SelfDecode™

Inflammation (CRP)

DNA Health Report

REPORT CATEGORY

INFLAMMATION & AUTOIMMUNITY

Sample Client

Report date: 03 September 2025

Powered by omicsedge

Table of Contents

Personal information

NAME

Sample Client

SEX AT BIRTH

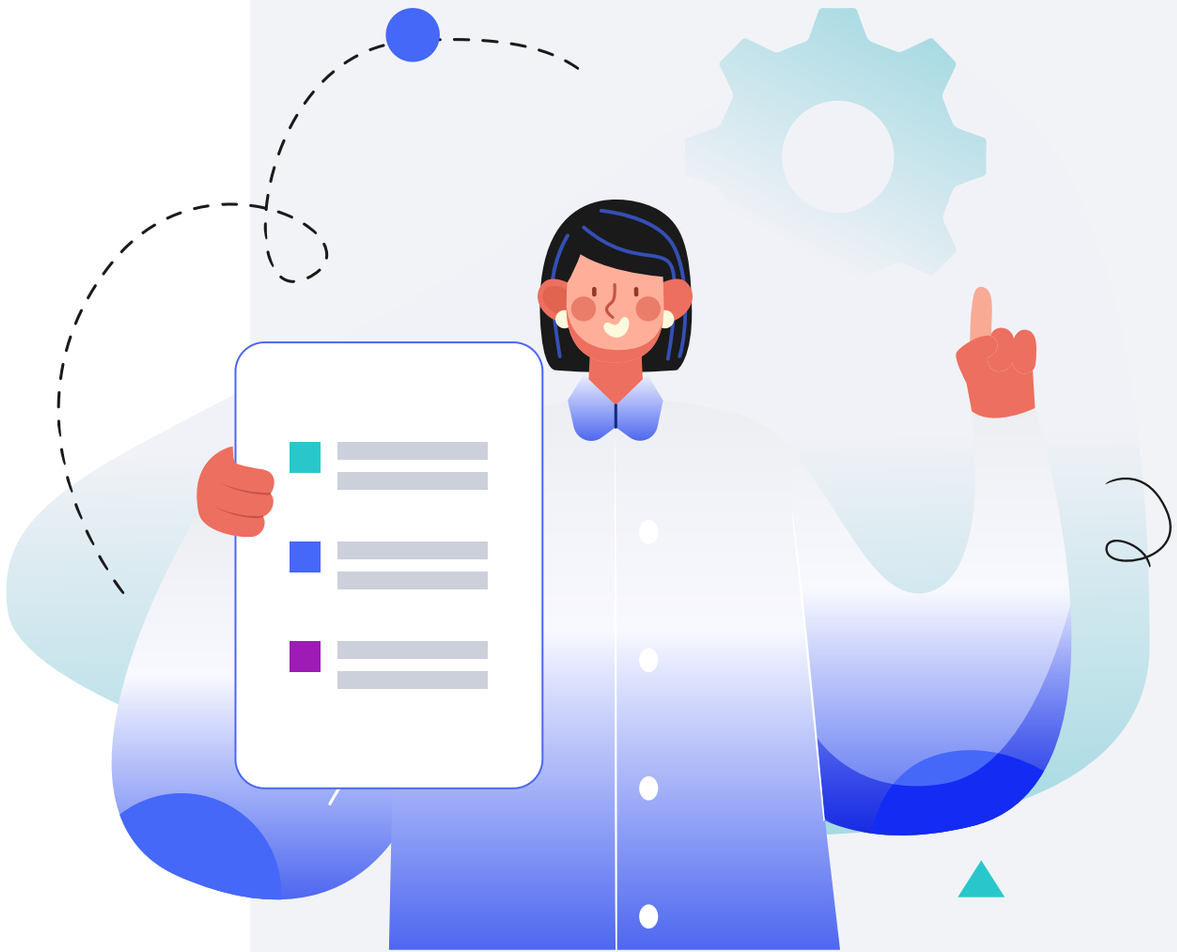
Male

HEIGHT

5ft 9" 175.0cm

WEIGHT

165lb 75.0kg



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.

