

Immunity & Inflammation

Summary Report

REPORT CATEGORY —



IMMUNE FUNCTION
& INFLAMMATION

Report date: 10 January 2024

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REPORT PROVIDED BY

Get Tested International AB

for Dummy Persson

✉ hello@gettested.io

🌐 <https://gettested.io>

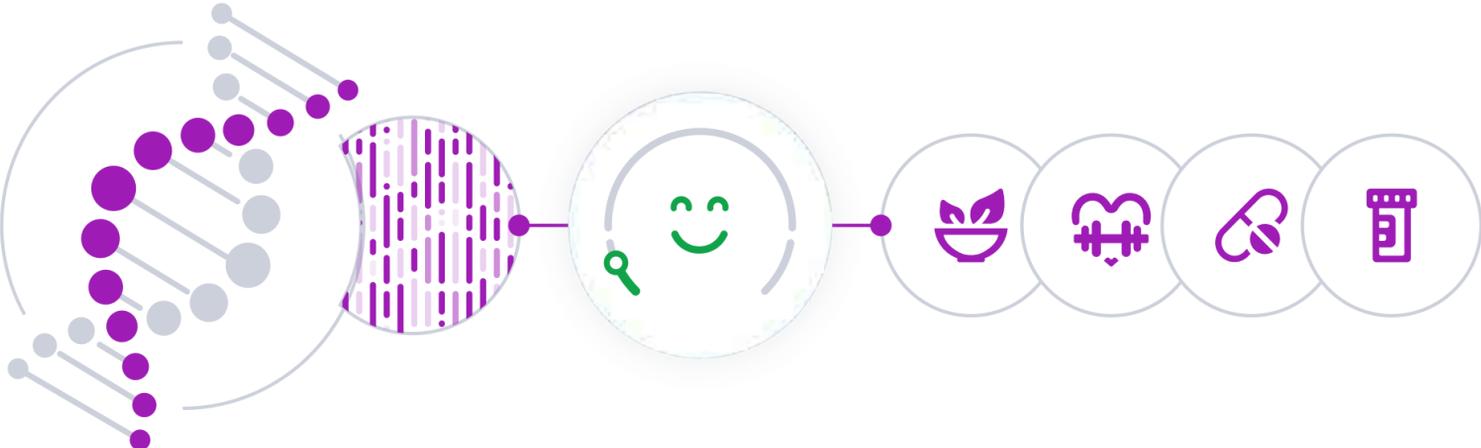


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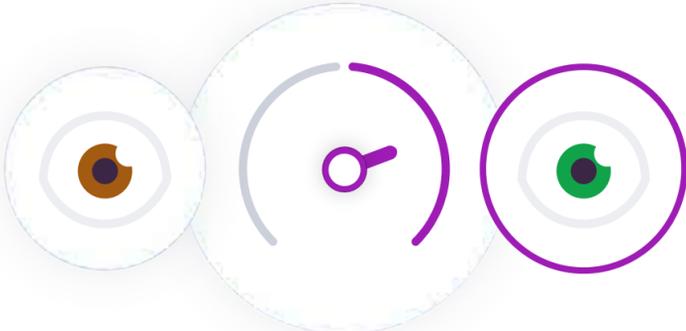
This report does not diagnose this or any other health conditions. Please talk to a healthcare professional if this condition runs in your family, you think you might have this condition, or you have any concerns about your results.

How this works

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



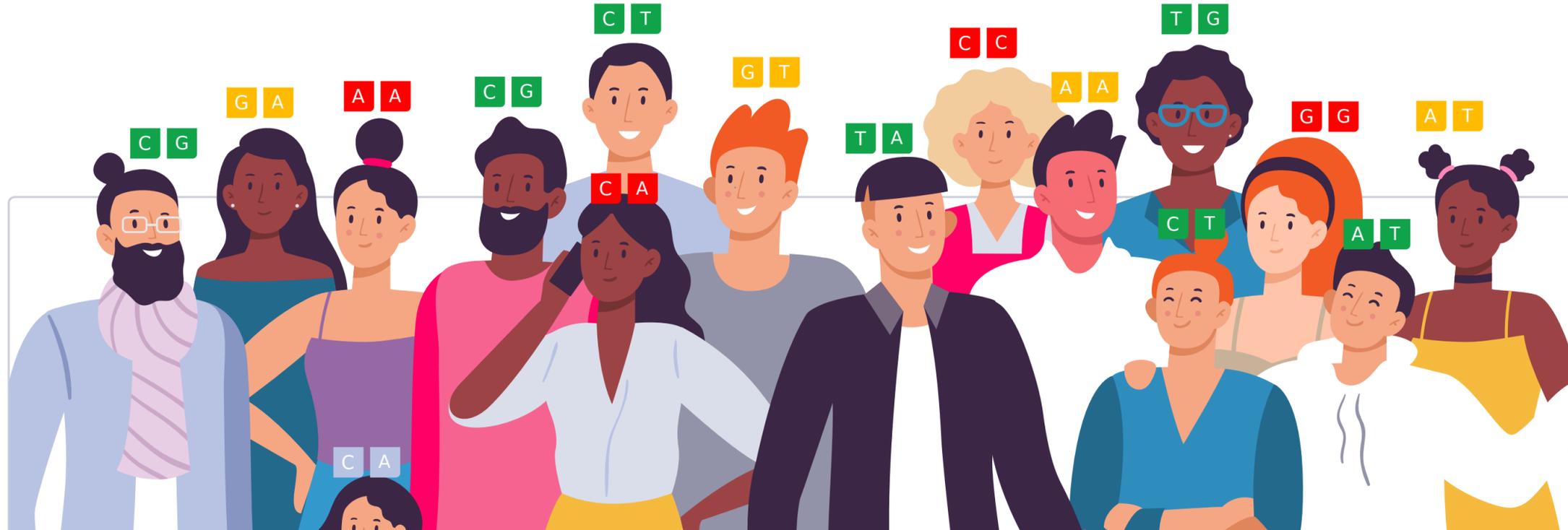
Similarly, our Trait Reports look at how your DNA influences your traits.



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

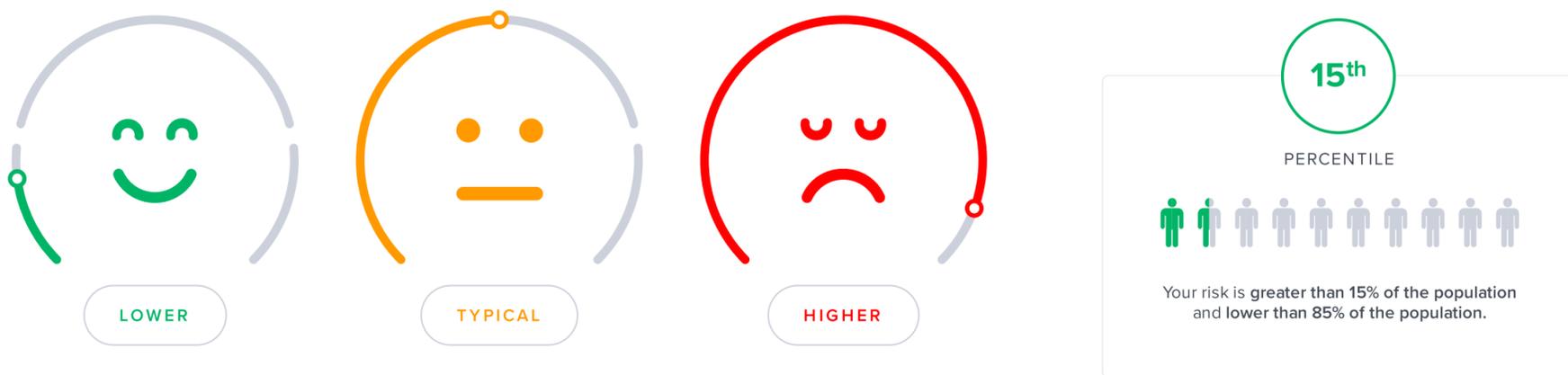
Genetic variants are parts of DNA that differ from person to person. Some can make you more vulnerable to certain health issues, while others may influence traits such as eye color.

Our Summary Reports combine different Wellness and Trait Reports related to a certain health topic. They give you a more complete picture about different aspects of your health and wellness.



We use artificial intelligence and machine learning to analyze all this information. We then summarize your results as a risk score or display it on a gauge. When we give a risk score, the risk icon tells you if you are at a higher or lower risk compared to other people:

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



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: diet, lifestyle, 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 strength of evidence.

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



In Summary Reports, we combine top evidence-based recommendations for different conditions.

We focus on recommendations that help with more conditions included in a Summary Report.

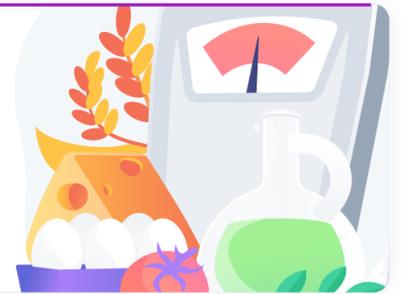
For each recommendation, we list all conditions it may help with. We also include impact, evidence, regimen, personalized parts, and other details specific to each condition.

1



Recommendation

Helps with the following



Condition

IMPACT
●●●●● 4 / 5

EVIDENCE
●●●●● 4 / 5



Condition

IMPACT
●●●●● 4 / 5

EVIDENCE
●●●●● 4 / 5



Condition

IMPACT
●●●●● 4 / 5

EVIDENCE
●●●●● 4 / 5



Condition

IMPACT
●●●●● 4 / 5

EVIDENCE
●●●●● 4 / 5

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:

- The scores/gauges use the latest scientific studies. But they are not perfect and will change as the models improve.
- Not everyone with risk variants will develop a health condition.
- Genetics is not the whole story. Your health is most often a combination of genetics, lifestyle, and environmental factors. Great news, as this means that you can often change your lifestyle to lower your risk.
- Results might be more accurate for some ethnic groups than others. This depends on the studies used in each report.
- People without risk variants can also develop health conditions.
- It's important to work with your doctor to better understand your risks. Our reports do not diagnose or treat any health condition. They are not a substitute for medical advice. If you're diagnosed with a certain health condition, follow your doctor's advice.

Summary

You have an army of cells constantly on the lookout for invaders and ready to respond to harm or injury. This army comprises your **immune system**. Together, they are a formidable force in keeping you healthy and preventing **infections**.

Inflammation is a key part of the immune response. Although it's meant to protect and heal your body, it can have detrimental effects when it breaks loose. If the immune response is exaggerated and aimed at wrong targets, that opens the door to **allergies and autoimmunity**.

Your genetics is crucial for this delicate balance of the immune response. On the one hand, it may indicate one's likelihood of allergies and inflammatory and autoimmune conditions. On the other hand, there are potential risks of infections due to inadequate immune response.

We developed this comprehensive report to inform you about your genetics of inflammation and immunity. This knowledge will help you make more informed decisions about your health regimen, and take the next steps to optimize your immune system. Areas covered in this report include:

- Inflammatory and autoimmune conditions
- Allergies
- Infections
- Immune cells
- Antibodies
- Inflammatory proteins

This summary report contains:

32 Genetic Results

50 Recommendations

Overview of Your Results

Inflammatory And Autoimmune Conditions

 **TYPICAL LIKELIHOOD**
CRP (Inflammation)

Typical likelihood of inflammation

 **MORE LIKELY**
Joint Inflammation

More likely to have rheumatoid arthritis

 **TYPICAL LIKELIHOOD**
Gut Inflammation

Typical likelihood of IBD

 **TYPICAL LIKELIHOOD**
Appendicitis

Typical likelihood of appendicitis

 **MORE LIKELY**
Pancreas Inflammation

More likely to get pancreas inflammation

 **HIGHER**
Gluten Sensitivity (Celiac)

Likely higher sensitivity to gluten

 **TYPICAL LIKELIHOOD**
Psoriasis

Typical likelihood of psoriasis

 **TYPICAL LIKELIHOOD**
Eczema

Typical likelihood of eczema

Allergies

 **TYPICAL LIKELIHOOD**
Allergies

Typical likelihood of allergies

 **TYPICAL LIKELIHOOD**
Food Allergies

Typical likelihood of food allergies

 **LESS LIKELY**
Egg Allergy

Less likely to have an egg allergy

 **MORE LIKELY**
Peanut Allergy

More likely to have peanut allergy

Infections

 TYPICAL LIKELIHOOD
Flu

Typical likelihood of getting the flu

 TYPICAL LIKELIHOOD
H. pylori

Typical likelihood of H. pylori infection

 TYPICAL LIKELIHOOD
Urinary Tract Infections

Typical likelihood of UTIs

 TYPICAL LIKELIHOOD
Yeast Infection

Typical likelihood of yeast infections

 TYPICAL LIKELIHOOD
Gastrointestinal Infection

Typical likelihood of a GI infection

 MORE LIKELY
C. difficile Infection

More likely to get a C. difficile infection

 MORE LIKELY
Genital Herpes

More likely to get genital herpes

 TYPICAL LIKELIHOOD
EBV Infection

Typical likelihood of getting EBV infection

 TYPICAL LIKELIHOOD
Strep Infection

Typical likelihood of a strep infection

 LESS LIKELY
Chlamydia

Less likely to get chlamydia

 LESS LIKELY
HPV Infection

Less likely to get HPV infection

Immune Cells

 HIGHER
White Blood Cells

Likely higher white blood cell count

 TYPICAL LEVELS
Monocytes

Likely typical monocyte levels

 HIGHER LEVELS
Basophils

Likely higher basophil levels

 TYPICAL LEVELS
Eosinophils

Likely typical eosinophil levels

 HIGHER LEVELS
Neutrophils

Likely higher neutrophil levels

Antibodies

 TYPICAL LEVELS IgE
Likely typical IgE levels

Inflammatory Proteins

 TYPICAL LEVELS IL-17 (Th17)
Likely typical levels of IL-17

 TYPICAL LEVELS IL-6
Likely typical levels of IL-6

 TYPICAL LEVELS IL-10
Likely typical levels of IL-10

Your Results in Details



Inflammatory And Autoimmune Conditions

You want your immune system to protect the good cells from bad cells, injury, and any other harms. You don't want it to lose the ability to distinguish between the good and the bad. **A number of autoimmune conditions can occur when your immune system attacks healthy cells, and your genetics has a massive impact.**

Excessive inflammation is the hallmark of autoimmunity, but it can happen for other reasons that mess up your immune response.

