SelfDecode™

# Pesticide Sensitivity

## Biohacker Report

REPORT CATEGORY

DETOX

## Sample Client

Report date: 15 January 2026

Powered by omicsedge

# Table of Contents



## Personal information

NAME

**Sample Client**

SEX AT BIRTH

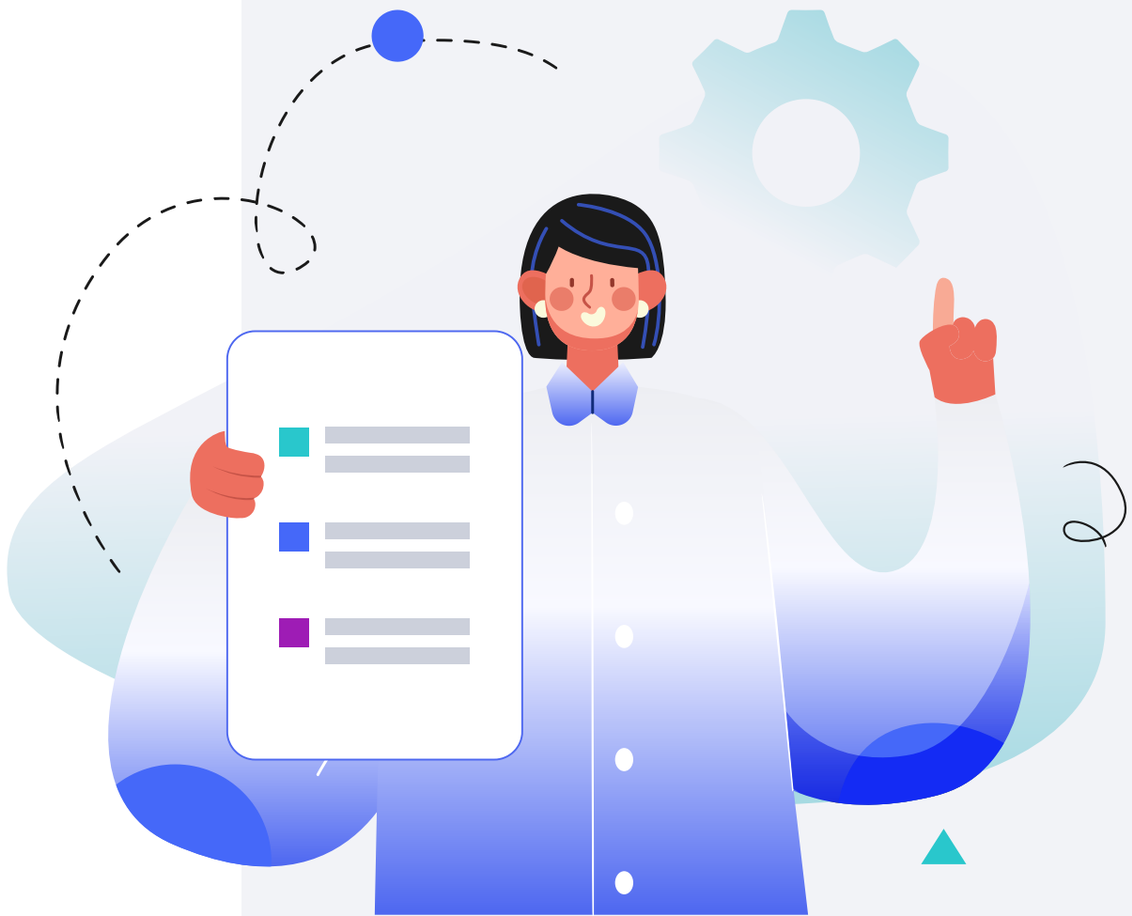
**Male**

HEIGHT

**5ft 5"** 165cm

WEIGHT

