

# Kidney Problems

DNA Health Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026

# 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

## 74 Next Steps

- 74 Your Lab Results
- 77 Your lifestyle assessments

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

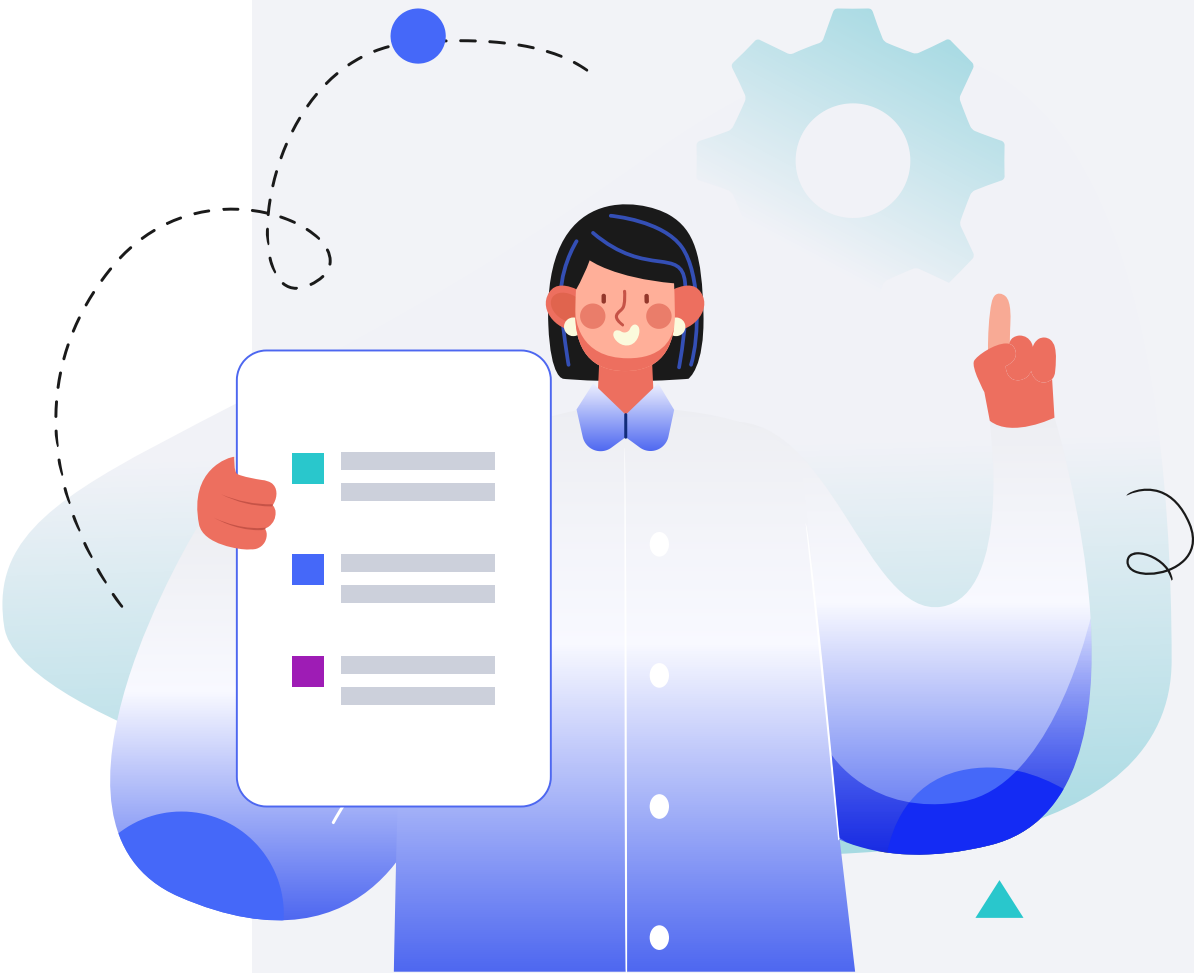
Male

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

The rich and famous spend thousands visiting detox retreats for the wide range of benefits they claim to offer. These include boosting energy, supporting immune health, and aiding weight loss. Sounds great, right?

Unfortunately, we don’t all have the money to regularly take this type of vacation -- and they don’t actually work in the long run.

The good news is that you may not have to! **The secrets to your own ready-made and long-lasting detox retreat may be hidden in your DNA!**

By detox, we don’t just mean cutting out alcohol and eating more kale. While “detox” diets may have some benefits, detoxifying actually involves **ridding your body of harmful byproducts** of the many cellular processes that keep you alive.

Your internal detox experts, like your liver and kidneys, put in the behind-the-scenes work to rid your body of harmful toxins.

Two kidneys working together can filter as much as 180 L of fluid a day, so **there are few better ways to optimize your natural detoxification system than by taking care of your kidneys**. But how can you do this [\[R\]](#)?

Typical actions to promote a healthy life, like eating a balanced diet, maintaining a healthy weight, and exercising regularly, will go a long way in maintaining good kidney health. But there are also certain factors you could monitor that may be more personal to you. **These are based on your genetics.**

Take phosphorus, for example. Phosphorus is an essential mineral, acting as a key constituent of teeth, bones, and even DNA [\[R\]](#)!

In excess, however, phosphorus can cause a buildup of calcium in the kidneys, which has been linked to kidney damage [\[R\]](#).

Variants of certain genes like [ALPL](#) and [GPX1](#) have been associated with higher levels of phosphorus. This has the potential to increase your risk of poor kidney health [\[R\]](#), [\[R\]](#).

In this instance, you may choose to take particular care in limiting your phosphorus intake to a healthy amount. **Avoiding junk food and processed foods is the best way to limit your phosphorus intake** [\[R\]](#).

This is just one example of how your genes could influence your kidney health. From balancing essential minerals to getting more omega-3s, your genes can help guide your path to better kidney health.

**Keep your natural toxin filters working optimally by using personalized recommendations tailored to improve your kidney health.**

**This report focuses on the genetics of kidney health. Read more to find out:**

- **How your genetics play a role in kidney health**
- **Your genetic risk score based on over 395,000 genetic variants**
- **Personalized recommendations based on your genetics**

# About Kidney Health

Key Takeaways:

- Roughly **30-75%** of differences in kidney health may be attributed to genetics.
- Other risk factors include: older age, being male, being African-American, smoking, obesity, high blood pressure, and diabetes.
- About **15%** of American adults have kidney disease, often without symptoms.
- If you are at high genetic risk or have any of the risk factors, take action now.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and next steps for relevant labs.

Your kidneys are part of your body's natural detox

**system.** They filter your blood and remove excess water, salt, minerals, and waste. All of these materials leave your body as urine [\[R\]](#).

If something goes wrong with this system, **chronic kidney disease (CKD)** can arise [\[R\]](#).

**CKD has five stages.** These range from some kidney damage (stage 1) to total kidney failure (stage 5) [\[R\]](#).

The early stages are much easier to manage than the later stages. That's why it's important to catch kidney disease early, or better yet, to prevent it altogether [\[R\]](#).

Early-stage kidney disease is often detected by tests looking for [\[R\]](#):

- High blood pressure
- Protein in the urine
- Waste in the blood

However, obvious signs and symptoms may not appear until later stages. These can include [\[R\]](#), [\[R\]](#):

- Changes in how often you urinate
- Fatigue
- Itching
- Twitching or cramping muscles
- Foot and ankle swelling



TYPICAL LIKELIHOOD

Typical likelihood of chronic kidney disease based on 383,512 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

| GENE    | SNP         | GENOTYPE |
|---------|-------------|----------|
| PDILT   | rs77924615  | GG       |
| WDR72   | rs17730281  | GG       |
| FGF5    | rs12509595  | TT       |
| RGS14   | rs3812036   | TT       |
| UNCX    | rs13230625  | AA       |
| NAT8    | rs6546869   | GG       |
| PRKAG2  | rs73728279  | GT       |
| RGS14   | rs4976646   | CC       |
| NRIP1   | rs2823139   | AA       |
| RNF32   | rs868822    | GG       |
| ZNHIT3  | rs2411192   | AA       |
| TCEA3   | rs2749153   | AA       |
| GATM    | rs1145077   | GT       |
| SDCCAG8 | rs2490391   | CA       |
| NFATC1  | rs8096658   | CG       |
| PAX8    | rs11123169  | TC       |
| CPS1    | rs1047891   | AC       |
| MYBPC3  | rs7127946   | CT       |
| PIP5K1B | rs2039424   | AG       |
| STC1    | rs34861762  | CT       |
| SLC7A9  | rs8101667   | TC       |
| TNP1    | rs1548945   | TC       |
| HOXD10  | rs187355703 | CC       |
| MTX2    | rs72929920  | CC       |

According to the CDC, **about 15% of American adults have CKD**, and most don't even know that anything is wrong. By the time they learn, they may have already progressed to the later stages [R, R].

Many factors may contribute to kidney problems. Major ones include [R]:

- Male gender
- African American ancestry
- Cigarette smoking
- Obesity
- High blood pressure
- Diabetes
- Low birth weight
- Aging
- **Genetics** (family history of kidney disease)

Kidney disease often cannot be cured. However, it should be carefully managed. To manage kidney disease, a doctor may recommend [R, R, R]:

- Medication
- Diets low in protein, salt, or phosphorus
- Weight management
- Avoiding cigarettes
- Reducing stress

**About 30-75% of differences in kidney health may be attributed to genetics.** Genes involved in kidney health may influence [R, R, R]:

- Blood filtering and urine production ([UMOD](#), [STC1](#), [CUBN](#), [SHROOM3](#))
- Early kidney development ([HNF4A](#))
- Immune function ([HLA-DQA1](#), [HLA-DQB1](#))

Genetically high fasting insulin, total testosterone, and bioavailable testosterone may be associated with a higher risk of chronic kidney disease, especially in men [R, R, R].

Moreover, genetic predisposition to glucosamine intake may be causally associated with lower eGFR. However, the results are not conclusive [R].

In contrast, genetically increased choline may be causally associated with a higher eGFR [R].

| GENE    | SNP        | GENOTYPE |
|---------|------------|----------|
| GTPBP4  | rs80282103 | AA       |
| SLC22A3 | rs12207180 | TT       |
| MPPED2  | rs963837   | CC       |
| AQP4    | rs16942751 | CC       |
| SHROOM3 | rs28817415 | CC       |
| PPM1J   | rs12736457 | CC       |
| OVOL1   | rs7123489  | CC       |
| DAB2    | rs1362800  | CC       |
| TRIM49B | rs2727040  | CC       |
| TBX2    | rs9895661  | TT       |
| L3MBTL3 | rs7740107  | AA       |
| /       | rs1813937  | TT       |
| SLC47A1 | rs2440165  | TT       |
| MYBPC3  | rs61897431 | TT       |
| RERG    | rs10846157 | CC       |
| ARG1    | rs9375818  | GG       |

