

eGFR

Biohacker Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026

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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

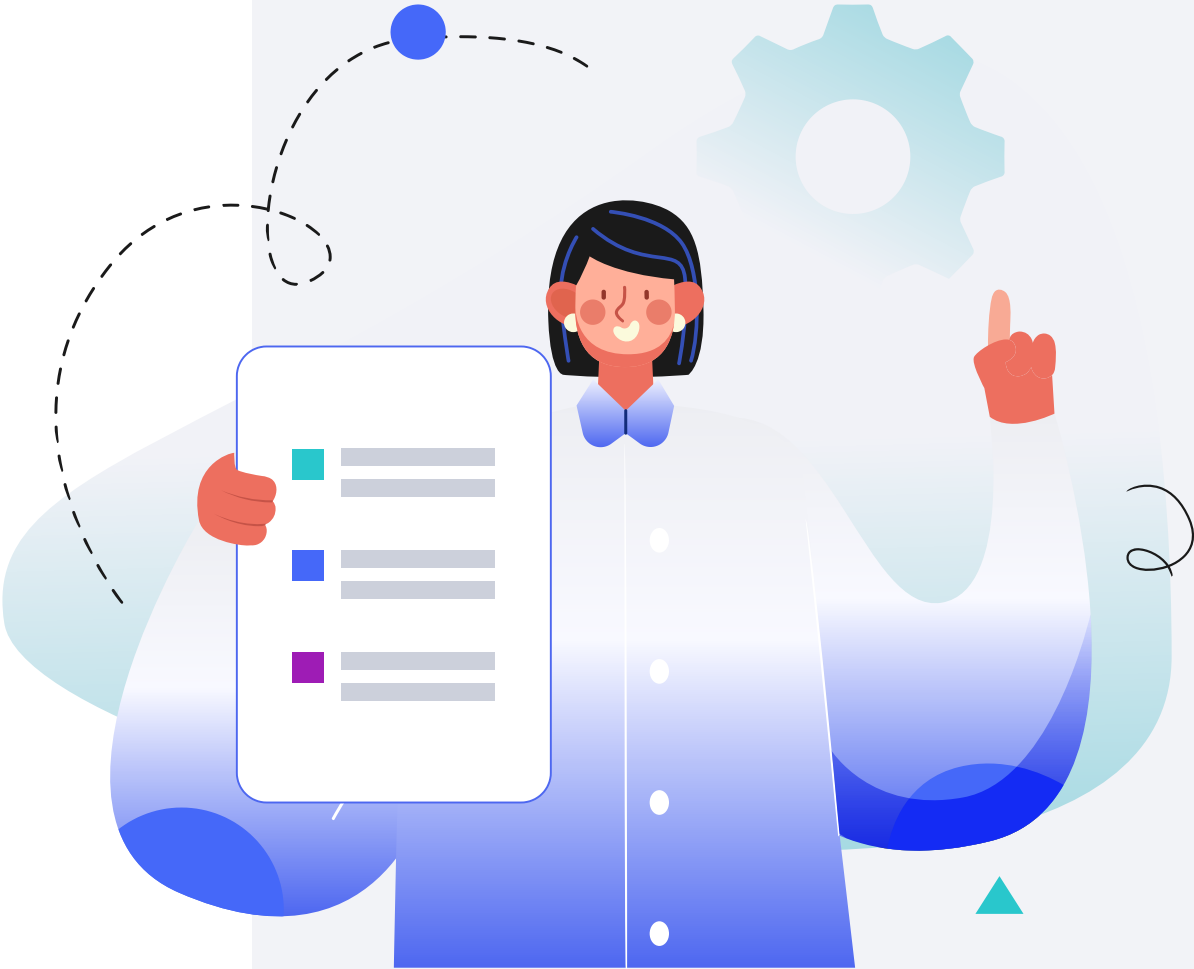
Male

HEIGHT

5ft 5" 165cm

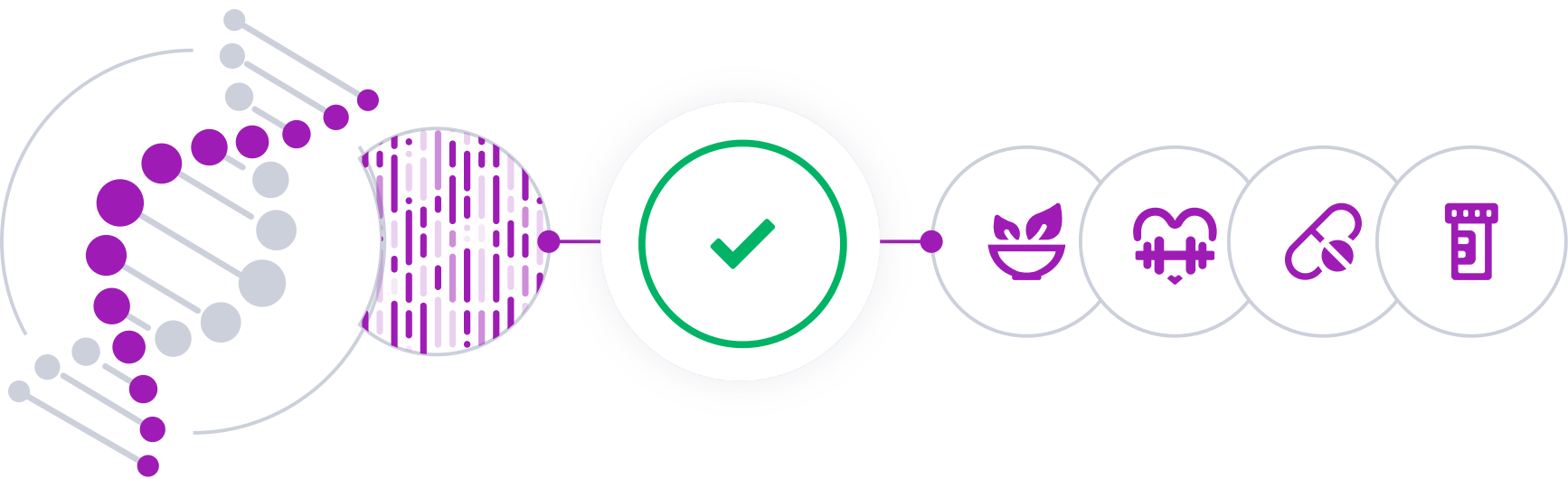
WEIGHT

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

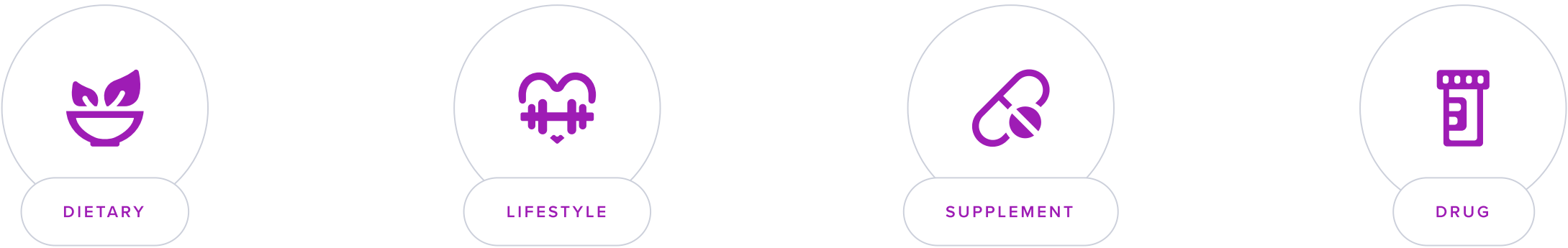
You have 2 risk alleles

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

Estimated glomerular filtration rate (eGFR) is a measure of how well your kidneys are working [\[R\]](#).

Your eGFR is calculated based on your sex, age, ethnicity, and blood creatinine level. Creatinine is a waste product that is normally filtered by the kidneys and released into the urine. When kidney function decreases, creatinine can build up in the blood [\[R\]](#).

It’s best to have an eGFR in the normal range. It means that your kidneys are effectively filtering your blood, without receiving too much blood flow.

Low eGFR

Estimated glomerular filtration rate (eGFR) is a measure of how well your kidneys are working. It’s best to have an eGFR in the normal range. It means that your kidneys are effectively filtering your blood, without receiving too much blood flow [R].

A low eGFR can mean that your kidneys aren’t able to filter as much blood as they should. This can lead to a buildup of waste products in the blood. Low eGFR may signal reduced kidney function due to chronic kidney disease or acute kidney injury [R].