**137lb** 62kg

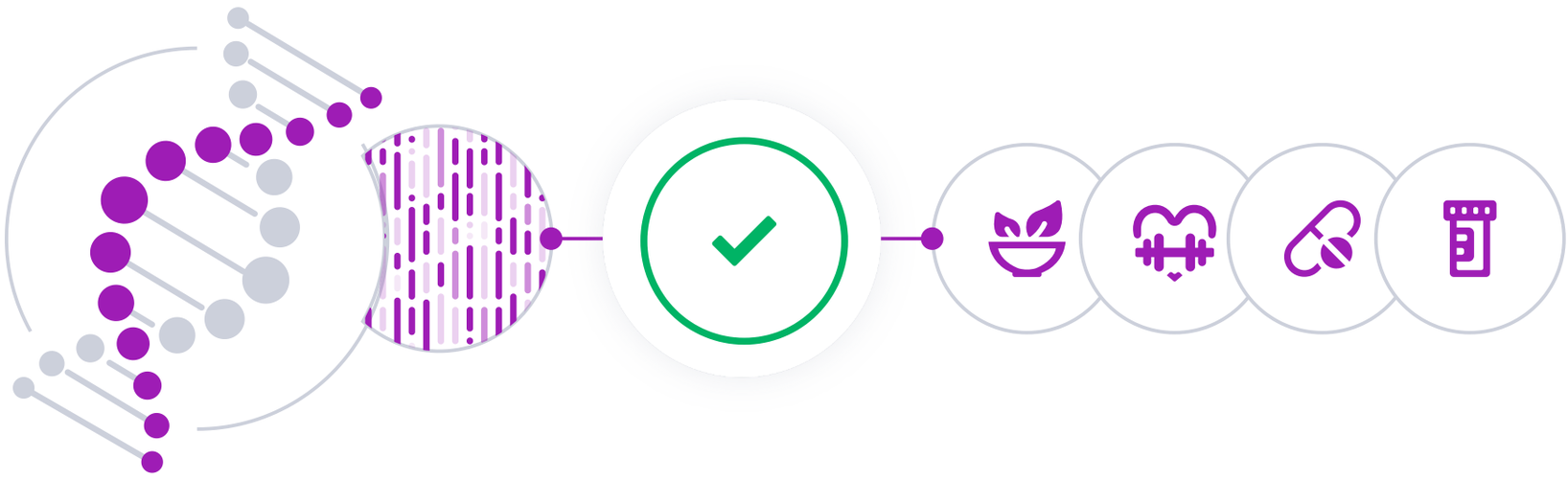


DISCLAIMER

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.

# How this works

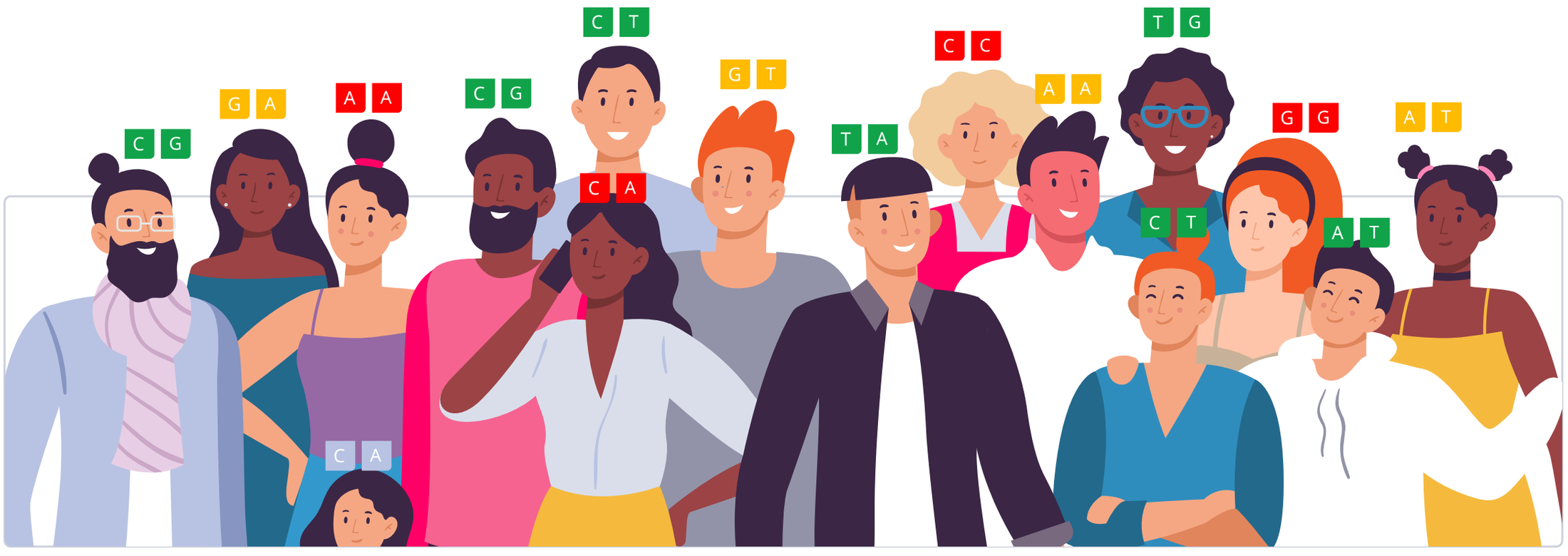
**Our Wellness Reports analyze how your DNA influences your health.**
**We then use this analysis to give you personalized risk estimates and recommendations.**