Introduction

Inflammation is used by your body as a defense against invaders like bacteria and viruses. This process is generally beneficial, but you can have too much of a good thing [R].

When inflammation goes on too long (becomes chronic), it begins to damage your body. Chronic inflammation is linked to many diseases. Around the world, chronic inflammatory diseases, like diabetes and heart disease, are responsible for **3 in 5 deaths** [R].

The fact that chronic inflammation is invisible to the naked eye, coupled with the complexity of inflammatory diseases, make it tricky to spot. To identify chronic inflammation, doctors typically test for markers like **CRP** [R].

It can seem pretty daunting that invisible inflammation could be putting your health at risk. After all, if you can't see or feel it, how can you prevent it?

Ultimately, there isn't one guaranteed solution to chronic inflammation. But we can target it using hidden weapons we all carry in our biological tool kit: our genes!

Genetics may influence your risk of excess inflammation or how well you respond to certain anti-inflammatory techniques.

For example, if you happen to carry a particular variant of the *TNF* gene, you may see a greater benefit from exercising [R, R].

You could also carry a particular variant of the *IL6* gene, which may increase your susceptibility to inflammation from being stressed [R].

By identifying whether you carry these variants and others, you can potentially lower your risk by taking action like exercising or practicing relaxation.

This report focuses on the genetics of inflammation. Read more to find out:

- **How your genetics play a role in inflammation**
- **Your genetic risk score based on over 9,000 genetic variants**
- **Personalized recommendations based on your genetics**

About Inflammation

Key Takeaways:

- Chronic inflammatory diseases like diabetes and heart disease are responsible for **3 in 5** deaths worldwide.
- About **40-50%** of the differences in people's hs-CRP (inflammatory protein) levels may be due to genetics.
- Other factors are equally important. They include diet, exercise, and life satisfaction.
- Click the **next steps** tab for relevant labs.

Inflammation is an important biological process. It protects the body from disease and damage. When germs or other foreign substances enter the body, white blood cells rush to the site. The area then gets red, swollen, and warm. These changes help kill pathogens and prepare the tissue to heal [R, R].

A common marker that helps measure inflammation is **C-reactive protein** (**CRP**). **High sensitivity CRP** (**hs-CRP**) in particular helps measure low-grade inflammation.

CRP is produced in the liver. It helps recognize disease-causing microbes and damaged cells that need to be removed from the body. However, it may also play a role in autoimmune disease [R, R].

Short-term inflammation is helpful. However, too much inflammation can be a bad thing [R, R, R, R].

Chronic inflammation is linked to many diseases, including:

- Autoimmune conditions [R, R]
- Heart disease [R, R, R]
- Obesity [R, R]
- Type 2 diabetes [R, R]
- Fibromyalgia [R, R]
- Mental health conditions [R, R, R, R]
- Cancer [R, R, R, R, R]

TYPICAL LEVELS

Predisposed to typical CRP levels based on 9,023 genetic variants we looked at

36th

PERCENTILE

Your risk is **greater than 36% of the population** and **lower than 64% of the population.**

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
CRP	rs1205	CC
IL6R	rs2228145	CC
FUT2	rs601338	AG
IL1B	rs16944	AG
CTLA4	rs231775	AG
IL19	rs1800872	GG
IL19	rs3024505	AG
IL4R	rs1805011	AA
IL1RN	rs419598	TT
ATG16L1	rs10210302	TT
ATG16L1	rs2241880	GG
STEAP1B	rs1554606	GG
IL13	rs20541	GG
KLC1	rs8702	GG
STAT4	rs10181656	CG
ADRB2	rs1042713	GA
IL19	rs1800896	CT
CYP1B1	rs1056836	GG
TIMP4	rs3755724	CC
AOC1	rs1049793	GC

In 2014, an estimated **60%** of Americans were living with at least one chronic inflammatory condition [R].

