

TNF

Biohacker Report

REPORT CATEGORY —



INFLAMMATION &
AUTOIMMUNITY

Sample Client

Report date: 15 January 2026

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DISCLAIMER

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

Personal information

NAME

Sample Client

SEX AT BIRTH

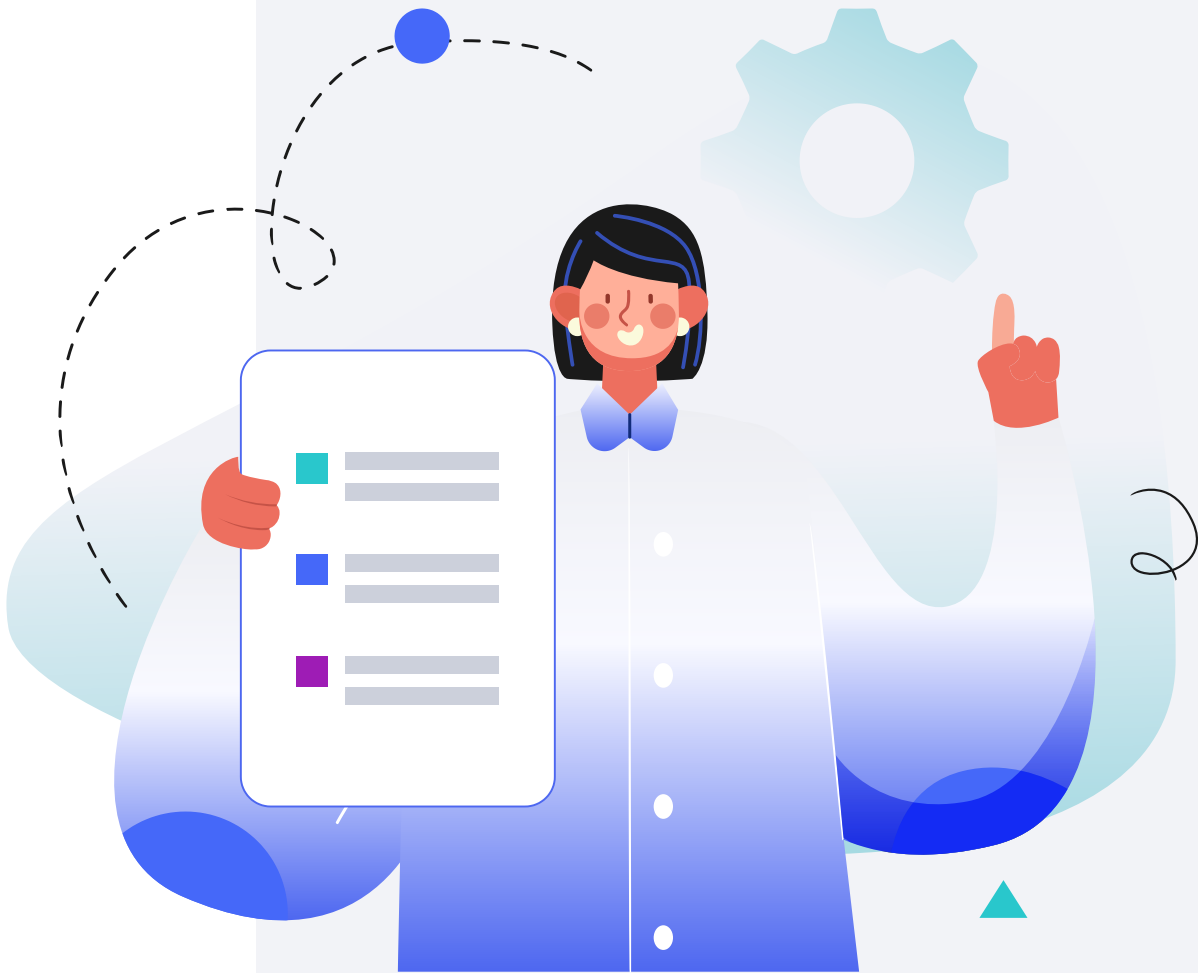
Male

HEIGHT

5ft 5" 165cm

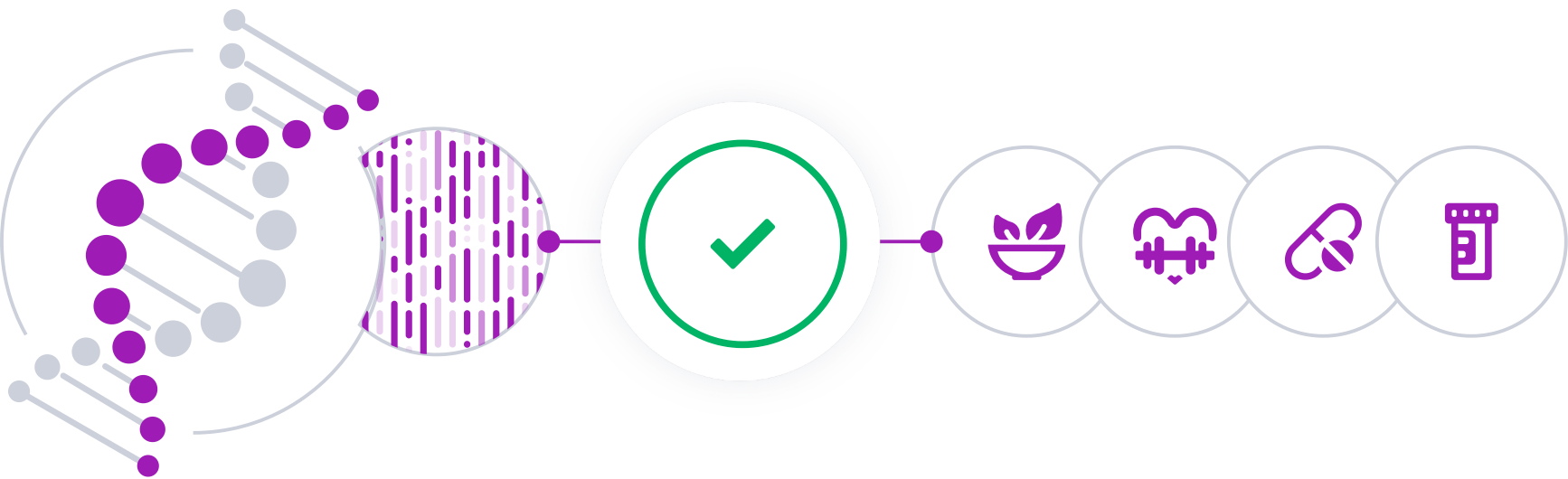
WEIGHT

137lb 62kg



How this works

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

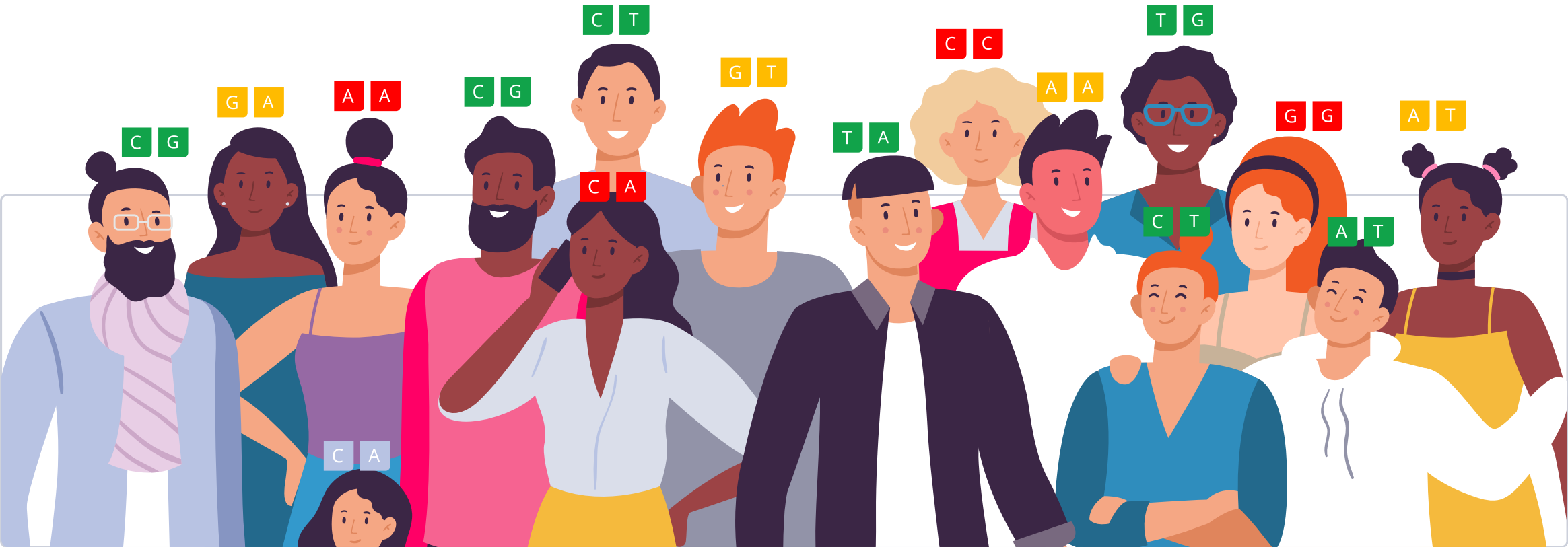


Similarly, our Trait Reports look at how your DNA influences your traits.



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

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



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

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

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



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

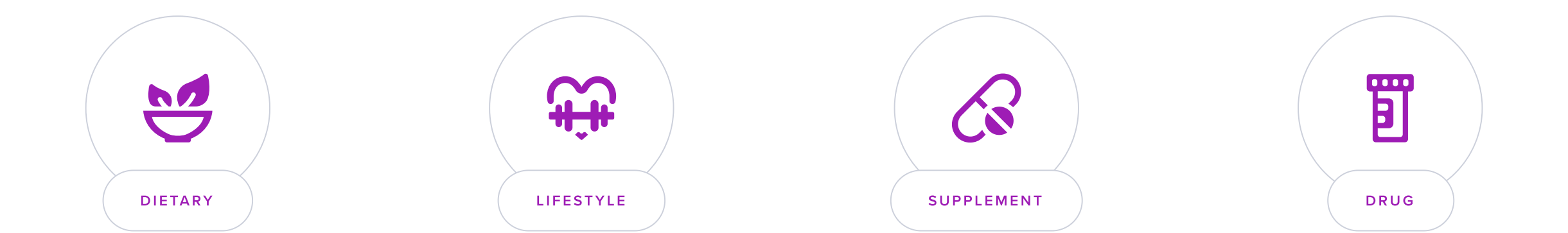
You have 2 risk alleles

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

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

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

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



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

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



Impact

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

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

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

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

Recommendation Evidence

- 5 / 5
- Recommendations that are considered effective and generally recommended by experts and medical bodies.
-
- 4 / 5
- Recommendations that are considered likely effective and that have multiple independent meta-analyses and a great many studies supporting them.
-
- 3 / 5
- Recommendations that are considered possibly effective and have many studies supporting them
-
- 2 / 5
- Recommendations that have insufficient evidence, with two or several clinical trials supporting them, or many studies but with ambiguous results.
-
- 1 / 5
- Recommendations that have insufficient evidence, with a single clinical trial, or with many studies most of which didn't find support for the recommendation.
-
- 0 / 5
- No evidence in humans.

Genotype-specific Evidence

- High-quality
- Direct evidence that a recommendation helps more in people with your gene variant (many clinical trials, a few large clinical trials, or a meta-analysis).
-
- Medium-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a few clinical trials or one large clinical trial).