**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.

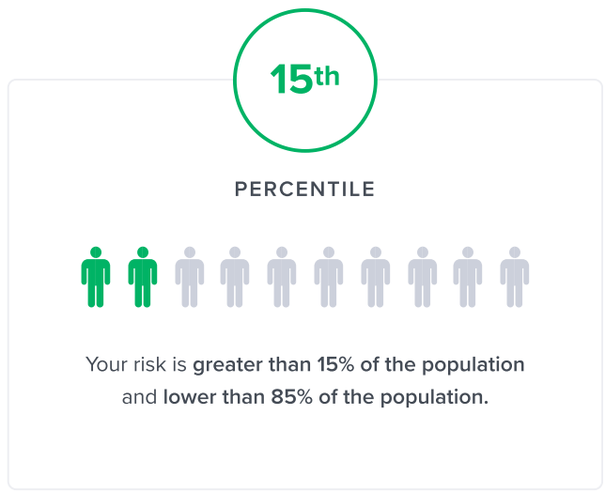
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.



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.

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


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




**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, afew 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

Pesticides include all chemicals used to kill weeds, insects, fungi, and microbes. They are widely used in agriculture to improve crop yields.

Chances are you have heard of RoundUp. Its active ingredient is a chemical called *glyphosate*. Although some countries like Austria have banned it due to links with cancer, it's still one of the most widely used herbicides in the world [R].

Other common groups of pesticides include:

- Organophosphates (parathion, malathion, chlorpyrifos, diazinon, phosmet)
- Neonicotinoids (imidacloprid, acetamiprid, thiacloprid, clothianidin)
- Pyrethroids (permethrin, alpha-cypermethrin)

In the US, organophosphates are the most commonly used pesticides. Although they are supposed to degrade when exposed to air and light, their residue remains on many of the fruits and vegetables we eat [R, R, R].

The widespread use of pesticides in schools, parks, and other public spaces also puts many people at risk of low-level exposure.

Acute exposure to higher pesticide amounts can cause [R]:

- Skin and eye irritation
- Fatigue
- Muscle weakness
- Nausea and vomiting
- Breathing problems

*Did you know?* Acute pesticide poisoning is responsible for up to 300,000 deaths per year worldwide [R].