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      | DASH Diet                                | 2      | Exercise At Least One Hour a Day1 hour  |
| 3      | Limit Protein Intake                     | 4      | Limit Salt Intake                       |
| 5      | Aerobic Exercise (Cardio)1 hour          | 6      | Mediterranean Diet                      |
| 7      | Methylfolate400 mcg                      | 8      | Drink at Least 8 Glasses of Water a Day |
| 9      | Maintain Optimal Vitamin D Levels1000 iu | 10     | Practice Exercise Snacks1 minutesute    |
| 11     | Cordyceps500 mg                          | 12     | Vitamin E200 iu                         |
| 13     | Eat Fiber-Rich Foods                     | 14     | Omega-3 (Fish Oil)500 mg                |
| 15     | Vitamin C500 mg                          | 16     | Fish                                    |
| 17     | Turmeric                                 | 18     | Coenzyme Q10 (CoQ10)100 mg              |
| 19     | Soy                                      | 20     | Dietary Thiamine (Vitamin B1)           |
| 21     | Pyridoxine (Vitamin B6)50 mg             | 22     | Biofeedback                             |
| 23     | Avoid Cadmium Exposure                   | 24     | Astragalus500 mg                        |
| 25     | Avoid PCBs                               | 26     | Avoid Air Pollution                     |
| 27     | Avoid Organochlorine Pesticide Exposure  | 28     | Chinese Rhubarb500 mg                   |
| 29     | Resistant Starch40 g Hi-Maize            | 30     | Alpha-Lipoic Acid100 mg                 |
| 31     | Alpha-Ketoglutarate (AKG)1 g             | 32     | Calcium Magnesium Citrate300 mg         |

|    |                             |            |    |                                          |            |
|----|-----------------------------|------------|----|------------------------------------------|------------|
| 33 | Avoid Lead Exposure         |            | 34 | N-acetylcysteine (NAC)                   | 600 mg     |
| 35 | Avoid Phthalate Exposure    |            | 36 | Avoid BPA (Bisphenol A) Exposure         |            |
| 37 | Curcumin                    | 500 mg     | 38 | Blood Flow Restriction Training          | 15 minutes |
| 39 | Quercetin                   | 200 mg     | 40 | Dong Quai                                | 500 mg     |
| 41 | Tyrosol                     | 10 mg      | 42 | Glutathione supplements                  |            |
| 43 | Avoid PAHs Exposure         |            | 44 | Resveratrol                              | 150 mg     |
| 45 | Tocotrienols                | 100 mg     | 46 | Avoid Organophosphate Pesticide Exposure |            |
| 47 | Black Seed (Black Cumin)    | 1000 mg    | 48 | Wormwood                                 | 200 mg     |
| 49 | Creatine                    | 2 g        | 50 | Infrared Light Therapy                   |            |
| 51 | Pilates                     | 30 minutes | 52 | Carnosine                                | 1000 mg    |
| 53 | Black Seed Oil              | 1000 mg    | 54 | Okra                                     |            |
| 55 | Folinic Acid                |            | 56 | Gamma-Linolenic Acid (GLA)               | 200 mg     |
| 57 | Orange Blossom Aromatherapy |            | 58 | Laughter Yoga                            | 30 minutes |
| 59 | Melatonin                   | 500 mcg    | 60 | Flaxseed                                 | 2 tbsp     |
| 61 | Nicotinamide Riboside (NR)  | 250 mg     | 62 | Avoid PFAS Exposure                      |            |
| 63 | Yoga                        | 30 minutes | 64 | Rehmannia                                | 250 mg     |
| 65 | Agmatine                    | 1 g        | 66 | Evening Primrose Oil                     |            |
| 67 | Limit Copper Intake         |            | 68 | Glycine                                  | 3 g        |

1



DASH Diet

IMPACT

5 / 5

EVIDENCE

3 / 5

## How to implement

Adopt a dietary pattern that emphasizes fruits, vegetables, whole grains, lean proteins, and low-fat dairy, while reducing sodium, red meat, sweets, and sugary beverages. Aim for 4-5 servings of both fruits and vegetables per day, 6-8 servings of grains (with at least half being whole grains), and 2-3 servings of low-fat dairy. This diet should be followed daily to manage blood pressure effectively.

## Description

The DASH (Dietary Approaches to Stop Hypertension) diet is a dietary plan designed to reduce high blood pressure. It emphasizes fruits, vegetables, lean proteins, and whole grains while limiting sodium intake.

**Health experts developed the DASH diet to reduce blood pressure.** This diet also helps support weight control while reducing inflammation and cholesterol [R].

It **limits salt, sweets, and saturated fat**, while promoting the intake of [R]:

- Fruits (4-5 servings/day)
- Vegetables (4-5 servings/day)
- Whole grains (6-8 servings/day)
- Low-fat dairy (2-3 servings/day)
- Nuts, seeds, and legumes (4-5 servings/week)
- Fish and poultry (up to 6 ounces/day)

The DASH diet focuses on fresh, minimally processed food rich in nutrients. Magnesium, calcium, and potassium-rich foods are particularly important due to their beneficial effects on the heart and blood vessels [R].

Although similar to the [Mediterranean diet](#), DASH is lower in sodium (<2,300 mg a day) and omega-3 fatty acids. On the other hand, it’s higher in red meat and dairy [R].

## How it helps

The DASH diet may help [R, R, R, R]:

- Lower the risk of kidney disease
- Slow kidney decline
- Boost kidney function

The DASH diet may help by improving risk factors for kidney disease, including [R, R]:

- High blood pressure
- High cholesterol
- Kidney damage

 PERSONALIZED TO YOUR GENES

The DASH diet may lower blood pressure more in people with your [ADRB2](#) gene variant. High blood pressure can damage the kidneys [R, R].

| YOUR GENETIC VARIANTS |           |          |                                                                    |
|-----------------------|-----------|----------|--------------------------------------------------------------------|
| GENE                  | SNP       | GENOTYPE | EVIDENCE                                                           |
| ADRB2                 | rs1042713 | GA       | <div><div></div><div></div><div></div><div></div><div></div></div> |

2



Exercise At Least One Hour a Day

IMPACT

4 / 5

EVIDENCE

5 / 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

**Experts agree that 30-60 minutes of moderate exercise most days of the week may support kidney health.** Increased physical activity is linked to an **18%** lower risk of kidney disease [\[R, R, R\]](#).

Exercise may help by [\[R, R, R, R, R, R, R\]](#):

- Improving physical fitness
- Boosting kidney function
- Reducing blood pressure

 PERSONALIZED TO YOUR GENES

People with your [SCAP](#) gene variant who don't exercise may have higher blood pressure. 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       | <div><div></div><div></div><div></div><div></div><div></div></div> |

3



Limit Protein Intake

IMPACT4 / 5

EVIDENCE5 / 5

## How to implement

Limit your daily protein intake to 0.8 grams per kilogram of your body weight. For example, if you weigh 70 kilograms (about 154 pounds), aim to consume no more than 56 grams of protein per day. Adjust this goal based on your activity level and health status, reducing intake further if advised by a healthcare professional.

## Description

**Proteins, fats, and carbs are macronutrients.** You need these nutrients in large (‘macro’) amounts. They provide your body with the energy it needs to function properly [\[R\]](#).

You should choose high-quality foods that give you the “best” version of each macronutrient. For example, too much protein from certain animal sources may increase the risk of bone, kidney, and metabolic issues in some people [\[R\]](#), [\[R\]](#), [\[R\]](#).

## How it helps

In healthy people, **high-protein diets (more than 1.3 g of protein per kg of body weight per day)** may increase strain on the kidney. However, it’s not clear whether this leads to kidney damage [\[R\]](#), [\[R\]](#).

**Low-protein diets (0.6-0.9 g of protein per kg daily)** are often recommended to people with kidney disease. These diets may [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Reduce strain on the kidneys
- Improve kidney function
- Delay kidney disease progression

Protein isn’t all bad as some is needed to prevent complications of kidney disease. **Thus, experts recommend balancing your protein intake to support kidney health** [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

**Work with a healthcare professional to determine the ideal protein intake for you** [\[R\]](#).

4



Limit Salt Intake

IMPACT4 / 5

EVIDENCE4 / 5

## How to implement

Reduce your daily salt intake to less than 2,300 milligrams (mg), equivalent to about one teaspoon of table salt. This includes all salt consumed, whether added during cooking, at the table, or present in processed and ready-to-eat foods.

## Description

Limiting salt intake involves lowering the amount of sodium in the diet, which can help lower blood pressure and reduce the risk of heart disease. It often involves avoiding processed and other high-sodium foods such as cured meats, soups and sauces, and various pickled foods.

**Your body needs a certain amount of sodium to function.** For example, it helps support your blood pressure. This sodium usually comes from [salt](#). However, eating too much salt is linked to an increased risk of stroke and heart disease [\[R\]](#), [\[R\]](#).

Foods higher in salt include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Prepared soups, broths, gravies, and sauces
- Fermented or pickled foods (such as pickles, soy sauce, olives, and [capers](#))
- Cured meats and sausages (such as bacon, salt pork, and salami)
- Cheese (such as Roquefort and Parmesan)

**Try to limit your daily intake to 1 teaspoon of salt (2,400 mg of sodium)** [\[R\]](#).

## How it helps

**High salt intake can lead to high blood pressure**, which can damage the kidneys [\[R\]](#), [\[R\]](#).

**Experts recommend eating less salt (no more than 2,400 mg of sodium) to support kidney health.** Low salt diets may help reduce blood pressure [\[R\]](#), [\[R\]](#).

For those with kidney disease, **the renal (kidney) diet** may help support kidney function. Its goal is to reduce kidney strain and blood pressure. Lower salt intake is an important part of the renal diet [\[R\]](#), [\[R\]](#).

In people who already have kidney disease, balance is key. Both high and low sodium levels have been linked to worse outcomes [\[R\]](#).

5



Aerobic Exercise (Cardio)

IMPACT

4 / 5

EVIDENCE

4 / 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

Aerobic exercise improves blood flow which helps efficiently transport oxygen and nutrients to your kidneys. This action aids in proper kidney function and contributes to the overall health of these vital organs.

Three meta-analyses (the largest one with 41 trials) concluded that aerobic exercise (moderate intensity, 30 min/session, 3x/week for at least 3 months) **improves eGFR (by 2.16 mL/min/1.73 m2), exercise tolerance (by 2.39 mL/kg/min), aerobic capacity, muscular functioning, cardiovascular function, walking capacity, and health-related quality of life in patients with CKD** [\[R, R, R\]](#).

In those undergoing **hemodialysis**, aerobic exercise **improves muscle mass, muscle strength, physical and mental quality of life, restless legs, depression, muscle cramping, and fatigue** according to 5 meta-analyses (the largest one with 82 trials and 4146 patients). Its **combination with resistance training further improves peak VO2 max (by 5.1 mL/kg), 6-min walkability, depression symptoms, physical function, and vitality** [\[R, R, R, R, R\]](#).

6



Mediterranean Diet

IMPACT

4 / 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 [\[R, R\]](#).

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

The Mediterranean diet may help by improving risk factors for kidney disease, including [\[R, R\]](#):

- High cholesterol
- High blood pressure
- Altered gut microbes

 PERSONALIZED TO YOUR GENES

The Mediterranean diet may reduce cholesterol in people with your [TCF7L2](#) gene variant. High cholesterol is linked to kidney disease [\[R, R\]](#).

| YOUR GENETIC VARIANTS |           |          |                                                                    |
|-----------------------|-----------|----------|--------------------------------------------------------------------|
| GENE                  | SNP       | GENOTYPE | EVIDENCE                                                           |
| TCF7L2                | rs7903146 | CT       | <div><div></div><div></div><div></div><div></div><div></div></div> |

7



Methylfolate

IMPACT

4 / 5

EVIDENCE

3 / 5

## How to implement

Take an L-methyl folate supplement (400-800 micrograms daily), ideally with a meal, to improve absorption. This dosage is recommended for adults, including pregnant women, to support overall health, especially to reduce the risk of neural tube defects in developing fetuses. Continue daily use as part of your regular supplement routine.

TYPICAL STARTING DOSE

400 mcg

## Description

Folate, a B-vitamin, is crucial for DNA synthesis, cell growth, and the formation of red blood cells. Adequate folate intake supports overall health and reduces the risk of neural tube defects during pregnancy.

**Vitamin B9** (*folate*) plays an essential role in [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Making DNA
- Metabolism
- Energy production

SelfDecode recommends L-methylfolate as the preferred folate supplement for those who need one. It is superior to folic acid because it doesn't require activation, but the research is still ongoing [\[R\]](#), [\[R\]](#).

