

# IL-10

## Biohacker Report

REPORT CATEGORY —



INFLAMMATION &  
AUTOIMMUNITY

Sample Client

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DISCLAIMER

This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

# Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg



# How this works

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



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



Your DNA is like an instruction manual — it contains a lot of information.  
You can think of it as a blueprint for your body.

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



We use artificial intelligence and machine learning to analyze all this information.  
We then summarize your results as a risk score or display it on a gauge.

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

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



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

You have 2 risk alleles

Your risk is also displayed as a percentile. This will tell you how your risks compare to our sample population. The lower your percentile number, the lower your risk. The "50th percentile" would be an average risk.

Similarly, the gauge tells you your relative risk score compared to our sample population, or it indicates a specific trait or haplotype you are more likely to have based on your genetic variants.

**When applicable, we also list top evidence-based recommendations that may help lower your risk. The focus is on recommendations that may be of benefit to you, based on your genetics.**

Our recommendations come in four categories: lifestyle, diet, supplements and drugs.  
The following icons tell you which category a recommendation falls into:



**Our team of scientists also ranks each recommendation.**  
**We rank based on impact and the strength of evidence in the medical literature.**

Impact shows how strongly a recommendation will affect your health in a certain area.  
Evidence is how much scientific support there is for the recommendation. Rankings are from 1 to 5 (low to high):



# Impact

Impact scores range from 1-5. These scores reflect how much of an effect each recommendation can have. An impact score of 5 predicts the biggest effect.

When a recommendation affects something we can measure, we use those measurements to assign the impact score. For example, a recommendation that decreases cholesterol by 20% will have a higher impact score than one that decreases it by 5%.

Some recommendations affect things that we cannot directly measure, like stress or mood. For these, the impact score is based on how well they work relative to other recommendations and standard treatments. The best ones get the highest scores.

If there is a lot of research that shows a recommendation works especially well for your genotype, the impact score gets increased.

## Recommendation Evidence

5 / 5

Recommendations that are considered effective and generally recommended by experts and medical bodies.

4 / 5

Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.

3 / 5

Recommendations that are considered possibly effective and have many studies supporting them

2 / 5

Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.

1 / 5

Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.

0 / 5

No evidence in humans.

## Genotype-specific Evidence

High-quality

Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).

Medium-quality

Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).

Low-quality

Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).

Indirect

A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).

In theory

A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

## Some things to keep in mind:

- Genetics doesn’t play a considerable role in a condition or a trait.
- There is not enough research available to estimate a genetic predisposition.
- There are technical limitations to estimating or presenting a genetic predisposition.
- The topic is sensitive, and a genetic predisposition should only be estimated and presented by a healthcare professional.

# Introduction

[Interleukin-10](#) (IL-10) is an anti-inflammatory cytokine — a small protein involved in the communication between cells [\[R\]](#).

IL-10 is mainly produced by [Th2 cells](#), a type of white blood cell. Hence, it belongs to the Th2-type immune response. Read [this post](#) for more information.

**The main function of IL-10 is suppressing immune responses.** This is useful to [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Avoid tissue damage during infections
- Create immune ‘tolerance’

IL-10 helps our bodies recognize and not attack the proteins in our body (self-tolerance) and those that we eat (oral tolerance) [\[R\]](#), [\[R\]](#).

**Low levels of IL-10** may increase inflammation during infections, which is associated with a faster recovery. However, low IL-10 may also contribute to inflammatory and autoimmune diseases [\[R\]](#), [\[R\]](#).

Higher levels of IL-10 are less of a concern, but they might increase susceptibility to chronic infections [\[R\]](#).

# Factors Influencing IL-10 Levels

**Interleukin-10 (IL-10)** is an anti-inflammatory cytokine — a small protein involved in the communication between cells. **The main function of IL-10 is suppressing immune responses.** IL-10 helps our bodies recognize and not attack the proteins in our body (self-tolerance) and those that we eat (oral tolerance) [R, R, R].

Up to **50%** of differences in people’s IL-10 levels may be due to genetics. Interestingly, women naturally have lower levels than men [R, R].