-
- Low-quality
- Direct evidence that a recommendation helps more in people with your gene variant (a single clinical trial or more trials with inconsistent results).
-
- Indirect
- A recommendation may help more in people with your gene variant because it targets a specific gene or protein affected by your variant (e.g., MTHFR, dopamine).
-
- In theory
- A recommendation may help more in people with your gene variant because it targets a specific mechanism affected by your variant (e.g., inflammation, oxidative stress).

Some things to keep in mind:

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

Introduction

Tumor Necrosis Factor or TNF (previously known as TNF-alpha) is a special protein in our body that plays a big role in swelling and inflammation. When our body is fighting off infections or diseases, it makes TNF.

However, if our body makes too much of this protein, it can cause problems like joint pain, skin issues, or even make some diseases worse.

Knowing about TNF and how it works is helpful, especially if someone has diseases linked to inflammation. If you think you might have problems because of too much TNF, you should see a doctor. The doctor can help figure out the best way to manage or treat it.

Factors Influencing TNF Levels

About 50% of the differences in people’s TNF levels may be due to genetics [\[R\]](#).

Some people might naturally make more TNF because of their genes. This means that their family's history might make them more likely to have higher levels of this protein. These genes can also affect how some medicines work, especially those that target TNF.

Other factors influencing TNF levels include:

- **Infections:** TNF is rapidly produced in response to infections and is crucial for defense against many pathogens. However, uncontrolled production can lead to septic shock in severe infections.
- **Autoimmune Diseases:** Conditions like rheumatoid arthritis, Crohn's disease, and psoriasis show elevated TNF levels contributing to inflammation and tissue damage.
- **Obesity:** Fat tissue can produce TNF, contributing to the low-grade inflammation often seen in obese individuals.
- **Stress:** Acute and chronic stress can influence immune function and potentially increase TNF production.
- **Aging:** Low-grade inflammation associated with aging (sometimes called "inflammaging") may involve elevated TNF levels.
- **Diet:** Certain foods or dietary patterns can either increase or decrease TNF production, influencing inflammation.
- **Physical Activity:** Regular exercise can modulate TNF production, generally reducing its levels and associated inflammation.