This section dives into your genetic predisposition to various inflammatory and autoimmune conditions, including **eczema, gluten sensitivity, joint and gut inflammation, and more.**



TYPICAL LIKELIHOOD

CRP (Inflammation)

Typical likelihood of inflammation



MORE LIKELY

Joint Inflammation

More likely to have rheumatoid arthritis



TYPICAL LIKELIHOOD

Gut Inflammation

Typical likelihood of IBD



TYPICAL LIKELIHOOD

Appendicitis

Typical likelihood of appendicitis



MORE LIKELY

**Pancreas
Inflammation**

More likely to get pancreas inflammation



HIGHER

**Gluten Sensitivity
(Celiac)**

Likely higher sensitivity to gluten



TYPICAL LIKELIHOOD

Psoriasis

Typical likelihood of psoriasis



TYPICAL LIKELIHOOD

Eczema

Typical likelihood of eczema

CRP (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 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]
- Cancer [R, R, R, R, R]

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**

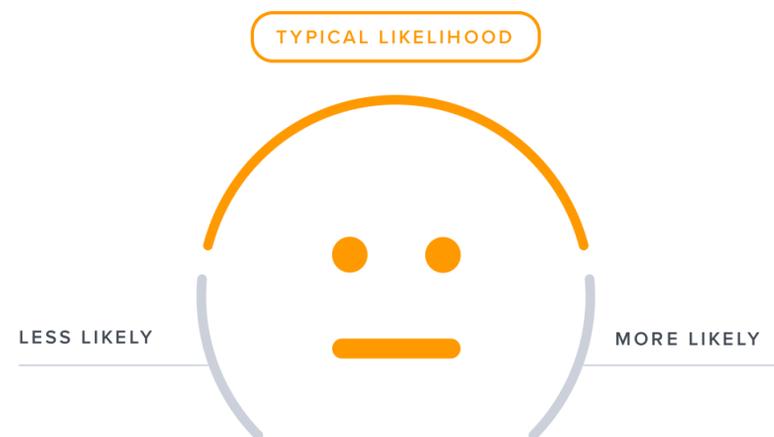
Common strategies for reducing low-grade inflammation include [R, R, R, R, R]:

- 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]:

- 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].



Typical likelihood of inflammation based on 9,023 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LEPR	rs4394621	AA
CRP	rs11265260	GA
OR10J1	rs41264481	CA
UNC119B	rs7305618	TC
NECTIN2	rs11668327	CG
CRP	rs10494326	CC
OR10J5	rs115381557	CC
APCS	rs11545897	CC
LEPR	rs6672331	GG
APCS	rs12745083	CC
FCER1A	rs115585839	GG
FCRL6	rs113188187	CC
OR10J5	rs114530473	CC
CRP	rs3093070	TT
APOE	rs7412	CC
FCER1A	rs114272969	GG
NECTIN2	rs117264457	GG
APOE	rs141622900	GG
OR10J5	rs4131568	CC

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

Joint Inflammation

Key Takeaways:

- Up to 65% of differences in people's chances of developing rheumatoid arthritis may be due to genetics.
- Other risk factors include obesity and smoking.
- Rheumatoid arthritis affects about **1%** of people around the world. This means even a high genetic risk is still a low overall risk.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

Rheumatoid arthritis is an autoimmune condition in which the body attacks its own joints. This causes [inflammation](#), tissue damage, and pain [\[R\]](#).

Rheumatoid arthritis affects about 1% of people around the world. Researchers have found big differences between populations. North America has the highest rate, with the lowest rates in South America and Asia [\[R\]](#).

According to one estimate, about **1.3 million Americans** have this condition [\[R\]](#).

Rheumatoid arthritis usually affects small joints in the hands and feet. Its signs and symptoms include [\[R\]](#), [\[R\]](#):

- Joint pain and tenderness
- Heat and swelling in the affected joints
- Joint stiffness

Many people have periods of worsening symptoms called "flares." These flares may be triggered by [\[R\]](#):

- Stress
- Too much movement
- A change in medication

Rheumatoid arthritis may lead to complications outside the joints. They can include heart disease, nerve problems, and infections [\[R\]](#).

There is no cure for rheumatoid arthritis. Instead, patients and doctors work to control symptoms. Some ways to manage the condition include [\[R\]](#), [\[R\]](#):

- Medications
- Surgery (e.g., joint replacement surgery)
- Exercise
- Supplements to reduce inflammation and support bone health

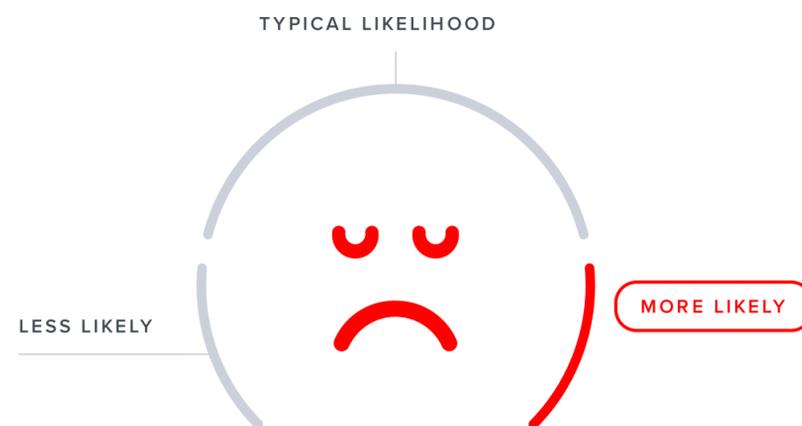
The exact cause of rheumatoid arthritis is unknown. Risk factors include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Cigarette smoking
- Obesity
- **Genetics**

In fact, up to 65% of differences in people's chances of developing rheumatoid arthritis may be attributed to genetics. Genes involved in this condition may influence [\[R\]](#), [\[R\]](#):

- Immune function (HLA-DRB1, PSORS1C1)
- Inflammation (STAT4, IL10, PTPN2)

Genetically high testosterone and omega-3s levels may be causally associated with a high risk of rheumatoid arthritis [\[R\]](#), [\[R\]](#).



More likely to have rheumatoid arthritis based on 233 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
EPHA5	rs201194999	CC
COL11A1	rs2622873	TT
ICA1L	rs62182810	AA
TGFA	rs3771501	GG
FAM53A	rs798726	CC
ANAPC4	rs34811474	GG
HLA-DPB1	rs2856821	TT
DPEP1	rs1126464	GG
PRDM5	rs11729628	GG
SOCS2	rs2171126	TT
CDC5L	rs12154055	GG
COL27A1	rs919642	TA
SRR	rs216175	AC
CSK	rs35206230	CT
ERI1	rs330050	CG
TGFB2	rs2785988	CA
SLC44A2	rs1560707	GT
KIF26B	rs10218792	TG
SLC44A2	rs10405617	GA

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

Gut Inflammation

Key Takeaways:

- Up to **75%** of differences in people's chances of developing IBD may be due to genetics.
- Risk factors include being under age 30, European ancestry, and smoking.
- IBD may cause: diarrhea, fatigue, abdominal pain, bloody stool, weight loss, inflammation, liver damage, and colon cancer.
- IBD only affects about **3 in 1000** people worldwide. So, even with high genetic risk, your overall risk is actually low.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

Our intestines do much more than absorb food. They can impact our immune system, mood, and more [\[R\]](#)!

[Inflammatory bowel disease](#) (IBD) is a group of gut diseases affecting **about 0.3% of people worldwide**. It's most common in North America, Europe, and Australia [\[R\]](#).

The exact causes of IBD are unknown. Possible risk factors include [\[R\]](#):

- Age (most people develop IBD before the age of 30)
- European ancestry
- Cigarette smoking
- **Genetics**

There are two major types of IBD: [ulcerative colitis](#) and Crohn's disease. Ulcerative colitis involves [inflammation](#) in the large intestine, while Crohn's disease often affects both the large and small intestines [\[R, R, R\]](#).

In both types of IBD, the immune system reacts to normal gut bacteria as if they're dangerous. These immune reactions cause inflammation and damage to the gut lining [\[R\]](#).

This gut damage can cause signs and symptoms like [\[R, R, R\]](#):

- Diarrhea
- Fatigue
- Abdominal [pain](#) and cramping
- Blood in the stool
- Low appetite
- [Weight loss](#)

Untreated IBD can have serious complications, including [\[R\]](#):

- Skin, eye, and joint inflammation
- Bile duct and liver damage
- Blood clots
- Colon cancer

People with IBD typically need anti-inflammatory medications to control their disease [\[R, R\]](#).

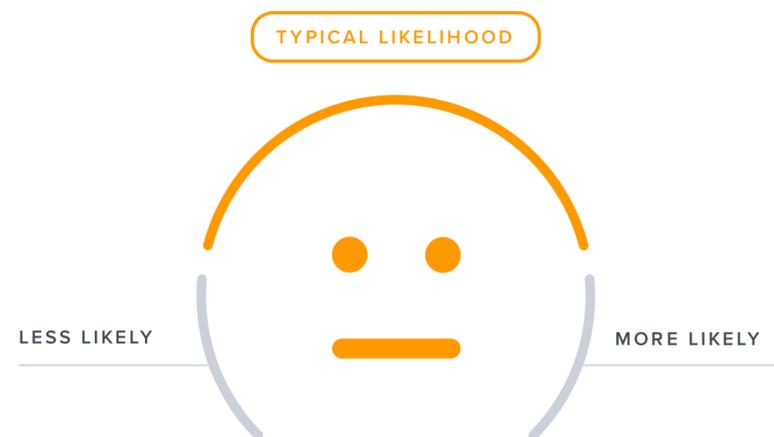
Many people with IBD take supplements because their damaged guts have trouble absorbing certain nutrients. Some people may need to adhere to special diets as well [\[R, R\]](#).

IBD can be a disabling condition, and many turn to alternative and complementary strategies to help them manage their symptoms. Your DNA may help determine which of these strategies is likely to work best for you.

Up to 75% of differences in people's chances of developing IBD may be attributed to genetics. Genes involved in IBD may influence [\[R, R, R, R\]](#):

- Inflammation (JAK2, TNFSF15, SLAMF8)
- Immune response (TLR9, UBE2L3, BCL3)

Moreover, genetically high betaine levels may be causally associated with a high risk of Crohn's disease. In contrast, genetically high levels of omega-3s may be causally associated with a lower risk [\[R, R, R, R\]](#).



Typical likelihood of IBD based on 1,671 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
JAK2	rs10758669	AC
ADO	rs10761659	GA
HNF4A	rs6017342	CC
NCR3	rs1799724	CC
STAT3	rs744166	AG
SLC22A5	rs12521868	GT
IL23R	rs11209026	GG
PDGFB	rs2413583	CC
PTGER4	rs11742570	CC
ETS2	rs2836878	GG
INAVA	rs7554511	CC
IRF8	rs10521318	CC
CRTC3	rs7495132	CC
PHACTR2	rs12199775	AA
CARD9	rs10781499	AG
NKX2-3	rs4409764	GT
IL12B	rs6871626	CA
SLC22A5	rs2188962	CT
NRIP1	rs2823286	GA

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

Appendicitis

Key Takeaways:

- Up to **56%** of differences in people's chances of developing appendicitis may be due to genetics.
- Other risk factors include being young and male.
- Appendicitis is not rare, happening to about 7-8% of people in their lifetime.
- If your genetic risk is high, know the symptoms and seek medical attention if you have them.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

The **appendix** is a small, finger-shaped pouch near the beginning of the large intestine. It is in the lower right of your abdomen [\[R, R\]](#).

The function of the appendix has been debated for many years. More recent studies suggest that the appendix is a "safe house" for good bacteria that live in the gut. If an illness wipes out large numbers of these bacteria in the gut, the ones from the appendix can help replace them [\[R\]](#).

Appendicitis is inflammation of the appendix. It is likely caused by something blocking the lining of the appendix, leading to an infection. If left untreated, the appendix can rupture and the infection can spread. This can be life-threatening [\[R\]](#).

Although anyone can develop appendicitis, it most often occurs in people between 10 and 30 years old. Men are slightly more likely to experience it than women [\[R, R\]](#).

The symptoms of appendicitis include [\[R\]](#):

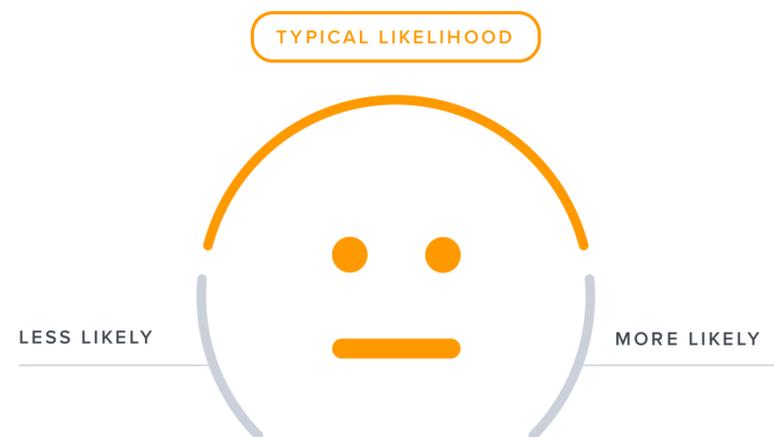
- Sudden pain in the lower right abdomen
- Sudden pain around the belly button that shifts to the lower right abdomen
- Pain that worsens if you move suddenly
- Nausea and vomiting
- Loss of appetite
- Fever
- Gut issues

The standard treatment for appendicitis is surgery to remove the appendix [\[R\]](#).

Up to 56% of differences in people's chances of developing appendicitis may be attributed to genetics. Involved genes may influence [\[R, R\]](#):

- Gut development
- Gut function
- Inflammation

Genetically predicted higher levels of fasting insulin may be associated with appendicitis [\[R\]](#).



Typical likelihood of appendicitis based on 809,853 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ENPEP	rs2129979	TG
PITX2	rs7697491	AA
PITX2	rs13121924	AA
MTARC1	rs3738182	GG
LTBR	rs10849448	GG
DLEU7	rs201768	CC
NKX2-3	rs41290504	AC
NKX2-3	rs7095491	CT
/	rs77114860	TT
TUB	rs72848490	CC
KRT73	rs146783619	AA
OSR1	rs56259011	CC

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

Pancreas Inflammation

The **pancreas is an organ located behind the stomach** that releases crucial enzymes for carbs and fats digestion. **Pancreatitis** is inflammation of the pancreas, which can be acute or chronic.