However, if you don't work with pesticides, acute poisoning is highly unlikely. Your bigger concern is chronic exposure to lower pesticide amounts. It's been linked to:

- Fertility problems [R]
- Cognitive problems [R]
- Alzheimer's and Parkinson's disease [R, R]
- Thyroid problems [R]
- Obesity [R]
- DNA damage and cancer [R, R, R]

# Genetics of Pesticide Sensitivity

**Key Takeaways:**

- Genetic variants impacting pesticide sensitivity may involve oxidative stress, DNA repair, brain health and cognition, immune response, and vitamin D activity.
- Risk factors involve exposure to pesticides like in certain occupations or consuming produce on which pesticides get used.
- Acute pesticide poisoning is responsible for up to **300,000** deaths per year worldwide. Chronic low exposure has been linked to various health conditions.
- If you have high genetic risk, you may lower overall risk by taking steps to avoid exposure to pesticides.

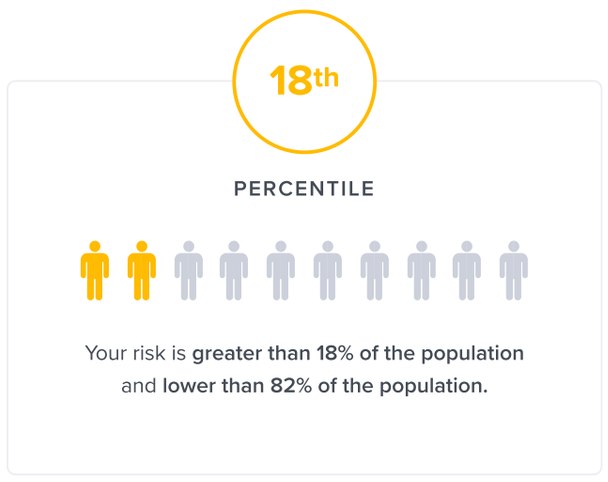
Should we all be equally worried about pesticides? Although adverse effects of chronic pesticide exposure are inevitable, some people seem to be at a much higher risk. The reason for this lies partly in genetics!
In people carrying certain gene variants, pesticides have shown a stronger link with DNA damage, Parkinson's disease, cancer, and more. These variants belong to genes that play a role in [R, R, R, R]:

- Pesticide detox (PON1, ABCB1, CYP1A1)
- Oxidative stress (SOD2, NOS1)
- DNA repair (ERCC6L2, XRCC1, XPC)
- Brain health and cognition (BCHE)
- Immune response (HLA-DQA2)
- Vitamin D activity (GC, VDR)

**However, keep in mind that your other gene variants, lifestyle, and environment may also influence your pesticide sensitivity.**

TYPICAL

**Likely typical pesticide sensitivity based on 38 genetic variants we looked at**




**Your top variants that most likely impact your genetic predisposition:**

| GENE | SNP | GENOTYPE |
|---|---|---|
| PON1 | rs662 | TT |
| MTRNR2L13 | rs6851004 | AA |
| / | rs2279343 | GA |
| BACH2 | rs6919587 | AT |
| NOS1 | rs3741480 | CT |
| GC | rs7041 | AC |
| CCDC24 | rs539096 | AG |
| ABCB1 | rs2032582 | CT |
| BCHE | rs1803274 | TC |
| OTX1 | rs2710647 | TC |
| PON1 | rs854560 | AT |
| ALOXE3 | rs3027208 | TC |
| ALOX5 | rs7099684 | TT |
| ACSL5 | rs12098576 | GT |
| ABCG8 | rs4953028 | AG |
| HLA-DQA2 | rs3129882 | AG |
| GC | rs12512631 | TC |
| ALOX15 | rs916055 | GA |
| STAT6 | rs1800159 | AG |
| TMEM106C | rs4328262 | GG |
| SOD2 | rs4880 | GG |
| XPC | rs2228001 | TG |
| CASTOR1 | rs2072159 | GA |
| LDLR | rs8110695 | AT |