Gentically higher TNF levels may be causally associated with an increased risk of:

- Heart health [\[R\]](#)
- Stroke [\[R\]](#)
- Schizophrenia [\[R\]](#)



Predisposed to typical TNF levels based on 5,001 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PHACTR4	rs188618085	CC
YTHDF2	rs185682149	CC
TMEM71	rs72725197	CC
CRISPLD2	rs118135095	GG
TRIB2	rs116434579	GG
TNF	rs1799724	TC
ROBO1	rs149420276	AG
GPX3	rs111332265	GA
/	rs7256693	CC
ATP10B	rs149126334	GG
ANO3	rs10834997	GG
TNF	rs1800629	GG
SPRY1	rs115669577	GG
ERICH1	rs138808635	CC
PSD3	rs79105320	GG
TNF	rs1799964	TT
/	rs72841564	TT
GTF2E1	rs10511404	GG
/	rs8121916	CC
RBM11	rs72490194	CC
GBA2	rs10814274	TT

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

However, they may also be associated with a lower risk of certain cancers. [\[R\]](#)

Genetically higher levels are likely not associated with:

- Alzheimer’s [\[R\]](#)
- Sleep apnea [\[R\]](#)
- Parkinson’s [\[R\]](#)
- Heart failure [\[R\]](#)

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	Aerobic Exercise (Cardio)	1 hour	2	Exercise At Least One Hour a Day	1 hour
3	Probiotics	30 billion CFU	4	Omega-3 (Fish Oil)	2000 mg
5	Garlic Supplement	200 mg	6	Ginger	500 mg
7	Black Seed Oil	2 tsp	8	Black Seed (Black Cumin)	1000 mg
9	Relaxation Techniques	30 minutes	10	Mediterranean Diet	
11	Kefir		12	Propolis	
13	Curcumin	500 mg	14	Lactobacillus Plantarum	10 billion CFU
15	N-acetylcysteine (NAC)	1200 mg	16	Alpha-Lipoic Acid	600 mg
17	Green Tea	400 mg	18	Tocotrienols	100 mg
19	Sleep for 7+ Hours		20	Transcutaneous Electrical Nerve Stimulation (TENS)	30 minutes
21	Quercetin	250 mg	22	Eat Fiber-Rich Foods	
23	Maintain Optimal Vitamin D Levels	1000 iu	24	Astragalus	500 mg
25	L-Carnitine	1 g	26	Brazil Nuts	
27	Horsetail	300 mg	28	Methylsulfonylmethane (MSM)	1 g
29	Resveratrol	150 mg	30	Lactoferrin	100 mg

31	Olive Leaf Extract	500 mg	32	Bifidobacterium Longum	10 billion CFU
33	Bifidobacterium Breve	10 billion CFU	34	L-Citrulline	3 g
35	Retinyl Palmitate		36	Jiaogulan (Gynostemma Pentaphyllum)	1350 mg
37	Laughter Therapy	30 minutes	38	Oats	
39	Papaya	500 mg	40	Infrared Light Therapy	
41	Bifidobacterium Lactis HN019	10 billion CFU	42	Bifidobacterium Infantis 35624	
43	Salvia Miltiorrhiza		44	Methylfolate	400 mcg
45	Vitamin E	200 iu	46	Limit Omega-6 Fatty Acids	
47	Cruciferous Vegetables		48	Reishi	
49	Leafy Green Vegetables		50	Mindfulness Meditation	30 minutes
51	Dietary Antioxidants		52	Dietary Polyphenols	
53	Limit Trans Fats		54	Limit Saturated Fat	
55	Fruits And Vegetables				

1



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

Regular aerobic exercise may lower TNF-alpha levels in multiple populations, including:

- Overweight and obese children and adolescents [\[R\]](#)
- Patients with type 2 diabetes or metabolic syndrome [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Older subjects [\[R\]](#)
- People with mild cognitive impairment or dementia [\[R\]](#)
- Breast cancer survivors [\[R\]](#)

Aerobic exercise may be more effective than other types of exercise.

2



Exercise At Least One Hour a Day

IMPACT

4 / 5

EVIDENCE

4 / 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

While TNF-alpha levels increase shortly after exercise (especially after vigorous physical activity), regular moderate exercise can decrease TNF-alpha levels in the long run [\[R, R, R, R\]](#).

Regular, moderate exercise may reduce inflammation in people of all ages. Both strength training and cardio may help. You can also combine both training types [\[R, R, R, R, R, R\]](#).

Exercise may also reduce inflammation linked to chronic health conditions. These include [\[R, R, R, R\]](#):

- High blood pressure
- Obesity
- Type 2 diabetes
- Heart disease

Note that inflammation may briefly increase after intense exercise, such as running or cycling [\[R, R, R\]](#).

3



Probiotics

IMPACT

4 / 5

EVIDENCE

4 / 5

How to implement

Take a probiotic supplement containing 10 billion or more live cultures once daily, preferably with a meal or as directed by the packaging or a healthcare provider.

TYPICAL STARTING DOSE
30 billion CFU

Description

Probiotics are live beneficial bacteria and yeasts that can support gut health and digestive function when consumed as supplements or found in fermented foods like yogurt and sauerkraut. They may be beneficial to gut health, immune function, blood sugar, and mood.

Probiotic bacteria are “good” bacteria found mainly in the large intestine. They support your body and mind by [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Maintaining gut health
- Supporting a healthy immune system
- Improving your mood
- Helping to maintain healthy blood sugar

Prebiotics are certain types of fiber and other complex carbs that serve as food for gut bacteria. **They support gut health by helping boost the activity and growth of “good” bacteria** [\[R\]](#), [\[R\]](#).

Prebiotics are also added to foods and supplements. Common prebiotic ingredients are [\[R\]](#), [\[R\]](#):

- Oligo-fructose
- Oligo-galactose
- [Inulin](#)

Mixtures of probiotics and prebiotics are known as **synbiotics** [\[R\]](#).

How it helps

Clinical research proposes that many types of [probiotics](#) may significantly reduce proinflammatory cytokines like TNF-alpha [\[R\]](#), [\[R\]](#).

Probiotics may reduce inflammation by supporting “good” gut bacteria. The types of probiotics studied include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- [Lactobacillus casei](#)
- [L. acidophilus](#)
- [L. rhamnosus](#)
- [L. salivarius](#)
- [Bifidobacterium animalis](#)
- [B. longum](#)

They may also help when used with prebiotics (food for probiotic bacteria) [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Probiotics may also reduce inflammation linked to chronic health conditions [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

4



Omega-3 (Fish Oil)

IMPACT

3 / 5

EVIDENCE

4 / 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

2000 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

[Omega-3](#) fatty acids (EPA and DHA) have potent anti-inflammatory effects. They can suppress a range of inflammatory cytokines, including TNF-alpha [\[R\]](#), [\[R\]](#), [\[R\]](#).