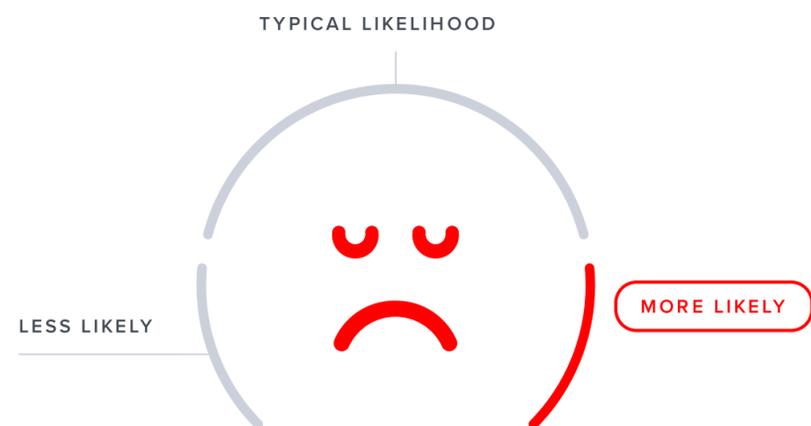
Potential risk factors for pancreatitis include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- **Alcohol**
- Cigarette smoking
- Obesity
- High blood lipids
- Certain medications
- Genetics

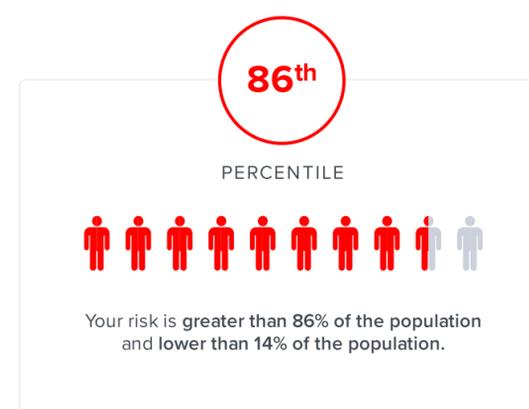
Genetically predicted higher fasting insulin may be associated with acute and chronic pancreas inflammation. In contrast, genetically high testosterone levels may be causally associated with a lower risk of pancreas inflammation [\[R\]](#), [\[R\]](#).

Health conditions that may contribute to pancreas inflammation include [\[R\]](#), [\[R\]](#):

- Gallstones
- Diabetes
- Infections
- Injury or trauma



More likely to get pancreas inflammation based on 1,669 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MORC4	rs12688220	T
PRSS1	rs10273639	CC
SLC25A34	rs60816621	CG
NUP62CL	rs12688091	A
TBC1D8B	rs12689287	A
JCAD	rs2995271	TC
RNF128	rs66491909	A
RADX	rs5916761	G
PWWP3B	rs67184230	C
JAKMIP2	rs17107296	AA
JAKMIP2	rs150261364	CC
SPINK5	rs112861203	TT
STK32A	rs148849032	CC
JAKMIP2	rs146303903	AA
CTRC	rs497078	CC
STK32A	rs142623619	AA
/	rs150176211	GG
ADRB2	rs17640347	GG
ABCG5	rs75331444	GG

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

Gluten Sensitivity (Celiac)

Key Takeaways:

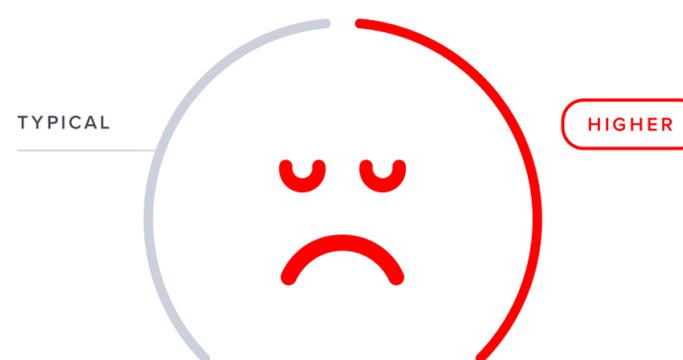
- It's estimated that 1-2% of the population has gluten sensitivity. The most likely risk factor is genetics.
- If you have symptoms, diet restriction may indicate whether you have the sensitivity or not. You should speak to a healthcare professional if symptoms persist.
- Symptoms include diarrhea/constipation, fatigue, weight loss, gut pain/bloating, and nausea.
- Celiac disease is rare, so even with high genetic risk, your overall risk is still low.
- Click the **next steps** tab for relevant labs.

Gluten is a protein found in grains such as wheat, rye, spelt, barley, and triticale. Some people cannot properly digest gluten. In fact, their immune systems may react to gluten as if it is dangerous. To make matters worse, gluten is similar to a normal protein in the intestine. Sometimes, the immune system will attack both. People with this type of reaction have celiac disease [\[R\]](#), [\[R\]](#), [\[R\]](#).

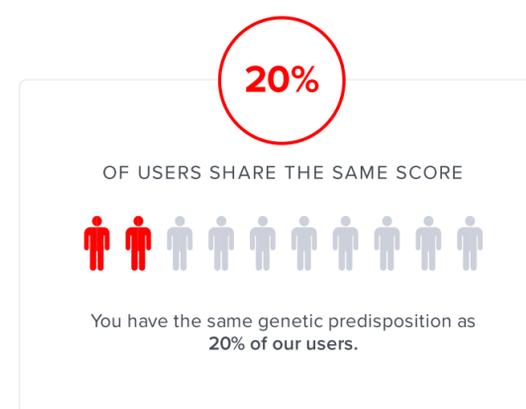
Researchers aren't completely sure why some people are sensitive to gluten. Infections in the gut may play a role. However, a major risk factor is probably genetic [\[R\]](#), [\[R\]](#), [\[R\]](#).

The most important genes involved in celiac disease are *HLA* genes. These genes help make HLA proteins, which sit on the surface of white blood cells. They help the immune system attack and remove dangerous invaders like bacteria and viruses. In people with celiac disease, HLA proteins may attack gluten by mistake and damage the gut barrier [\[R\]](#), [\[R\]](#).

Moreover, genetically high testosterone levels may be causally associated with a lower risk of celiac disease in men [\[R\]](#).



Likely higher sensitivity to gluten based on 2 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HLA-DQA2	rs7454108	TC
/	rs2187668	CC

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

Psoriasis

Key Takeaways:

- Up to **90%** of differences in people's odds of developing psoriasis may be due to genetics.
- Psoriasis triggers include: infections, weather, skin injuries, stress, cigarette smoke, alcohol abuse, steroid withdrawal.
- About **2%** of Americans have psoriasis, mostly appearing in younger and older adults.
- Even though the condition is rare, people with high genetic risk should understand and be wary of potential triggers.
- Click the **Recommendations** tab for potential dietary and lifestyle changes.

Psoriasis is an autoimmune skin disease in which the body attacks its own skin cells. In response, skin cells begin to grow too quickly. New cells then begin to pile up on the skin's surface, forming plaques. The result is itchy, inflamed, scaly skin — the hallmark of psoriasis [\[R, R, R\]](#).

About 2% of Americans have psoriasis. It can appear at any age, but most cases develop between the ages of 15-20 or 55-60 [\[R\]](#).

People predisposed to psoriasis don't always have symptoms. In fact, **symptoms may only appear after contact with a "trigger"** [\[R\]](#).

Some common triggers include [\[R\]](#):

- Throat and skin infections
- Dry and cold weather
- Skin injuries (like bug bites and sunburns)
- Stress
- Cigarette smoke
- Alcohol abuse
- Topical steroid withdrawal

Signs and symptoms of psoriasis include [\[R\]](#):

- White scales covering patches of inflamed, itchy skin (often on the elbows, knees, scalp, and back)
- Joint stiffness
- Thickened or discolored nails

People with psoriasis also tend to have problems with their kidneys, heart, and joints. In fact, about 30% of patients have *psoriatic arthritis*. This painful condition mainly affects the fingers and toes [\[R\]](#).

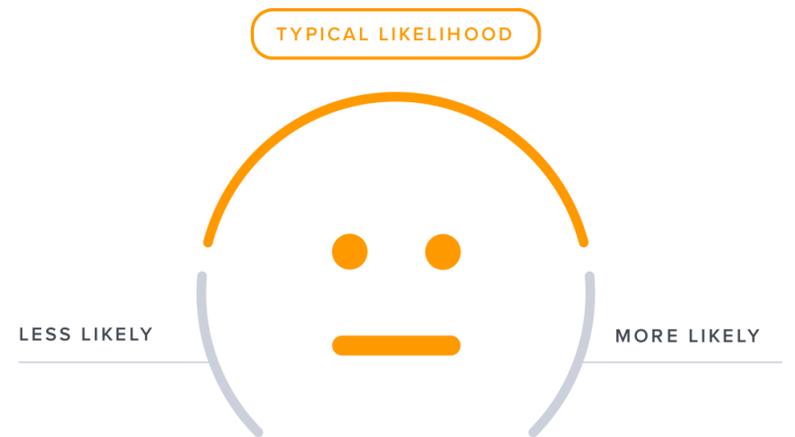
As there is no cure for psoriasis, treatment aims to manage symptoms. Your doctor may suggest [\[R, R, R\]](#):

- Light therapy
- Coal tar
- Medications that block the immune response
- Topical vitamin D
- Retinoids

Between 60-90% of differences in psoriasis may be attributed to genetics. Genes involved in psoriasis may influence [\[R, R, R\]](#):

- Inflammation (IL12B, IL23A, IL23R, NFKBIZ)
- Immune response (IFNLR1, NOS2, IFIH1, HLA-C)

Genetically high neutrophil levels may be causally associated with a higher risk of psoriasis [\[R\]](#).



Typical likelihood of psoriasis based on 766 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
STAT3	rs744166	AG
TNIP1	rs17728338	GA
IFNLR1	rs10794648	CC
IFIH1	rs1990760	TT
IL12B	rs7709212	TC
ZNF816	rs9304742	TT
REL	rs842625	GG
SPATA2	rs7352944	TT
LCE3C	rs4845459	CA
TNFAIP3	rs643177	TC
COG6	rs34394770	TT
TP63	rs28512356	CC
ETS1	rs6590334	TT
PPP2R3C	rs8016947	TG
CAVIN1	rs56364076	TC
SLC44A2	rs892085	AG
DDX58	rs11795343	TC
POU2F3	rs2847500	AG
IL13	rs20541	AG

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

Eczema

Key Takeaways:

- Up to **75%** of differences in people's chances of developing eczema may be due to genetics.
- Eczema triggers include: allergens, cold, dry air, Infections, skin irritants, and stress.
- It can affect your appearance and quality of life.
- If you have a high genetic risk, take special care to avoid potential triggers.
- Click the **Recommendations** tab for potential dietary and lifestyle changes.

Eczema is an inflammatory skin condition. It causes dry skin and itchy red rashes, usually on the elbow creases, neck, and back of the knees [\[R, R\]](#).

Up to 1 in 3 children experience eczema, usually in the first year of life. The condition is less common (2-10%) in adults [\[R\]](#).

Factors that tend to worsen eczema include [\[R, R\]](#):

- Contact with allergens (pollen, mold, dust mites, or animals)
- Cold, dry air
- Infections like the flu
- Contact with skin irritants (chemicals or fabrics)
- [Stress](#)

People with eczema may be more prone to skin infections. Normally, the skin has a protective barrier that keeps out germs. Eczema can compromise this barrier, making it easier for infections to arise [\[R, R\]](#).

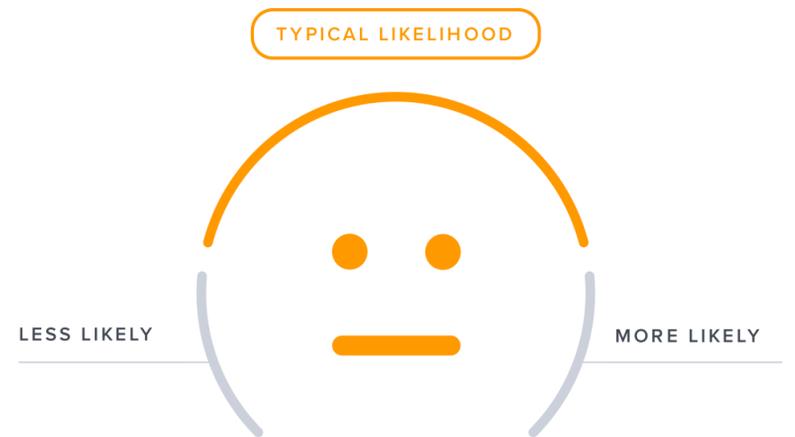
The symptoms of eczema can usually be managed at home with the help of [\[R\]](#):

- Moisturizers
- Humidifiers
- Topical medications
- Trimming or covering fingernails (to limit scratching)
- Avoiding skin irritants

While the causes of eczema aren't completely clear, **genetics seems to play a major role**. What's more, the genetics of eczema, asthma, hay fever, and food allergies are very similar. This means that if you have one, you're more likely to have the others [\[R, R\]](#).

Up to 75% of differences in people's chances of developing eczema may be attributed to genetics. Genes involved in eczema may influence [\[R, R, R, R, R, R\]](#):

- Skin barrier function (FLG, OVOL1, KIF3A)
- Inflammation (IL13, IL4)
- Immune response (HLA-DQA1, EMSY)



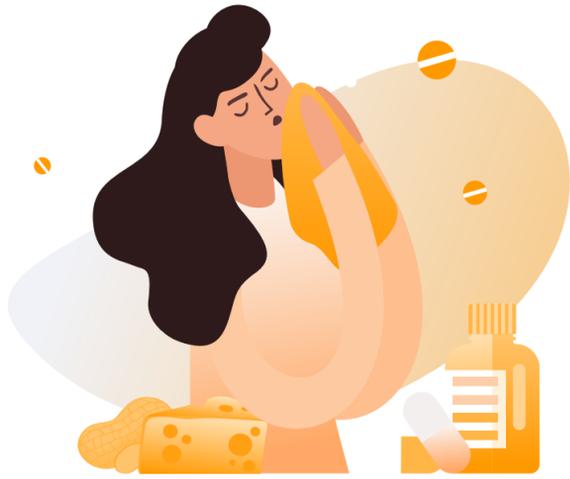
Typical likelihood of eczema based on 6,952 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
OVOL1	rs10791824	GG
STMN3	rs3848669	TT
TREH	rs10790275	CC
ADO	rs4372325	CC
PRR5L	rs10836538	GG
PPP2R3C	rs2415269	GG
SATB1	rs4395418	CC
SLC22A5	rs60153262	TC
NCF4	rs4821564	CC
ID2	rs891058	GG
D2HGDH	rs34290285	GG
LRRC32	rs7936434	GC
TRIB1	rs12334935	GA
MDM1	rs2227491	TC
RUNX3	rs6672420	TA
ARHGAP27	rs9895436	AG
TNFSF18	rs6691738	TG
FLG	rs61816761	GG
FLG	rs138726443	GG

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



Allergies

Can't cuddle your family pet without sneezing? Have to pop an antihistamine before visiting a fluffy friend? If you answered yes to either of these questions, you aren't alone. Up to **20%** of people are allergic to cats or dogs, while up to **40%** of American adults may have some kind of allergy.