The following can increase your risk of kidney disease:

- High blood pressure [R, R]
- Diabetes [R, R]
- Heart disease [R]
- Obesity [R]
- Smoking [R, R]
- A family history of kidney disease [R]
- Age (being 60 years old and above) [R]
- Previous kidney injury [R]
- Being born premature/with low birth weight [R, R]

Up to 45% of differences in people’s eGFR may be due to genetics [R, R, R, R].

If you are genetically predisposed to lower eGFR levels, it may make sense to pay more attention to your eGFR levels and avoid habits that can lower your eGFR.



Predisposed to typical eGFR based on 964,735 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PDILT	rs77924615	GG
L2HGDH	rs72683923	TT
DIO2	rs185538102	AA
RGS14	rs10866705	CC
TYMP	rs79865452	AA
UNCX	rs62435145	TT
NAT8	rs10206899	TT
HMGA1	rs144100226	CC
EVC	rs2279252	GG
CDK12	rs4794813	TT
MRTFA	rs56283550	GG
CTSS	rs267738	TT
SKAP2	rs73073442	CC
SPATA5L1	rs2433601	TC
PRKAG2	rs10224210	TC
CPS1	rs1047891	AC
FST	rs80138475	TC
NFATC1	rs8096658	CG
VEGFA	rs881858	AG
EDEM3	rs78444298	GG
HOXD10	rs187355703	CC
SPAG16	rs112905092	CC
SLC22A3	rs3119304	TT
GTPBP4	rs80282103	AA
KAT2B	rs115814778	GG
EBPL	rs41284816	GG
SHROOM3	rs28817415	CC
TBX2	rs9895661	TT
HNF1A	rs1800574	CC
DHRS9	rs35472707	CC
MPPED2	rs963837	CC
PLEC	rs11786896	CC