In addition to **smoking**, the following health conditions may also lead to **low IL-10 levels** [R, R]:

- Sleep apnea [R]
- Depression and anxiety [R, R, R, R]
- [Irritable bowel syndrome](#) (IBS) [R, R]
- Autoimmune disorders (e.g., rheumatoid arthritis, psoriasis, multiple sclerosis) [R, R]
- Type 2 diabetes [R]
- Lung and heart disease [R, R]

People with certain health conditions may have higher IL-10 levels. Genetically higher IL-10 levels may be linked to gastric cancer, while their role in other conditions is less clear [R].

In general, higher IL-10 levels tend to be better due to anti-inflammatory effects.



**Predisposed to typical IL-10 levels based on 28 genetic variants we looked at**

Your top variants that most likely impact your genetic predisposition:

| GENE     | SNP         | GENOTYPE |
|----------|-------------|----------|
| NNT      | rs140614282 | GG       |
| IL19     | rs3024505   | AG       |
| IL19     | rs1800896   | CT       |
| IKBIP    | rs1048911   | TT       |
| VEGFA    | rs4349809   | GT       |
| SHROOM3  | rs143141511 | GG       |
| /        | rs6937355   | TT       |
| ZNF516   | rs9951418   | CC       |
| PDIA5    | rs1530455   | TT       |
| /        | rs10493718  | CA       |
| SERPINE2 | rs282258    | TC       |
| BMP2     | rs6085948   | GA       |
| VEGFA    | rs3025021   | TC       |
| NFKBIE   | rs6458375   | CT       |
| REEP3    | rs7088799   | GT       |
| MACROD2  | rs465757    | AG       |
| HOMER1   | rs4345303   | CT       |
| VLDLR    | rs2375980   | GC       |
| IL10     | rs1800871   | GG       |
| /        | rs140244749 | AA       |
| NEBL     | rs45559637  | TT       |
| LYRM7    | rs148438889 | GG       |
| LYRM7    | rs191791704 | CC       |
| RAPGEF6  | rs147320771 | TT       |
| FNIP1    | rs115710902 | TT       |
| MEIKIN   | rs115393715 | GG       |
| IL19     | rs1800872   | GG       |
| H1-3     | rs182422732 | GG       |
| FBRSL1   | rs142425959 | CC       |
| MRPL37   | rs11206302  | TT       |
| MIA3     | rs3002131   | GC       |
| PREP     | rs10457128  | AA       |

| GENE   | SNP         | GENOTYPE |
|--------|-------------|----------|
| SORCS2 | rs111913416 | AA       |
| /      | rs2086656   | TT       |
| PCP4   | rs9981861   | TT       |

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

# Your Recommendations

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

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

| DOSAGE |                                                       | DOSAGE |                                              |
|--------|-------------------------------------------------------|--------|----------------------------------------------|
| 1      | Kefir                                                 | 2      | Lactobacillus Plantarum10 billion CFU        |
| 3      | Lactoferrin100 mg                                     | 4      | Saccharomyces Boulardii10 billion CFU        |
| 5      | Propolis                                              | 6      | Shiitake Mushroom500 mg                      |
| 7      | Brazil Nuts                                           | 8      | Barberry500 mg                               |
| 9      | Methylsulfonylmethane (MSM)1 g                        | 10     | Stevia                                       |
| 11     | Breathing Techniques10 minutes                        | 12     | L-Theanine100 mg                             |
| 13     | Grapes                                                | 14     | Lactobacillus Rhamnosus GG10 billion CFU     |
| 15     | B. Lactis Bi-07 and L. Acidophilus NCFM10 billion CFU | 16     | Lactobacillus Rhamnosus10 billion CFU        |
| 17     | Salvia Miltiorrhiza                                   | 18     | Bacillus Clausii                             |
| 19     | Astragalus500 mg                                      | 20     | Black Chokeberry                             |
| 21     | Horsetail300 mg                                       | 22     | Lactobacillus Acidophilus NCFM10 billion CFU |
| 23     | Alpha-Ketoglutarate (AKG)1 g                          | 24     | Sleep for 7+ Hours                           |
| 25     | Dietary Omega-3 Fatty Acids                           | 26     | Bifidobacterium Lactis Bi-0710 billion CFU   |

1



Kefir

IMPACT

3 / 5

EVIDENCE

2 / 5

## How to implement

Incorporate kefir into your daily diet by drinking approximately 1-2 cups (240-480 ml) per day. It can be consumed on its own, blended into smoothies, or used as a base for salad dressings or soups. Continuous consumption over several weeks is recommended to observe its health benefits.