An allergy is an immune reaction to a trigger that is normally harmless. This allergy trigger is called an allergen. **From pet to pollen, your genes may help determine the best strategies to potentially lessen the impact allergies have on your life.**



TYPICAL LIKELIHOOD

Allergies

Typical likelihood of allergies



TYPICAL LIKELIHOOD

Food Allergies

Typical likelihood of food allergies



LESS LIKELY

Egg Allergy

Less likely to have an egg allergy



MORE LIKELY

Peanut Allergy

More likely to have peanut allergy

Allergies

Key Takeaways:

- Up to **85%** of differences in people's chances of having allergies may be due to genetics.
- Up to **20%** of people are allergic to cats or dogs, and **40%** have allergies in general.
- Even with low genetic risk, your overall risk of allergies is relatively high because they are increasingly common.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

It's hard to say exactly how many people have allergies because they vary so much. **Up to 42% of American adults say that they have some kind of allergy** [R, R, R].

Some allergies may even become more common due to climate change. As temperatures and carbon dioxide levels rise, plants may produce more pollen. This could lead to more people developing seasonal allergies [R].

An *allergy* is an immune reaction to a trigger that is normally harmless. This allergy trigger is called an *allergen*. The best-known allergens are peanuts and pollen. However, people can be allergic to just about anything, including [R, R]:

- Animals
- Foods
- Insect stings and bites
- Medications
- Metals
- Latex
- Perfume
- Dust

An allergic reaction begins when the body recognizes an allergen. White blood cells release **histamine** and other molecules that cause inflammation. This inflammation can be mild or very dangerous. Its consequences can range from sneezing to death [R, R].

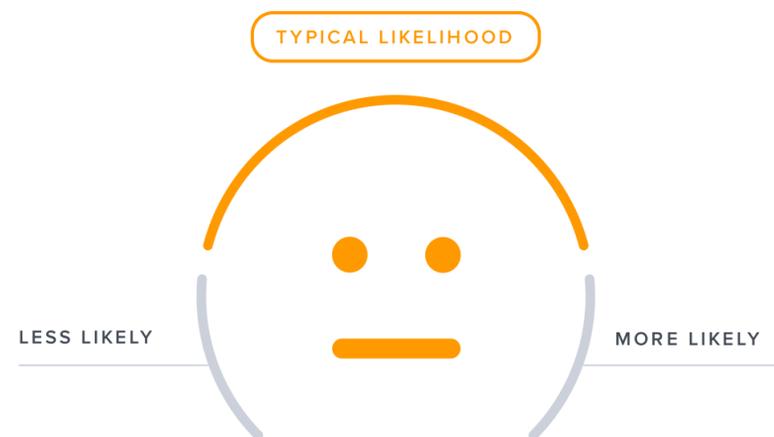
There are also different types of allergies including:

- **Food allergies:** Some foods cause a dangerous reaction that can stop your breathing. Others may cause stomach upset, sneezing, or tingling in the mouth [R].
- **Respiratory allergies:** Pollen and dust can cause a stuffy nose and itchy eyes [R].
- **Contact allergies:** Metal or latex can cause skin rashes if they touch the skin [R].

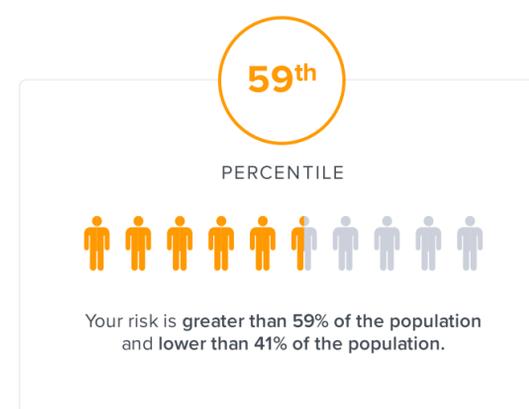
If you suspect you're allergic to something, you can get an allergy test. The most common types of allergy tests are [R, R, R]:

- **Skin prick test:** The allergen is mixed into water or oil. The doctor places a droplet on your arm and pricks the surface of the skin. If the skin becomes red and swollen, you are having an allergic reaction.
- **Patch test:** A patch is soaked with the allergen and placed on the skin for 1-3 days. This test is used to find allergies that don't cause a fast, dramatic reaction.
- **Provocation test:** In a lab setting, you are exposed to an allergen. If you are testing for seasonal allergies, a doctor may spray specific types of pollen up your nose. This test is only used when other tests haven't produced clear results.

Once identified, allergies generally cannot be treated. Instead, people try to prevent an allergic reaction from happening in the first place. The most important step is to avoid the allergen when possible. For example, people with peanut allergies should not eat food that contains peanuts. People with nickel allergies should not wear jewelry that contains nickel [R, R].



Typical likelihood of allergies based on 2,373 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PTGER4	rs7720838	TT
GSDMB	rs9303280	CC
NFATC2	rs6021270	TT
OVOL1	rs479844	GG
TLR1	rs17616434	TT
LRRC32	rs2155219	GT
TSLP	rs1438673	TC
STAT6	rs3024971	TG
LPP	rs9865818	GA
SH2B3	rs10774625	AG
IL13	rs20541	AG
RUNX3	rs760805	TA
CCR7	rs112401631	TT
KIAA1109	rs17454584	AA
IL33	rs144829310	GG
IL2RA	rs61839660	CC
HLA-DQA1	rs6906021	TT
IL1RL1	rs950880	CC
IRF4	rs11242709	CC

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

Thus, **people with respiratory allergies often look for ways to control their reactions.** Doctors may recommend medications, lifestyle changes, and nasal cleansing. Some people try supplements or diet changes [\[R\]](#), [\[R\]](#).

Allergies tend to run in families. In fact, **up to 84% of differences in people's chances of having allergies may be attributed to genetics.** Genes that may contribute to allergies influence [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Immune response (HLA-DRB1, HLA-DQB1, HLA-DPB1, CD14)
- Inflammation (IL10, IL4, IL6, IL13, TNF)
- Skin barrier function (OVOL1)

Food Allergies

Key Takeaways:

- Up to 80% of differences in people's chances of having food allergies may be attributed to genetics.
- Many allergies come and go through childhood, but common ones that linger into adulthood, include nuts, seafood, milk, and eggs.
- Reducing risk for allergies involves avoiding the various food triggers.
- Click the **Recommendations** tab for potential dietary and lifestyle changes.

An *allergy* is an immune reaction to a trigger that is normally harmless. This allergy trigger is called an *allergen*. Food allergies are allergies triggered by foods. The best-known food allergens are peanuts. However, people can be allergic to just about anything [\[R, R\]](#).

Up to 80% of differences in people's chances of having food allergies may be attributed to genetics [\[R\]](#).

Many of the genes that influence food allergies affect the immune system [\[R, R\]](#).

TYPICAL LIKELIHOOD



Typical likelihood of food allergies based on 16,808 genetic variants we looked at

20%

OF USERS SHARE THE SAME SCORE



You have the same genetic predisposition as 20% of our users.

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HLA-DPA1	rs9277630	AC
LRRC32	rs7936434	GC
TLR1	rs2101521	GG
LRRC32	rs2212434	CT
FHIT	rs142617341	CC
GSTP1	rs1871042	CC
FLG	rs1933064	AG
TMEM243	rs6942407	AG
SPINK6	rs9325071	AA
RBFOX1	rs59325236	GG
LINGO4	rs12123821	CC
HLA-DQA2	rs9271588	CC
KIZ	rs17664036	TT
SERPINB10	rs12964116	AA
HLA-DQA2	rs9275596	TT
HLA-DRA	rs7192	GG
SERPINB10	rs1243064	TT
BMPRI1B	rs17023017	TT
SLC22A5	rs1295686	TC

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

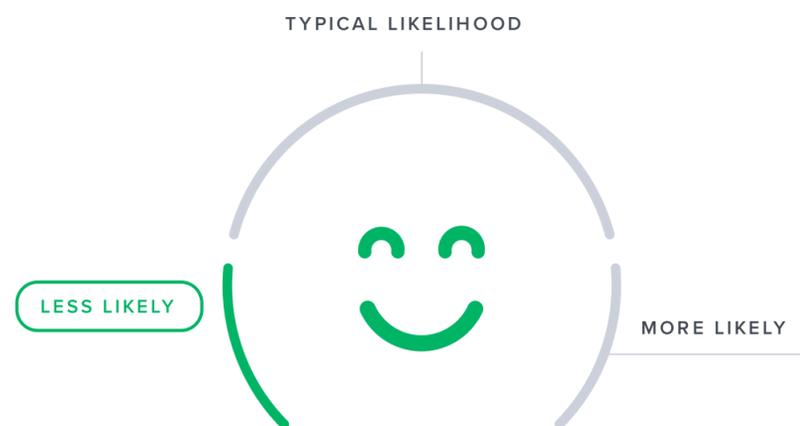
Egg Allergy

Egg allergies are relatively common, especially in children, and can be very severe. A person usually develops a reaction to one or more **egg white proteins**. Luckily, the allergy often fades with age [\[R, R\]](#).

About **80%** of differences in food allergy rates may be due to genetics. Most genes are involved in food allergies in general, rather than in a specific allergy. They may affect [\[R\]](#):

- The immune response
- The function of skin and mucous membranes

However, keep in mind that your diet, environment, and other factors may play a role in egg allergies.



Less likely to have an egg allergy based on 373 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
LRRC32	rs2212434	CT
/	rs150212674	TT
LPIN2	rs28794896	GG
SLC35F2	rs79590713	GG
ARHGAP32	rs76670383	CC
GNB5	rs80015591	TT
/	rs16833316	TT
HSPA13	rs76914408	TT
XXYL1	rs62292087	GG
CSGALNACT1	rs11779828	TT
IRX2	rs1661109	TT
RBFOX1	rs11866945	AG
ADAMTS8	rs12807953	GA
SHQ1	rs77166467	GA
SERPINB10	rs1243064	TT
BMP1B	rs17023017	TT
SERPINB10	rs12964116	AA
LINGO4	rs12123821	CC
ID4	rs114735690	GG

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

Peanut Allergy

Key Takeaways:

- Up to **80%** of differences in people's chances of having a peanut allergy may be due to genetics.
- About **3 million** people in the U.S. have a nut allergy.
- Risk factors involve contact with peanuts. Verify food content in restaurants, and read all food packaging labels to minimize risk.
- Allergy immunotherapy may help reduce the severity of reactions in some people.
- Click the **Recommendations** tab for potential dietary and lifestyle changes.

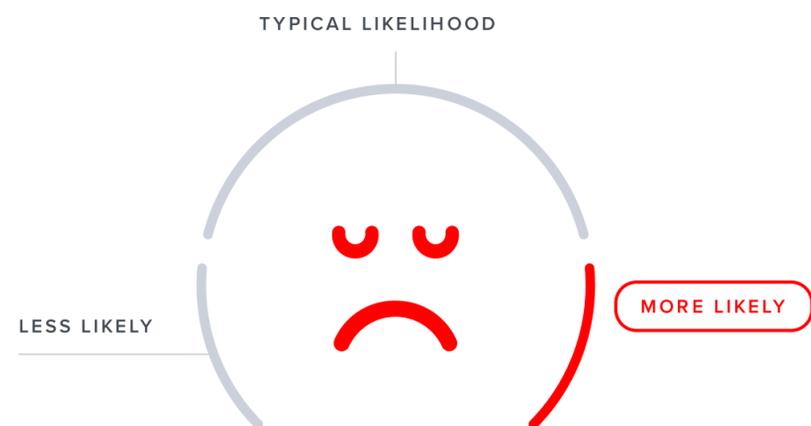
Peanut allergy is an immune response to proteins found in peanuts. Symptoms can range from mild to life-threatening and usually affect the gut, skin, and respiratory system.

Genetics may explain about 80% of differences in people's peanut allergy rates. Involved genes may affect the **immune response** to peanut proteins [R].

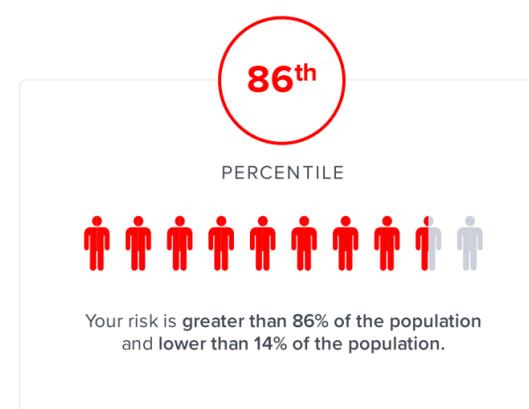
There is no cure for peanut allergy, but some children can outgrow it. The best way to prevent a reaction is to avoid peanuts and peanut-containing foods. **Allergy immunotherapy** may help reduce the severity of reactions in some people [R, R].

Introducing food containing peanuts into the diets of babies at risk of peanut allergy when they are **4-11 months old** may reduce the risk of developing this condition by **3 times**. At-risk babies include those with severe eczema or egg allergy. Please keep in mind that young children are at high risk of choking if they eat whole peanuts. Discuss the best approach with your child's doctor [R, R, R, R].

Treatment for allergic reactions may involve medication to manage symptoms and prevent anaphylaxis [R].



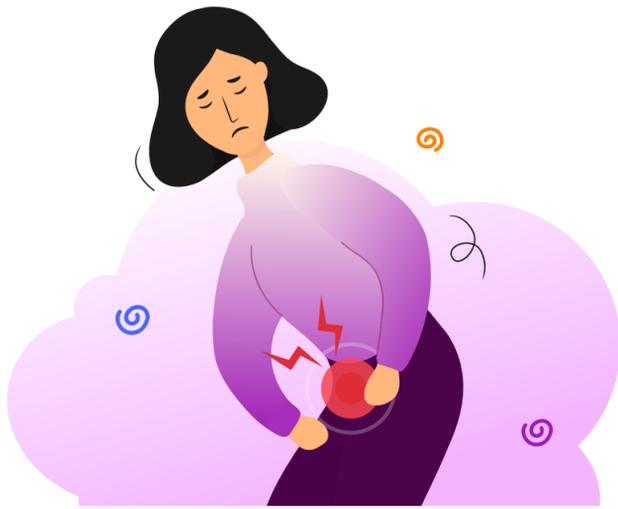
More likely to have peanut allergy based on 780 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HLA-DPA1	rs9277630	AC
LRRC32	rs2212434	CT
/	rs150212674	TT
LPIN2	rs28794896	GG
SLC35F2	rs79590713	GG
GNB5	rs80015591	TT
ARHGAP32	rs76670383	CC
PTGER4	rs7720838	TT
LRRC32	rs2155219	GT
TSLP	rs1438673	TC
STAT6	rs3024971	TG
LPP	rs9865818	GA
KIZ	rs17664036	TT
HLA-DQA2	rs9275596	TT
HLA-DQA1	rs9273440	CC
HLA-DRA	rs7192	GG
SERPINB10	rs12964116	AA
SERPINB10	rs1243064	TT
LINGO4	rs12123821	CC

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



Infections

Your body is host to millions of microbes that under normal conditions don't cause any issues. With a weakened immune system, microbes from inside and outside the body can cause infections. **Your genetics can make you more susceptible to some of them.**

This section reveals your genetic predisposition to UTIs, *H. pylori*, *C. diff*, and other infections. Knowing the risks can help you to make smarter decisions regarding your health regimen.