Factors that may influence chronic inflammation include [R, R, R]:

- Diet
- Exercise
- Life satisfaction
- **Genetics**

Common strategies for reducing low-grade inflammation include [R, R, R, R, R]:

- Lifestyle changes
- Diet changes
- Weight management
- Drugs targeting the underlying condition

Genetics may play an important role in inflammatory conditions. Genes involved in inflammation may influence [R, R, R, R, R, R]:

- Immune messengers (*STAT3*, *IL6*, *IL10*)
- Immune cell function (*HLA-DRB1*, *PTPN22*)
- Histamine levels (*AOC1*, *HNMT*)

Genetically high free testosterone levels may be causally associated with lower C-reactive protein [R].

GENE	SNP	GENOTYPE
IFIH1	rs1990760	TC
IL21	rs6822844	TG
IL6	rs1524107	CT
IL6	rs2066992	GT
LRP6	rs2160525	AG
LRP6	rs2302685	CT
FUT2	rs492602	GA
FUT2	rs281377	CT
FUT2	rs602662	AG
LEPR	rs4394621	AA
SIRT1	rs12778366	TC
MICB	rs361525	GG
CRP	rs3093059	AA
RAD50	rs2069812	AA
SLC22A5	rs1800925	CC
TNF	rs1800629	GG
HLA-DQA1	rs2187668	CC
APOE	rs429358	TT
SRA1	rs2569191	TT
IL6	rs1800795	GG
SLC20A1	rs1800587	GG
IL1A	rs17561	CC
FADS2	rs174546	CC
IL1B	rs1143634	GG
CRP	rs10494326	CC
CFH	rs6677604	GG
TLR4	rs4986790	AA
SOD2	rs4880	GG
LGALS9	rs2248814	AA
TOM1	rs2071746	AA

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

Your Recommendations

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

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

		DOSAGE
1	Probiotics	10 billion
2	Anti-Inflammatory Diet	
3	Omega-3 (Fish Oil)	500 mg
4	Mediterranean Diet	
5	Methylfolate	400 mcg
6	Zinc	10 mg
7	Eat Fiber-Rich Foods	
8	Maintain Optimal Vitamin D Levels	1000 iu
9	Strength Training	1 hour
10	Running	
11	Cycling	
12	Black Seed (Black Cumin)	1000 mg
13	Amla	
14	Whey Protein	25 g
15	Vitamin C	500 mg

1

Probiotics

IMPACT 5 / 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

10 billion

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

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].

PERSONALIZED TO YOUR GENES

Your *CRP* gene variant is linked to higher levels of CRP, a major inflammatory protein. Probiotics may help by reducing CRP levels [R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
DUSP23	**rs7553007**	GG	

2

Anti-Inflammatory Diet

IMPACT 5 / 5

EVIDENCE 3 / 5

How to implement

Incorporate foods rich in omega-3 fatty acids, such as salmon and flaxseeds, fruits, vegetables, nuts, and whole grains into your daily meals. Avoid processed foods, red meats, and refined sugars. Aim for a balanced diet consisting mostly of plant-based foods and lean protein sources, adjusting portions sizes to meet your individual nutritional needs and health goals.

Description

An anti-inflammatory diet focuses on reducing inflammation in the body by emphasizing foods rich in anti-inflammatory compounds, such as fruits, vegetables, fatty fish, nuts, and seeds, while minimizing processed foods and those high in added sugars and trans fats.

Anti-inflammatory diets use healthy foods to reduce inflammation. These diets are generally high in [R, R, R]:

- Colorful fruits and vegetables
- Nuts and seeds
- Fish
- Olive oil
- Tea

They also tend to restrict [R, R]:

- Processed food
- Sugar and refined carbs
- Red meat

The Mediterranean diet and the DASH diet are good examples of anti-inflammatory diets [R, R].

How it helps

Following an anti-inflammatory diet may help reduce inflammation. A popular example is the Mediterranean diet. It's rich in anti-inflammatory compounds like polyphenols and omega-3s [R, R, R, R, R, R].

Olive oil is a key component of many anti-inflammatory diets. Adding **1-50 mg** of olive oil to your meals every day may help reduce inflammation [R].