## Description

Kefir is a fermented dairy product packed with probiotics, which can promote gut health and support digestion. Regular consumption of kefir is associated with improved digestive function and may enhance the immune system.

## How it helps

Kefir, a probiotic-rich beverage, helps boost the body's production of IL-10, an anti-inflammatory cytokine, thus reducing inflammation. This can support the immune system and potentially ease symptoms in conditions where IL-10 is deficient or its function is impaired.

Consuming kefir (2x/week) attenuated the increase in CRP observed over the course of a 15-week endurance training in a trial of 67 adults. In a non-placebo-controlled trial of 62 participants with metabolic syndrome, consuming kefir (180 mL/day for 12 weeks) decreased TNF-alpha, IL-6, IL-10, IFN-gamma, and homocysteine levels. Consuming kefir (400 mL/day for 4 weeks) also lowered CRP in a non-placebo-controlled trial of 45 IBD patients [\[R\]](#), [\[R\]](#), [\[R\]](#).

2



Lactobacillus Plantarum

IMPACT2 / 5

EVIDENCE3 / 5

## How to implement

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

TYPICAL STARTING DOSE  
10 billion CFU

## Description

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

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

- Diarrhea
- Skin appearance
- IBD
- High cholesterol

## How it helps

Lactobacillus Plantarum is a type of probiotic that may assist in stimulating the production of IL-10, a cytokine with anti-inflammatory characteristics. This may help in reducing inflammation and managing illnesses related to overactive immune responses.

A [meta-analysis of 18 trials](#) concluded that supplementation with *L. plantarum* **lowers IL-4 (by 0.48 pg/mL), TNF-alpha (by 2.34 pg/mL), and IFN-gamma (by 0.99 pg/mL) while increasing IL-10 (by 9.88 pg/mL)** [\[R\]](#).

3



Lactoferrin

IMPACT2 / 5

EVIDENCE2 / 5

## How to implement

Take 100-200 mg of lactoferrin supplement per day, preferably on an empty stomach to enhance its absorption. Continue this regimen daily for 8 to 12 weeks to observe beneficial effects.

TYPICAL STARTING DOSE

100 mg

## Description

Lactoferrin is a protein found in milk and other bodily fluids that has been studied for its potential health benefits, including immune system support and antimicrobial properties. It plays a role in promoting gut health.

Lactoferrin is a protein found in milk. It can bind to iron and travel all around the body [R].

Lactoferrin may help support [R, R]:

- Immunity
- Iron status

## How it helps

Lactoferrin, a protein in cow's milk and human milk, assists in your immune system's response to inflammation. Lack of IL-10 can result in excessive inflammation, so taking Lactoferrin may help maintain balance by modulating the immune response, possibly preventing inflammation-related disorders.

In a prospective, randomized, single-blind clinical trial with 172 healthy children, an oral supplement containing bovine lactoferrin (70 to 85 mg/day) did **not show any benefits in the prevention of enterovirus EV71 or rotavirus infection** or any impact on IFN-γ or IL-10 serum levels [R].

In contrast, in a randomized double-blinded placebo-controlled parallel-group comparative trial with healthy adults working at kindergartens and nursery schools, low lactoferrin (200 mg/day) or high lactoferrin (600 mg/day) for 12 weeks **lowered the prevalence of acute gastrointestinal symptoms related to gastrointestinal infections common in winter** [R].

In another randomized prospective study with 1,296 nursery school children, bovine lactoferrin-containing yogurt (100 mg/day, 5x/week for approximately 15 weeks) **reduced gastroenteritis** during the winter season. It **reduced absence from school due to vomiting (by ≥3 days in any week: 10/234 (4.3%) vs. 49/584 (8.4%))** [R].

In a study with 38 postmenopausal women, ribonuclease-enriched lactoferrin and calcium supplements improved bone health and cytokine levels. They reduced pro-inflammatory cytokines IL-6 and TNF-α (-44% and -10%) and increased anti-inflammatory IL-10 (140%). While initially elevated, receptor activators for NF-κB ligand (RANKL) and CRP were modestly reduced (-50%) with supplementation [R].