TYPICAL LIKELIHOOD

Flu

Typical likelihood of getting the flu



TYPICAL LIKELIHOOD

H. pylori

Typical likelihood of H. pylori infection



TYPICAL LIKELIHOOD

Urinary Tract Infections

Typical likelihood of UTIs



TYPICAL LIKELIHOOD

Yeast Infection

Typical likelihood of yeast infections



TYPICAL LIKELIHOOD

Gastrointestinal Infection

Typical likelihood of a GI infection



MORE LIKELY

C. difficile Infection

More likely to get a C. difficile infection



MORE LIKELY

Genital Herpes

More likely to get genital herpes



TYPICAL LIKELIHOOD

EBV Infection

Typical likelihood of getting EBV infection



TYPICAL LIKELIHOOD

Strep Infection

Typical likelihood of a strep infection



LESS LIKELY

Chlamydia

Less likely to get chlamydia



LESS LIKELY

HPV Infection

Less likely to get HPV infection

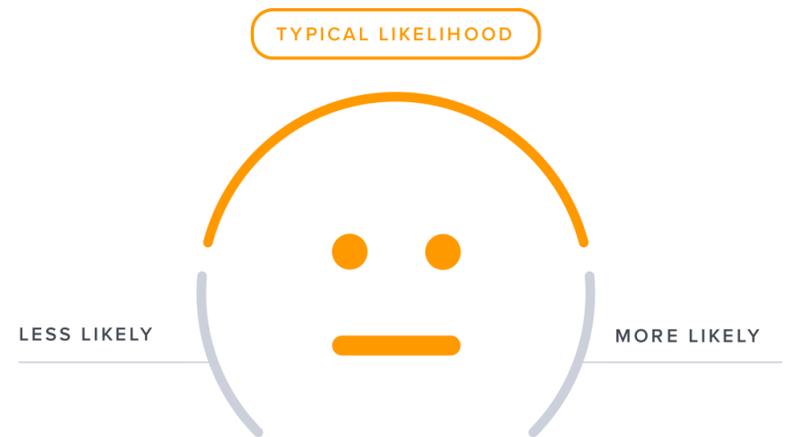
Flu

Flu (influenza) is a respiratory infection of the nose, throat and lungs, transferred via droplets that are either inhaled or picked up from surfaces.

Studies show that **genetic factors** can play a significant role in the risk of developing severe flu symptoms [R].

The following groups are at a higher risk of getting the flu and developing complications [R]:

- Young children under age 2
- Adults older than age 65
- Residents of nursing homes and other long-term care facilities
- Women who are pregnant during flu season
- People with weakened immune systems
- People who have chronic health conditions
- Obese people with a BMI of 40 or higher



Typical likelihood of getting the flu based on 8,860 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
C8ORF37	rs181713880	GT
COL13A1	rs141075045	TG
NVL	rs112467163	CC
DRD1	rs142723725	TT
TRPS1	rs183950686	CC
UBE4B	rs143629080	AA
FRY	rs181806454	TT
ZFPM1	rs145453932	CC
CNIH3	rs10916657	CC
PAPPA	rs146267898	CC
ZFAT	rs140441520	CC
FAM216B	rs79927049	AA
TTC39C	rs578224362	GG
IL5RA	rs17882872	GG
TRPS1	rs149728106	CC
SRPK2	rs192703162	TT
BSN	rs114922254	GG
GLRB	rs112901368	GG
/	rs139049214	TT

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

H. pylori

Key Takeaways:

- Genes involved in H.Pylori affect stomach acid production and the stomach's mucous barrier.
- Risk factors include an unsanitary environment, poverty, eating at restaurants, eating meat, and smoking.
- If you have a high genetic risk, you may reduce overall risk by taking action on risk factors that you can change.
- Click the **next steps** tab for relevant labs and lifestyle factors.

Helicobacter pylori (*H. pylori*) is a type of bacteria that can live in the stomach. About half of all people may be infected with *H. pylori*. Developing countries have higher infection rates [R, R, R].

Most people don't have any symptoms of infection. In some, however, the bacteria can start to break down the protective mucous barrier of the stomach wall. This can cause serious problems [R, R, R].

H. pylori may contribute to [R, R]:

- [Gastritis](#) (stomach inflammation)
- Peptic ulcers (sores in the stomach or upper small intestine lining)
- Stomach cancer

Symptoms arise when a person develops gastritis or ulcers. These can include [R, R, R]:

- Nausea
- Stomach pain
- Vomiting
- Low appetite
- Weight loss
- Indigestion

People usually become infected with *H. pylori* in childhood. Growing up around a lot of people or in unsanitary conditions may play a large role. Other risk factors for *H. pylori* infection include [R, R]:

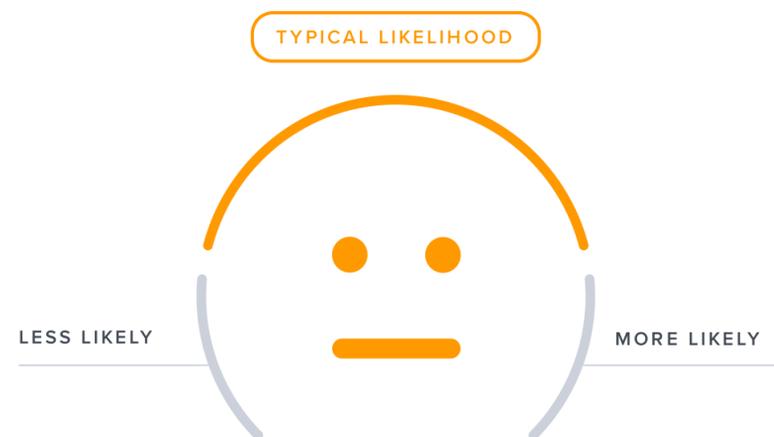
- Lower socioeconomic status
- Eating out at restaurants
- Eating meat
- Smoking cigarettes

Medications for *H. pylori* help kill the bacteria and heal the stomach. They are usually prescribed in different combinations [R, R, R].

Some strains of *H. pylori* are becoming more difficult to kill with antibiotics. This makes them harder to treat [R, R].

Genetics seems to play a role in the risk of ulcers due to *H. pylori*. Genes involved in *H. pylori* infection and related diseases may influence [R, R]:

- Stomach acid production (*GAST*)
- The mucous barrier in the stomach (*MUC1*, *FUT2*, *ABO*)



Typical likelihood of *H. pylori* infection based on 86,987 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DOCK10	rs10201967	CC
IKZF2	rs10194411	GG
AKR1E2	rs112501331	CC
VMP1	rs111821451	GG
FBXO21	rs111576798	GG
RAP2B	rs112013042	CC
SIPA1L3	rs113428378	AA
NFE2	rs11170954	CC
HPCAL1	rs10929658	AA
PDSS1	rs112022787	GG
METTL14	rs112991781	TT
PCDH15	rs11004038	TT
PDZD2	rs10472790	TT
FGD4	rs11052023	TT
/	rs11059054	CC
LGSN	rs1020805	GG
PCDH15	rs11004387	TT
/	rs10008115	GG
GAREM2	rs1019972	CC

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

Urinary Tract Infections

Key Takeaways:

- About **150 million** people get at least one UTI per year. They're much more common in **women**.
- Women at a high genetic risk may want to take precautions, such as staying hydrated and maintaining personal hygiene.
- UTIs can cause frequent urination, discolored or strong smelling urine, burning pain while urinating, and pelvic pain.
- Click the **Recommendations** tab for potential dietary and lifestyle changes and **next steps** for relevant labs.

A **urinary tract infection (UTI)** is an infection in the system that carries urine out of the body. This includes parts of the kidneys, ureter, bladder, and urethra. UTIs are most common in the **bladder and urethra** [R].

An estimated 150 million people around the world get at least one UTI per year [R].

UTIs are more common in women. In fact, up to 60% of women will get at least one UTI in their lives. This may be because the female urinary tract is shorter and closer to the anus [R, R].

UTI signs and symptoms include [R, R]:

- Frequent urination
- Burning pain while urinating
- Cloudy, red, pink, or very dark urine
- Urine with a strong smell
- [Pain](#) in the pelvic region

Most UTIs are minor and can be treated with antibiotics. However, untreated UTIs can have serious complications. These include kidney damage and sepsis, a dangerous whole-body response to infection [R, R].

To prevent UTIs, doctors often recommend [R]:

- Drinking plenty of water
- Drinking cranberry juice

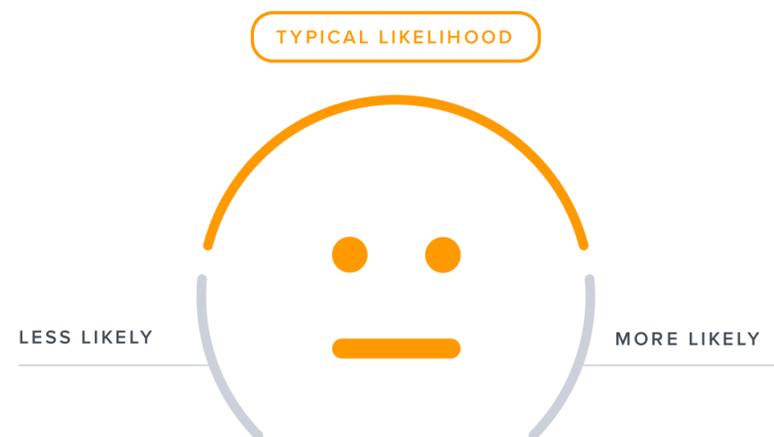
Women in particular may be advised to [R]:

- Wipe from front to back after using the toilet
- Pee after sex to flush bacteria from the urethra
- Avoid deodorant sprays or douches to prevent irritation
- Avoid diaphragms and spermicidal condoms, which can promote bacterial growth

Some people are prone to frequent UTIs no matter how careful they are. Their doctors may prescribe other interventions [R].

Genetics plays a significant role in UTI development. Genes involved in UTI development tend to influence the immune response. They include [R, R, R]:

- TLR4
- CXCR1
- IRF3
- MYD88
- TGFB1



Typical likelihood of UTIs based on 37,658 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
SLC26A5	rs148099564	CC
ADAL	rs189027627	GG
ADAL	rs140427966	AA
ADAL	rs146906133	TT
TRIM69	rs181576645	AA
CTDSPL2	rs182345433	AA
FMO4	rs144708187	GG
CATSPER2	rs181750397	CC
SCIN	rs13243276	CC
HLA-DQA2	rs622871	GG
HLA-DQA2	rs1548306	TT
USP47	rs200063994	AA
H4C13	rs13191227	GC
BTN3A2	rs6920256	GA
H3C12	rs34662244	GA
FRA10AC1	rs7091068	GT
ZSCAN31	rs200972	TC
TCF12	rs4774899	TC
/	rs117879743	AA

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

Yeast Infection

Candida albicans is a fungus that normally lives in and on the body. If its environment changes and promotes its growth, *Candida* can multiply and lead to an infection. This is called a **yeast infection** or **candidiasis** [R].

A yeast infection usually happens in the [R, R, R]:

- Mouth (oral thrush)
- Vagina (vaginal yeast infection)

Vaginal yeast infections are a common problem. They affect up to **3 out of 4 women** at some point in their lives. Many women have more than one in their lifetime [R].

Risk factors for yeast infections include [R, R, R]:

- Untreated or uncontrolled diabetes
- Weakened immune system (e.g., from HIV or certain cancer treatments)
- Antibiotics

Classic symptoms of a vaginal yeast infection include [R]:

- Vaginal itching, irritation, and pain
- Burning feelings while urinating or during sex
- Vaginal redness and swelling
- Thick and white or watery vaginal discharge

Symptoms of oral thrush include [R]:

- White lesions in the mouth that may bleed
- Redness, burning, or soreness in the mouth
- Loss of taste
- Cracking and redness at the corners of the mouth
- A cottony feeling in the mouth

Yeast infections can become more complicated in those who [R, R, R]:

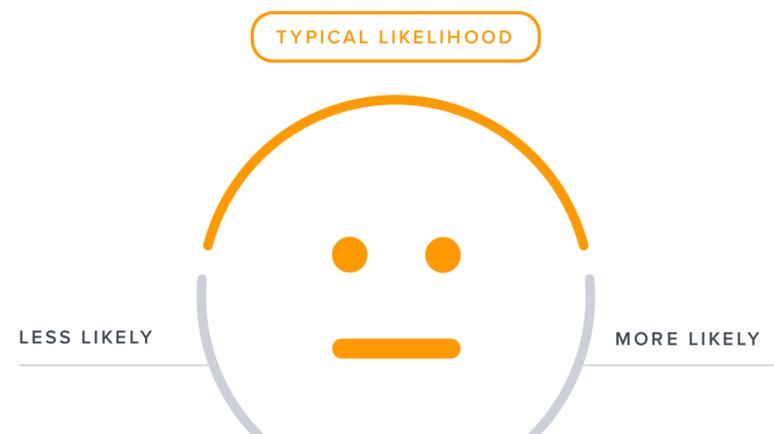
- Are pregnant
- Have diabetes
- Have weakened immune systems (e.g., people with HIV)

Thankfully, most yeast infections are easy to treat with medication [R, R].

Additional strategies to help manage yeast infections include [R, R, R, R, R]:

- Saltwater rinses
- Changes to oral or vaginal hygiene
- Wearing clothing (such as underwear and pantyhose) that is breathable and not too tight

People's chances of getting yeast infections may be affected by genetics. Genes involved in yeast infections may influence the immune response [R, R].



Typical likelihood of yeast infections based on 104,352 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TRAF5	rs569660383	AA
FGFR2	rs139149394	CC
KIF17	rs150119925	GG
EIF4G3	rs142368506	GG
HP1BP3	rs114327939	CC
CNR2	rs184601170	CC
FMN2	rs549043672	CC
EIF4G3	rs563320351	CC
NAV1	rs146733481	CC
TCERG1L	rs78303108	CC
ADGRL4	rs78913903	GG
MGMT	rs78280217	CC
TXLNA	rs575793596	GG
HP1BP3	rs149468462	CC
OR2M3	rs144885655	CC
LCK	rs184521150	GG
DCDC2B	rs142941874	AA
SH3PXD2A	rs532548209	GG
LRRN2	rs574609503	GG

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

Gastrointestinal Infection

Gastrointestinal (GI) infections are diseases of the digestive system. They are caused by the invasion of microbes that do not usually live there.