PERSONALIZED TO YOUR GENES

The Mediterranean diet may reduce inflammation more in people with your *TERC/ACTRT3* gene variant [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
ACTRT3	**rs12696304**	CC	

3

Omega-3 (Fish Oil)

IMPACT 4 / 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

500 mg

Description

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

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

There are three major types of omega-3s: ALA, EPA, and DHA [R, R].

Fatty fish are rich in EPA and DHA. They include [R]:

- Salmon
- Tuna
- Herring
- Sardines

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

How it helps

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].

PERSONALIZED TO YOUR GENES

Fish oil supplementation may reduce inflammation in people with your *TNF* gene variant [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
TNF	**rs1800629**	GG	

4

Mediterranean Diet

IMPACT 4 / 5

EVIDENCE 3 / 5

How to implement

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

Description

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

The Mediterranean diet focuses on traditional cuisine from the Mediterranean regions. It's rich in [R]:

- Olive oil
- Fruits and vegetables
- Whole grains
- Nuts and seeds
- Fish

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

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

How it helps

Following a Mediterranean diet may help reduce inflammation. It may reduce CRP levels by ~0.9 mg/L. This diet may help because it's rich in anti-inflammatory compounds like polyphenols and omega-3s [R, R, R, R].

Olive oil is a key component of the Mediterranean diet. Adding **1-50 mg** of olive oil to your meals every day may help reduce CRP levels (by 0.64 mg/L) [R].

5

Methylfolate

IMPACT 4 / 5

EVIDENCE 3 / 5

How to implement

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

TYPICAL STARTING DOSE

400 mcg

Description

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

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

- Making DNA
- Metabolism
- Energy production

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

How it helps

Folate, or Vitamin B9, aids in reducing inflammation by regulating inflammatory markers in the body. This process may lessen the general inflammatory response, potentially alleviating related discomforts and health risks.

Three meta-analyses (the largest one with 18 trials and 2,286 participants) concluded that supplementation with folic acid for 8-25 weeks **lowers CRP (by 0.21-0.685 mg/L) and IL-6 (by 0.93 pg/mL)**. **Doses ≤5 mg/day and studies longer than 12 weeks were most effective**. Folic acid was **most effective in women and patients with type 2 diabetes** [R, R, R].

6

Zinc

IMPACT 4 / 5

EVIDENCE 3 / 5

How to implement

Take a 15 mg zinc supplement daily, ideally with a meal to enhance absorption.

TYPICAL STARTING DOSE

10 mg

Description

Zinc is an essential mineral found in various foods, including meat, dairy, and nuts. It is crucial for immune function, wound healing, DNA synthesis, and maintaining healthy skin and nails. Zinc supplements are sometimes used to support immune health and manage zinc deficiencies.

Zinc is an essential mineral. Your body needs it to [R, R]:

- Defend against disease
- Protect DNA from damage
- Heal wounds
- Control blood sugar

Some of the best sources of zinc include **shellfish, pork, beef, and beans**. It is also available as a supplement [R].

Adults should get **8-11 mg of zinc** per day [R].

How it helps

Zinc has anti-inflammatory and anti-oxidative effects. Supplementing with **zinc (30-40 mg/day)** may help reduce inflammation [R, R, R, R].

7

Eat Fiber-Rich Foods

IMPACT 4 / 5

EVIDENCE 3 / 5

How to implement

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

Description

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

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

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

You can get more fiber by eating [R, R]:

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

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

How it helps

Eating food high in fiber may help reduce inflammation [R, R].

Whole grains are a good source of fiber. However, studies disagree if eating more whole grains is enough to lower inflammation [R, R, R, R].

PERSONALIZED TO YOUR GENES

Eating more fiber (psyllium) may reduce inflammation in people with your *NPY* gene variant [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
NPY	**rs16147**	TT	

8

Maintain Optimal Vitamin D Levels

IMPACT 4 / 5

EVIDENCE 2 / 5

How to implement

Check your vitamin D levels, they should ideally be in the 30-66 ng/mL range. If your levels are lower than that, take a vitamin D supplement, 1000-4000 IU daily, to reach an optimal range.