In a clinical trial with 46 patients undergoing thyroid surgery, lactoferrin supplementation (20 mg/day for 5 consecutive days before surgery) enhanced immune responsiveness. Lactoferrin-treated patients showed increased % neutrophil precursors, a higher lymphocyte proliferative response, and elevated LPS-induced TNF-alpha and IL-6 production compared to the control group, indicating improved immune function [R].

4



## Saccharomyces Boulardii

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Take Saccharomyces boulardii as an oral supplement, typically available in capsule or powder form, twice daily with a glass of water. Continue this regimen for 4-8 weeks, or as directed by a healthcare provider.

TYPICAL STARTING DOSE  
10 billion CFU

## Description

Saccharomyces boulardii is a beneficial yeast often used as a probiotic supplement to support digestive health and prevent or alleviate symptoms of diarrhea, including those caused by antibiotics or infections.

## How it helps

Saccharomyces Boulardii is a probiotic yeast that can aid in balancing your gut bacteria, hence optimizing the immune function. It could enhance the IL-10 production, an anti-inflammatory cytokine, thus reducing inflammation and potentially improving your condition.

5



Propolis

IMPACT1 / 5

EVIDENCE1 / 5

## How to implement

Take a propolis supplement in capsule or tablet form, typically ranging from 500mg to 1000mg per day. It's best to follow the dosage instructions on the product label or a healthcare provider's advice. Propolis can be taken continuously, but consult a healthcare provider for specific durations especially if it exceeds three months.

## Description

Propolis is a resinous substance collected by bees from tree buds and used to seal their hives. It has been traditionally used in natural medicine for its potential antimicrobial properties and as a source of antioxidants that may support oral and immune health.

Propolis is a waxy compound, also known as “bee glue.” Honeybees make it from plants and use it to build, repair, and protect their hives [\[R\]](#).

People use propolis to potentially help [\[R\]](#):

- Reduce the appearance of acne
- Maintain oral health
- Support the immune system

## How it helps

In a clinical study with asthma patients, the daily administration of an aqueous propolis extract as an adjuvant to therapy for 2 months resulted in a marked reduction in the frequency and severity of nocturnal attacks and improved lung function. Patients receiving propolis saw a significant increase in forced vital capacity (FVC), forced expiratory volume in the first second (FEV1), peak expiratory flow rate (PEFR), and forced expiratory flow rate between 25 and 75% of vital capacity (FEF25-75). The extract also reduced pro-inflammatory cytokines and increased anti-inflammatory IL-10, suggesting its potential as an asthma treatment adjuvant [\[R\]](#).

6



Shiitake Mushroom

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take shiitake mushroom in supplement form, typically ranging from 500 to 1,000 mg per day, divided into two or three doses. It can be consumed with or without food. Continue this regimen daily for at least one to two months to observe potential health benefits.

TYPICAL STARTING DOSE

500 mg

Description

Shiitake mushrooms are edible fungi native to east Asia. They contain compounds like lentinan, which may have immune-boosting properties.They are also rich in vitamins, minerals, and compounds like beta-glucans, which are believed to support immune health and overall well-being.

How it helps

In a non-placebo-controlled trial of 52 healthy volunteers, consuming shiitake mushroom (5-10 g/day) for 4 weeks increased IL-10 levels [R].

7



Brazil Nuts

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Consume 1-2 Brazil nuts daily to meet your selenium needs and potentially improve heart health and thyroid function. Do not exceed this amount to avoid selenium toxicity.

Description

Brazil nuts are a nutritious snack rich in selenium, a mineral essential for various bodily functions, including thyroid health and immune support.

**Brazil nuts** have an enormous amount of selenium along with other minerals like magnesium, phosphorus, and copper, and vitamins E and B1. A 1-ounce (6–8 nuts) serving provides 544 mcg of selenium or 989%DV.

How it helps

Eating Brazil Nuts boosts selenium intake, which can enhance your immune system by stimulating the production of IL-10; this helps reduce inflammation and repairs cellular damage in your body. However, moderation is key to avoid selenium toxicity.

In a non-placebo-controlled trial of 10 healthy volunteers, consuming a single dose of Brazil nuts (20-50 g) **lowered IL-6, TNF-alpha, IL-1, and IFN-gamma levels while increasing IL-10** [R].

8



Barberry

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a barberry supplement of 500-1000 mg daily, divided into two or three doses with meals for up to 12 weeks. Do not exceed the recommended dose without consulting a healthcare provider.