## How it helps

A large non-placebo-controlled trial of 15,000 patients with CKD found that a combination of blood pressure medication (enalapril) and folic acid (0.8 mg) was more effective in improving kidney function than enalapril alone. Another study of 1,374 people found that folic acid (0.8 mg) is especially effective at slowing down CKD progression in moderate cases with high blood B12 levels [\[R\]](#), [\[R\]](#).

In a placebo-controlled trial of 238 people with diabetes, supplementation with a B vitamin complex including folic acid, B12, and B6 reduced CKD progression and the incidence of cardiovascular events [\[R\]](#).

In a large observational study of 55,600 patients with end-stage renal disease (ESRD), folic acid supplementation increased survival rates by protecting the heart and preventing other complications [\[R\]](#).

High homocysteine is a major issue for ESRD patients and greatly contributes to their complications. Folic acid, alone or in combination with vitamins B6 and B12, successfully lowered homocysteine levels in 5 controlled trials of 824 ESRD patients [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

8



Drink at Least 8 Glasses of Water a Day

IMPACT

4 / 5

EVIDENCE

1 / 5

## How to implement

Consume a total of at least 64 ounces (or approximately 1.9 liters) of water over the course of the day. This can be divided into 8 glasses, each containing 8 ounces of water. Aim to drink evenly throughout the day to avoid dehydration.

## Description

Water is an essential nutrient for nearly every process in your body, helping to mainting brain and gut function, maintain a health weight, as well as energy and performance levels, among others.

**Water is essential for life. It supports nearly every process in your body** [\[R\]](#).

Water helps maintain [\[R\]](#):

- Energy and performance levels
- Brain function
- Gut function
- Healthy weight

Most experts recommend drinking **around 8 glasses (64 oz. or 2 L) of water daily**. You might need more or less than this, depending on how active you are, where you live, or what your overall health is like [\[R\]](#).

## How it helps

Staying hydrated helps your kidneys by aiding in the removal of toxins from your body. Drinking enough water can lower the risk of kidney stones and urinary tract infections, keeping your kidneys functioning properly.

9

Maintain Optimal Vitamin D Levels

IMPACT

3 / 5

EVIDENCE

4 / 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

People with CKD are often deficient in vitamin D, which plays a key role in mineral metabolism. For instance, a study of 201 patients found that only 29% of those with moderate and 17% of those with severe CKD had normal vitamin D levels. A study of 908 dialysis patients found that 79% were vitamin-D deficient. The prevalence was even higher in women and African Americans [\[R, R\]](#).

Multiple meta-analyses (the largest one with 18 trials and 1,836 patients) found that vitamin D supplementation (typically, 50,000 IU for 6-12 months) suppresses elevated levels of parathyroid hormone and manages low calcium levels, thus helping prevent bone loss, in CKD patients not requiring dialysis. It's important to monitor blood calcium levels to prevent its buildup in the blood vessels. Vitamin D also reduced proteinuria and slowed the progression of diabetic kidney disease [\[R, R, R, R, R, R\]](#).

In patients on dialysis, vitamin D supplementation helps replenish blood levels of this vitamin, suppress PTH, and reduce the risk of infections according to 3 meta-analyses (the most recent one with 17 studies and over 98k participants) [\[R, R, R\]](#).

Supplementation with vitamin D may also help reduce blood glucose, insulin resistance, triglycerides, and cholesterol, improve blood vessel function, prevent heart disease, and reduce death rates, as seen in multiple meta-analyses [\[R, R, R, R, R, R, R\]](#).

However, experts recommend against routinely prescribing vitamin D to CKD patients who are not deficient [\[R\]](#).

10



Practice Exercise Snacks

IMPACT3 / 5

EVIDENCE3 / 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

A survey of 2,117 participants associated physical activity with good kidney function in both men and women. In line with this, a meta-analysis of 104 studies of 2,755,719 participants associated being physically active with an 28% reduced risk of CKD [\[R\]](#), [\[R\]](#).

Regular activity contributes to cardiovascular health and weight management, reducing strain on the kidneys.

11



Cordyceps

IMPACT

3 / 5

EVIDENCE

3 / 5

## How to implement

Take 500-1000 mg of Cordyceps extract in supplement form once daily, preferably with a meal to enhance absorption. This dosage is commonly recommended for general wellness and should be continued on a long-term basis, as effects accumulate over time.

TYPICAL STARTING DOSE

500 mg

## Description

Cordyceps is a type of medicinal mushroom known for its potential to boost endurance and enhance respiratory function. It's used in traditional medicine and dietary supplements to support physical performance and overall vitality.

[Cordyceps](#) are a group of fungi (mushrooms) that grow on insects. Some species, like *O. sinensis* and *C. militaris*, are used in supplements [\[R\]](#).

*O. sinensis* grows on a moth caterpillar. Extracts and teas made from the fungus-caterpillar combination are often used in traditional Chinese medicine. They are thought to boost sex drive, reduce fatigue, and support kidney health [\[R, R, R\]](#).

## How it helps

When added to standard treatment for kidney disease, Cordyceps may help [\[R, R, R\]](#):

- Improve kidney function
- Delay disease progression
- Reduce complications

Studied species include [\[R, R, R\]](#):

- ***C. militaris* extract:** 100 mg/day for 2 months
- **Powdered *O. sinensis*:** 2-6 g/day for 1-6 months

They likely help by [\[R, R\]](#):

- Reducing inflammation
- Decreasing [oxidative stress](#)

12



Vitamin E

IMPACT

3 / 5

EVIDENCE

3 / 5

## How to implement

Take 200 IU of Vitamin E daily as a supplement, preferably with a meal that contains fat to enhance absorption.

TYPICAL STARTING DOSE

200 iu

## Description

Vitamin E is a fat-soluble antioxidant found in various foods, such as nuts and seeds. It is known for its ability to protect cells from oxidative damage, support immune function, and may play a role in skin health. Vitamin E supplements are used to bolster antioxidant defenses and may be beneficial for conditions related to oxidative stress.

[Vitamin E](#) is an antioxidant important for the immune system and for heart health [\[R\]](#).

Plant-based foods have the most vitamin E. These include [\[R\]](#):

- Wheat germ
- Sunflower seeds
- Almonds
- Plant oils

Adults need about **15 mg** of vitamin E per day [\[R\]](#).

## How it helps

Supplementation with vitamin E (200-220 mg/day) improved kidney function and blood lipid profile in 2 placebo-controlled trials of 172 people with CKD [\[R\]](#), [\[R\]](#).

At higher doses (400-600 mg/day), vitamin E helped prevent kidney injury from heart surgery in 2 placebo-controlled trials of 403 people with CKD [\[R\]](#), [\[R\]](#).

A meta-analysis of 14 studies and 4,345 participants concluded that this and other antioxidant vitamins help improve early kidney damage [\[R\]](#).

**Please note:** *While dietary vitamin E is generally considered safe, vitamin E supplements have been linked to prostate cancer. They may also not be the best option for pregnant people. Those who have heart disease, bleeding disorders, or other conditions may also need to avoid them. Consult your doctor before taking vitamin E supplements [\[R\]](#).*

13



Eat Fiber-Rich Foods

IMPACT

3 / 5

EVIDENCE

3 / 5

## How to implement

Incorporate foods high in fiber, such as fruits, vegetables, whole grains, and legumes, into your daily meals. Aim for a total dietary fiber intake of 25 to 30 grams per day, spread out over all meals.

## Description

Fiber is a type of carb that your body can’t digest which supports digestion, heart health, and blood sugar control. You can get fiber by eating things like whole grains, fruits, nuts, seeds, and leafy greens.

**Fiber is a type of carb that your body can’t digest. It supports digestion, heart health, blood sugar control, and more** [\[R, R\]](#).

**Adults should get 28 g of fiber every day.** Most people in the US don’t get enough fiber [\[R, R\]](#).

**You can get more fiber by eating** [\[R, R\]](#):

- Whole grains
- Fruits
- Leafy greens
- Nuts and seeds
- Beans
- Broccoli

Fiber supplements, such as [psyllium husk](#), are available for people who don’t get enough fiber from their diets [\[R, R\]](#).

## How it helps

A healthy dietary pattern rich in fiber from whole grains, fruits, vegetables, and legumes has been associated with a decreased risk of CKD and lower mortality in those with this condition [\[R, R, R\]](#).

Three meta-analyses (the largest one with 14 trials) concluded that dietary fiber lowers creatinine, urea, BUN, uric acid, p-cresyl sulfate, and indoxyl sulfate in people with CKD. The effects may be stronger in those with diabetes or on hemodialysis [\[R, R, R\]](#).

A diet high in fiber from vegetables, fruits, and whole grains can help lower the risk of kidney disease by reducing blood pressure and glucose levels.

14



Omega-3 (Fish Oil)

IMPACT

3 / 5

EVIDENCE

3 / 5

## How to implement

Take 1-2 g of omega-3 (fish oil) supplement daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

500 mg

## Description

Omega-3 fatty acids are essential fats found in fatty fish like salmon, flaxseeds, and walnuts. They are known for their potential cardiovascular and brain health benefits, including reducing the risk of heart disease and supporting cognitive function.

[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 [\[R, R\]](#).

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

- Salmon
- Tuna
- Herring
- Sardines

For optimal protection, 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

Higher dietary omega-3 intake is linked to lower rates of kidney disease [\[R, R, R\]](#).

People with kidney disease are often advised to get more omega-3s [\[R, R\]](#).

**Omega-3 supplements (0.7-5.1 g/day for up to 2-12 months)** may help support kidney health by reducing [\[R, R, R\]](#):

- Kidney damage
- Inflammation
- High blood pressure

**Please note:** One serving of salmon can contain high levels of phosphorus. If you have kidney problems, check the phosphorus content of salmon before eating it. Fish oil can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking fish oil [\[R, R\]](#).

 PERSONALIZED TO YOUR GENES

In people with your **NOS3** gene variant, high omega-3 levels are linked to better blood flow. Good blood flow is important for kidney health [\[R, R, R\]](#).

| YOUR GENETIC VARIANTS |           |          |                                                                    |
|-----------------------|-----------|----------|--------------------------------------------------------------------|
| GENE                  | SNP       | GENOTYPE | EVIDENCE                                                           |
| NOS3                  | rs1799983 | TT       | <div><div></div><div></div><div></div><div></div><div></div></div> |

15



Vitamin C

IMPACT3 / 5

EVIDENCE3 / 5

## How to implement

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

TYPICAL STARTING DOSE

500 mg

## Description

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

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

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

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

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

## How it helps

A meta-analysis of 14 studies and 4,345 participants concluded that vitamin C and other antioxidant vitamins help improve early kidney damage [\[R\]](#).

In 5 placebo-controlled trials of 362 hemodialysis patients, supplementation with vitamin C (250-500 mg, 3x/week) for 8-12 weeks reduced oxidative damage, uric acid levels, and anemia [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

16



Fish

IMPACT

3 / 5

EVIDENCE

3 / 5

## How to implement

Incorporate two servings of fish into your diet each week, focusing on oily fish like salmon, mackerel, or sardines for their high omega-3 fatty acid content. Each serving should be about 3.5 ounces cooked, or about ¾ cup of flaked fish.

## Description

Fish, particularly fatty fish like salmon and mackerel, is an excellent source of omega-3 fatty acids, which support cardiovascular health, brain function, and inflammation management. Regular consumption of fish can promote heart health and overall well-being.

**Fish is a great source of [omega-3s](#), protein, and other essential nutrients.** Omega-3s from fish (EPA and DHA) are some of the healthiest fats we can eat. They help reduce inflammation and **protect the heart, brain, and eyes** [\[R, R, R\]](#).

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

- Salmon
- Tuna
- Herring
- Sardines

For optimal protection, 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

People with CKD are often advised to add omega-3 fatty acids to their diet or supplement with these fatty acids to delay disease progression, reduce the risk of heart disease, and improve itching.