TYPICAL STARTING DOSE

1000 iu

Description

Vitamin D, often referred to as the "sunshine vitamin," can be synthesized by the skin when exposed to sunlight, as well as being found in fish, eggs, and fortified milk. It helps regulate calcium absorption, promoting strong bones and a healthy immune system. Vitamin D deficiency can lead to conditions like rickets in children and osteoporosis in adults.

Your body needs vitamin D for strong bones. Vitamin D also plays a role in [R]:

- Mood
- Immunity
- Heart health
- Blood sugar control

Sunlight is our main source of vitamin D. Experts recommend getting at least **5-15 minutes of midday sun, 2-3 times per week**. People with darker skin and those living at high latitudes may need longer periods of sun exposure [R, R].

Foods like fish, eggs, and fortified milk provide small amounts of vitamin D. **People lacking vitamin D should consider taking a supplement** [R].

How it helps

Genetically predicted higher vitamin D levels may be associated with lower levels of CRP. However, bi-directional Mendelian randomization analysis did not show a causal relationship between vitamin D and CRP. In non-linear analysis, CRP levels decreased significantly with increasing vitamin D concentration up to around 50 nmol/L for participants with vitamin D deficiency. Correcting low vitamin D status may reduce chronic inflammation, but no causal link between CRP and vitamin D was established in this study [R, R].

In people over 60, vitamin D deficiency may lead to low-grade inflammation. This may be especially true in smokers [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].

PERSONALIZED TO YOUR GENES

Supplementation with vitamin D may lower CRP levels more in people with your *VDR* gene variant [R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
VDR	**rs1544410**	CT	

9

Strength Training

IMPACT 3 / 5

EVIDENCE 4 / 5

How to implement

Engage in strength training exercises, such as weight lifting or bodyweight exercises, for 60 minutes per session, 2 to 3 times per week. Ensure you work all major muscle groups and rest each muscle group for at least 48 hours before exercising it again.

TYPICAL STARTING DOSE

1 hour

Description

Strength training, also called resistance or *anaerobic* training, contracts the muscles against an external resistance for short periods of time. This helps gain muscle strength, tone, and mass. This can include activities like weight lifting, pushups, and crunches.

Strength training, also known as resistance training, is a type of physical exercise that uses resistance to build strength, anaerobic endurance, and size [R]. Some of the most common strength training methods include [R]:

- Weight lifting
- Bodyweight exercises like push-ups, pull-ups, squats, and lunges.
- Resistance bands
- Plyometrics or explosive force exercises

The benefits of strength training are numerous, and include [R]:

- Increased muscle strength
- Improved bone health
- Reduced risk of injury
- Improved balance and coordination
- Enhanced mood
- Boost metabolism

Consult with a doctor before starting any new exercise program, especially if you have any health conditions.

How it helps

Strength training helps combat inflammation by naturally reducing the body's inflammatory markers, aiding in faster recovery and healing. Also, it can increase muscle mass and strength, which support better joint stability, reducing further risk of inflammation.

Regular, moderate exercise may reduce inflammation in people of all ages. Strength training may be beneficial, especially if combined with cardio [R, 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

10

Running

IMPACT 3 / 5

EVIDENCE 4 / 5

How to implement

To implement running into your routine, start with shorter distances and gradually increase as your endurance improves. Aim for 3 to 5 sessions per week, each lasting 20 to 30 minutes. Wear appropriate running shoes to prevent injuries and choose varied routes to keep the activity engaging. Incorporate warm-up exercises before running and cool down with stretches afterward to enhance flexibility and recovery.

Description

Running is a versatile and accessible form of aerobic exercise that improves cardiovascular health, strengthens muscles, and enhances mental well-being. It requires minimal equipment, can be done almost anywhere, and is effective for weight management. Regular running can increase endurance, reduce stress, and boost overall physical fitness, making it a popular choice for maintaining an active lifestyle.

How it helps

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].