GENE	SNP	GENOTYPE
PPM1J	rs12736457	CC
SIGIRR	rs117739035	GG
MAN2C1	rs10851885	AA
ASXL2	rs72801857	CC
DAB2	rs35969577	GG
TNK2	rs13059257	CC
PIK3R1	rs11745891	TT
SLC22A4	rs12777	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	Resveratrol	150 mg	2	Exercise At Least One Hour a Day	1 hour
3	Strength Training	1 hour	4	Low-Carbohydrate Diet	
5	Mediterranean Diet		6	Aerobic Exercise (Cardio)	1 hour
7	Avoid PCBs		8	Avoid Organochlorine Pesticide Exposure	
9	Avoid Chromium Supplements		10	Avoid Arsenic Exposure	
11	Avoid Lead Exposure		12	Avoid Phthalate Exposure	
13	Avoid Air Pollution		14	N-acetylcysteine (NAC)	600 mg
15	Melatonin	500 mcg	16	Tocotrienols	100 mg
17	Avoid PFAS Exposure		18	Lactobacillus Plantarum	10 billion CFU
19	Avoid Uranium Exposure		20	Limit Copper Intake	
21	Dietary Iron		22	Dietary Selenium	
23	Agmatine	1 g	24	Practice Exercise Snacks	1 minutesute
25	Avoid Cadmium Exposure		26	Avoid Glucosamine Supplements	
27	Dietary Choline		28	Maintain Optimal Vitamin D Levels	1000 iu

1



Resveratrol

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Take 150-500 mg of resveratrol as a supplement daily, preferably with meals to enhance absorption. This dosage range is based on studies for various health benefits, and it's advised to not exceed 500 mg per day without medical supervision.

TYPICAL STARTING DOSE

150 mg

Description

Resveratrol is a natural compound found in red grapes, red wine, and some berries. It is known for its potential antioxidant properties and its role in promoting heart health.

[Resveratrol](#) is an antioxidant found mainly in [\[R\]](#):

- Berries
- Red grapes
- Red wine
- Peanuts

It’s purported to have anti-inflammatory and antioxidant effects [\[R, R, R\]](#).

How it helps

A meta-analysis of 32 studies concluded that supplementation with resveratrol lowers BUN (by 0.84 mg/dL) and creatinine (by 1.90 μmol/L) while increasing eGFR (by 7.58 mL/min/1.73 m2). While changes in BUN were observed in studies shorter than 12 weeks using doses below 500 mg/day, higher doses were required to change creatinine levels [\[R\]](#).

Resveratrol may help by reducing inflammation and oxidative stress in the kidneys.

2

Exercise At Least One Hour a Day

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Dedicate a minimum of 60 minutes to moderate-intensity activities such as brisk walking, swimming, or cycling. Do this most days of the week, aiming for at least 5 days to optimize benefits.

TYPICAL STARTING DOSE

1 hour

Description

[Exercise](#) can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).

There are many ways you can be active. You can walk, run, swim, dance, or play team sports. **Everything counts, and it's never too late to start!**

Try to get at least **60 minutes of moderate physical activity on most days**, including walking. **Getting a mix of cardio (min 150 min/day) and strength training (min 2 times a week) may be optimal.**

How it helps

People who are physically active may be at a lower risk of kidney disease. This may be because exercise lowers blood pressure. This in turn decreases strain on the kidneys [\[R, R\]](#).

Aerobic exercise and resistance training may both improve eGFR. Most studies show a benefit after at least 6 weeks of exercise [\[R, R\]](#).

PERSONALIZED TO YOUR GENES

Lack of exercise is linked to higher blood pressure in people with your [SCAP](#) gene variant. High blood pressure can damage the kidneys, so do your best to exercise regularly [\[R, R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
SCAP	rs12487736	TC	

3



Strength Training

IMPACT3 / 5

EVIDENCE3 / 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

People who are physically active may be at a lower risk of kidney disease. This may be because exercise lowers blood pressure. This in turn decreases strain on the kidneys [R, R].

Aerobic exercise and resistance training may both improve eGFR. Most studies show a benefit after at least 6 weeks of exercise [R, R].

4



Low-Carbohydrate Diet

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Limit your daily intake of carbohydrates to less than 26% of your total daily calories. For a standard 2000-calorie diet, this means consuming no more than 130 grams of carbohydrates per day. Focus on including non-starchy vegetables, lean proteins, and healthy fats in your meals while minimizing the intake of sugars, bread, pasta, and other high-carb foods.

Description

Low-carbohydrate diets can promote weight loss, improve blood sugar control, and support heart health. They may also be beneficial for individuals with certain medical conditions, such as epilepsy or metabolic syndrome.

How it helps

A low-carbohydrate diet could potentially slow down the progression of lower eGFR by limiting high-blood sugar levels, which can cause damage to the kidneys. This diet also has the benefit of limiting proteins, as high protein intake may put extra strain on kidneys, further reducing eGFR.

A [meta-analysis of 9 trials and 1687 participants](#) concluded that eating a low-carb diet **increases eGFR more (by 0.13 mL/min per 1.73 m2) than a control diet in overweight and obese subjects without CKD** [\[R\]](#).

5



Mediterranean Diet

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Incorporate a variety of primarily plant-based foods, such as fruits, vegetables, whole grains, nuts, and legumes, into every meal. Choose healthy fats, like olive oil, over saturated fats and consume fish and poultry at least twice a week. Limit red meat to a few times a month and include a moderate amount of dairy products. Opt for water and red wine in moderation as your beverages.

Description

The [Mediterranean diet](#) is based on the traditional cuisine from the Mediterranean regions. It moderates the intake of red meat and dairy, while being rich in fruits and vegetables, whole grains, and healthy fats ([olive oil](#)).