| GENE | SNP | GENOTYPE |
|---|---|---|
| A4GALT | rs8136914 | AG |
| UGT2B15 | rs1902023 | AC |
| XRCC1 | rs1799782 | GG |
| CAT | rs1001179 | TC |
| CYP1A1 | rs1048943 | TT |
| ABCB1 | rs1045642 | GG |
| NAT2 | rs1799931 | GG |
| GSTP1 | rs1695 | AA |
| RPS18 | rs1547387 | CC |
| POU5F1B | rs4242382 | GG |
| FBXO21 | rs2682826 | GG |
| PPA2 | rs7679673 | CC |
| CYP2C19 | rs4244285 | GG |
| USPL1 | rs9579645 | AA |
| ERCC2 | rs1799793 | CC |
| ADIPOR1 | rs12733285 | TT |
| MTG1 | rs2031920 | CC |
| CYP2D6 | rs3892097 | CC |
| OGG1 | rs1052133 | CC |

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

# Your Recommendations

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

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

| | | DOSAGE |
|---|---|---|
| 1 | Avoid Pesticide Exposure | |
| 2 | Activated Charcoal | 500 mg |
| 3 | Milk Thistle (Silymarin) | 300 mg |
| 4 | Air Purifier | |
| 5 | N-acetylcysteine (NAC) | 1200 mg |
| 6 | Elimination Diet | |
| 7 | Avoid Processed High Phosphate Foods | |

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# Avoid Pesticide Exposure

IMPACT 4 / 5

EVIDENCE 3 / 5

## How to implement

Purchase organic produce when possible, wash fruits and vegetables thoroughly under running water, and peel them if not organic. Use natural pest control methods instead of chemical pesticides at home and garden. Limit the use of non-organic lawn and garden chemicals.

## Description

Pesticides include all chemicals used to kill weeds, insects, fungi, and microbes. Reducing pesticide exposure involves choosing organic or pesticide-free foods and using natural pest control methods to limit contact with potentially harmful chemical residues. It supports overall health by reducing the risk of pesticide-related health issues.

Pesticides include all chemicals used to kill weeds, insects, fungi, and microbes. They are widely used in agriculture to improve crop yields. Common groups of pesticides include:

- Organophosphates (glyphosate, parathion, malathion, chlorpyrifos, diazinon, phosmet)
- Neonicotinoids (imidacloprid, acetamiprid, thiacloprid, clothianidin)
- Pyrethroids (permethrin, alpha-cypermethrin)

Chronic exposure to pesticides has been linked to:

- Fertility problems [R]
- Cognitive problems [R]
- Alzheimer's and Parkinson's disease [R, R]
- Thyroid problems [R]
- Obesity [R]
- DNA damage and cancer [R, R, R]

## How it helps

Reducing exposure to pesticides may help reduce their potentially harmful effects on health. Ways to reduce your pesticide exposure include [R, R]:

- Eating a variety of fruits and vegetables to avoid high exposure to one pesticide
- Buying organic food when possible
- Thoroughly washing and drying your food, even if it's labeled organic
- Scrubbing or peeling fruits and vegetables when possible
- Discarding the outer layer of leafy vegetables

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# Activated Charcoal

IMPACT 1 / 5

EVIDENCE 2 / 5

## How to implement

Take 500-1000 mg of activated charcoal with a full glass of water at least 1 hour before a meal or 2 hours after a meal.
Do not consume it daily for long periods; use it for short-term detoxification or occasional upset stomach only.

TYPICAL STARTING DOSE

**500 mg**

## Description

Activated charcoal is a porous substance that is highly effective at absorbing and trapping toxins and chemicals in the digestive tract. It is sometimes used in emergency medical settings for poisoning treatment and in certain beauty and wellness products.

## How it helps

Activated charcoal may help with acute poisoning with pesticides such as organophosphates or paraquat [R, R].

However, it failed to reduce mortality in a non-placebo-controlled trial of 4632 patients with acute poisoning, 2338 of whom had ingested pesticides [R].

Activated charcoal may bind to pesticides in the gut, potentially reducing absorption.