Three meta-analyses (the most recent one with 60 trials and 4,129 participants) found that consuming omega-3s (typically, 1.8-6 g/day for 9-12 months) reduces proteinuria (by ~190 mg/day), the risk of end-stage kidney disease (by 2-3 times), and cardiovascular death (by over half). Another meta-analysis (of 4 trials) found omega-3 supplementation effective at reducing itching in CKD patients [\[R, R, R, R\]](#).

To increase your omega-3 intake, try getting some of your protein from fatty fish like salmon, herring, and mackerel. Be careful with salmon, however, as it can contain as much as 371 mg of phosphorus in a 100-g serving, whereas the other fish have much less.

17



Turmeric

IMPACT

3 / 5

EVIDENCE

3 / 5

## How to implement

Incorporate 500-1000 mg of turmeric into your daily diet, either by adding ground turmeric spice to your food, such as in curries, soups, and smoothies, or by taking a dietary turmeric supplement. This should be done daily for at least 8 weeks to observe potential health benefits.

## Description

Turmeric is a bright yellow spice derived from the root of the *Curcuma longa* plant. It contains curcumin, a potent antioxidant and anti-inflammatory compound. Turmeric is used for various health conditions, including reducing inflammation, alleviating joint pain, and supporting digestive health.

## How it helps

Turmeric, rich in an active compound called curcumin, contains antioxidant and anti-inflammatory properties that can help protect your kidneys by reducing inflammation and damage. However, overconsumption can cause kidney stones due to high oxalate levels, while patients with chronic kidney disease should avoid it due to potential issues with metabolite build-up.

A [meta-analysis of 6 trials](#) concluded that supplementation with turmeric **reduces proteinuria** in patients with CKD [\[R\]](#).

Another [meta-analysis \(9 studies and 472 CKD patients\)](#) found that turmeric **lowers CRP (by 3.3 mg/L) and IL-6 in hemodialysis patients** [\[R\]](#).

In a [placebo-controlled trial of 100 patients with end-stage kidney disease](#), supplementation with turmeric **decreased CRP levels and uremic pruritus** [\[R\]](#).

18



Coenzyme Q10 (CoQ10)

IMPACT3 / 5

EVIDENCE3 / 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

A meta-analysis of 7 studies found that supplementation with coenzyme Q10 (30-200 mg/day for 4-12 weeks) improves metabolic profile in CKD patients by reducing blood cholesterol (total and LDL), creatinine, and malondialdehyde (a marker of oxidative stress) levels [\[R\]](#).

In 2 placebo-controlled trials of patients on 191 hemodialysis, coenzyme Q10 supplementation (up to 1,800 mg/day) improved markers of oxidative stress and insulin metabolism. However, coenzyme Q10 had no effect on oxidative stress markers, heart function, or physical performance in 2 placebo-controlled trials of 45 patients [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Coenzyme Q10 may help prevent the progression of CKD through its antioxidant effects [\[R\]](#), [\[R\]](#).

19



Soy

IMPACT

3 / 5

EVIDENCE

3 / 5

## How to implement

Incorporate soy-based products such as tofu, soy milk, and edamame into your daily diet. Aim for at least one serving per day, equivalent to about a cup of soy milk, a half-cup of cooked soybeans, or a 3-ounce piece of tofu.

## Description

Soy is a legume native to East Asia, and its health benefits include being a source of plant-based protein, fiber, and various vitamins and minerals. It is known for its potential to support heart health, reduce cholesterol levels, and provide essential nutrients in vegetarian and vegan diets.

**Soy is a common food in many cuisines around the world**, especially Asian cuisines [\[R\]](#).

It’s a great source of [\[R\]](#), [\[R\]](#):

- Plant-based protein
- Fiber
- Omega-3 fats
- Antioxidants (isoflavones)

Soy-based foods include [\[R\]](#):

- Soy beverages
- Tofu
- Tempeh
- Edamame
- Miso
- Natto

Soy protein and soy isoflavones are also available as supplements.

## How it helps

In some people with kidney disease, soy-based foods and soy protein may [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Reduce kidney strain
- Reduce kidney damage
- Slow disease progression

Soy may help by improving [\[R\]](#):

- [Cholesterol](#) levels
- [Blood sugar](#) levels
- Blood vessel function
- [Inflammation](#)
- [Oxidative stress](#)

**Please note:** *Some soy products, such as soy sauce and miso, can be high in salt. Try to limit their intake if you have kidney problems* [\[R\]](#).

20



Dietary Thiamine (Vitamin B1)

IMPACT3 / 5

EVIDENCE2 / 5

## How to implement

Incorporate foods high in thiamine into your daily diet, such as whole grains, meat (particularly pork), nuts, and legumes. Aim to meet the recommended dietary allowance for thiamine, which is 1.1 mg per day for adult women and 1.2 mg per day for adult men.

## Description

Thiamine, also known as vitamin B1, is a water-soluble nutrient found in various foods, like whole grains, legumes, and pork. It plays a crucial role in energy metabolism and nerve function. Thiamine supplements have been used for many years to treat conditions like beriberi, which is caused by thiamine deficiency.

Thiamine ([vitamin B1](#)) is an essential nutrient. Our body needs it for basic cell function and energy production from nutrient breakdown. It is found in a number of foods, such as [\[R\]](#):

- Meat
- Fish
- Beans
- Whole grains

## How it helps

A reduced intake of thiamine was associated with worse kidney function in a small study of 19 healthy children [\[R\]](#).

Long-term diuretic therapy and malnutrition often cause thiamine deficiency in CKD patients. A study of 288 people found that vitamin [B1](#) deficiency was especially high in those with end-stage CKD [\[R\]](#).

Thiamine is also deficient in diabetes, which is a major risk factor for CKD. In a placebo-controlled trial of 40 people with type 2 diabetes, supplementation with thiamine (100 mg, 3x/day) for 3 months improved kidney damage (measured as microalbuminuria) [\[R, R\]](#).

CKD reduces the levels of the proteins responsible for taking up this vitamin in the intestines and maintaining its balance in other organs. Moreover, end-stage CKD causes the buildup of a toxin that inhibits thiamine production [\[R, R\]](#).

21



Pyridoxine (Vitamin B6)

IMPACT3 / 5

EVIDENCE2 / 5

## How to implement

Take a pyridoxine (vitamin B6) supplement daily. Requirements range from 1.3 to 1.7 milligrams per day for adults, but supplement doses usually start from 50 mg. Consult with a healthcare provider for higher doses or specific medical conditions that might benefit from increased supplementation.

TYPICAL STARTING DOSE  
50 mg

## Description

A **vitamin B6 supplement** of up to 1.3-1.7 mg per day can be taken to meet needs not achieved through diet. Long term supplementation of vitamin B6 can be problematic, so talk to your doctor before using.

## How it helps

Supplementation with vitamin B6 (60 mg/day) increased the levels of lymphocytes and monocytes and reduced nerve damage in 2 placebo-controlled trials of 56 hemodialysis patients [\[R\]](#), [\[R\]](#).

High homocysteine is a major issue for ESRD patients and greatly contributes to their complications. A meta-analysis of 11 studies and 1,506 participants concluded that high homocysteine increases the risk of heart disease (by 9%) and death (by 7%) in hemodialysis patients. Combinations of B6, folic acid, and B12 reduce the risk of heart disease by 37% but have no effect on mortality [\[R\]](#).

22



Biofeedback

IMPACT

2 / 5

EVIDENCE

3 / 5

## How to implement

Attend biofeedback sessions once or twice a week for about 8 to 10 weeks. During these sessions, a therapist will guide you through exercises to control different body functions, such as heart rate or muscle tension, using monitors that provide feedback on your physiological state. Practice the techniques learned during sessions at home daily to improve symptoms and manage your condition.

## Description

Biofeedback is a type of therapy that teaches people how to control certain body functions, such as heart rate, blood pressure, and muscle tension. It can be used to treat a variety of conditions, including stress, anxiety, and chronic pain.

**Biofeedback** is a kind of “**brain training**” in which sensors are attached to your body. They detect information like your heart rate, temperature, and breathing rate. By seeing this information, you may be better able to control these functions [\[R\]](#), [\[R\]](#).

Biofeedback is used to help with [\[R\]](#), [\[R\]](#):

- Gut problems
- Chronic pain
- Migraines
- Insomnia
- Attention

[Neurofeedback](#) is a form of biofeedback that measures brain activity in real time [\[R\]](#).

## How it helps

A meta-analysis of 8 studies concluded that biofeedback dialysis significantly reduces the frequency of intradialytic hypotension [\[R\]](#).

Biofeedback approaches train the body to control certain bodily functions that could affect kidney health, like blood pressure.

23



Avoid Cadmium Exposure

IMPACT2 / 5

EVIDENCE3 / 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

Chronic environmental cadmium exposure was linked to CKD stage 3 or higher in a study of 835 African-Americans. Significant predictors included age ≥ 50 years, high cadmium levels, hypertension, years in the community, and type 2 diabetes. A meta-analysis also found a significant association between cadmium and CKD stage 3 [\[R\]](#).

In a meta-analysis of 28 studies and 107,539 participants, cadmium exposure was associated with a 35% increased risk of proteinuria risk [\[R\]](#).

Itai-itai disease is a condition caused by long-term exposure of the inhabitants of Toyama prefecture, Japan, to cadmium intoxication. The characteristic clinical features of this disease include renal tubular dysfunction, osteomalacia, and anemia [\[R\]](#).

The levels of several urinary indicators of renal function, such as alpha 1-microglobulin, N-acetyl-beta-D-glucosaminidase, human intestinal alkaline phosphatase, mucoprotein, and albumin, were significantly higher in cadmium-exposed subjects than in non-exposed subjects in a study [\[R\]](#), [\[R\]](#).

Cadmium builds up in the kidneys and causes damage.

24



Astragalus

IMPACT

2 / 5

EVIDENCE

3 / 5

## How to implement

Take a 500 mg astragalus supplement once daily with a meal. Continue this regimen for at least 4 to 6 weeks to evaluate its effectiveness on your overall health.

TYPICAL STARTING DOSE

500 mg

## Description

Astragalus is an herb used in traditional Chinese medicine. It is believed to have immune-boosting properties and may help reduce stress and support overall vitality.

[Astragalus](#) (*Astragalus membranaceus*) is an herb used in traditional Chinese medicine. It is commonly used for “tonifying Qi” or fatigue. It may help [\[R\]](#), [\[R\]](#):

- Reduce inflammation
- Fight [oxidative stress](#)

Astragalus root is a staple of traditional Chinese medicine, where it is also known as *Huang Qi*.

## How it helps

A Cochrane review of 22 studies involving 1,323 participants with chronic kidney disease, including 241 on dialysis, found that astragalus, when used alongside conventional treatments, may reduce proteinuria and increase hemoglobin and serum albumin levels. Some studies also suggested a potential decrease in systolic and diastolic blood pressure. However, the authors noted concerns about the overall methodological quality of the included studies [\[R\]](#).

A meta-analysis of 21 RCTs and 4 CCTs including 1,804 people with diabetic nephropathy (DN) found that Astragalus injection improved BUN, SCr, CCr, urine protein, and albumin level compared with the control group [\[R\]](#).

A more recent systematic review and meta-analysis of 66 studies with 4,785 people with diabetic kidney disease (DKD) found that Astragalus preparations as an adjunctive therapy reduced albuminuria, proteinuria, and serum creatinine levels more than conventional therapies alone did. The quality of the included studies was low [\[R\]](#).

In a systematic review and meta-analysis of 50 randomized controlled trials involving 3423 people with idiopathic membranous nephropathy (IMN), Astragalus combined with supportive care or immunosuppressive therapy improved 24-hour urinary total protein, serum albumin, serum creatinine, complete remission rate, and partial remission rate more than standard therapy alone [\[R\]](#).

25



Avoid PCBs

IMPACT2 / 5

EVIDENCE2 / 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

PCBs are harmful toxins that can damage the kidneys by causing oxidative stress and inflammation. Avoiding PCBs reduces these risks, contributing to improved kidney health.