Many different microbes may cause GI infections. Some examples are [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Parasites (e.g., *Giardia lamblia*)
- Bacteria (e.g., *Salmonella*, *Shigella*, *Campylobacter*, *E. coli*)
- Virus (e.g., rotavirus, norovirus)

In developed countries, most cases are due to viruses [\[R\]](#).

The main sources of infection include [\[R\]](#):

- Person-to-person contact
- Consumption of contaminated food (e.g., undercooked or poorly stored meat, raw milk)
- Consumption of contaminated water (e.g., river or swimming pool water)
- Contact with contaminated objects (e.g., soil, work tools)
- Contact with animals or their feces (e.g., contact with farm animals and pets, visiting petting zoos)

Risk factors for GI infections include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

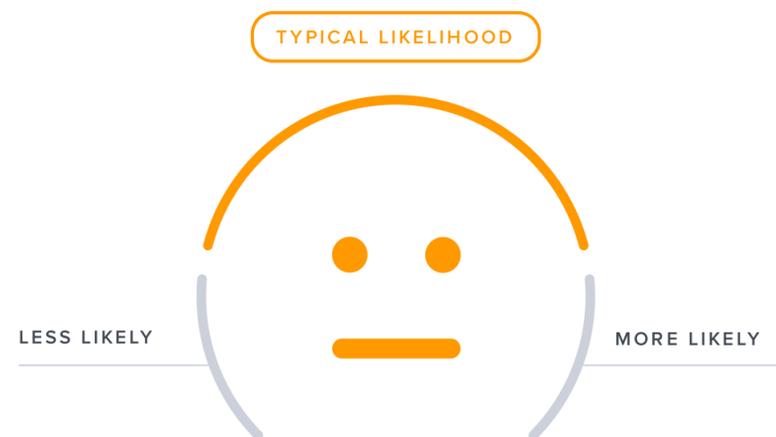
- Malnutrition
- A recent visit to an endemic area
- Recent use of antibiotics
- Drugs to reduce stomach acid (e.g., [omeprazole](#))
- Chronic stress
- Weakened immunity
- Recent abdominal surgeries
- **Genetics**

The symptoms of GI infections depend on the causing microbe. They usually include [\[R\]](#), [\[R\]](#):

- Diarrhea
- Fever
- Belly cramps
- Nausea and vomiting
- Headache
- Muscle pain
- Dehydration (weakness, confusion, dizziness)

In most cases, the symptoms will disappear within 7 days. In rare cases, the GI infection can last more than 30 days and turn chronic [\[R\]](#), [\[R\]](#).

Mild cases usually don't require treatment. Proper hydration and rest are crucial for recovery. Make sure to seek medical care if your symptoms are severe [\[R\]](#).



Typical likelihood of a GI infection based on 49,910 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
MFHAS1	rs11995244	TT
FCHO2	rs3010256	TT
NPC1	rs1652362	TT
BHLHE41	rs3825165	TT
/	rs369614251	CC
CNTN5	rs7112253	AA
SESN3	rs75887387	GG
ATXN1	rs3793102	AC
MGA	rs7183231	CA
/	rs143538360	TT
RBMS3	rs115249766	TT
/	rs376479926	AA
FLNB	rs1866164	CC
PRICKLE1	rs117347473	CC
ABO	rs41302673	TT
PIK3R1	rs12517727	GG
ABO	rs635634	CC

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

C. difficile Infection

C. difficile is a type of bacteria that may cause colitis, meaning inflammation of the large intestine or colon. It can be found in **contaminated** [R, R, R]:

- Water
- Food (e.g., retail meat, vegetables)
- Human and animal feces
- Hospital surfaces

Recent antibiotic use is the main risk factor for C. difficile infection. Antibiotics alter the gut microbiome and make it susceptible to infection. Other risk factors include [R, R, R, R]:

- **Hospital or nursing home stay**
- Malnutrition
- Being 65 or older
- Drugs to reduce stomach acid (e.g., [omeprazole](#))
- Inflammatory diseases (e.g., [inflammatory bowel disease](#))
- Chronic kidney or liver disease
- Chemotherapy
- Previous *C. difficile* infection
- **Genetics**

C. difficile produces toxins, which contribute to the following infection symptoms [R, R, R]:

- Diarrhea
- Belly pain and cramps
- Nausea and vomiting
- Fever

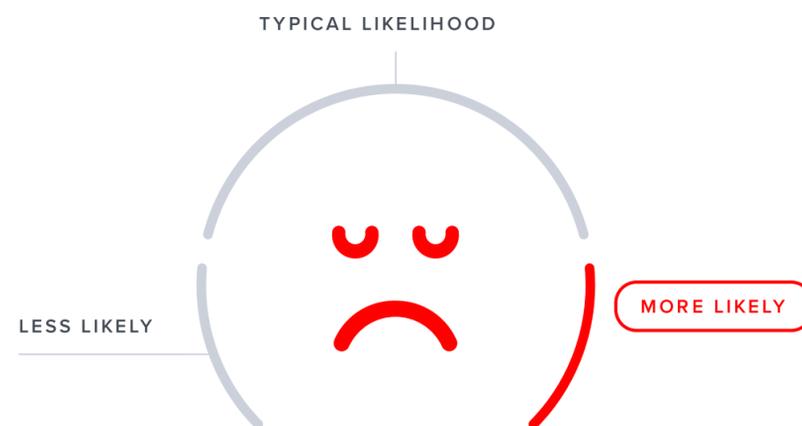
C. difficile infection may cause severe colon inflammation and even death if left untreated [R].

On the other hand, some people may not have symptoms at all, but they may still pass *C. difficile* on to others [R, R].

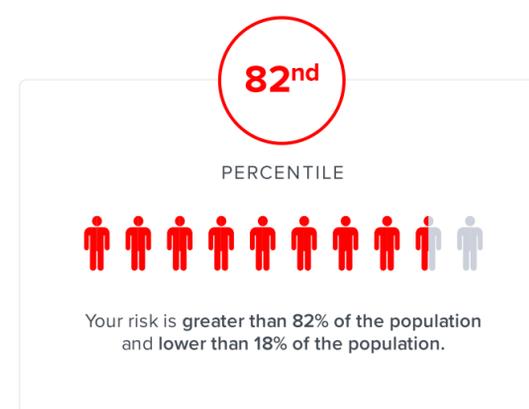
Medications for C. difficile help kill the bacteria. To prevent *C. difficile* infections, doctors also recommend [R, R, R]:

- Hand hygiene with soap and water
- Avoiding antibiotic misuse
- Taking probiotics

Some strains of *C. difficile* are becoming more difficult to kill with antibiotics. This makes them harder to treat and calls for new treatment approaches. One such treatment is *fecal microbiota transplantation* (FMT), or the transfer of a healthy person's feces into a patient's colon [R, R, R, R].



More likely to get a C. difficile infection based on 2,751 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PRSS37	rs17719655	AC
TCF19	rs149917912	TC
PDE5A	rs72672568	TC
SORCS2	rs12641357	TA
/	rs867720	CT
/	rs1434351	GT
/	rs11617974	AC
CDH8	rs141932469	CC
CNOT4	rs117373257	GG
NWD2	rs116838950	TT
TRIM37	rs73321289	CC
DAP	rs13181507	GG
CSMD3	rs80176672	AA
USP25	rs192418381	TT
KCTD1	rs57118264	CC
CSMD1	rs890001	GG
NECTIN2	rs138769755	GG
C6ORF47	rs115062572	CC
LRRN1	rs139959052	GG

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

Genital Herpes

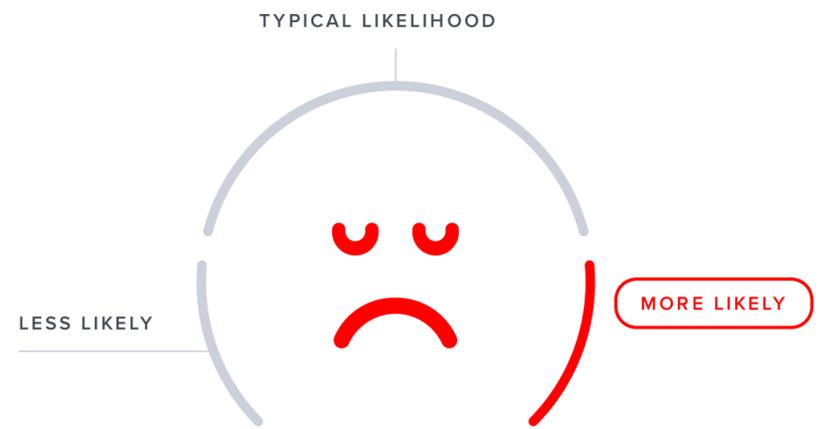
Genital herpes is a common sexually transmitted infection (STI), usually caused by the herpes simplex virus type 2 (HSV-2).

A higher risk of getting genital herpes is linked to [\[R\]](#):

- Being female
- Being African American
- Any type of sexual activity (spreading is more common from men to women)
- Having sex with multiple partners
- Having a partner with an active infection
- Having a history of other STIs

To limit these risks, it's essential to adopt **safer sex practices** and consider getting **regular screenings** if you are sexually active.

Genetics may also affect susceptibility to genital herpes. Involved genes may play a role in the immune response, cell life cycle, and more [\[R\]](#).



More likely to get genital herpes based on 284,981 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
HASPIN	rs7503464	AG
ADARB2	rs186430301	AG
C10ORF53	rs150994976	CT
TAMM41	rs144232229	GG
ADAM32	rs117705146	GG
ATP1B3	rs538162817	TT
CDH23	rs190960403	CC
POLR3A	rs144589616	GG
IL2RA	rs41294917	CC
CYP2C9	rs116878692	GG
OTUD1	rs188573619	CC
APBB1IP	rs113638825	AA
CELF2	rs188771969	TT
EGR2	rs188020302	GG
MSRB2	rs72800658	CC
CYP2C9	rs186327276	GG
CYP2C9	rs142997475	GG
ZNF365	rs537125040	TT
AKR1E2	rs139830049	GG

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

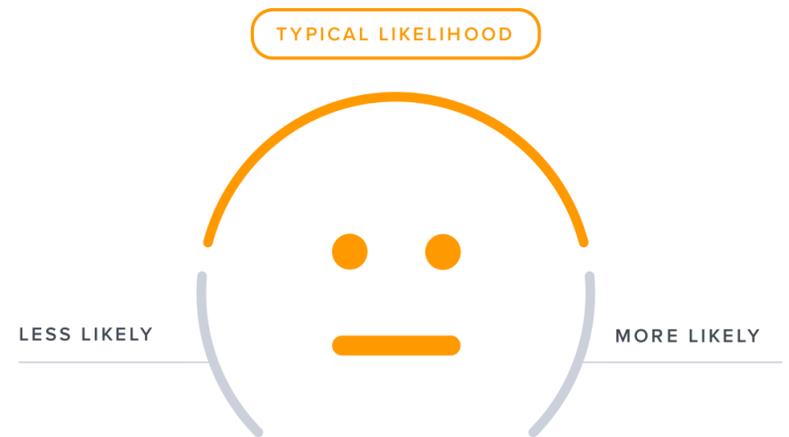
EBV Infection

Epstein-Barr virus (EBV) is one of the most common human viruses. It mainly spreads via saliva and may cause mononucleosis or “the kissing disease”.

Although almost everyone will come into contact with the virus, only a fraction of people will develop EBV infection. Risk factors for EBV infection include [\[R\]](#):

- Contact with infected person or objects
- Spending time in unventilated, crowded spaces
- Compromised immune system
- **Genetics**

Genetics also seems to play a role in mononucleosis, the main condition caused by EBV [\[R\]](#).



Typical likelihood of getting EBV infection based on 1,667 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PHF14	rs73067509	CC
SUGCT	rs186721582	GG
P2RY12	rs67886110	GG
H3C12	rs34034915	TI
RHBDD3	rs138870856	CC
SLC24A4	rs4900130	GG
UTP20	rs78440807	GG
S1PR4	rs61731111	CC
PHKB	rs56257827	GG
SIDT1	rs34023543	AA
SVEP1	rs74597491	TT
GBE1	rs28763904	AA
SPATA6	rs77303590	CC
CPXM1	rs41310169	CC
MS4A13	rs55756397	GG
CEP63	rs114108011	GG
FANCI	rs117125761	CC
GCNT1	rs11546569	GC
MST1	rs142690032	GA

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

Strep Infection

Key Takeaways:

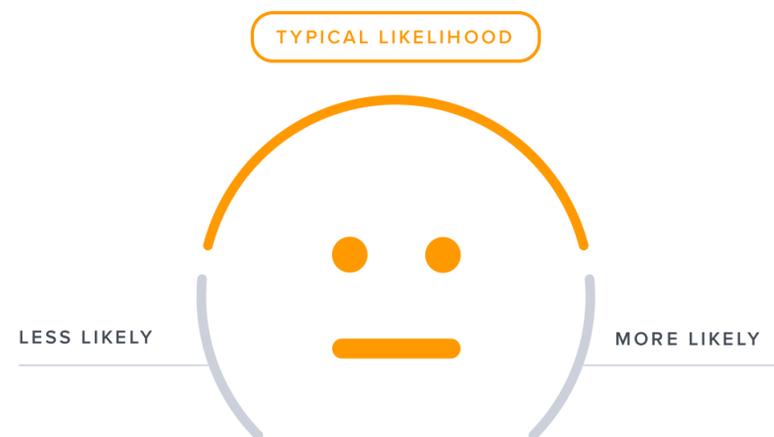
- The genetics involved in strep infection play a role in inflammation and the immune response.
- Other risk factors include age (childhood), time of year (winter/early spring), public/crowded places, poor hygiene, a weakened immune system, and some viral infections.
- Strep infection is common, affecting in the **100's of millions** every year worldwide.
- If you have high genetic risk, you may lower your overall risk by taking action on those factors that you can change.
- Click the **next steps** tab for relevant labs.

Strep infection is caused by Group A *Streptococcus* bacteria, known as **GAS** or **Strep A**.

Risk factors for strep infections include [R](#), [R](#):

- Young age (childhood)
- Time of year (winter and early spring)
- Being at public and crowded places like schools
- Poor hygiene
- A weakened immune system
- Some viral infections, such as the flu

Genetics may also affect your susceptibility to strep infections. Involved genes play a role in inflammation and the immune response against microbes [R](#).