TYPICAL STARTING DOSE

500 mg

Description

Barberry is an herbal remedy used in traditional medicine for its potential to support digestive health and reduce inflammation. It contains compounds that may have antimicrobial and antioxidant properties.

How it helps

In a placebo-controlled trial of 80 women with active rheumatoid arthritis, supplementation with barberry (2 g/day) for 12 weeks increased IL-10 levels [\[R\]](#).

9



Methylsulfonylmethane (MSM)

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take 1 to 3 grams of Methylsulfonylmethane (MSM) per day, divided into three doses. This can be in the form of capsules or powder that is mixed with water. It is recommended to start with a lower dose to assess tolerance, then gradually increase to the desired dose over a period of 1 to 2 weeks.

TYPICAL STARTING DOSE

1 g

Description

MSM is a naturally occurring sulfur compound found in foods and used in dietary supplements. It has anti-inflammatory properties and may be used to support joint health and reduce exercise-related muscle soreness.

A molecule of MSM is broken down in the body into a sulfate (sulfur) group and two methyl groups.

The following may increase people’s needs for sulfur and methyl groups: physical activity, recovery from injuries, inflammation, infections/sickness, toxins, etc.

People also need more sulfur when taking hormones (DHEA, pregnenolone, etc.), drugs (Aspirin, Tylenol, NSAIDs, birth control, etc.) or supplements (flavonoids & polyphenols - resveratrol, quercetin, curcumin, etc.) that undergo sulfation.

How it helps

MSM supplementation (3 g/day for 4 weeks) may increase the levels of IL-10 after exercise. This suggests its role in dampening inflammatory response to exercise [\[R\]](#).

10



Stevia

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Stevia can be consumed as a sugar substitute in both hot and cold beverages, as well as in various recipes requiring sweetening. Aim to use stevia in moderation, adjusting the quantity based on personal sweetness preference and the specific stevia product's sweetness intensity compared to sugar. This adjustment often means starting with a half teaspoon of stevia powder or a few drops of liquid stevia as a starting point and adapting as necessary.

## Description

Stevia is a natural sweetener derived from the leaves of the *Stevia rebaudiana* plant. It is known for its zero-calorie sweetness and is used as a sugar substitute in various foods and beverages, making it a suitable option for individuals looking to reduce their sugar intake.

## How it helps

In a placebo-controlled trial of 138 overweight participants, drinking orange juice (330 mL) with stevia for 60 days increased IL-10 levels [R].

Stevia may help by reducing inflammation and improving the immune response. This has been observed to increase the production of IL-10.

11



Breathing Techniques

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Practice deep breathing exercises for 10 minutes daily, preferably in a quiet space where you won't be disturbed. Sit or lie down in a comfortable position, slowly inhale through your nose, allowing your chest and lower belly to rise, hold the breath for a moment, and then exhale slowly through your mouth or nose. This can be done at any time of day to reduce stress and improve focus.

TYPICAL STARTING DOSE

10 minutes

## Description

Breath awareness and specific breathing techniques, such as deep breathing or mindfulness-based practices, can help reduce stress, improve focus, and enhance overall mental well-being. These techniques are valuable tools for managing anxiety and promoting relaxation.

Most breathing techniques involve taking slow and even breaths. Their main goal is to prevent rapid breathing (**hyperventilation**) [\[R\]](#).

Breathing techniques tend to help with [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Stress
- Anxiety
- Sleep problems
- Asthma

One example is the **Buteyko breathing technique**. It's often used by people with asthma or other conditions that affect the lungs [\[R\]](#).

Another example is **yogic breathing**. [Yoga](#) is a practice that combines breathing techniques with exercise and meditation [\[R\]](#), [\[R\]](#).

## How it helps

In a randomized controlled trial involving healthy men, a training program with meditation, breathing techniques, and cold exposure reduced experimentally induced inflammation. Generalized outcome expectancy optimism was linked to changes in autonomic and immune responses [\[R\]](#).

12



L-Theanine

IMPACT1 / 5

EVIDENCE1 / 5

## How to implement

Take 100-400 mg of L-theanine supplement daily. It can be consumed at any time of the day, with or without food.