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

26



Avoid Air Pollution

IMPACT

2 / 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](#) <sup>[R]</sup>.

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 [\[R\]](#).

Air pollutants can result in toxins entering your bloodstream and damaging your kidneys.

27



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

Reducing exposure to organochlorine pesticides helps to improve kidney health, as these substances can accumulate in the body and inflict damage to the kidneys over time. Fewer organochlorines mean lower toxicity, and thus less strain on your kidneys as they work to filter out toxins from your body.

A [study of 1276 participants](#) associated **HCB exposure with decreased eGFR, especially in men** [\[R\]](#).

A [study of 3039 participants](#) associated **high DDT levels with increased risk of CKD, especially in participants who were older than 40 years old and hypertensive** [\[R\]](#).

28

Chinese Rhubarb

IMPACT2 / 5

EVIDENCE2 / 5

## How to implement

Take a supplement containing Chinese rhubarb extract, typically available in tablet or capsule form. The common dosage ranges from 500 to 1,000 mg per day, taken with water. It is advised to consult with a healthcare provider for the exact dosage based on individual health needs. Use this supplement daily for a period as recommended by the healthcare provider, usually not exceeding 8 weeks without medical advice.

TYPICAL STARTING DOSE

500 mg

## Description

Chinese rhubarb is another traditional Chinese herbal remedy known for its potential to support digestive health and relieve constipation. It contains compounds that may have mild laxative effects.

[Rhubarb](#) (also named *Rhei* or *Dahuang*) is one of the most ancient herbs in traditional Chinese medicine. Rhubarb includes approximately 60 species of plants of the genus *Rheum* L. [\[R\]](#), [\[R\]](#).

The rhubarb rhizome is considered a top medicinal plant in Chinese medicine. It is used for [\[R\]](#), [\[R\]](#):

- Constipation
- Kidney disease
- Herpes
- Gum disease

It may help due to its antibacterial and anti-inflammatory effects [\[R\]](#).

## How it helps

A meta-analysis of 9 trials and 682 participants found that Chinese rhubarb (*Rheum officinale*) supplementation (typically, 3-15 g/day for up to 48 months) lowers blood creatinine and BUN as effectively as captopril in CKD patients. However, the authors warned about the low quality of the included studies [\[R\]](#).

Another meta-analysis of 9 trials found that adding Chinese rhubarb to ACE inhibitors or ARBs further reduces blood creatinine and BUN in patients with CKD [\[R\]](#).

**Please note:** *Be careful with rhubarb if you are prone to allergies. High doses of rhubarb may cause diarrhea and abdominal cramps. Avoid long-term use due to dependence risk. Rhubarb is not safe for people with gut conditions, women who are pregnant or breastfeeding, and children under 12 years of age. Make sure to consult your doctor before taking rhubarb* [\[R\]](#), [\[R\]](#).

29



Resistant Starch

IMPACT

2 / 5

EVIDENCE

2 / 5

## How to implement

Incorporate 40g of Jo's resistant starch into your daily diet. This can be done by adding it to smoothies, yogurt, or baked goods. Ensure to spread the intake throughout the day for better tolerance.

TYPICAL STARTING DOSE

40 g Hi-Maize

## Description

Resistant starch is a type of starch that resists digestion in the small intestine, making it a prebiotic fiber that can benefit gut health. It can be found in foods like green bananas, legumes, and certain grains.

[Resistant starch](#) is starch that doesn't get digested in the small intestine [\[R\]](#) [\[R\]](#).

Some types of resistant starch include [\[R\]](#):

- **Type 1** occurs naturally in foods such as whole grains
- **Type 2** can be isolated from foods such as corn and green banana
- **Type 3** is created during the cooking and cooling process of starchy foods like potatoes

**Resistant starch doesn't increase blood sugar like typical digestible starches do** [\[R\]](#) [\[R\]](#).

**Instead, it feeds good bacteria in the colon** that [\[R\]](#) [\[R\]](#):

- Support healthy gut function
- Support immunity
- Reduce inflammation

## How it helps

Supplementation with resistant starch (15-25 g/day for 1-2 months) may improve kidney function in people with kidney disease [\[R\]](#) [\[R\]](#).

Resistant starch may help by lowering inflammation and promoting the elimination of toxins [\[R\]](#) [\[R\]](#).

30



Alpha-Lipoic Acid

IMPACT

2 / 5

EVIDENCE

2 / 5

## How to implement

Take 600-1800 mg of alpha-lipoic acid daily, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

100 mg

## Description

[Alpha-lipoic acid](#) is a natural antioxidant found in almost every cell in your body. People use alpha-lipoic acid to help with issues like skin aging, weight loss, and high blood sugar [\[R, R, R\]](#).

People use alpha-lipoic acid to help with [\[R, R, R, R\]](#):

- Complications of high blood sugar
- Skin aging
- Weight loss
- Carpal tunnel syndrome

## How it helps

In 3 placebo-controlled trials of 162 patients with end-stage CKD, supplementation with alpha-lipoic acid (600 mg/day) for 8-12 weeks improved well-being and reduced hsCRP, TNF-alpha, and ADMA (asymmetric dimethylarginine, a marker of endothelial dysfunction) levels [\[R, R, R\]](#).

Conversely, the combination of alpha-lipoic acid (600 mg/day) with tocopherols (660 IU/day) didn't reduce oxidative and inflammatory markers in 2 placebo-controlled trials of 415 end-stage CKD patients [\[R, R\]](#).

Importantly, alpha-lipoic can help manage diabetic complications including nephropathy (kidney damage) by reducing oxidative stress [\[R, R, R\]](#).

31



Alpha-Ketoglutarate (AKG)

IMPACT2 / 5

EVIDENCE1 / 5

## How to implement

Take alpha-ketoglutarate (AKG) as a dietary supplement in a dose of approximately 1-2g per day, preferably with meals to aid in its absorption. The exact dosage may vary based on the specific product and individual health needs, so it's important to follow the label instructions or consult a healthcare provider for personalized advice. This supplementation can be ongoing, with periodic evaluations to assess its effects on your health.

TYPICAL STARTING DOSE

1 g

## Description

Alpha-ketoglutarate (AKG) is a key molecule in the Krebs cycle, crucial for energy production in cells. It plays a role in amino acid synthesis and nitrogen transport. In supplement form, it's claimed to improve athletic performance and support recovery, but the scientific evidence for these benefits is limited.

## How it helps

Alpha-ketoglutarate (AKG) plays a role in detoxifying ammonia in the body by aiding its conversion into non-toxic substances like glutamate and promoting nitrogen incorporation into amino acids. This helps improve nitrogen balance, reduce serum urea levels, and increase urea excretion by supporting enzymes involved in the [urea cycle](#).

Additionally, AKG can reduce ammonia production by acting as an alternative substrate for certain enzymes, like CPS I and GDH, involved in amino acid metabolism.

It can also enhance renal bicarbonate reabsorption, which helps in mitigating metabolic acidosis, a common issue in chronic kidney disease.

Alpha-ketoglutarate (AKG) plays a crucial role in metabolic pathways, and signaling, and has potential benefits in kidney diseases and aging. It impacts cellular functions and metabolism. AKG may influence kidney fibrosis through processes like epithelial-mesenchymal transition. Understanding AKG's multifaceted role can advance insights into kidney disease pathogenesis and therapeutic strategies [\[R\]](#).

In hemodialysis patients, a study showed that combining alpha-ketoglutarate with calcium carbonate over one year improved amino acid metabolism. **Plasma urea decreased, while histidine, arginine, proline, and certain keto acids increased.** This combination treatment effectively reduced hyperphosphatemia [\[R\]](#).

A study explored the impact of intravenous alpha-ketoglutarate (alpha-KG) infusion on renal function in post-cardiac surgery patients. Alpha-KG increased renal blood flow and altered metabolite levels, suggesting potential metabolic effects that may benefit renal function in patients with normal kidney function [\[R\]](#).

32



Calcium Magnesium Citrate

IMPACT

2 / 5

EVIDENCE

1 / 5

## How to implement

Take a combined calcium magnesium citrate supplement daily with a meal. The typical dose is around 300-500 mg of magnesium and 500-700 mg of calcium, but you should refer to the product's label for the exact dosage. It is important to divide the doses if the daily amount is high, taking half in the morning and half in the evening with meals to enhance absorption and reduce the risk of gastrointestinal side effects.

TYPICAL STARTING DOSE

300 mg

## Description

Calcium magnesium citrate is a dietary supplement that combines calcium and magnesium, two essential minerals for bone health and muscle function. It can help support strong bones and reduce the risk of muscle cramps and spasms.

## How it helps

In a crossover study of Stage 3 and Stage 5D CKD patients, effervescent calcium magnesium citrate increased T50 by 63% in Stage 5D CKD, with a non-significant drop in serum phosphorus and octacalcium phosphate saturation. It also lowered parathyroid hormone levels and increased serum bicarbonate in Stage 5D CKD [\[R\]](#).

33



Avoid Lead Exposure

IMPACT1 / 5

EVIDENCE3 / 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 [\[R\]](#).

In a meta-analysis of 43 articles, the mean BUN and mean creatinine in the lead-exposed participants were higher than those in the non-exposed participants. The mean creatinine clearance in the exposed participants was lower than that in the non-exposed participants [\[R\]](#).

Another meta-analysis indicates that calcium disodium EDTA chelation therapy may delay chronic kidney disease progression in individuals with measurable body lead burdens, improving eGFR and Ccr, but not proteinuria [\[R\]](#).

In a study of 87 diabetic patients, low-level environmental lead exposure accelerated progressive diabetic nephropathy and lead-chelation therapy decreased its progression rate [\[R\]](#).

Environmental exposure to lead, even at low levels, may accelerate progressive renal insufficiency in nondiabetic patients with CKD [\[R\]](#).

34



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) can benefit kidney health by acting as an antioxidant, which helps to reduce damage caused by harmful free radicals. Additionally, it can improve blood flow and prevent inflammation, both of which contribute to maintaining healthy kidney function.

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 [\[R\]](#), [\[R\]](#).

35



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 [\[R\]](#).

36



Avoid BPA (Bisphenol A) Exposure

IMPACT

1 / 5

EVIDENCE

2 / 5

## How to implement

To avoid BPA exposure, choose BPA-free products, particularly when selecting food containers, water bottles, and baby bottles. Prefer glass, porcelain, or stainless steel containers, especially for hot food or liquids. Reduce use of canned foods as they may be lined with BPA and avoid handling thermal paper receipts, as they can contain BPA. When possible, select fresh or frozen foods over canned goods.

## Description

Avoiding BPA (Bisphenol A) exposure involves minimizing contact with products or containers containing this chemical, which is commonly found in plastics and can potentially disrupt hormone regulation.

BPA (bisphenol A) is a chemical used to make certain plastics and resins. BPA-containing plastics are often used in containers that store food and beverages. Plastics marked with **recycling code 3 or 7** may contain BPA [\[R\]](#).

BPA is a well-known hormone disruptor. Research has linked BPA exposure to diabetes, heart disease, altered behavior, and more [\[R\]](#).

## How it helps

A meta-analysis suggests high BPA levels may contribute to kidney disease, especially in those with prior conditions [\[R\]](#).

BPA can have toxic effects on the kidneys and disrupt their normal functioning.

## How to implement

**TYPICAL STARTING DOSE**

**500 mg**

## Description

Curcumin is a compound found in turmeric known for its anti-inflammatory and antioxidant properties. It has been studied for its potential to reduce inflammation, support joint health, and contribute to overall well-being.