Supplementation with **omega-3s from fish (1.7-4.2 g/day for 6-24 weeks)** may help reduce low-grade inflammation [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Omega-3s may also reduce inflammation linked to chronic health conditions [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

Please note: Fish oil can interact with blood thinners (like aspirin, Plavix, and Coumadin). Consult your doctor before taking fish oil [\[R\]](#).

5



Garlic Supplement

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Take a garlic supplement, such as a garlic extract or aged garlic supplement, in a dosage of 600-1,200 mg per day, divided into separate doses. This should be taken with meals to minimize digestive issues. Continue daily for at least 8-12 weeks to evaluate its effects on health markers like blood pressure or cholesterol.

TYPICAL STARTING DOSE

200 mg

Description

Garlic is a pungent herb known for its potential health benefits, including cardiovascular support and immune system enhancement. It contains bioactive compounds that may help reduce the risk of chronic diseases and support overall well-being.

[Garlic](#) is a delicious aromatic herb that adds flavor to your food. But did you know that garlic has been a part of traditional medicine for thousands of years? **From ancient Egypt and Rome to China, people have praised garlic for its many health benefits.** Today, we can trace many of those benefits to sulfur-rich compounds found in garlic. People take garlic to help control their blood pressure and cholesterol [\[R\]](#).

Please note: *Garlic can interact with blood thinners (like aspirin, Plavix, Coumadin). If you are on blood thinners, consult your doctor before supplementing with garlic [\[R\]](#).*

How it helps

A meta-analysis of 16 clinical trials found that garlic (taken as a supplement) reduced the blood levels of TNF-alpha and other cytokines. In a small trial on 22 healthy volunteers, eating a fried tomato sauce with onion and garlic lowered this and other inflammatory markers. The authors attributed the effects not only to tomato’s lycopene, but also to the other ingredients of the sauce [\[R, R\]](#).

Garlic supplements may reduce inflammation [\[R, R, R\]](#).

Please note: *Garlic can interact with blood thinners (like aspirin, Plavix, Coumadin). If you are on blood thinners, consult your doctor before supplementing with garlic [\[R\]](#).*

6



Ginger

IMPACT3 / 5

EVIDENCE3 / 5

How to implement

Take a 500 mg ginger supplement daily, preferably with a meal to enhance absorption and minimize potential stomach discomfort.

TYPICAL STARTING DOSE

500 mg

Description

Ginger is a versatile spice known for its potential anti-inflammatory and digestive benefits. It may help alleviate nausea, reduce muscle soreness, and support gastrointestinal comfort when consumed as part of a balanced diet.

[Ginger root](#) is a cooking spice and a traditional remedy. People mostly use it to relieve [\[R\]](#):

- Nausea
- Menstrual cramps
- Joint pain

How it helps

A meta-analysis of 16 trials and 1010 participants found that ginger supplementation significantly lowers TNF-alpha but not IL-6 levels [\[R\]](#).

Another meta-analysis (5 trials) concluded that supplementation with ginger lowers TNF-alpha (by 2.13 pg/mL) and IL-6 (by 0.61 pg/mL) in type 2 diabetes patients [\[R\]](#).

7



Black Seed Oil

IMPACT

3 / 5

EVIDENCE

3 / 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

2 tsp

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

Five meta-analyses (the largest one with 50 trials) concluded that supplementation with black seed lowers CRP (by 0.55-0.98 mg/L), TNF-alpha, and IL-6 (by 0.25 pg/mL) levels [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

8



Black Seed (Black Cumin)

IMPACT

3 / 5

EVIDENCE

3 / 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

Five meta-analyses (the largest one with 50 trials) concluded that supplementation with black seed lowers CRP (by 0.55-0.98 mg/L), TNF-alpha, and IL-6 (by 0.25 pg/mL) levels [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

9



Relaxation Techniques

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Incorporate relaxation techniques such as deep breathing exercises, meditation, or yoga into your daily routine. Spend at least 15-30 minutes each day practicing one of these techniques, preferably in a quiet, comfortable space without interruptions.

TYPICAL STARTING DOSE

30 minutes

Description

Relaxation techniques encompass various methods like deep breathing, yoga, meditation, and progressive muscle relaxation, aimed at reducing stress and promoting mental and physical relaxation. Practicing these techniques regularly can help manage stress, improve mental clarity, and enhance overall emotional well-being.

We all get stressed from time to time.

[Stress](#) can help you deal with a challenge or avoid danger. However, **it’s not healthy to be stressed for a long time** [\[R\]](#), [\[R\]](#).

Relaxation techniques such as [yoga](#) and [meditation](#) can relieve stress in different ways. Most of them focus on breathing and help you get rid of negative thoughts and emotions [\[R\]](#).

People use relaxation techniques to improve conditions like [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Anxiety
- Depression
- Chronic pain

Progressive muscle relaxation is another relaxation technique. In this technique, you focus on tensing and relaxing different parts of your body. It is common to start with the toes and slowly work your way up to the neck and head [\[R\]](#), [\[R\]](#).

Autogenic training is a relaxation technique that a person may carry out on their own. It uses exercises that take the mind’s attention to bodily sensations such as warmth and heaviness [\[R\]](#), [\[R\]](#).

How it helps

Psychological [stress](#) is associated with higher TNF gene expression and TNF-alpha blood levels [\[R\]](#), [\[R\]](#), [\[R\]](#).

Causes of stress-related inflammation include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Work-related problems
- Relationship problems
- PTSD

For some people, relaxation techniques may help. They include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Positive engagement coping
- Mindfulness
- Yoga
- Tai chi
- Qi gong

10



Mediterranean Diet

IMPACT3 / 5

EVIDENCE3 / 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

Children and adolescents who eat a Mediterranean diet may have lower levels of TNF-alpha and other inflammatory markers [\[R\]](#).

Adopting this diet for 4 months may also reduce inflammatory markers (including TNF-alpha) in overweight and obese adults [\[R\]](#).

11



Kefir

IMPACT

3 / 5

EVIDENCE

1 / 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

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 [\[R\]](#).

12



Propolis

IMPACT

2 / 5

EVIDENCE

3 / 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

Propolis is popular for its potential anti-inflammatory effects. Two meta-analyses have confirmed the ability of propolis to reduce CRP, TNF, and IL-6 levels [\[R\]](#), [\[R\]](#).

13



Curcumin

IMPACT2 / 5

EVIDENCE3 / 5

How to implement

Take a 500 mg curcumin supplement daily with food. To enhance absorption, take it with a meal that contains fats or oils since curcumin is fat-soluble.

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](#) is a potent anti-inflammatory that may help suppress TNF-alpha [\[R\]](#), [\[R\]](#).

Curcumin (1-2.4 g/day for 4-8 weeks) may reduce this and other inflammatory markers. The effects may be stronger in people with a higher degree of inflammation. However, some studies found no benefits [\[R\]](#), [\[R\]](#), [\[R\]](#).

Note that curcumin is hard to absorb. Look for supplements with *bioavailable* curcumin, which is easier to absorb. Combining it with [piperine](#) (a compound in black pepper) may also help [\[R\]](#), [\[R\]](#).