The [Mediterranean diet](#) focuses on traditional cuisine from the Mediterranean regions. It’s rich in [\[R\]](#):

- [Olive oil](#)
- Fruits and vegetables
- Whole grains
- Nuts and seeds
- Fish

This type of diet may **reduce inflammation and protect the brain and heart** [\[R, R, R, R\]](#).

Limited intake of animal products, saturated fat, and refined sugar likely contribute to the health benefits of the Mediterranean diet [\[R\]](#).

How it helps

The Mediterranean diet may support kidney health and help prevent kidney disease. As a result, people eating a Mediterranean diet may have higher eGFR [\[R, R, R\]](#).

In people who already have kidney disease, following the Mediterranean diet may delay its progression and reduce complications [\[R\]](#).

The Mediterranean diet may help by [\[R, R\]](#):

- Limiting [phosphorus](#), which is harmful to the kidneys
- Boosting “good” gut bacteria, which can improve kidney health
- Reducing inflammation

Please note: *In people who have kidney disease, the main concern in following a Mediterranean diet is the risk of elevated blood potassium. This can be prevented by using proper cooking techniques and limiting potassium-rich foods* [\[R, R\]](#).

6

Aerobic Exercise (Cardio)

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Engage in at least 150 minutes of moderate-intensity aerobic exercise or 75 minutes of vigorous-intensity activity each week. Distribute this time over at least 3 days per week, avoiding consecutive days of vigorous exercise to allow for recovery.

TYPICAL STARTING DOSE

1 hour

Description

Engaging in regular aerobic exercise, such as running, swimming, or cycling, offers numerous health benefits, including improved cardiovascular fitness, weight management, and mood enhancement. It supports overall physical and mental well-being while reducing the risk of chronic diseases.

Cardio, short for cardiovascular exercise, is any type of physical activity that temporarily increases your heart rate. Examples include **running, cycling, swimming, and brisk walking**.

Regular cardio exercise has many benefits for your overall health. It can help lower your risk of heart disease and diabetes, support weight loss, and improve your mood and energy levels. To get the most out of cardio, try to do it for at **least 30 minutes, 3-5 times a week**.

Interval training is a type of cardio that combines periods of high-intensity training with brief rest periods.

How it helps

People who are physically active may be at a lower risk of kidney disease. This may be because exercise lowers blood pressure. This in turn decreases strain on the kidneys [R, R].

Aerobic exercise and resistance training may both improve eGFR. Most studies show a benefit after at least 6 weeks of exercise [R, R].

7



Avoid PCBs

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

To avoid PCBs (Polychlorinated Biphenyls), do not use old electrical equipment manufactured before 1977, avoid consuming fish from contaminated waters, especially larger species such as shark and swordfish which are higher in the food chain, and check for and properly dispose of any old fluorescent lighting fixtures that may contain PCBs. Pay attention to local advisories regarding the safety of locally caught fish and wildlife.

Description

PCBs are toxic chemicals that can cause cancer, reproductive problems, and developmental problems. Avoiding exposure to PCBs is important for protecting your health.

Polychlorinated biphenyls (PCBs) are man-made chemicals. They were used in the industry until their **ban in 1979**. PCBs are considered **persistent organic pollutants** (POPS) due to their slow degradation in the environment. They may also **accumulate** in the food chain and the human body [\[R, R\]](#).

We may be exposed to PCBs through contaminated [\[R, R\]](#):

- **Food** (e.g., fish, meat, rice)
- Soil
- Air

PCBs may have toxic effects on [\[R, R\]](#):

- Immunity
- Nervous system
- Reproductive system
- Hormone levels

They may also increase the risk of cancer and reduce lifespan [\[R, R\]](#).

How it helps

Avoiding PCBs (Polychlorinated Biphenyls), which are harmful industrial chemicals, helps to maintain better kidney health. This is important for eGFR, the measure of kidney function, as lessening the body's exposure to toxins reduces the strain on your kidneys.

A [study of 1276 participants](#) associated **PCB153 and PCB180 with decreased eGFR, especially in women** [\[R\]](#).

8



Avoid Organochlorine Pesticide Exposure

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Minimize exposure by choosing organic fruits and vegetables, thoroughly washing produce before consumption, and avoiding areas where organochlorine pesticides are applied. Consider using air purifiers in homes close to agricultural areas to reduce indoor pesticide levels.

Description

Reducing organochlorine pesticide exposure involves minimizing contact with pesticides like DDT, which can accumulate in the body and potentially lead to adverse health effects, including disruption of hormonal functions and carcinogenicity.

How it helps

Avoiding organochlorine pesticide exposure can significantly benefit your eGFR (estimated Glomerular Filtration Rate), as these pesticides can damage the kidneys. Reduction in exposure minimizes the damage, thus improving the filtration rate of kidneys.

9



Avoid Chromium Supplements

IMPACT

2 / 5

EVIDENCE

1 / 5

How to implement

Stop taking any chromium supplements you are currently using and avoid purchasing or consuming products that contain chromium as a dietary supplement. Check the labels of multivitamins or other supplements you might be using to ensure they do not contain chromium.

Description

Chromium supplements might seem beneficial, but they aren't necessary for everyone. Overuse can lead to health issues like kidney damage. For your overall wellbeing, it's best to get chromium naturally from foods like whole grains, fresh fruits, and vegetables.