**Turmeric** is a yellow spice from India. It may reduce inflammation and **oxidative stress** [R].

The most important active compound in turmeric is **curcumin**. People use curcumin for [[R](#), [R](#), [R](#), [R](#), [R](#), [R](#)]:

- Joint pain
- Hay fever
- Mood
- High blood sugar
- Gut health
- Liver health

## How it helps

Curcumin, a compound found in turmeric, can help kidney health by reducing inflammation and oxidative stress, common causes of kidney damage. Its antioxidant properties may also slow progression of kidney disease by protecting kidneys from harmful toxins.

In a review of six trials, four of which were included in a meta-analysis, curcumin supplementation significantly reduced proteinuria levels within the trial groups and showed a significant difference in proteinuria between trial and control groups. This suggests that turmeric/curcumin oral supplementation can improve urinary protein excretion in chronic kidney disease patients with proteinuria [R].

**Please note:** curcumin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using curcumin or turmeric supplements [R, R, R].

## How to implement

**TYPICAL STARTING DOSE**

**15 minutes**

## Description

BFR is widely used in rehabilitation settings to aid in the recovery of injured individuals, helping them rebuild muscle strength without overloading compromised areas. It also has applications in improving muscular endurance and may have potential cardiovascular benefits, such as lowering blood pressure and enhancing vascular function. However, it should be performed under the guidance of a trained professional, as it's not suitable for everyone and has specific safety considerations.

## How it helps

A meta-analysis of 82 trials and 4146 hemodialysis patients found that BFR training improves 6-min walkability better than usual care [R].

39



Quercetin

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Take 250-1000 mg of quercetin supplement daily with a glass of water, preferably with a meal to aid in its absorption.

TYPICAL STARTING DOSE

200 mg

## Description

Quercetin is a natural plant flavonoid found in various foods, particularly in fruits and vegetables like apples, onions, and broccoli. It is used as a dietary supplement and is valued for its potential antioxidant and anti-inflammatory properties.

[Quercetin](#) is a **plant-based antioxidant**. It supports the immune system and helps lower inflammation [\[R\]](#), [\[R\]](#).

Good sources of quercetin include [\[R\]](#):

- Apples
- Onions
- Tea

People mainly use quercetin supplements to relieve allergies [\[R\]](#), [\[R\]](#), [\[R\]](#).

## How it helps

Quercetin can help protect your kidneys by reducing inflammation and oxidative stress. It has also shown potential in blocking the progression of kidney disease by inhibiting the production of fibrosis-related proteins.

A meta-analysis of 18 studies found a reduction in key kidney damage markers like mesangial index, creatinine, and blood glucose while improving renal pathology from quercetin supplementation. The optimal dosage was 90-150 mg/kg/day for 8-12 weeks [\[R\]](#).

**Please note:** *quercetin may inhibit the production of the thyroid hormone T4 (thyroxine). Individuals with thyroid disorders, particularly hypothyroidism or low T4 levels, should exercise caution when using quercetin and always consult with a healthcare provider before taking this supplement* [\[R\]](#).

**Please note:** *quercetin may interfere with iron absorption due to its iron-chelating properties, potentially exacerbating anemia or making it harder to manage. If you have anemia, consult your healthcare provider before using quercetin supplements* [\[R\]](#).

40



Dong Quai

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a 500-600 mg capsule of Dong Quai supplement once daily with food. It is generally recommended to cycle Dong Quai use, taking it for three weeks followed by a one week break. Consult a healthcare provider before starting to ensure it's appropriate for your health condition.

TYPICAL STARTING DOSE  
500 mg

Description

Dong quai is an herb commonly used in traditional Chinese medicine to support women's health, particularly during menstruation and menopause. It is believed to have hormonal-regulating properties.

How it helps

A study of 11,625 people with CKD found that using Chinese herbal remedies to protect the kidneys was associated with 66.6% lower death rates, especially if the remedies contained dong quai [R].

Dong quai may help through its diuretic properties.

41



Tyrosol

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a tyrosol supplement of approximately 10 to 50 milligrams per day, ideally with a meal to enhance absorption. Continuous daily intake is recommended for at least 8 to 12 weeks to evaluate benefits.

TYPICAL STARTING DOSE  
10 mg

Description

Tyrosol is a phenolic compound found in olive oil and is known for its antioxidant properties. It is used for its potential to protect cells from oxidative damage and support cardiovascular health.

How it helps

In a placebo-controlled trial of 10 healthy volunteers and 10 patients with chronic kidney disease, consuming white wine and extra virgin olive oil (both of which are rich in tyrosol) for 2 weeks lowered CRP and IL-6, especially in those with chronic kidney disease [R].

Tyrosol can increase antioxidant levels, helping to protect your kidneys from oxidative damage. It may also reduce inflammation, which can improve overall kidney health.

42



Glutathione supplements

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Take glutathione supplements orally, usually in pill or powder form, with a recommended dose ranging from 500mg to 1000mg daily, divided into two doses. It's best taken on an empty stomach or as directed by a healthcare professional. Continuous use is advised for sustained benefits, but consulting with a healthcare provider for personalized advice and duration is important.

## Description

Glutathione (GSH) is your body’s strongest antioxidant. It has an enormous capacity to combat [oxidative stress](#) and neutralize harmful free radicals. Chemically speaking, glutathione is a tripeptide made up of 3 amino acids [\[R\]](#):

- [Glutamate](#)
- **Cysteine**
- [Glycine](#)

Low glutathione levels have been linked to cognitive decline, age-related disease, and general mortality among the elderly [\[R, R\]](#).

People take glutathione supplements to help with:

- Oxidative stress and detox
- Immune system support
- Skin aging and damage
- Exercise recovery
- Chronic diseases such as type 2 diabetes, Alzheimer's disease, Parkinson's disease, or COPD

## How it helps

Oxidative stress in the kidneys can cause mild kidney problems or even full-blown kidney failure, depending on its severity. In a study of 20 people with chronic kidney disease on hemodialysis, glutathione improved kidney function and reversed anemia [\[R\]](#).

43



Avoid PAHs Exposure

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Minimize your exposure to Polycyclic Aromatic Hydrocarbons (PAHs) by avoiding or reducing consumption of charred, grilled, or smoked foods, not smoking or avoiding secondhand smoke, and limiting time spent in areas with heavy traffic or industrial fumes. Use exhaust fans in kitchens and ensure proper ventilation when cooking at high temperatures to reduce indoor levels of PAHs.

## Description

PAHs or Polycyclic Aromatic Hydrocarbons are harmful substances found in smoke and grilled foods. Try to limit exposure to them for better health. For example, avoid inhaling smoke from cigarettes or barbeques and choose alternative cooking techniques over grilling. Minimizing PAHs can reduce the risk of several health issues, particularly lung and skin diseases.

## How it helps

A study of 4117 participants associated high urinary 2-hydroxynaphthalene with a 60% higher risk of CKD [\[R\]](#).

44



Resveratrol

IMPACT1 / 5

EVIDENCE1 / 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

In a placebo-controlled trial of 60 people with type 2 diabetes, resveratrol (500 mg/day) used as an add-on to conventional medication (losartan) improved kidney function (measured as reduced urinary albumin excretion) [\[R\]](#).

However, this treatment showed no antioxidant and anti-inflammatory effects in a placebo-controlled trial of 20 people with CKD not receiving hemodialysis [\[R\]](#).

An antioxidant supplement with resveratrol and curcumin recovered muscle and bone loss in another placebo-controlled trial of 40 people with CKD [\[R\]](#).

45



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.

46



Avoid Organophosphate Pesticide Exposure

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

To reduce organophosphate pesticide exposure, buy organic produce when possible, thoroughly wash and peel fruits and vegetables, avoid using chemical pesticides in your home and garden, and wear protective clothing and a mask if you must handle pesticides for agricultural or landscaping work.

## Description

Reducing organophosphate exposure involves minimizing contact with pesticides and insecticides containing these chemicals, which can protect against potential health risks such as neurotoxicity and respiratory issues, particularly for individuals working in agriculture or pest control.

**Organophosphates (OP)** are the most widely used pesticides worldwide. They include [\[R\]](#):

- Parathion
- Malathion
- Chlorpyrifos
- Diazinon
- Phosmet

Chronic exposure to OPs has been linked to [\[R\]](#), [\[R\]](#):

- Fertility problems
- Cognitive problems
- Nerve damage
- Cancer and gene damage

## How it helps

Reducing organophosphate pesticide exposure can be key for kidney health as these pesticides are toxic and can cause damage to the kidneys over time. By minimizing exposure, you help prevent their harmful effects, including kidney disease.

A [study of 41,487 participants](#) associated exposure to **malathion (but not 2,4-D, 3,5,6-trichloropyridinol, or 3-BPA)** with a **26% higher risk of low kidney function** [\[R\]](#).

47



Black Seed (Black Cumin)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 1000 mg of black seed (black cumin) supplement daily, preferably split into two doses of 500 mg each, one in the morning and one in the evening.

TYPICAL STARTING DOSE  
1000 mg

Description

Black seed, also known as black cumin or *Nigella sativa*, has been used for its potential health benefits in traditional medicine. It is believed to have anti-inflammatory, antioxidant, and immune-boosting properties.

[Black seed](#) (black cumin) and its oil are used in cooking and traditional medicine [\[R\]](#).

People use black seed for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Asthma
- Allergies
- High blood sugar
- High blood pressure
- Joint pain

How it helps

Black seed oil (2.5 mL/day) taken for 12 weeks lowered blood glucose and kidney damage markers (urinary protein, blood creatinine, and blood urea) while increasing eGFR, urine output, and hemoglobin levels in 2 placebo-controlled trials of 196 patients with CKD [\[R\]](#), [\[R\]](#).

Black seed may help protect the kidneys from oxidative and inflammatory damage.

48



Wormwood

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Take a wormwood supplement capsule, typically ranging from 200 to 500 mg, once daily before a meal. The exact dosage may depend on the specific condition being treated and the product's concentration, so consult the supplement's packaging or a healthcare professional for guidance. Use should generally not exceed four weeks consecutively without a break or medical advice.

TYPICAL STARTING DOSE

200 mg

## Description

Wormwood is an herb used in traditional medicine for its potential digestive benefits and as an ingredient in herbal liqueurs. It may aid in relieving digestive discomfort and expelling intestinal parasites. The main compound of interest is thujone.

## How it helps

In a placebo-controlled trial of 58 patients on hemodialysis, supplementation with wormwood (250 mg/day) for 6 weeks improved anorexia but did not affect albumin, hemoglobin, urea, creatinine, arm circumference, and BMI [\[R\]](#).

49



Creatine

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 4 grams of creatine supplement daily, ideally mixed with water or juice. This dosage can be maintained consistently without needing specific periods of cycling on or off.

TYPICAL STARTING DOSE

2 g

Description

Creatine is a popular dietary supplement among athletes and bodybuilders, known to enhance muscle performance during short bursts of high-intensity activities. It may help improve exercise performance and support muscle growth when used as directed.

[Creatine](#) is a compound naturally produced by the body. It’s stored in the muscles and brain [\[R\]](#).

During exercise, creatine is released to boost performance and help build muscles. For this reason, it’s a popular supplement among athletes [\[R, R\]](#).

Sources of creatine include [\[R\]](#):

- Red meat
- Seafood
- Supplements

How it helps

Hemodialysis causes the depletion of creatine in the muscles, leading to muscle loss. In a placebo-controlled trial of 30 CKD patients on hemodialysis, supplementation with creatine (5-20 g/day) for 4 weeks reduced lean body mass loss by approximately half [\[R, R\]](#).

However, creatine (2 g/day) failed to further decrease blood homocysteine levels in a placebo-controlled trial of 45 hemodialysis patients already receiving the vitamins B6, B9, and B12 [\[R\]](#).

50



Infrared Light Therapy

IMPACT

1 / 5

EVIDENCE

1 / 5

Description

Infrared light therapy is a type of light therapy that uses infrared light to improve circulation, reduce pain, and promote healing. It has been shown to be effective in treating a variety of conditions, including arthritis, chronic pain, and wound healing.