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# Milk Thistle (Silymarin)

IMPACT 0 / 5

EVIDENCE 0 / 5

## How to implement

Take a 300 mg milk thistle (silymarin) supplement daily with water, preferably with a meal for better absorption.
Continue this regimen as advised by your healthcare provider.

TYPICAL STARTING DOSE

**300 mg**

## Description

Silymarin is a natural plant extract derived from the milk thistle plant (Silybum marianum). It has been traditionally used for its potential anti-inflammatory and liver-protective properties. Silymarin consists of several flavonolignans, including silybin, silydianin, and silychristin.

Milk thistle (*Silybum marianum*) is a purple flowering plant in the daisy family. Traditionally, it has been used for liver problems. Some people also eat the leaves in salads [R, R].

The extract of milk thistle is called *silymarin* [R, R, R].

People use milk thistle to help with [R, R, R]:

- Liver problems
- Blood sugar control
- Indigestion
- Skin problems

## How it helps

Silymarin, found in milk thistle, may support liver health and aid in the detoxification process of various compounds.

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## Air Purifier

IMPACT 0 / 5

EVIDENCE 0 / 5

## How to implement

Install an air purifier in your home, ideally in the rooms you spend the most time in, such as your bedroom and living room. Keep the air purifier on for at least 12 hours each day, or continuously if possible, to effectively reduce airborne contaminants. Regularly clean or replace the filters according to the manufacturer's instructions to maintain its efficiency.

## Description

Air purification is the process of cleaning the air around us. Using a high-quality air purifier with a HEPA filter helps remove harmful particles like dust, smoke, and bacteria. Having clean air to breathe can help boost your health by reducing allergies, asthma problems, and even certain infections.

## How it helps

Using air purifiers can help remove airborne pesticides and reduce the likelihood of respiratory and skin reactions.

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## N-acetylcysteine (NAC)

IMPACT 0 / 5

EVIDENCE 0 / 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

**1200 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

NAC can boost glutathione levels and support the body's ability to detoxify harmful substances.

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## Elimination Diet

IMPACT 0 / 5

EVIDENCE 0 / 5

### How to implement

Begin by removing foods you suspect might be causing adverse reactions for 2-3 weeks. These often include dairy, gluten, soy, nuts, eggs, corn, and processed sugars. After this period, reintroduce each food group one at a time every 3 days, while noting any symptoms that may reappear. This process helps identify food intolerances or sensitivities.

### Description

An elimination diet involves removing specific foods or food groups from the diet to identify and address potential food sensitivities or allergies. It can help alleviate symptoms such as digestive issues, skin problems, and allergic reactions by pinpointing trigger foods.

An elimination diet omits foods that can cause your body to have a reaction. Foods are removed for a period of time and then added back in. This helps figure out what foods are causing symptoms or making them worse [R].

*Salicylates* are compounds naturally found in many foods and drinks. These include wine, tea, beans, and tomatoes [R, R].

One form (*salicylic acid*) is found in aspirin. People who are sensitive to salicylates may have a reaction to aspirin and other NSAIDs [R, R].

### How it helps

An elimination diet helps pinpoint individual dietary triggers, including those containing pesticides, and can help manage pesticide sensitivity symptoms.

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## Avoid Processed High Phosphate Foods

IMPACT 0 / 5

EVIDENCE 0 / 5

### How to implement

To follow this recommendation, remove or significantly reduce processed foods such as sodas, packaged snacks, processed meats, and canned foods from your daily diet. Instead, opt for fresh fruits, vegetables, whole grains, and lean proteins. It's helpful to read nutrition labels, aiming to keep your daily phosphate intake below 700 mg if possible.

### Description

Processed foods often have high levels of phosphate. These include fast foods and soda. Extra phosphate can make bones brittle and damage your blood vessels over time. So, it's healthier to choose fresh foods over processed ones.

### How it helps

High phosphate foods often contain additives sourced from environments with pesticide use; therefore, avoiding these may reduce the pesticide burden.

# 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.