How it helps

A study of 934 participants found that doubling urinary chromium or uranium levels decreased eGFR by 2.90 and 1.87 mL/min per 1.73 m2, respectively. Co-exposure to both had stronger effects, especially in women (11.36 mL/min per 1.73 m2 decline) [\[R\]](#).

Chromium supplements can potentially harm the kidneys, leading to decreased eGFR.

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10



Avoid Arsenic Exposure

IMPACT1 / 5

EVIDENCE3 / 5

How to implement

Use a water filter certified to remove arsenic if you rely on well water, opt for arsenic-tested rice or rice products, and avoid using contaminated pesticides or herbicides in gardening or farming. Test your home for arsenic if you live in an area known for high levels of arsenic in soil or water. Limit consumption of foods known to accumulate arsenic such as rice and rice-based products, especially if you are pregnant, nursing, or preparing meals for young children.

Description

Avoiding arsenic exposure is essential for preventing potential health risks associated with arsenic contamination in drinking water and foods. Chronic exposure to arsenic has been linked to various health issues, including cancer and cardiovascular problems.

Arsenic is a [heavy metal](#) naturally found in the environment. It is used for mining, fracking, and industrial applications, such as the production of pesticides and wood preservatives, and the use of fossil fuels [\[R\]](#).

The main sources of exposure to arsenic are contaminated [\[R\]](#), [\[R\]](#), [\[R\]](#):

- **Drinking water**
- **Rice** and fish
- Air

Long-term exposure to high amounts of arsenic may be linked to health problems, including [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Skin disorders
- Heart disease
- High blood pressure
- Stroke
- Diabetes
- Cancer

Please note: *Soaking, washing until clear, and cooking rice with a high (1:6) water-to-rice ratio may help reduce rice’s arsenic content* [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

A meta-analysis of 28 studies and 107,539 participants associated arsenic exposure with a 55% decreased eGFR [\[R\]](#).

Arsenic may damage the kidneys, leading to decreased eGFR.

Avoid Lead Exposure

IMPACT

EVIDENCE

1 / 5

3 / 5

How to implement

Prevent lead exposure by using cold water for drinking and cooking, regularly cleaning dust from windowsills and floors, and ensuring that your home's paint is not chipping if it was built before 1978. For occupations involving potential lead exposure, use protective gear and follow safety protocols. Test your home for lead if it's old or you're concerned about contamination.

Description

Lead is a heavy metal. It is naturally found in the environment in small amounts [R, R].

Exposure to lead can cause it to build up in the body. A buildup of lead can contribute to oxidative stress and cell damage. This is called **lead poisoning** [R, R].

Lead is no longer used in the manufacturing of some products like gasoline and paint. However, it can still be found in some pipes, batteries, and the wall paint of older homes [R, R, R].

How it helps

In an analysis of 28 articles and 107,539 participants, lead exposure was associated with decreased eGFR and increased proteinuria [R].

Lead is toxic for the kidneys and can decrease their function.

12



Avoid Phthalate Exposure

IMPACT1 / 5

EVIDENCE2 / 5

How to implement

To avoid phthalate exposure, check product labels and choose phthalate-free options for personal care items, plastics (look for recycling codes 3 and 7 or the letters 'V' or 'PVC'), and household products. Additionally, reduce the use of plastic containers for food storage, especially those not marked as 'phthalate-free', and avoid microwaving food in plastic containers. Aim to make these changes consistently in your daily life for long-term health benefits.

Description

Avoiding phthalate exposure involves choosing phthalate-free products, such as personal care items and plastics, to minimize potential endocrine-disrupting effects and protect reproductive and hormonal health.

How it helps

Two Korean NHANES studies of over 2K participants: Our observation suggests that exposure to benzyl butyl phthalate (BBP), DEHP, and BPA may be responsible for declined eGFR and increased ACR even at the exposure levels occurring among general adults [\[R\]](#), [\[R\]](#).

3283 U.S. adults from NHANES: Our results indicated that certain phthalate metabolites might contribute to increased risks of early renal injury. The hypertension population may be more sensitive to the early renal injury caused by phthalates exposure than the non-hypertension population [\[R\]](#).

333 participants, NHANES: There were the independent and interactive effects of exposure to MEL, CYA, and specific phthalate metabolites on early kidney impairment [\[R\]](#).

13



Avoid Air Pollution

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Stay indoors on days when air quality indexes (AQI) indicate high pollution levels, which are often reported by weather services or government environmental agencies. **Install air purifiers** in your home, especially in bedrooms, to reduce indoor pollutants. Limit outdoor exercise when air pollution warnings are issued, opting for indoor activities instead.

Description

Avoiding air pollution by reducing exposure to pollutants in the environment is essential for respiratory and overall health. It can help lower the risk of respiratory diseases, cardiovascular conditions, and other health issues associated with poor air quality.

While city life is convenient in a lot of ways, it comes with some health hazards. Cars, factories, and other sources increase air [pollution](#) [R].

Air pollution plays a role in [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Lung disease
- Heart disease
- Diabetes
- Asthma
- Skin conditions

How it helps

Long-term exposure to air pollution near oil and natural gas communities increases CKD risk (by 70%), lowers eGFR (by half), and raises serum creatinine (by 39%), based on a systematic review of 14 studies [\[R\]](#).

A systematic review and meta-analysis of 13 studies found that exposure to certain air pollutants (PM2.5, PM10, NO2, SO2, CO) was associated with an increased risk of CKD [\[R\]](#).