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

14



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

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

15



N-acetylcysteine (NAC)

IMPACT2 / 5

EVIDENCE3 / 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

A meta-analysis of 28 studies concluded that supplementation with NAC lowers homocysteine (by 1.45 pg/mL), IL-8 (by 2.56 pg/mL), and MDA (by 1.44 μmol/L), and TNF-α and IL-6 after sensitivity analysis [\[R\]](#).

16



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

600 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

Several meta-analyses showed that ALA supplementation significantly reduced CRP, IL-6, and TNF-α concentrations [\[R, R\]](#).

17



Green Tea

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Consume 400 mg of green tea extract daily. This can be taken in the form of capsules or tablets available that specify the amount of green tea extract. Ensure the supplement is taken according to the product's specific instructions, usually once a day with water.

TYPICAL STARTING DOSE

400 mg

Description

Tea is a beverage made by steeping the leaves of the *Camellia sinensis* plant in hot water. It comes in various types, including black, green, white, and herbal teas, and is known for its diverse flavors and potential health benefits due to antioxidants and other bioactive compounds.

[Green](#) and black tea are made from the same plant (*Camellia sinensis*). This plant is processed in different ways to make each type of tea [\[R\]](#) [\[R\]](#).

Tea contains antioxidants called **flavonoids**, which may help prevent [\[R\]](#) [\[R\]](#) [\[R\]](#) [\[R\]](#):

- Heart disease
- Cancer
- Diabetes

How it helps

Green tea is well known for its ability to reduce inflammation. Multiple studies have observed significant reductions in levels of TNF after treatment with or consumption of EGCG [\[R\]](#) [\[R\]](#) [\[R\]](#).

Please note: polyphenols from green tea may bind to iron and form insoluble complexes, which reduces iron absorption in the gut. If you have anemia, consult your healthcare provider before using green tea [\[R\]](#).

18



Tocotrienols

IMPACT

2 / 5

EVIDENCE

2 / 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 110 patients with type 2 diabetes, supplementation with δ -tocotrienol (250 mg/day for 24 weeks) lowered TNF-alpha levels. A higher dose (300 mg, 2x/day for 24 weeks) also lowered TNF-alpha in a placebo-controlled trial of 71 patients with NAFLD. In a randomized controlled trial of 82 patients with metabolic syndrome, δ -tocotrienol in combination with resveratrol (400 mg capsule, δ -tocotrienol 250 mg; resveratrol 150 mg, 2x/day for 24 weeks) lowered TNF-alpha levels by 2.19 pg/mL [\[R\]](#), [\[R\]](#), [\[R\]](#).

19



Sleep for 7+ Hours

IMPACT

2 / 5

EVIDENCE

2 / 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

Sleep-related problems may increase inflammation, including TNF-alpha levels. These include [\[R, R, R, R, R, R\]](#):

- Disturbed sleep
- Sleep apnea (interrupted breathing during sleep)
- Getting too little or too much sleep

20

Transcutaneous Electrical Nerve Stimulation (TENS)

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Apply TENS unit electrode pads around the area in pain; begin with the device set to a low setting and gradually increase intensity to a comfortable level. Use the device for 15-30 minutes per session for pain relief, and it can be used multiple times a day as needed.

TYPICAL STARTING DOSE

30 minutes

Description

TENS is a therapy that uses low-level electrical currents to relieve pain by stimulating the nerves. It's commonly used as a non-invasive method to manage various types of pain, such as musculoskeletal pain or chronic pain conditions.

How it helps

TENS may lower TNF-alpha levels after surgery [\[R\]](#).

21



Quercetin

IMPACT

2 / 5

EVIDENCE

2 / 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

250 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

A meta-analysis of 18 studies found that quercetin consumption lowered TNF-alpha levels [\[R\]](#).

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

22



Eat Fiber-Rich Foods

IMPACT2 / 5

EVIDENCE2 / 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

Eating food high in fiber may help reduce inflammation, including TNF-alpha levels [\[R, R\]](#).

Whole grains are a good source of fiber. However, studies disagree on whether eating more whole grains is enough to lower inflammation [\[R, R, R, R\]](#).

23



Maintain Optimal Vitamin D Levels

IMPACT1 / 5

EVIDENCE3 / 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

Supplementation with vitamin D may lower TNF-alpha levels in both healthy people and those with poor glycemic control or cancer [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

However, it may not affect TNF-alpha levels in overweight/obese participants or those with CKD [\[R\]](#), [\[R\]](#).

Please note: *Experts recommend getting 600-800 IU of vitamin D per day. Medical bodies recommend against taking more than 4,000 IU per day* [\[R\]](#).

24



Astragalus

IMPACT1 / 5

EVIDENCE2 / 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

In a systematic review and meta-analysis of 19 trials involving people with viral myocarditis patients, all of which were conducted in China, Astragalus injection decreased the levels of pro-inflammatory TNF-α, IL-6 , IL-17 , IL-8 , IL-1, CRP, and IFN-γ , and increased the total effective rate of treatment [\[R\]](#).

A randomized controlled trial of 30 people 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 [\[R\]](#).

25



L-Carnitine

IMPACT1 / 5

EVIDENCE2 / 5

How to implement

Take 500 mg of L-carnitine supplement daily with a glass of water, preferably with a meal to enhance absorption.

TYPICAL STARTING DOSE

1 g

Description

L-carnitine is an amino acid-like compound that plays a role in energy metabolism and helps prevent toxic substances from building up in cells. It is often used in dietary supplements for its potential to support muscle recovery, reduce fatigue, and enhance athletic performance.

[L-carnitine](#) is a compound that helps you burn fat. It also prevents toxic substances from building up in cells [\[R\]](#).

Your body can usually make enough carnitine to meet its needs. You can also get it from **meat and dairy products** [\[R\]](#).

People use L-carnitine for [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Heart problems
- Overactive thyroid
- Fertility problems
- Blood sugar control
- Weight control

How it helps

L-carnitine (1-2 g/day for at least 12 weeks) may reduce inflammatory markers such as TNF-alpha [\[R\]](#), [\[R\]](#).

26



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

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 [\[R\]](#).

27



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 [\[R\]](#).

28



Methylsulfonylmethane (MSM)

IMPACT

1 / 5

EVIDENCE

1 / 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 TNF-α after exercise. This suggests its role in dampening inflammatory response to exercise [\[R\]](#).

29



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 2 placebo-controlled trials of 106 patients with active mild to moderate ulcerative colitis, supplementation with resveratrol (500 mg/day) for 6 weeks decreased IBD and clinical colitis scores, TNF-alpha (by 19.70 pg/mL), CRP (by 4764.25 ng/mL), and MDA, while increasing SOD and quality of life [\[R, R\]](#).

30



Lactoferrin

IMPACT

1 / 5

EVIDENCE

1 / 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

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 another trial of 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].

31



Olive Leaf Extract

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500-1000 mg of olive leaf extract daily, ideally in divided doses with meals. This regimen should be followed for at least 8 weeks to assess its effects on your health.