TYPICAL STARTING DOSE

100 mg

## Description

L-theanine is an amino acid found in tea leaves, known for its calming and relaxation-promoting effects. It is often used to reduce stress and anxiety and may contribute to improved focus and cognitive performance.

[L-theanine](#) is an amino acid found in black and [green tea](#) [\[R\]](#).

People take L-theanine as a supplement to [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Improve cognition
- Boost immunity
- Relieve anxiety and stress

## How it helps

L-Theanine can induce anti-inflammatory responses and neuroprotective effects which could be beneficial for IL-10, a condition involving inflammation. However, there's no specific research or evidence showing L-Theanine directly treats IL-10.

A double-blind study with 20 Polish Rowing Team members found that L-theanine extract (150 mg/day for 6 weeks) led to a post-exercise decrease in IL-10 concentration, resulting in higher IL-2 to IL-10 and IFN-γ to IL-10 ratios. It also reduced cytotoxic lymphocytes (CTLs) and altered Treg to NK and Treg to CTL ratios, suggesting a potential benefit for the Th1/Th2 balance in elite athletes [\[R\]](#).

13



Grapes

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Incorporate a serving of grapes, which is about 32 seedless grapes or approximately 1 cup, into your daily diet. You can eat them as a snack, add them to salads, or blend them into smoothies. Do this consistently for a period of at least 3 months to observe potential health benefits.

## Description

Grapes are a nutrient-dense fruit rich in vitamins, fiber, and antioxidants like resveratrol. Regular consumption of grapes is associated with potential benefits for heart health, skin health, and overall well-being.

## How it helps

According to one study, lyophilized grape powder (46g/day equivalent to 252 g fresh grapes for 4 weeks) may increase anti-inflammatory markers, such as plasma adiponectin and interleukin-10 [\[R\]](#).

14



Lactobacillus Rhamnosus GG

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

TYPICAL STARTING DOSE

10 billion CFU

## Description

Lactobacillus rhamnosus GG (LGG) is a probiotic that has been shown to have a number of health benefits, including reducing the risk of diarrhea, improving gut health, and boosting the immune system. LGG can be taken as a supplement or found in some yogurts and other fermented foods.

## How it helps

In a placebo-controlled trial of 10 atopic children, supplementation with *Lactobacillus rhamnosus* GG increased IL-10 levels [\[R\]](#).

15



**B. Lactis Bi-07 and L. Acidophilus NCFM**

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

TYPICAL STARTING DOSE

10 billion CFU

## Description

Bifidobacterium lactis Bi-07 and Lactobacillus acidophilus NCFM are both probiotics that have been shown to have a number of health benefits. They can help to improve gut health, boost the immune system, and reduce the risk of diarrhea.

## How it helps

The combination of *Bifidobacterium lactis* Bi-07 and *Lactobacillus acidophilus* NCFM (5×10^9 cfu each) taken for 30 days increased IL-10 levels while decreasing IFN-gamma and IL-8 [R].

16



**Lactobacillus Rhamnosus**

IMPACT

1 / 5

EVIDENCE

1 / 5

## How to implement

Take a probiotic supplement containing Lactobacillus rhamnosus. Typically, the suggested dose is 10 billion CFUs (colony-forming units) per day. This can be taken as a single daily dose or divided into two doses, morning and evening, with or without food. Continue this regimen for at least 4 weeks to observe benefits.

TYPICAL STARTING DOSE

10 billion CFU

## Description

Lactobacillus rhamnosus is a beneficial probiotic strain that can support digestive health and contribute to a balanced gut microbiome. It may help improve gut function, enhance nutrient absorption, and bolster the immune system, promoting overall well-being.

[Lactobacillus rhamnosus](#) is a [probiotic](#) bacterium, part of the normal gut microflora. Various foods may have added *L. rhamnosus*, including yogurt, cheese, and fermented legumes [R, R].

People take *L. rhamnosus* supplements to balance their immune system and help with infections, allergies, and dermatitis [R].

## How it helps

In a placebo-controlled trial of 10 atopic children, supplementation with *Lactobacillus rhamnosus* GG increased IL-10 levels [R].

17



Salvia Miltiorrhiza

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 200-600mg of Salvia miltiorrhiza extract in capsule or tablet form daily, divided into two or three doses. This should be taken with water, preferably 30 minutes before meals. Continue for a period of 8 to 24 weeks for noticeable effects.