Harmful particles in polluted air can damage the kidneys, leading to reduced eGFR.

14



N-acetylcysteine (NAC)

IMPACT1 / 5

EVIDENCE2 / 5

How to implement

Take 600 mg of N-Acetylcysteine (NAC) supplement daily with water. It can be taken at any time of the day, but try to take it at the same time each day for best results.

TYPICAL STARTING DOSE

600 mg

Description

NAC is a supplement that contains a form of the amino acid cysteine, a protein building block that your body uses to make the antioxidant glutathione. It is used for its potential antioxidant properties and its ability to support lung, gut, and mental health.

[N-acetylcysteine](#) (NAC) is converted to cysteine in the body. Cysteine is a protein building block (amino acid) that helps make the antioxidant glutathione [\[R\]](#).

People take NAC to potentially support [\[R\]](#), [\[R\]](#):

- Mental health
- Ovarian health and pregnancy outcomes
- Lung health
- Gut health

How it helps

N-acetylcysteine (NAC) is believed to preserve kidney function by reducing inflammation and oxidative stress in the kidneys. Therefore, it helps in slowing down the progression of eGFR (estimated Glomerular Filtration Rate) decline, resulting in improved kidney health.

In an [uncontrolled trial of 20 CKD patients](#), supplementation with NAC (1200 mg, 2x/day) for 2 weeks **improved residual eGFR** [\[R\]](#).

In a [non-placebo-controlled trial of 47 hemodialysis patients](#), supplementation with NAC **improved eGFR and urine volume**. However, NAC (1200 mg at 12-hour intervals) had **no effect on creatinine levels or urine protein excretion** in a [placebo-controlled trial of 60 hemodialysis patients](#) [\[R\]](#), [\[R\]](#).

In a [placebo-controlled trial of 60 patients with end-stage renal failure](#), infusion with NAC during a 4-hour hemodialysis session **lowered homocysteine by 23.7%**. However, oral NAC supplementation (1200 mg, 2x/day for 4 weeks) **failed to lower homocysteine** in a [placebo-controlled trial of 38 hemodialysis patients](#) [\[R\]](#), [\[R\]](#).

NAC (1200 mg/day for 30 days) **increased TAC and decreased MDA** in [2 trials \(one of them placebo-controlled\)](#) of 64 hemodialysis patients [\[R\]](#), [\[R\]](#).

15



Melatonin

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500 mcg of melatonin orally, about 30 minutes before bedtime, to help with sleep. It can be taken daily as needed.

TYPICAL STARTING DOSE

500 mcg

Description

Melatonin is a natural hormone produced by the pineal gland in the brain that helps regulate the sleep-wake cycle. It plays a crucial role in promoting sleep onset and maintaining a consistent sleep pattern, making it a commonly used supplement for managing sleep disorders and jet lag.

[Melatonin](#) is an important sleep hormone. Bright light at night may prevent your body from making enough melatonin [\[R\]](#), [\[R\]](#), [\[R\]](#).

Your body makes melatonin on its own. However, some people take melatonin supplements to help them sleep. It may help with jet lag in particular [\[R\]](#), [\[R\]](#), [\[R\]](#).

How it helps

A meta-analysis of 5 studies found that melatonin may improve eGFR without reducing the risk of acute kidney injury [\[R\]](#).

Melatonin may help reduce oxidative and inflammatory damage in the kidneys.

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Tocotrienols

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take tocotrienols as a dietary supplement in doses ranging from 100 to 200 mg, 1-2 times a day, ideally with meals to enhance absorption. This intake can be continuous, but it's recommended to review its effects with a healthcare provider periodically, typically every 6 to 12 months.

TYPICAL STARTING DOSE

100 mg

Description

Tocotrienols are a form of vitamin E that helps to protect your cells. They fight harmful substances in your body called free radicals, which can damage our cells and lead to illness. By helping your body in this way, tocotrienols contribute to overall health, boosting immunity, and slowing down aging processes.

How it helps

In a placebo-controlled trial of 59 patients with stage-3 CKD, supplementation with tocotrienol-rich vitamin E (400 mg/day for 12 months) reduced serum creatinine while increasing eGFR [\[R\]](#).

Tocotrienols may help by reducing oxidative stress and inflammation, two factors that can damage kidneys.

17



Avoid PFAS Exposure

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

To avoid PFAS exposure, choose products that are labeled PFAS-free, especially when selecting cookware, cosmetics, and clothing. Reduce the consumption of packaged and fast foods since the packaging often contains PFAS. Use a water filter that is certified to remove PFAS compounds for your drinking and cooking water.

Description

Avoiding per- and polyfluoroalkyl substances (PFAS) exposure means avoiding products and environments contaminated with these chemicals, which can help prevent potential health issues like hormonal disruption and adverse effects on liver and immune function.

How it helps

A study of 1700 participants associated PFOS with decreased eGFR, while PFHxS was associated with higher eGFR [\[R\]](#).

PFAS may damage the kidneys, ultimately lowering the eGFR.

18



Lactobacillus Plantarum

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a probiotic supplement containing *Lactobacillus plantarum* 299V daily. The typical dosage is 10 billion colony-forming units (CFUs). Continue for at least 4 weeks to assess benefits on digestive health.

TYPICAL STARTING DOSE
10 billion CFU

Description

Lactobacillus plantarum is a [probiotic](#) bacterium found in many fermented plant products such as sauerkraut, pickles, brined olives, and Korean kimchi [\[R\]](#).

