2	rs3808749	GG
/	rs55863623	GG
SORCS2	rs11721852	CC
MN1	rs77249562	AA
PPARGC1B	rs78814834	CC
ZNF518B	rs73226405	GG
CNKSR3	rs7771691	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	Hyperbaric Oxygen Therapy	90 minutes	2	Shock Wave Therapy	
3	Avoid High-Impact Exercise		4	Vitamin K2	100 mcg
5	Coenzyme Q10 (CoQ10)	100 mg			

1



Hyperbaric Oxygen Therapy

IMPACT

4 / 5

EVIDENCE

3 / 5

How to implement

Schedule and attend sessions in a hyperbaric oxygen therapy chamber as your doctor prescribes, typically for about 60 to 90 minutes per session. The exact number of sessions required can vary based on the condition being treated, but it often ranges from 20 to 40 sessions, which may be conducted daily or a few times a week.

TYPICAL STARTING DOSE

90 minutes

Description

Hyperbaric oxygen therapy increases the amount of oxygen in the blood and tissues, which can help to improve circulation, reduce inflammation, and promote healing.

How it helps

In patients with femoral head necrosis, receiving hyperbaric oxygen therapy may improve clinical treatment effects by about 4-fold [\[R, R\]](#).

2



Shock Wave Therapy

IMPACT

2 / 5

EVIDENCE

2 / 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

A [meta-analysis of 9 trials and 409 patients](#) concluded that extracorporeal shock wave therapy **improves pain better than surgery and has limited effects on range of motion but doesn’t reduce lesion area or stop disease progression** in people with osteonecrosis of the femoral neck [\[R\]](#).

3



Avoid High-Impact Exercise

IMPACT

0 / 5

EVIDENCE

0 / 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

High-impact exercises, like running or jumping, can increase the pressure on the femoral head, potentially worsening femoral head necrosis. Opting for low-impact activities helps reduce stress on the hip joint, potentially slowing the progression of the condition.

4



Vitamin K2

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a vitamin K2 supplement once daily with a meal that contains fat, as fat increases its absorption. The recommended dosage can vary depending on the specific supplement but typically ranges from 100 to 300 micrograms per day. It is important to continue this supplementation daily for ongoing benefits to bone and cardiovascular health.

TYPICAL STARTING DOSE

100 mcg

Description

Vitamin K2 is a beneficial nutrient we often lack. It's like a traffic cop for your body, directing calcium to your bones and teeth where it's needed, rather than letting it clog up your arteries and organs. Ensuring you get enough Vitamin K2 boosts your bone and heart health.

How it helps

Vitamin K2 plays a crucial role in bone metabolism and can help in maintaining bone density. It may assist in the prevention of bone tissue loss in the femoral head by improving calcium deposition in bones, which is beneficial for individuals with femoral head necrosis.

5



Coenzyme Q10 (CoQ10)

IMPACT

0 / 5

EVIDENCE

0 / 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) helps in femoral head necrosis by improving blood flow and providing antioxidant support. It is thought to help reduce tissue damage and support energy production in cells, potentially aiding in the repair of the affected bone area.

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

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.