Description

Salvia miltiorrhiza, also known as Danshen, is a traditional Chinese medicinal herb. It is primarily used for its potential cardiovascular benefits, including improving blood circulation and reducing the risk of heart-related conditions. It contains various compounds, including tanshinones and salvianolic acids.

How it helps

In a non-placebo-controlled trial of 306 patients with severe acute pancreatitis, supplementation with *Salvia miltiorrhiza* and somatostatin, both with and without ulinastatin, increased IL-10 levels while reducing the incidence of pancreatic sepsis, multiple organ dysfunction syndrome, and mortality [R].

18



Bacillus Clausii

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take Bacillus clausii as an oral probiotic supplement, usually found in liquid or capsule form. For adults and children, the typical dosage is one or two capsules (or one or two vials of liquid, if using that form) daily. The duration of use can vary; some may take it for a few weeks during or after antibiotic treatment, while others might use it for longer periods to support digestive health.

Description

Bacillus causii is a type of beneficial bacteria that can be found in probiotic supplements, potentially contributing to digestive health and a balanced gut microbiome.

How it helps

In a placebo-controlled trial of patients with IBD, supplementation with *B. clausii* UBBC-07 for 4 weeks increased *Firmicutes*, *Lactobacillus*, *Bifidobacterium*, and *Faecalibacterium* bacteria while decreasing *Bacteroidetes*. The treatment also increased IL-10 while decreasing IL-1β, TNF-α, IL-6, IL-17 and IL-23 [R].

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Astragalus

IMPACT

1 / 5

EVIDENCE

1 / 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

Astragalus boosts the immune system by increasing the production of IL-10, an anti-inflammatory cytokine. This can help reduce inflammation and promote healing in conditions that are characterized by excessive inflammation.

A [randomized controlled trial with 150 children with cough variant asthma \(CVA\)](#) found that Astragalus Granule (AG), auricular point sticking combined with aerosol inhalation, and with Budesonide suspension and Terbutaline Sulphate Solution, **reduced TNF-α, IL-4, eosinophil cell count (EOS), and IgE levels while improving the level of IL-10**, especially when combined [\[R\]](#).

A [randomized controlled trial with 30 people with undergoing heart valve replacement](#) found that astragalus may modulate cytokines to **reduce inflammation** in patients during the procedure by **increasing IL-10 levels and reducing TNF-alpha and IL-8 levels** [\[R\]](#).

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Black Chokeberry

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate black chokeberry (*Aronia melanocarpa*) in your diet by consuming 100-200 grams of fresh berries daily. If using a concentrated form like juice or extracts, follow the manufacturer's instructions, usually around 100 ml of juice or 500 mg of extract per day, for at least 8-10 weeks to observe potential health benefits.

Description

Black chokeberry is a fruit known for its high content of antioxidants and potential health benefits. It may support cardiovascular health and provide immune system support when incorporated into a balanced diet.

How it helps

Black chokeberry can increase levels of IL-10, an anti-inflammatory cytokine, in your body. This helps reduce harmful inflammation and can strengthen your immune system.

In a [placebo-controlled trial of 22 male football players](#), supplementation with lyophilized black chokeberry extract (6 g/day) for 90 days **improved performance at a 20-m shuttle run, reduced IL-6, and increased IL-10** [\[R\]](#).

21



Horsetail

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take horsetail as a supplement in capsule form, usually available in doses ranging from 300 to 500 mg. Consume it once or twice daily, with meals to minimize the risk of stomach upset. It's recommended to cycle the supplement, taking it for 4 weeks followed by a 1-week break to prevent possible side effects.

TYPICAL STARTING DOSE

300 mg

Description

Horsetail is an herb rich in silica, which is important for bone health and may contribute to improved hair, skin, and nail condition. It is sometimes used as a dietary supplement to support these aspects of overall well-being.

How it helps

In a placebo-controlled trial of 60 patients with rheumatoid arthritis, supplementation with a horsetail mixture lowered TNF-alpha while increasing IL-10 levels [\[R\]](#).

22



Lactobacillus Acidophilus NCFM

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

TYPICAL STARTING DOSE

10 billion CFU

## Description

[Lactobacillus acidophilus](#) is a [probiotic](#) bacterium that has been traditionally and widely used in the dairy industry to make yogurt [\[R\]](#).