11

Cycling

IMPACT 3 / 5

EVIDENCE 4 / 5

How to implement

Begin cycling with moderate rides to build up your stamina, targeting 2 to 4 times a week for 30 to 60 minutes per session. Ensure your bicycle is the right size and properly adjusted for your comfort. Safety gear, including helmets, is essential. Mix up your routes for interest and challenge, and consider joining a cycling group for social and motivational benefits. Maintenance of your bicycle will ensure a smooth ride and prolong its life.

Description

Cycling is a low-impact, environmentally friendly exercise that offers significant cardiovascular benefits, muscle strengthening, and flexibility improvement. It's suitable for all fitness levels and can be enjoyed both recreationally and competitively. Cycling promotes weight loss, decreases stress levels, and improves joint mobility. It's also a convenient mode of transportation that encourages outdoor exploration and reduces air pollution.

How it helps

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].

12

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].

13

Amla

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Incorporate 1-2 teaspoons (approximately 4-8 grams) of amla powder into your daily diet. You can mix it into a glass of water, blend it into a smoothie, or sprinkle it over salads or cooked meals. Do this consistently every day for best results.

Description

Amla, also known as Indian gooseberry, is a fruit known for its high vitamin C content and antioxidant properties. It is used in traditional Ayurvedic medicine for various health benefits, including immune support and skin health.

How it helps

Amla, also known as Indian Gooseberry, contains potent antioxidants that can reduce inflammation by neutralizing harmful free radicals in the body. Its anti-inflammatory properties may help in managing conditions associated with chronic inflammation such as arthritis, heart disease, and certain cancers.

Two meta-analyses (the largest one with 9 trials) concluded that supplementation with amla (500-1500 mg/day for 14-84 days) **lowers CRP (by 1.70 mg/L)** [R, R].

14

Whey Protein

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

Mix one scoop (approximately 25-30 grams) of whey protein powder with 8-12 ounces of water, milk, or your preferred beverage. Consume this drink 1-2 times per day, ideally post-workout or as a meal replacement.

TYPICAL STARTING DOSE

25 g

Description

Whey protein is a complete protein derived from milk during cheese production. It is rich in essential amino acids and is used to support muscle recovery, promote muscle growth, and provide a convenient protein source for athletes and fitness enthusiasts.

Whey is the liquid that separates from milk when cheese is made. Whey protein is full of amino acids (protein building blocks) that the body needs [R, R].

Whey protein usually comes in the form of a powder that can be added to soft foods and drinks. People often use it to help with [R, R]:

- Athletic performance
- Nutritional deficiencies

How it helps

Whey protein helps combat inflammation by boosting the body's levels of glutathione, a powerful antioxidant that helps reduce inflammation. Additionally, it contains amino acids like cysteine which aids in reducing inflammatory responses.

A meta-analysis of 9 trials concluded that supplementation with whey protein **lowers CRP by 0.72 mg/L in studies using at least 20 g/day and by 0.67 mg/L in people with baseline levels of at least 3 mg/L** [R].

Another meta-analysis (31 studies) concluded that whey protein **lowers TNF-alpha and IL-6.** However, a meta-analysis of 11 studies found **no benefits** of whey protein on these inflammatory markers [R, R].

15

Vitamin C

IMPACT 3 / 5

EVIDENCE 3 / 5

How to implement

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

TYPICAL STARTING DOSE

500 mg

Description

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

Foods rich in Vitamin C include: [R]

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

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

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

How it helps

Vitamin C plays a key role in regulating your body's inflammatory response. It aids in healing and body repair by combating oxidative stress caused by inflammation, ultimately reducing swelling and pain.

A meta-analysis of 12 studies and 446 participants found that vitamin C supplementation **lowers CRP levels (by 0.23 mg/L), especially in subjects younger than 60 years old, those CRP baseline levels above 3 mg/L, when used at a lower dosage, and in intravenous administration** [R].

Please note: *Supplementing with vitamin C is linked to a slightly higher risk of kidney stones in men. Talk to your doctor before taking vitamin C* [R, R].