Typical likelihood of a strep infection based on 37 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ZNF770	rs117330746	TT
STARD5	rs140751642	GG
MDFI	rs11757926	CC
COPS9	rs77982803	GG
SLC44A1	rs140382013	GC
NTSR2	rs7567094	CC
PGLYRP2	rs2116905	TT
CYP4V2	rs12331264	TC
MICB	rs1055821	GG
GJA10	rs148419428	CC
NMRK1	rs138176776	GG
PHYHIPL	rs148775021	AA
HCN4	rs377537777	TT
FYB2	rs139595874	TT
/	rs142537630	GG
TBX3	rs61929721	TT
DACT1	rs72624799	GG
OSR1	rs140420106	AA
SLC7A11	rs72728045	AA

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

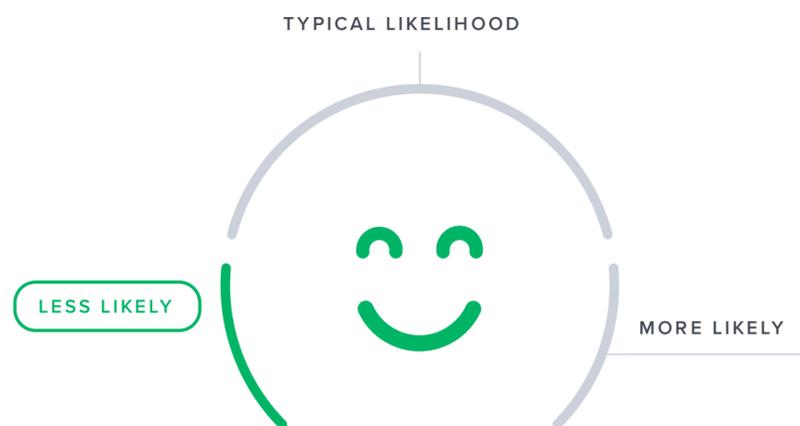
Chlamydia

Chlamydia is a common **sexually transmitted infection (STI)** caused by the *Chlamydia trachomatis* bacterium.

Factors that increase the risk of chlamydia include [\[R\]](#):

- Female sex
- African ancestry
- Being sexually active before age 25
- Having multiple sex partners
- Not using a condom consistently
- History of STIs

Interestingly, studies have found **genetic variants** linked to increased susceptibility to chlamydia. Involved genes play a role in the **immune response and skin barrier function** [\[R\]](#).



Less likely to get chlamydia based on 1,675 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NPSR1	rs720756	TT
MT1X	rs79741827	TT
MANBA	rs6821248	GG
/	rs77175455	AT
PIGN	rs61755362	GG
SIGLEC1	rs150358287	CC
OR13F1	rs79177442	GG
SLC1A7	rs116623976	GG
ITIH3	rs74320783	GG
VAV2	rs61751477	GG
DKK1	rs12259288	GA
SCN9A	rs141268327	TT
VPS35L	rs150300279	CC
LAMA5	rs79319629	TT
APOBEC1	rs34275479	CC
VWA2	rs79009215	GG
STARD3	rs11556624	GC
ZBTB49	rs34623124	GC
NCK2	rs143335233	CC

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

HPV Infection

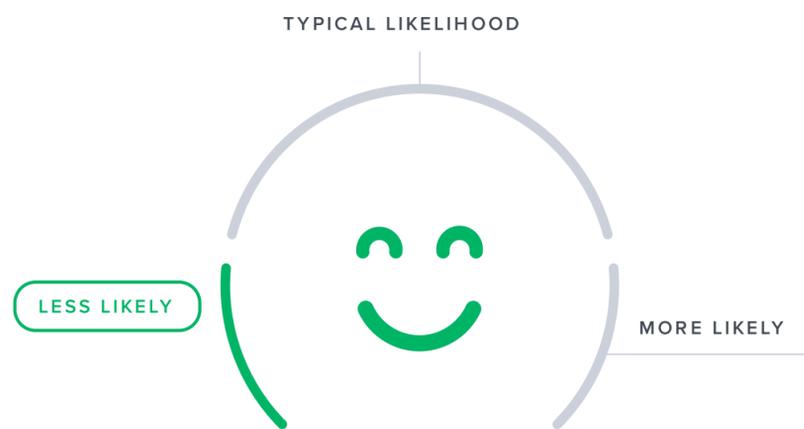
HPV infection is a common, sexually transmitted infection (STI) caused by the human papillomavirus.

Risk factors for HPV infection include [\[R\]](#):

- **Risky sexual behavior**
- Age (childhood for common warts; early adulthood for genital warts)
- Weakened immune system
- Damaged skin
- Personal contact with an infected person
- Contact with contaminated surfaces

Genetics also plays a role in HPV infection. Involved genes may influence [\[R\]](#):

- Cell growth and division
- The immune response against microbes
- DNA repair



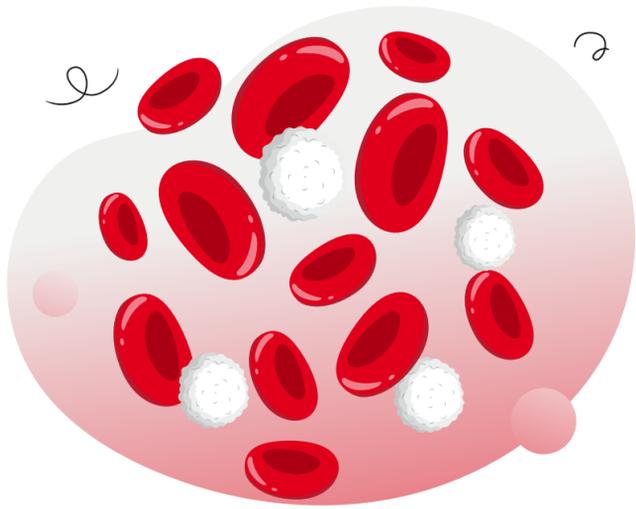
Less likely to get HPV infection based on 105,944 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
ABHD2	rs405103	CC
DOK5	rs1293153	AA
GPR26	rs78231715	CC
MPZL2	rs145674624	GG
TCERG1L	rs186242350	CC
FDX1	rs74572764	TT
KAT6B	rs192376670	CC
RHOBTB1	rs145804860	TT
CHAT	rs144802194	CC
PPIF	rs114574602	CC
TCF7L2	rs11196144	CC
FAR1	rs146644242	CC
DDI1	rs117507333	TT
GDPD5	rs139493418	TT
DLG2	rs182189934	CC
ARHGAP20	rs142501564	TT
C10ORF67	rs74896095	GG
NCAM1	rs190991582	TT
/	rs79520499	TT

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



Immune Cells

A healthy immune system has various cell types to do its job effectively. Different types of **white blood cells** are the cornerstone of a robust immune response. Abnormal levels of one or more of these cell types can indicate an ongoing infection or make a person more prone to it. They can also be indicative of other health issues.

This section dives into your genetics of white blood cells as a whole and their different subtypes.



HIGHER

White Blood Cells

Likely higher white blood cell count



TYPICAL LEVELS

Monocytes

Likely typical monocyte levels



HIGHER LEVELS

Basophils

Likely higher basophil levels



TYPICAL LEVELS

Eosinophils

Likely typical eosinophil levels



HIGHER LEVELS

Neutrophils

Likely higher neutrophil levels

White Blood Cells

White blood cells are immune cells that protect your body against specific types of invaders. The different types of white blood cells are neutrophils, lymphocytes, basophils, eosinophils, and monocytes. Your **white blood cell count** is the total number of all white blood cells in your blood [\[R\]](#).

A high white blood cell count usually means that your immune system is responding to something stressful. Common causes of a high white blood cell count include [\[R\]](#), [\[R\]](#):

- Infections from viruses, bacteria, or parasites
- Stress
- Inflammatory disorders (e.g., inflammatory bowel disease, rheumatoid arthritis)
- Allergies

Your white blood cell count generally returns to normal when the root cause is dealt with. If it stays high or reaches extremely high levels, then your doctor may order additional tests.

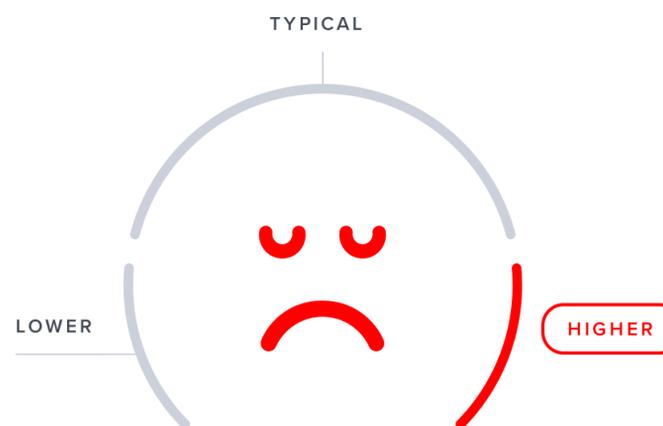
Anyone can have a temporarily low white blood cell count. It generally won't cause symptoms on its own. However, some conditions and treatments can cause a long-term decrease in white blood cell count. This can make infection more likely. Causes of low white blood cell count include [\[R\]](#):

- Malnutrition or vitamin deficiencies
- HIV or other viruses
- Cancer treatment (chemo or radiation)
- Bone marrow damage

Most of the time, a low white blood cell count does not require specific treatment. If you're concerned about your white blood cell count, talk to your doctor about it.

About 50-60% of differences in white blood cell count may be attributed to genetics. Genes involved may influence [\[R\]](#), [\[R\]](#), [\[R\]](#):

- White blood cell development in the bone marrow
- The immune response



Likely higher white blood cell count based on 34,015 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs549579958	CC
LYST	rs1886654	CC
PTPN22	rs2476601	GG
TET2	rs199741557	AA
ORMDL3	rs4795415	TC
MICB	rs2524079	AG
SH2B3	rs3184504	TC
PLAUR	rs4760	AG
NAA38	rs74480102	AG
CXCL5	rs11733208	CA
PRTFDC1	rs11014291	CT
CXCR2	rs55799208	GG
NCLN	rs144284241	CC
/	rs201347186	GG
JAML	rs143034248	CC
TTC28	rs62237617	CC
IRF8	rs11642657	CC
IL17RA	rs140221307	TT
FLT3	rs76428106	TT

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

Monocytes

Monocytes are white blood cells that protect against bacterial, viral, and other infections. Monocytes kill microbes, remove dead cells, and boost the immune response [\[R\]](#).

Higher monocyte levels most commonly occur due to [\[R\]](#), [\[R\]](#):

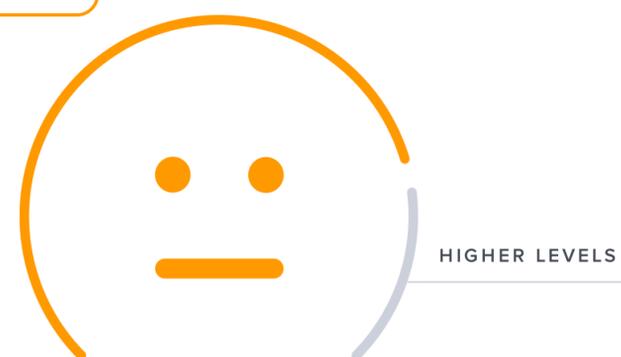
- **Infection**
- **Inflammation**
- Autoimmune conditions
- Heart disease

Genetics seems to play an important role, too. Up to **60%** of differences in people's monocyte levels may be due to genetics [\[R\]](#).

Genetically lower monocyte levels may be causally associated with:

- Alzheimer's [\[R\]](#)
- Deep vein thrombosis [\[R\]](#)

TYPICAL
LEVELS



**Likely typical monocyte
levels based on 842,556
genetic variants we
looked at**

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

GENE	SNP	GENOTYPE
LYST	rs10927074	CC
TET2	rs199741557	AA
GSDMC	rs35389394	CT
THEMIS2	rs41284294	TC
ST20	rs76648483	AT
B3GNTL1	rs9902102	CG
CKM	rs73036517	GA
IL17RA	rs140221307	TT
FLT3	rs76428106	TT
GFI1	rs150649461	GG
TNFRSF13B	rs34557412	AA
PRLR	rs186272630	GG
ACKR2	rs2228467	TT
ACOXL	rs150449635	TT
EHD3	rs184409696	GG
S1PR4	rs3746072	GG
LYZ	rs1800973	CC
ITGA4	rs10562650	II
ARHGAP9	rs61758883	GG

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

Basophils

Basophils are white blood cells that help protect against infections, but can also play a role in autoimmune diseases and allergies [\[R\]](#), [\[R\]](#).

High basophil levels can be due to:

- Allergies [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Infection [\[R\]](#)
- Inflammatory diseases, such as inflammatory bowel disease (IBD) and rheumatoid arthritis [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)

Genetics may also affect basophil levels [\[R\]](#).

Genetically higher basophil counts may be causally associated with a lower risk of narcolepsy. [\[R\]](#)

TYPICAL LEVELS



Likely higher basophil levels based on 1,005,560 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
PACC1	rs532279691	AA
GATA2	rs6782812	AA
MPO	rs56378716	GA
LARP4B	rs11253511	TC
LMNB1	rs2271352	CG
TENT5A	rs559377462	CC
LPO	rs546552332	AA
CXCR2	rs16858768	AA
CDKN2D	rs3218221	GG
MAP4K1	rs143002957	GG
TFCP2	rs117053853	GG
/	rs535521164	GG
SPINT2	rs34158728	GG
/	rs562526020	CC
BCL2	rs17758695	CC
FCGR3A	rs533276421	GG
MPO	rs28730837	GG
CDK6	rs445	CC
RNF212B	rs147453535	AA

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

Eosinophils

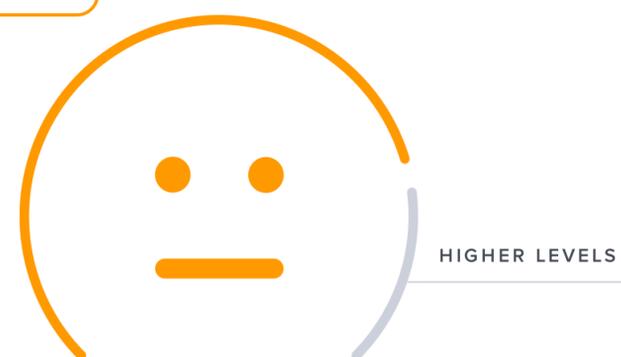
Eosinophils are white blood cells that help fight infections caused by parasites, but are also involved in allergies and inflammation [\[R\]](#).

Common causes of high eosinophil levels are:

- Allergic diseases such as asthma, eczema, or seasonal allergies [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Parasitic infections, mainly due to worms [\[R\]](#), [\[R\]](#)

Genetics may also affect eosinophil levels [\[R\]](#).

TYPICAL
LEVELS



Likely typical eosinophil levels based on 851,736 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
GATA2	rs6782812	AA
ERMP1	rs992969	GG
ASB2	rs11555542	CC
ITGB8	rs34030463	AA
HLA-DQA2	rs28383314	CC
LGALS14	rs412884	CC
SH2B3	rs7310615	CG
SLC22A5	rs2706334	CT
IL18R1	rs9807989	TC
NAA38	rs74480102	AG
BCL2L1	rs80054178	TC
/	rs76574427	GC
NCF4	rs117582568	GG
/	rs536070968	CC
CCR3	rs138346219	AA
SHC1	rs8191981	GG
GFI1B	rs150813342	CC
ALOX15	rs71368508	CC
S1PR4	rs3746072	GG

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

Neutrophils

Neutrophils are the most abundant white blood cells in the body. They protect you from bacterial, fungal, and other infections [\[R\]](#).