People take *L. plantarum* supplements to improve [\[R, R, R, R\]](#):

- Diarrhea
- Skin appearance
- IBD
- High cholesterol

How it helps

L. plantarum can improve gut health, which might indirectly influence kidney function positively, thus affecting eGFR.

In [2 placebo-controlled trials of 92 patients with diabetic nephropathy](#), supplementation with soy milk containing L. plantarum (200 mL/day) for 8 weeks **reduced Cys-C and PGRN levels, albuminuria, creatinine, IL-18, and sialic acid while increasing eGFR** [\[R, R\]](#).

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Avoid Uranium Exposure

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

To avoid uranium exposure, stay away from areas known for uranium mining or processing, do not collect or keep rocks or soil that might contain uranium, and use a water filter certified to remove uranium if you live in an area with high natural uranium levels in groundwater.

Description

Uranium is a radioactive substance that can cause harmful effects if you come in contact with it. Exposure can happen through breathing air, drinking water, or eating food contaminated with uranium. It's important to avoid uranium exposure because it can damage the kidneys.

How it helps

A study of 934 participants found that doubling urinary chromium or uranium levels decreased eGFR by 2.90 and 1.87 mL/min per 1.73 m2, respectively. Co-exposure to both had stronger effects, especially in women (11.36 mL/min per 1.73 m2 decline) [\[R\]](#).

Uranium can cause severe damage to the kidneys.

20



Limit Copper Intake

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Do not include copper supplements in your daily vitamin or supplement routine. Check the labels of any multivitamins or dietary supplements you are currently taking to ensure they do not contain copper. Ideally, you should also check copper levels in your tap water. If they are excessive, consider using a reliable water filter or drinking spring water.

Description

Taking too many copper supplements can cause a copper overdose in your body. This can be harmful, leading to issues like stomach pain, nausea, and even heart problems. For healthy individuals, the amount of copper obtained through a balanced diet is usually enough without needing supplementation. It's vital to maintain the natural balance of minerals in the body for good health.

Contaminated tap water can also be a source of excess copper.

How it helps

Avoiding copper supplements in eGFR (estimated glomerular filtration rate) could help protect your kidneys. Copper is hard for damaged kidneys to filter out, potentially leading to toxic buildup.

Genetically higher copper levels may be associated with a higher risk of kidney disease and lower eGFR levels [\[R\]](#), [\[R\]](#).

21



Dietary Iron

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate iron-rich foods into your daily meals, such as red meat, chicken, turkey, fish, beans, lentils, tofu, cooked spinach, and fortified cereals. Aim for at least 18 mg of iron per day for adult women and 8 mg per day for adult men. It's also beneficial to pair these foods with vitamin C-rich foods like oranges, strawberries, or bell peppers to enhance iron absorption.

Description

Iron (Fe) is an essential mineral. It helps make [hemoglobin](#), a protein that carries oxygen to cells. In this way, iron **increases energy** and supports **brain and immune system function** [\[R\]](#), [\[R\]](#), [\[R\]](#).

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

- Oysters
- White beans
- Beef
- Chocolate
- Spinach
- Fortified cereals

Women should be getting **8-18 mg** of iron per day, while **men** should be getting **8 mg** [\[R\]](#).

Groups at risk of iron deficiency include [\[R\]](#):

- Menstruating women
- Children
- Vegetarians
- Routine blood donors

How it helps

Genetically higher iron levels may be linked to increased eGFR [\[R\]](#).

Please note: *Increased iron intake from meat is linked to higher odds of diabetes and heart disease. Try to find a balance between plant and animal iron sources* [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

22



Dietary Selenium

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate selenium-rich foods into your daily diet, such as Brazil nuts, seafood, and organ meats. Eating 1-2 Brazil nuts a day can meet the daily selenium requirement for most adults.

Description

Selenium is a trace mineral found in various foods, including nuts, seeds, and seafood. It is an essential nutrient that plays a crucial role in maintaining the body's antioxidant defenses and supporting thyroid function.

[Selenium](#) supports [\[R\]](#):

- Reproduction
- Thyroid function
- DNA production
- Immune response

Adults should be getting **55 micrograms** of selenium per day. Good sources of selenium include [\[R\]](#):

- Brazil nuts
- Fish
- Meat
- Eggs
- Rice
- Oatmeal

How it helps

Genetically higher selenium levels may be causally associated with decreased eGFR [\[R, R\]](#).

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.*

23



Agmatine

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take agmatine as a dietary supplement in a dose of 1.6 to 6.4 milligrams per kilogram of body weight, daily. It can be consumed with or without food. For best results, continue taking it on a daily basis for at least two weeks to assess its effect on your body.

TYPICAL STARTING DOSE

1 g

Description

Agmatine is a naturally occurring compound found in the human body and in certain foods. It is sometimes used as a dietary supplement and is believed to have potential benefits for pain relief, mood regulation, and cognitive function.

How it helps

Studies indicate that agmatine, moxonidine, and related compounds can increase urinary flow rate, possibly through imidazoline-mediated effects on osmotic clearance and α 2-receptor-related mechanisms [R].

Agmatine also transiently increases single nephron glomerular filtration rate (SNGFR) and proximal reabsorption in isolated kidneys, with potential involvement of NO-synthase-dependent mechanisms [R].