How it helps

In a trial of 61 kidney dialysis patients, far infrared radiation increased blood flow and oxygen levels in the body. This helped reduce fatigue [\[R\]](#).

51



Pilates

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Engage in Pilates exercises for at least 20-30 minutes, 3 times a week. Focus on core strength, flexibility, and mindful breathing. It is suitable for both beginners and advanced individuals, adjusting the difficulty of exercises as necessary.

TYPICAL STARTING DOSE  
30 minutes

Description

Pilates is a form of exercise that focuses on strengthening the core, improving flexibility, and enhancing overall body awareness through controlled movements and breathing techniques. Its health benefits include increased core strength, improved posture, enhanced flexibility, and better balance, making it a popular choice for those seeking a holistic approach to fitness.

**Pilates is a type of exercise that emphasizes proper alignment, breathing techniques, and precise movements.**

It involves a series of controlled movements performed on a mat or with specialized equipment, such as a reformer or Cadillac. Pilates helps strengthen the core muscles, improve flexibility, and promote mind-body awareness.

How it helps

In a non-placebo-controlled trial of 50 patients with CKD, practicing Pilates 3x/week for 12 weeks improved quality of life. Both Pilates and conventional physical therapy were similarly effective at improving inspiratory and expiratory muscle strength, patient satisfaction with physical therapy care, and length of hospital stay in a non-placebo-controlled trial of 56 hospitalized patients with CKD [\[R, R\]](#).

Pilates may help by improving your body's overall strength, flexibility, and balance, which helps to lower blood pressure and control diabetes. Pilates also boosts circulation, facilitating the effective removal of wastes and toxins.

52



Carnosine

IMPACT1 / 5

EVIDENCE1 / 5

## How to implement

Take 500 mg of carnosine twice daily with meals. Continue this regimen for at least 2 to 4 weeks to start noticing benefits. It can be taken as a capsule or powder form mixed with water or juice.

TYPICAL STARTING DOSE  
1000 mg

## Description

Carnosine is a naturally occurring compound found in muscle tissues and certain foods. It is believed to have antioxidant properties and may support muscle function and overall cellular health.

**Carnosine** (**β-alanine-l-histidine**) is a compound naturally produced by the body. We also get it from eating meat and fish. Carnosine is abundant in our [\[R\]](#), [\[R\]](#):

- **Muscles**
- Heart
- Brain
- Nose

Carnosine has several important functions in the body, including [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Being an antioxidant
- Improving muscle function
- Removing toxic metals

During exercise, **carnosine may prevent muscle fatigue and boost athletic performance**. It may also help improve sugar metabolism [\[R\]](#), [\[R\]](#), [\[R\]](#).

## How it helps

In a 12-week study with 40 diabetic nephropathy patients, carnosine (2 g/day) supplementation led to a significant decrease (-17.8%) in urinary TGF-β levels, a marker of renal injury, compared to placebo (+16.9%). Other renal function and biochemical parameters remained unchanged, suggesting a potential renoprotective effect of carnosine in diabetic nephropathy [\[R\]](#).

53



Black Seed Oil

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Take one to two teaspoons (5-10ml) of black seed oil twice daily, preferably before meals. For capsule forms, follow the manufacturer's instructions, commonly 500mg capsules twice daily. Continue this regimen for up to 8 weeks to evaluate its effects.

TYPICAL STARTING DOSE  
1000 mg

## Description

Both black seed extract and black seed oil have been traditionally used for their potential health benefits, including anti-inflammatory and antioxidant properties. They may support overall wellness and immune function when incorporated into a balanced diet.

[Black seed](#) (black cumin) and its oil are used in cooking and traditional medicine [\[R\]](#).

People mainly use black seed for [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Allergies
- Joint pain

## How it helps

Black seed oil (2.5 mL/day) taken for 12 weeks lowered blood glucose and kidney damage markers (urinary protein, blood creatinine, and blood urea) while increasing eGFR, urine output, and hemoglobin levels in 2 placebo-controlled trials of 196 patients with CKD [\[R\]](#), [\[R\]](#).

Black seed may help protect the kidneys from oxidative and inflammatory damage.

54



Okra

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Take okra supplements in the form of capsules or powder. If using capsules, consume 1-2 capsules daily with water, preferably with a meal. If using powder, mix one teaspoon into a glass of water or into a smoothie once daily. Continue this routine for at least 8-10 weeks to observe potential health benefits.

## Description

Okra is a flowering plant of the mallow family, rich in vitamins, minerals, and fiber, offering potential benefits for digestive health, blood sugar control, and overall nutrition.

## How it helps

In a non-placebo-controlled trial of 417 patients with CKD, supplementation with okra (2.5 g, 3x/day) for 24 weeks, both alone and combined with losartan, **reduced proteinuria by 508-545 mg/dL** [\[R\]](#).

Okra aids kidney health through its antioxidant and anti-inflammatory properties that help reduce damage to kidney tissues.

55



Folinic Acid

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Folinic acid is administered in several forms, including oral tablets, injections, or infusions, depending on the medical condition being treated. Always use folinic acid as prescribed by a healthcare provider. The specific dose and frequency depend on the condition being treated and the individual patient’s response. Regular monitoring by a healthcare provider is necessary, especially when used in conjunction with chemotherapy, to adjust doses as needed and to manage any side effects.

## Description

Folinic acid, also known as leucovorin, is a form of folic acid used in pharmacology, primarily to diminish the toxic effects of certain chemotherapy medications. Unlike folic acid, folinic acid doesn't require enzymatic conversion to become biologically active and can be directly utilized by the body. It plays a crucial role in DNA synthesis and repair, and in the methylation process, which is vital for cellular health and function.

The health benefits of folinic acid are mostly seen in its ability to counteract the side effects of methotrexate, a drug used to treat certain types of cancer and autoimmune diseases. Methotrexate can inhibit the body's ability to use folate, leading to deficiencies. Administering folinic acid can help prevent or mitigate these deficiencies, aiding in faster recovery of healthy cells.

Folinic acid is also used in the treatment of megaloblastic anemia when it's caused by a deficiency in folate and not effectively treated by folic acid due to metabolic or absorption issues. Additionally, there is research into its potential benefits in improving symptoms of mental health disorders such as depression, suggesting that it might aid in managing conditions related to folate metabolism abnormalities.

## How it helps

In 2 placebo-controlled trials of 135 hemodialysis patients, folinic acid (15 mg/day orally or 3 mg/week intravenously) lowered homocysteine levels as effectively as folic acid [\[R\]](#), [\[R\]](#).

56



Gamma-Linolenic Acid (GLA)

IMPACT1 / 5

EVIDENCE1 / 5

## How to implement

Take 200-300 mg of gamma-linolenic acid (GLA) daily as a supplement, usually available as capsules, for a period of 6 months to assess its effects on your condition. It is best absorbed when taken with food.

TYPICAL STARTING DOSE  
200 mg

## Description

GLA is an omega-6 fatty acid found in certain plant oils, such as evening primrose oil and borage oil. It may have anti-inflammatory properties and can potentially benefit skin health, hormonal balance, and overall well-being.

Your body naturally makes **gamma-linolenic acid (GLA)** to help control inflammation. It’s a polyunsaturated fatty acid (PUFA) found in plants like [R](#), [R](#):

- [Borage](#)
- Blackcurrant
- Evening primrose

People mainly use GLA for [R](#):

- Skin conditions
- Dry eyes
- Hair and nail care

## How it helps

Exogenous GLA supplementation for 3 months raised dihomo-gamma-linolenic acid in plasma, and moderately in erythrocyte lipids, in older subjects. This reduced cardiovascular risk factors and stabilized renal function, increasing vasodilatory prostaglandins [R](#).

A study examined the effects of omega-6 fatty acids (linoleic and GLA) on 12 hyperlipidemic patients and 12 rats for 4 months. In humans, GLA reduced triglycerides by 48% and increased HDL by 22% [R](#).

GLA may help by reducing inflammation and fighting the progression of kidney damage.

**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.*

57



Orange Blossom Aromatherapy

IMPACT1 / 5

EVIDENCE1 / 5

## How to implement

Diffuse orange blossom essential oil in your living area or bedroom for 15-30 minutes at a time, ideally 2-3 times a day. Ensure the room is well-ventilated, and avoid direct inhalation from the bottle. Discontinue if any allergic reactions occur.

## Description

Orange blossom is the fragrant flower of the bitter orange tree (*Citrus aurantium*). Its delicate, sweet scent has made it a popular ingredient in perfumes, cosmetics, and culinary creations.

Orange blossom is known for its potential to reduce anxiety when inhaled as an essential oil, making it a calming choice for aromatherapy.

People also use aromatherapy with orange blossom to help with:

- Sleep complaints
- Menopausal symptoms
- Premenstrual syndrome (PMS)
- High blood pressure

## How it helps

In a non-placebo-controlled trial of 90 hemodialysis patients, orange blossom aromatherapy (5 drops) reduced fatigue before and after the intervention [\[R\]](#).

58



Laughter Yoga

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Attend a laughter yoga session for at least 30 minutes, three times a week. These sessions can be found in local community centers or online classes tailored for various ages and physical abilities.

TYPICAL STARTING DOSE

30 minutes

Description

Laughter yoga combines laughter exercises and deep breathing to promote mental and emotional well-being. It is believed to reduce stress, improve mood, and boost overall mental health.

How it helps

In 2 non-placebo-controlled trials of 86 hemodialysis patients, practicing laughter yoga (30 min, 2x-3x/week for 4-8 weeks) slightly improved happiness, mood, optimism, and sleep quality, while decreasing stress, pain, and episodes of intradialytic hypotension [\[R, R\]](#).

Laughter yoga enhances overall body function by improving blood circulation and oxygen supply to all body parts, including the kidneys. It also aids in stress reduction, which can prevent high blood pressure from damaging the kidneys.

59



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.

60



Flaxseed

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Consume 2 tablespoons of ground flaxseed daily. You can add it to your breakfast cereal, smoothies, or salads.

TYPICAL STARTING DOSE

2 tbsp

## Description

Flaxseed is a nutrient-dense food that's high in fiber and omega-3 fatty acids. It may contribute to heart health, promote digestive regularity, and help manage cholesterol levels when included in a balanced diet.

[Flaxseed](#) is a common ingredient in bakery products. Some people also use it as a health food to support digestion [\[R\]](#).

Flaxseed is rich in many compounds, including [\[R\]](#):

- Vitamins and minerals
- Protein
- Fiber
- Omega-3 fatty acids ([ALA](#))

## How it helps

In an uncontrolled trial of 30 people with CKD, consuming 40 g/day of ground flaxseed for 8 weeks reduced the blood levels of triglycerides, total and LDL cholesterol, and an inflammatory marker (CRP) while increasing HDL cholesterol. Similarly, supplementation with flaxseed oil (1 g, 2x/day) for 120 days reduced CRP levels in a placebo-controlled trial of 160 CKD patients [\[R, R\]](#).

People with CKD on hemodialysis often develop abnormalities in mineral metabolism, leading to bone loss. In a placebo-controlled trial of 34 people, consuming 6 g/day flaxseed oil reduced a marker of bone loss (N-telopeptide) [\[R\]](#).

61



Nicotinamide Riboside (NR)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 250-300 mg of Nicotinamide Riboside (NR) supplement daily, with or without food. It can be taken any time of the day, but maintaining a consistent routine, such as taking it every morning, is advised for best results. Continue this regimen daily for an ongoing basis to support cellular health and energy levels.

TYPICAL STARTING DOSE

250 mg

Description

Nicotinamide riboside is a form of vitamin B3 that is used in dietary supplements. It is believed to support cellular energy metabolism and may have potential benefits for overall health, including cognitive function and mitochondrial function.