More recently, *L. acidophilus* has been used as a probiotic. People take it to help with [\[R, R, R, R\]](#):

- High cholesterol
- Gut diseases
- Allergies
- Vaginal infections

*L. acidophilus* NCFM is a specific strain that may help relieve diarrhea, improve gut health, and boost the immune system. It can be taken as a supplement or found in some yogurts and other fermented foods.

## How it helps

The combination of *Bifidobacterium lactis* Bi-07 and *Lactobacillus acidophilus* NCFM (5×10^9 cfu each) taken for 30 days increased IL-10 levels while decreasing IFN-gamma and IL-8 [\[R\]](#).

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Alpha-Ketoglutarate (AKG)

IMPACT

0 / 5

EVIDENCE

0 / 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

AKG influences cellular metabolism and energy production, which are crucial in the inflammatory response. Additionally, its potential antioxidative properties can mitigate oxidative stress, a significant contributor to chronic inflammation.

A mouse study found that the calcium salt of AKG (Ca-AKG) increases lifespan by reducing the level of systemic inflammatory cytokines and inducing anti-inflammatory cytokine IL-10 [\[R\]](#).

24



Sleep for 7+ Hours

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

Ensure you allocate enough time in your schedule to achieve a minimum of 7 hours of sleep each night. This might involve going to bed earlier or adjusting your evening routine to promote relaxation and make it easier to fall asleep.

## Description

Optimizing sleep involves adopting healthy sleep habits and creating a sleep-conducive environment to ensure restorative and sufficient sleep duration. It supports cognitive function, mood stability, and overall physical health. Most experts recommend getting **at least 7 hours of good-quality sleep each night**.

[Sleep](#) supports your body and mind [\[R, R\]](#). More precisely, sleep helps:

- Support brain health [\[R, R\]](#)
- Maintain a healthy weight and appetite [\[R, R, R\]](#)
- Regulate blood pressure [\[R, R\]](#)
- Balance blood sugar [\[R, R\]](#)

Ways to sleep better include [\[R\]](#):

- Reducing your bright light exposure (screen time) in the evenings
- Sticking to a regular sleep schedule
- Avoiding hunger or large meals before bed
- Avoiding nicotine, caffeine, and alcohol before bed
- Maintaining a sleep area that’s cool, dark, and quiet

## How it helps

Adequate sleep is crucial for immune function and the production of anti-inflammatory cytokines, including IL-10.

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Dietary Omega-3 Fatty Acids

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

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

## Description

[Omega-3 fatty acids](#) are some of the healthiest fats we can eat. They help lower inflammation and protect the heart, brain, and eyes. Our bodies produce less omega-3s than we need for optimal health, so it's important to get enough through food or supplements [\[R\]](#), [\[R\]](#), [\[R\]](#).

There are three major types of omega-3s: ALA, EPA, and DHA. **EPA and DHA are vital for mental and heart health** [\[R\]](#), [\[R\]](#), [\[R\]](#).

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

- Salmon
- Tuna
- Herring
- Sardines

For optimal health, try to get at least **two servings of fatty fish per week**. Fish oil supplements are available for those who don't eat fish regularly [\[R\]](#).

## How it helps

Omega-3 fatty acids can help modulate the body's inflammatory process and support overall health.

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# Bifidobacterium Lactis Bi-07

IMPACT

0 / 5

EVIDENCE

0 / 5

## How to implement

TYPICAL STARTING DOSE

10 billion CFU

## Description

*Bifidobacterium animalis* is a [probiotic](#) bacterium that can be found in the healthy gut of most mammals, including humans. *B. lactis* was previously considered to be a separate species but was shown to be a subspecies of *B. animalis* [\[R\]](#), [\[R\]](#).

People mainly take *B. animalis* to support gut health [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

*B. lactis* Bi-07 is a strain that may help reduce the risk of diarrhea, improve gut health, and boost the immune system. It can be taken as a probiotic supplement or found in yogurts and fermented foods.

## How it helps

The combination of *Bifidobacterium lactis* Bi-07 and *Lactobacillus acidophilus* NCFM (5×10^9 cfu each) taken for 30 days increased IL-10 levels while decreasing IFN-gamma and IL-8 [\[R\]](#).

# 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.