24



Practice Exercise Snacks

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Integrate short bursts of physical activity, each lasting about 1 to 2 minutes, into your daily routine at least two to three times a day. These 'exercise snacks' can include activities like doing a set of stairs, rapid bodyweight exercises, pull-ups, push-ups, sit-ups, or brisk walking.

TYPICAL STARTING DOSE

1 minutesute

Description

Staying physically active is essential for maintaining overall health and well-being. **Exercise snacks** are brief, frequent bursts of physical activity integrated into daily routines, helping combat the health risks associated with prolonged sitting and sedentary behavior, such as obesity and cardiovascular issues. Examples include taking the stairs or doing quick exercises during work breaks.

Staying active can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).

Exercise snacks are short, quick bursts of physical activity performed throughout the day, designed to break up prolonged periods of sitting or inactivity. These brief bouts of exercise can be as short as a few minutes and are incorporated into daily routines to boost overall physical activity levels.

Exercise snacks are crucial for health because they combat the negative effects of sedentary behavior, such as prolonged sitting, which is associated with an increased risk of obesity, cardiovascular diseases, diabetes, and musculoskeletal issues. They help improve blood circulation, regulate blood sugar levels, and enhance mood and cognitive function.

Examples of exercise snacks include taking the stairs instead of the elevator, doing a few minutes of bodyweight exercises (e.g., squats or push-ups) during work breaks, or walking briskly for a few minutes after meals. These short, frequent bursts of activity contribute to a more active lifestyle and can significantly benefit overall health by reducing the risks associated with excessive sitting.

How it helps

Staying physically active is vital for overall well-being and can prevent conditions that may further affect kidney function.

25



Avoid Cadmium Exposure

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

To avoid cadmium exposure, refrain from smoking or exposure to secondhand smoke, reduce consumption of foods high in cadmium like shellfish, liver, kidney meats, and certain leafy vegetables, and use ceramic or glass containers instead of plastic when microwaving food. Limit intake of cadmium-contaminated workplace air by using protective gear if you work in battery manufacturing, welding, or metal refining industries.

Description

Avoiding cadmium exposure is essential to prevent potential health risks associated with this heavy metal, such as kidney damage and increased cancer risk. Reducing exposure to cadmium-containing products and contaminated foods is crucial.

Heavy metals are elements naturally found in the environment. They are also used for agricultural, industrial, and medicinal purposes. Some can even be found in small amounts in your body [\[R\]](#), [\[R\]](#).

Long-term exposure to high amounts of heavy metals can be harmful to your health [\[R\]](#), [\[R\]](#).

Heavy metals that are most often linked to health problems include [\[R\]](#), [\[R\]](#):

- Lead
- Cadmium
- Arsenic
- Chromium
- Mercury

How it helps

Elevated blood cadmium levels reduce eGFR more in people with certain gene variants [\[R\]](#).

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Avoid Glucosamine Supplements

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Do not purchase or consume any supplements that list glucosamine as an ingredient. This includes avoiding both oral supplements in the form of pills, powders, or liquids and any other products that may contain glucosamine.

Description

Avoiding excessive glucosamine supplementation can help prevent potential side effects and interactions with medications, promoting safe and effective joint health management.

How it helps

Glucosamine supplements might potentially harm your kidneys, worsening a low eGFR, as your kidneys are not functioning fully and could struggle to process the supplement. Limiting intake can prevent further kidney damage.

Genetically predicted higher levels of glucosamine may be associated with lower eGFR

A two-sample Mendelian randomization study investigated dietary supplements' impact on kidney function. Chondroitin and glucosamine intake were genetically linked to lower eGFR (-0.113% and -0.240% change, respectively). Validation and pleiotropy-robust MR analyses supported these findings, suggesting a potential causal link between chondroitin and glucosamine intake and kidney function [\[R\]](#).

27



Dietary Choline

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Increase your intake of choline-rich foods such as eggs, beef liver, chicken liver, fish, peanuts, and dairy products. Aim for an adult intake of about 425 mg to 550 mg of choline per day through these food sources, as part of your regular diet.

Description

Choline is an essential nutrient that supports brain function, nerve signaling, and liver health. It is involved in neurotransmitter synthesis and cell membrane structure.

How it helps

Dietary Choline is crucial for healthy kidney function, and a lack thereof can lead to kidney disease or a lower eGFR (estimated glomerular filtration rate). Supplementing with Choline can help maintain or potentially improve your kidney function and eGFR.

We observed a suggestive association of genetically increased choline with a **lower level of body fat percentage** ($\beta \pm SE$ -0.28 $\pm$ 0.11, P = 0.013) but a **higher estimated glomerular filtration rate** (0.10 $\pm$ 0.05, P = 0.034) [\[R\]](#).

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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

Genetically higher vitamin D levels may be associated with reduced eGFR levels [\[R\]](#).

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.*

Next Steps

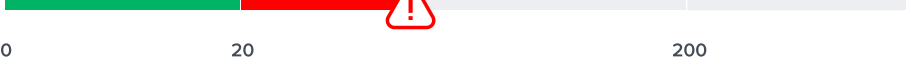
Remember, your genes only tell one important part of your health story!

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.

 eGFR	71 mL/min/1.73 m2		29 Aug 2025
 Homocysteine	12.84 umol/L		9 Nov 2025
 Creatinine	1.08 mg/dL		9 Nov 2025
 Albumin, Urine	87.6 ug/mL		9 Nov 2025