How it helps

In a placebo-controlled trial with 24 hospitalized patients with acute kidney injury, a two-day administration of NR and pterostilbene significantly increased whole blood NAD+ levels by 37%. However, a 6-week treatment with NR improved mitochondrial metabolism and lipid profiles but had no impact on VO2 peak or total work efficiency in a separate placebo-controlled trial involving 25 CKD patients [\[R\]](#), [\[R\]](#).

Nicotinamide Riboside (NR) can help kidney health because it enhances the body's levels of NAD+, an essential molecule for energy metabolism and repairing DNA. This can potentially improve cellular function and slow down the progression of kidney disease.

62



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 775 teenagers associated PFOA levels with a 74.1% higher risk of CKD and with abnormal ACR, while PFHpA increased the risk of CKD by 62.8% [\[R\]](#).

63



Yoga

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Practice yoga for at least 20 to 30 minutes a day, most days of the week. Choose a style that matches your fitness level and goals, and consider attending a class or using online resources to guide your practice.

TYPICAL STARTING DOSE

30 minutes

Description

Yoga is a mind-body practice that combines physical postures, breathing exercises, and meditation. It enhances flexibility, strength, and mental well-being and is used for stress reduction, relaxation, and overall health improvement.

[Yoga](#) combines breathing, stretching, and relaxation techniques. Practicing yoga may help [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Reduce [stress](#)
- Improve fitness
- Lower blood pressure and heart rate
- Manage pain

How it helps

In 3 non-placebo-controlled trials of 158 CKD patients on hemodialysis, yoga programs used as an add-on to conventional therapy improved physical fitness, quality of life, kidney function, and blood fat profile [\[R\]](#), [\[R\]](#), [\[R\]](#).

64



Rehmannia

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take rehmannia in capsule form, with the usual dose being between 250 to 500 mg daily. It's best consumed with water, after meals to minimize digestive discomfort. Consult with a healthcare professional for personalized advice, especially if you have pre-existing conditions or are on other medications.

TYPICAL STARTING DOSE

250 mg

Description

Rehmannia (*Rehmannia glutinosa*) is a medicinal plant native to East Asia and the root of the plant has been used traditionally for centuries in China and Korea for various health purposes. Rehmannia contains various compounds, including iridoid glycosides and catalpol, which may provide benefits for kidney and gland health.

How it helps

In a non-placebo-controlled trial of 72 people with nephrotic syndrome (a type of kidney failure), the use of Liuwei Dihuang Pills (a Chinese remedy with Rehmannia) as an add-on to standard treatment (prednisone) improved kidney function better than the standard treatment alone [\[R\]](#).

65



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  $\alpha$ 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].

66

Evening Primrose Oil

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take 500mg to 1000mg of evening primrose oil, in capsule form, once daily with a meal to ensure optimal absorption. This regimen is typically recommended for several months to evaluate its effectiveness for the specific condition being addressed.

Description

Evening primrose is a plant known for its seeds, which are a source of gamma-linolenic acid (GLA), an essential fatty acid. Some studies suggest that evening primrose oil, derived from these seeds, may help alleviate symptoms of conditions like premenstrual syndrome (PMS) and eczema, as well as support overall skin health.

Evening primrose (*Oenothera biennis*) is a flowering plant. Its name comes from the fact that its flowers close during the day and open when the sun sets [R].

[Evening primrose oil](#) comes from the plant’s seeds. It is rich in omega-6 fatty acids like [GLA](#). People use this oil to help with high triglycerides [R, R].

How it helps

Exogenous GLA supplementation for 3 months raised dihomo-gamma-linolenic acid in plasma and moderately in erythrocyte lipids. This reduced cardiovascular risk factors and stabilized renal function, increasing vasodilatory prostaglandins [R].

A study examined the effects of omega-6 fatty acids (linoleic and GLA) on 12 hyperlipidemic patients and 12 rats for 4 months. In humans, GLA reduced triglycerides by 48% and increased HDL by 22% [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.*

67



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

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

Avoiding copper supplements may help maintain kidney health as kidneys can struggle to filter out excess copper.

68



Glycine

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

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

TYPICAL STARTING DOSE

3 g

## Description

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

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

## How it helps

Glycine can assist kidney health by reducing oxidative stress and inflammation in the kidneys. It also plays a role in detoxification, helping your kidneys filter out harmful substances.

# Next Steps

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

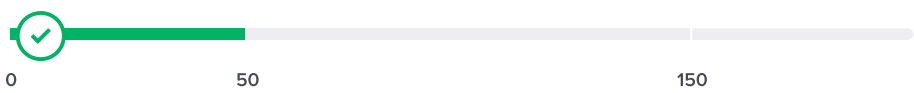
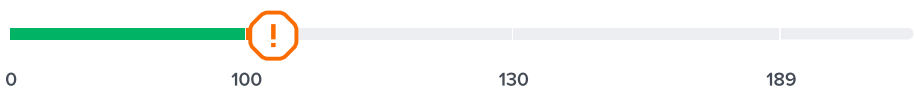
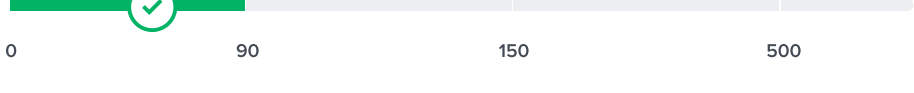
Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

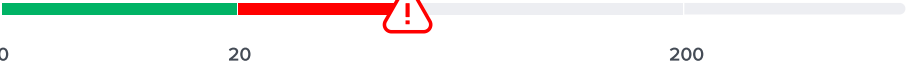
## Your lab results

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.

|                                                                                     |                         |                   |                                                                                                                                                         |             |
|-------------------------------------------------------------------------------------|-------------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|
|  | Bilirubin, Urine        |                   | <div><div>Optimal</div><div>High</div><div><div></div></div></div>                                                                                      | 9 Nov 2025  |
|  | Protein, Urine          |                   | <div><div>Negative</div><div>Positive</div><div><div></div></div></div>                                                                                 | 9 Nov 2025  |
|  | Leukocyte Esterase      |                   | <div><div>Negative</div><div>Positive</div><div><div></div></div></div>                                                                                 | 9 Nov 2025  |
|  | Urea                    | 30.5 mg/dL        | <div><div></div><div><div></div></div><div>27.647.04</div></div>   | 9 Nov 2025  |
|  | Specific Gravity, Urine | 1.015 x100%       | <div><div></div><div><div></div></div><div>11.04</div></div>       | 9 Nov 2025  |
|  | Cystatin C              | 0.57 mg/L         | <div><div></div><div><div></div></div><div>0.50.721.16</div></div> | 9 Nov 2025  |
|  | Phosphorus              | 2 mg/dL           | <div><div></div><div><div></div></div><div>12.53.54.5</div></div>  | 9 Nov 2025  |
|  | eGFR                    | 71 mL/min/1.73 m2 | <div><div></div><div><div></div></div><div>306090120</div></div>   | 29 Aug 2025 |
|  | SHBG                    | 39.3 nmol/L       | <div><div></div><div><div></div></div><div>15304564</div></div>    | 9 Nov 2025  |

|                                                                                     |                                        |              |                                                                                       |             |
|-------------------------------------------------------------------------------------|----------------------------------------|--------------|---------------------------------------------------------------------------------------|-------------|
|    | Aluminum/Creatinine Ratio              | 6 ug/g crt   |    | 13 Jan 2026 |
|    | LDL Cholesterol                        | 103 mg/dL    |    | 9 Nov 2025  |
|    | Uric Acid                              | 4.4 mg/dL    |    | 9 Nov 2025  |
|    | Sodium                                 | 137 mmol/L   |    | 9 Nov 2025  |
|    | Magnesium                              | 2.17 mg/dL   |    | 9 Nov 2025  |
|  | Triglycerides                          | 54 mg/dL     |  | 9 Nov 2025  |
|  | Albumin                                | 4.3 g/dL     |  | 9 Nov 2025  |
|  | Homocysteine                           | 12.84 umol/L |  | 9 Nov 2025  |
|  | Creatinine                             | 1.08 mg/dL   |  | 9 Nov 2025  |
|  | Insulin, Fasting                       | 9.08 uU/mL   |  | 9 Nov 2025  |
|  | Potassium, Serum                       | 5.2 mmol/L   |  | 9 Nov 2025  |
|  | Albumin/Creatinine Ratio, Random Urine | 37 mg/g crt  |  | 9 Nov 2025  |
|  | Testosterone, Total                    | 1500 ng/dL   |  | 9 Nov 2025  |
|  | Calcium                                | 9.2 mg/dL    |  | 9 Nov 2025  |
|  | Creatinine, Random Urine               | 236.9 mg/dL  |  | 9 Nov 2025  |

|                                                                                   |                |            |                                                                                     |            |
|-----------------------------------------------------------------------------------|----------------|------------|-------------------------------------------------------------------------------------|------------|
|  | BUN            | 14 mg/dL   |  | 9 Nov 2025 |
|  | Albumin, Urine | 87.6 ug/mL |  | 9 Nov 2025 |

# Your Lifestyle Assessments

Ever heard of the term Nature vs. Nurture?

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

✓

LIFESTYLE

You have a **reduced risk** of chronic kidney disease (ckd) based on the answers you provided.

Your Lifestyle Risk

LowDecreasedAverageIncreasedHigh

## Factors impacting your risk:

|                                                                                                                                                                                            |                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| Do you ever add salt to your meal after it has been prepared and seasoned?                                                                                                                 | Increasing Risk ! |
| Almost always                                                                                                                                                                              |                   |
| Have you ever been diagnosed with diabetes?                                                                                                                                                | Decreasing Risk ✓ |
| No                                                                                                                                                                                         |                   |
| In a typical week, how many times do you participate in any physical activities or exercise for 30 minutes at a time? (such as walking, running, bike riding, weight training, yoga, etc.) | Decreasing Risk ✓ |
| *Note: longer exercise equals more sessions (e.g., 1 hour = 2 sessions)                                                                                                                    |                   |
| 8 or more                                                                                                                                                                                  |                   |
| Do you smoke tobacco?                                                                                                                                                                      | Decreasing Risk ✓ |
| No, never                                                                                                                                                                                  |                   |
| How much alcohol do you drink on a typical day?<br>Calculate your alcohol consumption in units here                                                                                        | Decreasing Risk ✓ |
| 0 units                                                                                                                                                                                    |                   |
| What is your age?                                                                                                                                                                          | Decreasing Risk ✓ |
| 41                                                                                                                                                                                         |                   |
| Do you regularly eat 5 or more servings of fruit or vegetables a day?                                                                                                                      | Decreasing Risk ✓ |
| Yes                                                                                                                                                                                        |                   |
| Have you ever been diagnosed with high blood pressure (hypertension)?                                                                                                                      | Decreasing Risk ✓ |
| No                                                                                                                                                                                         |                   |
| Do you regularly take non-steroidal anti-inflammatory drugs (e.g., Advil, Aleve, Ascriptin, etc.)?                                                                                         | Decreasing Risk ✓ |
| Not sure? Enter your current medications in this database to see which drug class they belong to                                                                                           |                   |
| No                                                                                                                                                                                         |                   |
| Have you ever been diagnosed with a cardiovascular (heart) condition?                                                                                                                      | Decreasing Risk ✓ |
| No                                                                                                                                                                                         |                   |

|                                                    |                                                                                                     |
|----------------------------------------------------|-----------------------------------------------------------------------------------------------------|
| How often do you eat meat?<br><b>Once a day</b>    | Decreasing Risk  |
| What is your ethnicity?<br><b>Ashkenazi Jewish</b> | Decreasing Risk  |
| Your BMI:<br><b>22.77</b>                          | Decreasing Risk  |
| What is your sex?<br><b>Male</b>                   | Decreasing Risk  |
| What is your height?<br><b>165 cm</b>              | No impact        |
| What is your current weight?<br><b>62.0 kg</b>     | No impact        |