TYPICAL STARTING DOSE
500 mg

Description

Olive leaf extract is derived from the leaves of the olive tree and contains bioactive compounds such as oleuropein. It is believed to have various health benefits, including antioxidant and anti-inflammatory properties that may contribute to improved immune function and overall well-being.

How it helps

In a placebo-controlled trial of 60 hypertensive patients, supplementation with olive leaf extract for 12 weeks lowered IL-6, IL-8, and TNF-alpha levels. Olive leaf extract also lowered TNF-alpha in a placebo-controlled trial of 25 patients undergoing intensive chemotherapy [R, R].

32



Bifidobacterium Longum

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a Bifidobacterium longum supplement daily, with a typical dosage around 10 billion colony-forming units (CFUs). It can be consumed any time of day, but taking it with a meal might improve its absorption and effectiveness. Continue this regimen for at least 4 weeks to assess its benefits on digestive health.

TYPICAL STARTING DOSE
10 billion CFU

Description

Bifidobacterium longum is a beneficial probiotic strain known for its potential to support digestive health and boost the immune system.

[Bifidobacterium longum](#) is a [probiotic](#) bacterium naturally present in the human gastrointestinal tract. Its subspecies *B. longum subsp. infantis* is one of the earliest bacteria to colonize the infant gut [R].

People take *B. longum* to enhance immunity against infections and support gut health [R, R, R].

How it helps

A total of 66 NASH patients were randomly and equally divided into two groups receiving *Bifidobacterium longum* with FOS and lifestyle modification (i.e., diet and exercise) versus lifestyle modification alone in a study. Including *Bifidobacterium longum* in the intervention significantly reduced TNF, CRP, and AST levels, insulin resistance, and fatty liver [R].

33



Bifidobacterium Breve

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a Bifidobacterium breve supplement according to the product's specific instructions, usually 1-2 capsules daily with water, ideally before meals for better absorption. This regimen should be followed for at least 2-4 weeks to start observing benefits.

TYPICAL STARTING DOSE
10 billion CFU

Description

Bifidobacterium breve is another probiotic strain that can contribute to digestive health and support a balanced gut microbiome. People use *B. breve* as a supplement to improve skin health and combat allergies and infection.

[Bifidobacterium breve](#) is a probiotic species found in human breast milk and the gastrointestinal tracts of infant and adult humans. As an individual ages, the total population of B. breve within their gut decreases [\[R\]](#).

People use *B. breve* as a supplement to improve skin health and combat allergies and infections [\[R, R, R\]](#).

How it helps

In a placebo-controlled trial of 49 children with celiac disease and 18 healthy controls, supplementation with *B. breve* BR03 and B632 (2×10^9 cfu/day) for 3 months decreased TNF-alpha production and restored a healthy microbiome [\[R, R\]](#).

34



L-Citrulline

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 1.5 to 5 grams of L-citrulline supplements per day, orally, with or without food. This dosage can be taken all at once or divided into two to three smaller doses throughout the day. It's generally recommended to start at the lower end of the dosage range and adjust based on your body's response.

TYPICAL STARTING DOSE

3 g

Description

L-citrulline is an amino acid that may help improve blood flow and reduce muscle soreness, making it a popular supplement for athletes and individuals with certain cardiovascular conditions. Its potential to enhance nitric oxide production supports vascular health and overall circulation.

[Citrulline](#) is an amino acid (protein building block). Citrulline can be found in foods like [R](#), [R](#), [R](#), [R](#), [R](#):

- Watermelon
- Pumpkins
- Cucumber
- Bitter melon

The body uses L-citrulline to produce nitric oxide, a compound that helps widen blood vessels. It is important for heart and sexual health [R](#), [R](#), [R](#).

L-citrulline is commonly used as supplement to support [R](#):

- Blood vessel health
- Muscle health
- Metabolic health
- Sexual health

How it helps

Supplementation with citrulline (2-3 g/day for 2-3 months) lowered TNF-alpha levels in 2 placebo-controlled trials of 54 patients with type 2 diabetes and 50 patients with NAFLD [R](#), [R](#).

In a placebo-controlled trial of 50 patients with NAFLD, supplementation with citrulline (2 g/day) for 3 months lowered CRP, TNF-alpha, ALT, and liver steatosis [R](#).

35



Retinyl Palmitate

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take retinyl palmitate as a dietary supplement, usually found in capsule or liquid form. For general health and to support Vitamin A levels, adults can take 2500 to 5000 IU daily with a meal that contains fat (for better absorption). Do not exceed the recommended dose without medical advice, especially if pregnant or planning to become pregnant.

Description

Retinyl palmitate is a fat-soluble form of vitamin A that is essential for good vision, skin, and immune function. It has also been shown to have some anticancer properties.

How it helps

A systematic review and meta-analysis of 13 randomized clinical trials found that 44 weeks of supplementation with 50,000 IU/day retinyl palmitate lowered TNF-alpha in people with chronic hepatitis B [\[R\]](#).

36



Jiaogulan (Gynostemma Pentaphyllum)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a capsule of jiaogulan (gynostemma pentaphyllum) containing 450 mg to 500 mg, three times a day with meals. Continue this routine daily for best results.

TYPICAL STARTING DOSE

1350 mg

Description

Jiaogulan, often referred to as the "immortality herb," is an herb used in traditional Chinese medicine for its potential adaptogenic and antioxidant properties. Some research suggests it may support overall well-being and longevity, but more studies are needed to confirm these effects.

[Gynostemma](#) (*Gynostemma pentaphyllum*), also called jiaogulan, is a climbing vine native to Southeast Asia. It is used in traditional Chinese medicine for [\[R\]](#):

- High cholesterol
- Diabetes

People call it the "poor man's [ginseng](#)" because it may have similar benefits but cost less than Panax (Asian) ginseng [\[R\]](#), [\[R\]](#).

How it helps

In a placebo-controlled trial of 117 overweight participants, supplementation with *Gynostemma pentaphyllum* (450 mg/day) for 16 weeks lowered TNF-alpha levels [\[R\]](#).

37

Laughter Therapy

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Dedicate at least 15-30 minutes a day to watch, listen to, or participate in activities that make you laugh, such as watching a comedy show, attending a stand-up comedy event, or engaging in laughter yoga sessions. Consistently incorporate these laughter-inducing activities into your daily routine for an ongoing period to harness the health benefits of laughter.

TYPICAL STARTING DOSE

30 minutes

Description

Laughter therapy has been shown to improve cardiovascular health, reduce stress, and boost the immune system. It can also help to improve mood, relieve pain, and increase social bonding.

How it helps

In a non-placebo-controlled trial of 60 obese women, receiving 12 laughter therapy sessions over 6 weeks reduced perceived stress, psychological stress response, fasting blood sugar, IL-6, and TNF-alpha [R].

38

Oats

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate oats into your diet daily by having them for breakfast as oatmeal, or adding them to smoothies, baking recipes, or overnight oats. Aim for at least a half-cup (40 grams) of dry oats to reap the health benefits.

Description

Oats are a whole grain known for their high fiber content and nutritional value, like zinc, iron, and manganese. Including oats in one's diet can promote heart health, stabilize blood sugar levels, and provide sustained energy.

Oats are a good source for manganese, zinc, iron, magnesium, and vitamins B1 and B5. A ½ cup serving provides 0.7 mg of manganese or 30%DV.

How it helps

In a non-placebo-controlled trial of 24 hypercholesterolemic adults, consuming oats porridge for 4 weeks decreased CRP (by 0.6 mg/L), IL-6 (by 26.9 pg/mL), IL-8 (by 56.3 pg/mL), and TNF-alpha (by 9.7 pg/mL) levels [R].

39



Papaya

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 500 mg of papaya extract daily for at least one month to observe potential health benefits. If using powdered form, it can be mixed with water or juice for easier consumption.

TYPICAL STARTING DOSE

500 mg

Description

Papaya is a tropical fruit native to Central America and Mexico that is rich in vitamins A and C, folate, and dietary fiber. It has a long history in traditional medicines as a digestive aid and promoting skin health. Papaya's extract, papain, is used as a dietary supplement for digestive support.

Papaya is a tropical orange fruit. It originates from Central America, but today it’s most widely grown in India.

People enjoy the great taste of papaya. It’s also rich in healthy nutrients that may support the immune system.

How it helps

In 2 non-placebo-controlled trials of 82 patients with HCV-related liver cirrhosis, consuming a fermented papaya preparation (6-9 g/day) for 6 months reduced TNF-alpha production and 8-OHdG levels [\[R, R\]](#).

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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 small trial of 37 arthritis (ankylosing spondylitis) patients, infrared pulsed laser devices (low level laser therapy at 810 nm) reduced inflammatory cytokines (TNF, IL-1, and IL-2). The patients had improvement in function and pain after a few months [\[R\]](#).

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Bifidobacterium Lactis HN019

IMPACT

1 / 5

EVIDENCE

1 / 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 HN019 is a strain known for its resilience to stomach acid and bile, which allows it to survive the harsh conditions of the gastrointestinal tract and colonize the gut effectively. It may help improve gastrointestinal function, alleviate symptoms of irritable bowel syndrome, enhance immune response, and reduce the risk of certain infections.

How it helps

In a placebo-controlled trial of 51 patients with metabolic syndrome, consuming 80 mL/day milk fermented with *Bifidobacterium lactis* HN019 (2.72 x 10^10 cfu/day) for 45 days reduced BMI, total cholesterol, LDL cholesterol, TNF-alpha, and IL-6 [\[R\]](#).

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Bifidobacterium Infantis 35624

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Bifidobacterium infantis 35624 is available in several forms, including capsules, tablets, powder, and liquid. The recommended dosage may vary depending on the specific product and individual health needs, but a common dosage range is between 1 to 10 billion CFU/day. Probiotic supplements should generally be taken with or after meals to improve stability and absorption. If taking the powder form, it can be mixed with water or food. For specific health concerns, such as gut issues or IBS, dosage recommendations may differ, so professional guidance is recommended.

Description

Bifidobacterium infantis 35624 is a specific strain of beneficial bacteria that is naturally found in the human gut, particularly in infants.

This strain is known for its ability to support digestive health and immune function. Research suggests that *B. infantis* 35624 can help maintain a healthy balance of gut microbiota, alleviate symptoms of irritable bowel syndrome, reduce inflammation, and improve overall gut function. It has also been studied for its potential to promote the development of the gut microbiome in infants, particularly in those born via C-section or who are not breastfed.

As a probiotic supplement, *B. infantis* 35624 is commonly used to support digestive health and improve symptoms of gut-related disorders.

How it helps

In 3 small placebo-controlled trials of 96 patients with ulcerative colitis, chronic fatigue syndrome, or psoriasis, supplementation with *B. infantis* 35624 for 6–8 weeks lowered CRP levels in all three inflammatory conditions, TNF-alpha in people with chronic fatigue syndrome and psoriasis, and IL-6 in those with chronic fatigue syndrome and ulcerative colitis [R].

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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 36 patients with severe acute pancreatitis, supplementation with *Salvia miltiorrhiza* for 7 days reduced serum levels of IL-6, IL-8, and TNF-alpha. The combination of *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 in a non-placebo-controlled trial of 306 patients with severe acute pancreatitis [\[R\]](#), [\[R\]](#).

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Methylfolate

IMPACT

1 / 5

EVIDENCE

1 / 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

Supplementation with folate may lower TNF-alpha levels more in people with certain [MTHFR](#) variants [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Supplementation with folate may lower TNF-alpha levels more in people with your [MTHFR](#) gene variant [\[R\]](#).

YOUR GENETIC VARIANTS			
GENE	SNP	GENOTYPE	EVIDENCE
MTHFR	rs1801133	AA	

How to implement

TYPICAL STARTING DOSE

200 iu

Description

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

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

How it helps

Supplementation with vitamin E may lower TNF-alpha levels more in people with certain gene variants [R].

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Limit Omega-6 Fatty Acids

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Reduce your intake of foods high in omega-6 fatty acids, such as processed snacks, fast foods, cakes, fatty meats, and certain vegetable oils like corn, soybean, and sunflower oil. Aim to consume these foods less frequently, perhaps limiting them to once a week or less, and focus on increasing your intake of foods rich in omega-3 fatty acids like fish, walnuts, and flaxseeds to help balance your omega-6 to omega-3 ratio.

Description

Balancing omega-6 and omega-3 fatty acids in the diet by limiting excessive omega-6 intake can help reduce inflammation and lower the risk of chronic diseases. Achieving a healthier ratio of these fatty acids promotes overall cardiovascular and metabolic health.

Omega-6 fatty acids are polyunsaturated fatty acids (PUFAs). Food sources of omega-6s include [\[R\]](#), [\[R\]](#):

- Vegetable oils (e.g., corn, soybean, sunflower, safflower, and cottonseed oils)
- Nuts, especially walnuts
- Seeds (e.g., safflower, sunflower, and pumpkin seeds)

The most highly consumed omega-6 fatty acid is linoleic acid. Linoleic acid is essential, meaning we have to get it from our diets. Our bodies use it to produce other omega-6s such as gamma-linolenic acid (GLA) and arachidonic acid (AA) [\[R\]](#).

How it helps

Lowering omega-6 fatty acid intake can reduce the body's inflammatory responses.

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Cruciferous Vegetables

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate a serving of cruciferous vegetables, such as broccoli, cauliflower, Brussels sprouts, kale, or cabbage, into at least one meal each day. A serving size is about a half cup cooked or one cup raw. Try to maintain this habit consistently over time for the best health outcomes.

Description

Cruciferous vegetables like broccoli, cauliflower, and kale are rich in vitamins, fiber, and antioxidants. Including them in your diet can promote overall health and may offer cancer-protective properties.

Cruciferous vegetables are a group of vegetables that belong to the Brassicaceae family. They are rich in fiber, vitamins, minerals, and other nutrients.

Some common cruciferous vegetables include broccoli, cauliflower, cabbage, kale, and brussels sprouts.

How it helps

Cruciferous vegetables contain compounds that may help reduce inflammatory markers.

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Reishi

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a reishi mushroom supplement, ranging from 500mg to 1500mg once daily. It is best consumed with water and can be taken with or without food. Continue consistently for at least 2 to 3 months to observe potential benefits.

Description

Reishi (*Ganoderma lucidum*) is a type of medicinal mushroom consumed in various forms, including teas, extracts, and capsules. Native to Asia, reishi has been used for centuries in traditional Chinese medicine for its potential to boost the immune system, promote relaxation, and support overall well-being. Reishi contains various compounds, including triterpenes and polysaccharides.

How it helps

In an uncontrolled trial of 47 advanced colorectal cancer patients, supplementation with reishi mushroom (5.4 g/day) for 12 weeks increased the counts of CD3, CD4, CD8 and CD56 lymphocytes, plasma concentrations of IL-2, IL-6, and IFN-gamma, and NK activity, while decreasing plasma concentrations of TNF-alpha and IL-1 [R].

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Leafy Green Vegetables

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate at least one serving of leafy green vegetables, such as spinach, kale, or Swiss chard, into your diet daily. This can be done by adding them to salads, smoothies, or as a side dish to your meals.

Description

Leafy green vegetables like spinach and kale are packed with vitamins, minerals, and antioxidants. Incorporating them into your diet can promote overall health by providing essential nutrients, supporting digestion, and reducing the risk of chronic diseases like heart disease and certain cancers.

Leafy green vegetables, also called leafy greens, or greens, are edible plant leaves, which can include stalks and shoots as well. Common examples include: lettuce, spinach, kale, chard, endive, and fennel.

Leafy greens contain a host of vitamins and minerals, as well as fiber. Most of them are a particularly good source of vitamin K.

How it helps

Leafy greens are packed with vitamins and minerals that support inflammatory control.

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Mindfulness Meditation

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Practice mindfulness meditation for 10-20 minutes daily. Find a quiet, comfortable place to sit or lie down, then focus on your breath, observing thoughts and sensations without judgment. Consistency is key, so try to incorporate it into your daily routine, perhaps in the morning or before bed.

TYPICAL STARTING DOSE

30 minutes

Description

Mindfulness meditation involves focused attention on the breath or a specific point of focus to cultivate mindfulness and reduce stress. Regular meditation practice is associated with improved mental clarity, emotional regulation, and overall well-being.

How it helps

Mindfulness meditation can reduce stress levels, which might decrease inflammation and improve pain symptoms.

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Dietary Antioxidants

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods rich in antioxidants, such as fruits (berries, oranges, plums), vegetables (spinach, kale, bell peppers), nuts (walnuts, almonds), and seeds (flaxseeds, chia seeds) into your daily meals. Aim for at least 5 servings of fruits and vegetables per day, ensuring a variety of colors to cover different antioxidants.

Description

Dietary antioxidants are compounds found in foods that help neutralize harmful molecules called free radicals, potentially reducing the risk of oxidative stress-related diseases and supporting overall health. Examples include vitamins C and E, beta-carotene, and polyphenols.

Our cells sometimes produce molecules called **reactive oxygen species (ROS)** [\[R\]](#).

High levels of ROS can cause [oxidative stress](#) and damage our cells. Oxidative stress plays a role in many health conditions, including [\[R\]](#):

- High blood sugar
- Type 2 diabetes
- Heart disease

Antioxidants are substances that help combat ROS [\[R\]](#).

Antioxidants are found in many plants. Good sources include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Fruits like tomatoes, berries, and pomegranates
- Vegetables like onions, spinach, and celery
- Chocolate
- Olive oil
- Wine

How it helps

Antioxidants neutralize free radicals, which can help reduce oxidative stress and accompanying inflammation.

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Dietary Polyphenols

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate foods rich in dietary polyphenols into your daily diet. This can include consuming a variety of fruits like berries, apples, and grapes; vegetables such as onions and broccoli; nuts and seeds; as well as beverages like green tea and coffee. Aim for at least five servings of fruits and vegetables per day to achieve a beneficial intake of polyphenols.

Description

Polyphenols are antioxidants found in foods like fruits, vegetables, and tea, which may offer various health benefits, including reduced inflammation and improved heart health.

Polyphenols are plant components with antioxidant properties. They help reduce [oxidative stress](#) [R].

High levels of oxidative stress can damage our cells. Oxidative stress plays a role in many health conditions, including [R]:

- High blood sugar
- Type 2 diabetes
- Heart disease

You can get most polyphenols and other antioxidants from fresh fruits and vegetables [R, R].

How it helps

Polyphenols have anti-inflammatory effects and support overall health.

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Limit Trans Fats

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

To limit trans fats, read food labels and choose products with 0 grams of trans fat. Avoid fried foods, packaged snacks, baked goods, and fast foods, which are common sources of trans fats. Aim to eliminate trans fats from your diet completely.

Description

Limiting trans fat intake is vital for heart health and reducing the risk of cardiovascular diseases. Avoiding foods high in trans fats and opting for healthier alternatives promotes better cardiovascular well-being.

Based on their structure, the fats in our diet can be broadly divided into *saturated* and *unsaturated* fat. Trans fat is a type of unsaturated fat [\[R, R, R\]](#).

In large amounts, trans fat and saturated fat may have a negative impact on your heart. Processed foods and animal products like red meat and dairy are rich in these fats [\[R, R, R\]](#).

How it helps

Avoiding trans fats can lower the risk of triggering inflammatory responses.

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Limit Saturated Fat

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Reduce your intake of saturated fats by choosing lean cuts of meat, opting for low-fat or fat-free dairy products, and using cooking oils high in unsaturated fats (like olive or canola oil) instead of butter or lard. Aim to keep saturated fat to less than 10% of your total daily calories. For someone consuming 2000 calories a day, this means 20 grams or less of saturated fat per day.

Description

Limiting saturated fat intake is crucial for managing cholesterol levels and reducing the risk of heart disease. Choosing lean protein sources and incorporating unsaturated fats into the diet supports cardiovascular health and overall well-being.

How it helps

Reducing saturated fat can decrease inflammation in the body.

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Fruits And Vegetables

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Increase your intake of fruits and vegetables to at least five servings per day, aiming for a variety of types and colors to ensure a broad range of nutrients. Each serving size should roughly be the amount you can fit in one hand. Try to incorporate at least one serving of fruits or vegetables into every meal and snack throughout the day.

Description

A diet rich in fruits and vegetables provides essential nutrients, antioxidants, and dietary fiber. This combination supports overall health, helps maintain a healthy weight, and reduces the risk of chronic diseases such as heart disease and certain cancers.

How it helps

A diet rich in fruits and vegetables provides essential vitamins, minerals, and antioxidants for immune support.

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 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.