A high neutrophil level may be a sign of:

- Infections caused by bacteria, fungi, viruses, and parasites [\[R\]](#)
- Inflammation [\[R, R, R\]](#)
- Smoking [\[R\]](#)
- Stress [\[R\]](#)
- Strenuous exercise [\[R\]](#)
- Pregnancy [\[R\]](#).

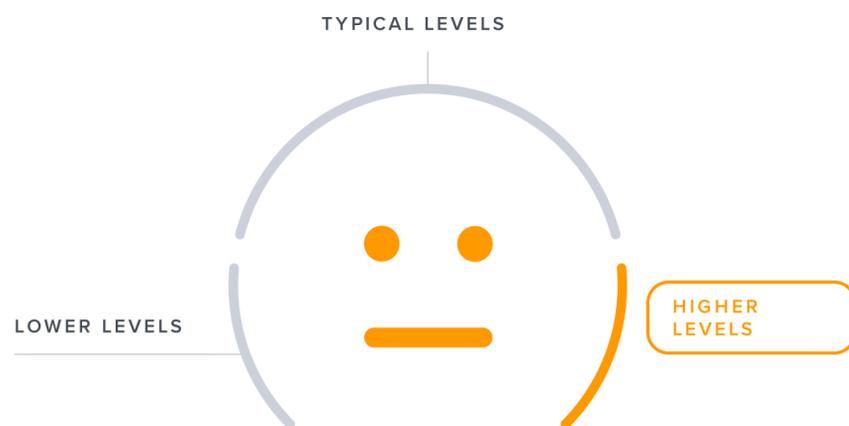
Low neutrophil levels, on the other hand, can be due to:

- Autoimmune disorders, such as lupus or rheumatoid arthritis [\[R, R, R, R, R\]](#)
- Bone marrow damage and disorders [\[R, R, R, R\]](#)
- Radiation therapy [\[R, R\]](#)
- Certain drugs [\[R, R, R, R\]](#)

Neutrophil levels are also partly affected by genetics.

Genetically high neutrophils levels may be causally associated with:

- Chronic pain (lower risk) [\[R\]](#).
- Stroke [\[R, R\]](#)
- Heart disease (CHD) [\[R\]](#).
- Lung health [\[R\]](#).
- High blood pressure [\[R\]](#).
- Alzheimer Disease [\[R\]](#).
- Psoriasis [\[R\]](#).
- High blood sugar [\[R\]](#).

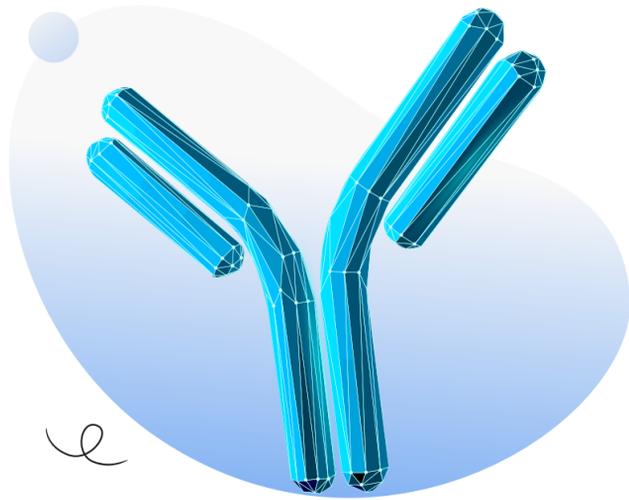


Likely higher neutrophil levels based on 41,236 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TSPOAP1	rs138284624	TC
LYST	rs1886654	CC
ORMDL3	rs3826331	TC
NBR1	rs199625942	CC
CXCL5	rs11733208	CA
PLAUR	rs4760	AG
MICB	rs2524079	AG
NAA38	rs74480102	AG
IFITM2	rs14408	CT
CSF3R	rs3917932	GC
CXCR2	rs55799208	GG
NCLN	rs144284241	CC
JAML	rs143034248	CC
ACKR1	rs34599082	CC
TTC28	rs62237617	CC
IFNA13	rs142938197	CC
FLT3	rs76428106	TT
ATF7	rs117788567	CC
RC3H1	rs77941945	GG

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



Antibodies

Antibodies are one of the weapons of the immune system. They are proteins called *immunoglobulins*, designed to attach themselves to foreign substances and help destroy them. **Your genetics can impact the amount and function of these antibodies.**

Abnormal levels of particular antibodies can indicate different health issues. For example, **IgE** antibodies are dominant in allergic reactions. People prone to allergies tend to have high IgE levels.



TYPICAL LEVELS

IgE

Likely typical IgE levels

IgE

Immunoglobulin E (IgE) is a type of antibody. The main role of IgE is to protect the body from infections by parasitic worms. On the downside, it also contributes to allergic diseases [\[R, R\]](#).

Genetics influence IgE levels. Involved genes play a role in our bodies' response to IgE. For example, the gene FCER1A helps make an IgE receptor —cell protein that binds IgE [\[R, R\]](#).

The most common causes of increased IgE levels are parasitic infections and allergies [\[R, R\]](#).

Smoking and alcohol drinking may also increase IgE levels. People with some health conditions may also have **high IgE levels**, including [\[R, R\]](#):

- Viral infections [\[R, R\]](#)
- Inflammatory bowel disease (IBD) [\[R\]](#)
- Kidney disease [\[R\]](#)
- Rare genetic disorders [\[R, R\]](#)

Keep in mind that this report is not about the rare genetic disorders mentioned above. They are very rare and usually diagnosed in infancy.

TYPICAL LEVELS

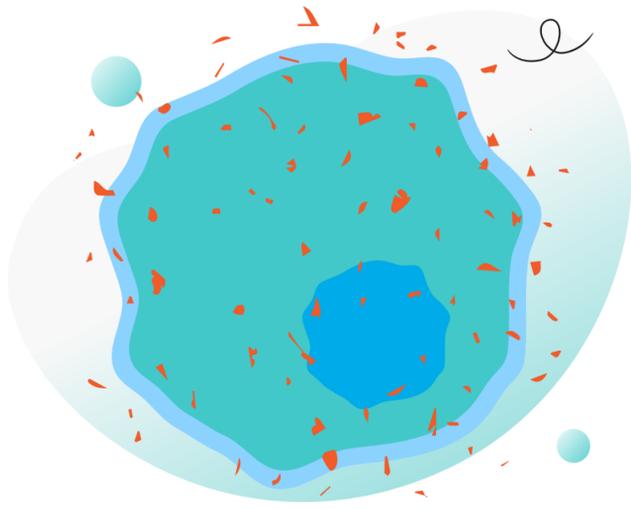


Likely typical IgE levels based on 16 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NQO1	rs6499255	AA
ACKR1	rs13962	GG
STAT6	rs1059513	TC
IL4R	rs1801275	GG
IL13	rs20541	AG
HLA-DQB1	rs2858331	AA
HLA-C	rs3130941	GG
FCER1A	rs2251746	TT
FCER1A	rs4656784	AA
HLA-A	rs2571391	AA
HLA-A	rs2523809	GG
LPP	rs9290877	CC

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



Inflammatory Proteins

Your immune system creates an inflammatory response when activated against a potential threat. This response is turned on and off by proteins called **cytokines**. Excess levels of inflammatory cytokines may indicate an inflammatory condition or another imbalance in the immune response.

Genetics can affect the levels of different inflammatory cytokines like IL-17 and IL-6. This section reveals your results.



TYPICAL LEVELS

IL-17 (Th17)

Likely typical levels of IL-17



TYPICAL LEVELS

IL-6

Likely typical levels of IL-6



TYPICAL LEVELS

IL-10

Likely typical levels of IL-10

IL-17 (Th17)

Interleukin 17 (IL-17) is a proinflammatory cytokine, produced mainly by [Th17](#) cells [\[R\]](#).

The main role of IL-17 is to defend us against harmful microbes. It also supports our [\[R, R, R\]](#):

- Gut
- Skin
- Lungs
- Brain

However, excessive IL-17 may cause harmful inflammation and contribute to inflammatory disorders, such as [\[R, R, R, R, R, R\]](#):

- Obesity
- Type 2 diabetes
- Liver disease
- Asthma
- Autoimmune diseases (e.g., multiple sclerosis, psoriasis, rheumatoid arthritis, Crohn's disease)
- Lung failure

The main factors that may influence IL-17 levels include health status and **genetics** [\[R\]](#).

TYPICAL LEVELS



Likely typical levels of IL-17 based on 13,199 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
/	rs117556572	CC
PTPMT1	rs139556855	AA
AMBRA1	rs148500124	AA
PTPRJ	rs185821266	GG
SLC1A1	rs7860087	GG
IKZF2	rs141312283	GG
/	rs187475560	CC
NAV3	rs184080173	TT
EPM2A	rs118117575	AA
/	rs148562661	CC
SHPRH	rs182530774	CC
EPM2A	rs187987903	GG
EPM2A	rs13215785	GG
GRM1	rs117785887	TT
GRM1	rs35548402	AA
MCFD2	rs1446499	TT
/	rs78612928	TT
PCDH8	rs9568764	CC
TRIB3	rs62191444	GT

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

IL-6

Interleukin-6 (IL-6) is a cytokine with both pro- and anti-inflammatory properties. It's crucial in the defense against infections [R, R, R, R].

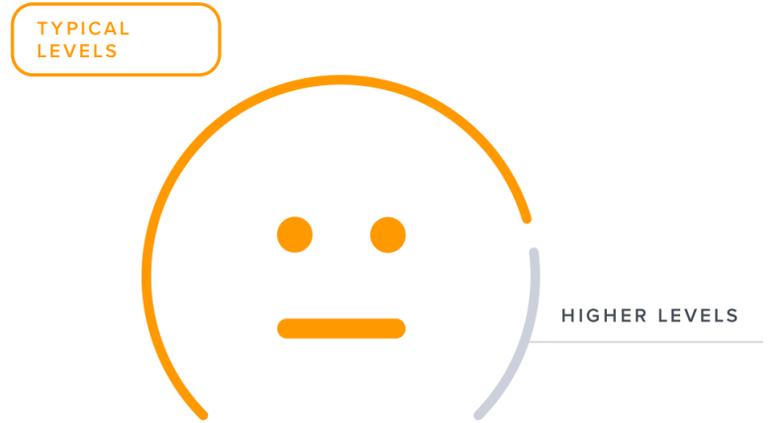
Up to 60% of differences in people's IL-6 levels may be due to genetics. Involved genes may influence our bodies' response to IL-6. For example, the IL6R gene helps make IL-6 receptors or proteins that bind IL-6 [R, R].

Normally, IL-6 is present in low levels. **An increase in its blood level has been linked to inflammatory conditions**, such as [R]:

- Autoimmune disorders (e.g., IBS, psoriasis, lupus, systemic sclerosis, rheumatoid arthritis) [R, R, R, R, R, R, R]
- [Obesity](#) [R]
- [Diabetes](#) [R]
- [Infections](#) [R, R, R]

Other factors linked to higher IL-6 levels include:

- [Chronic stress](#) [R, R, R]
- [Coffee \(>2 cups of coffee/day\)](#) [R, R]
- [Smoking](#) [R, R]
- [Drinking alcohol](#) [R, R]
- [Intense, prolonged exercise like marathon \(temporarily\)](#) [R, R, R]
- [Older age](#) [R, R, R, R]



Likely typical levels of IL-6 based on 616 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
STEAP1B	rs1800795	GC
BTBD7	rs182261775	GG
NOS1	rs146828618	CC
P2RY1	rs114373846	CC
FBLN5	rs113207090	CC
ATP9A	rs73273528	CC
SOX4	rs185628618	GG
TBKBP1	rs72831623	GG
TBKBP1	rs113600793	CC
AKNA	rs10982213	GG
/	rs148614378	CC
CASS4	rs1884910	GG
ATP2B2	rs4684700	CC
SERPINE2	rs13412535	AG
CDKN2B	rs1333040	CT
MTAP	rs2004627	TC
LRAT	rs2404476	GA
HLA-DQA2	rs660895	AG
AQP10	rs1386821	GT

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

IL-10

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

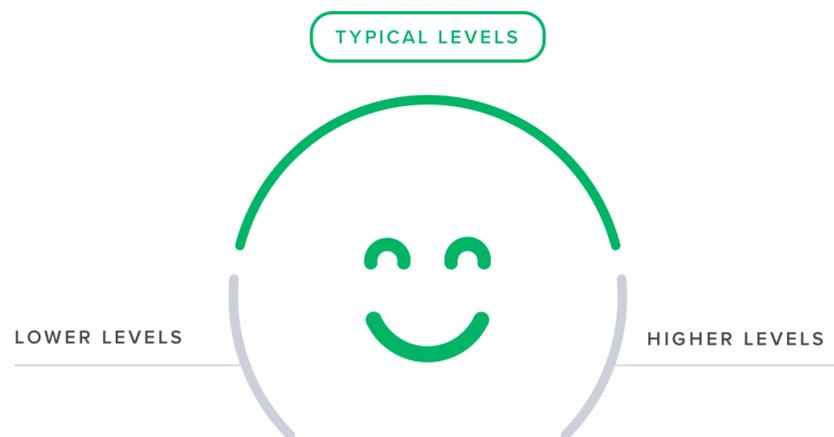
Up to **50%** of differences in people's IL-10 levels may be due to genetics. Interestingly, women naturally have lower levels than men [R, R].

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

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

On the other hand, people with the following health conditions may have **high IL-10 levels**:

- PTSD [R]
- Chronic fatigue syndrome [R]
- Fibromyalgia [R]
- Migraine [R]
- Lupus [R]
- Schizophrenia [R]
- Tuberculosis [R]
- Cancer [R, R, R]



Likely typical levels of IL-10 based on 28 genetic variants we looked at

Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
NNT	rs140614282	GG
IKBIP	rs1048911	TT
VEGFA	rs4349809	GT
SHROOM3	rs143141511	GG
BMP2	rs6085948	AA
VLDLR	rs2375980	CC
/	rs10493718	AC
NFKBIE	rs6458375	TC
ZNF516	rs9951418	AC
PREP	rs10457128	GA
MACROD2	rs465757	GA
HOMER1	rs4345303	TC
PDIA5	rs1530455	CT
/	rs2086656	CT
/	rs140244749	AA
NEBL	rs45559637	TT
LYRM7	rs148438889	GG
LYRM7	rs191791704	CC
RAPGEF6	rs147320771	TT

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

Your Recommendations

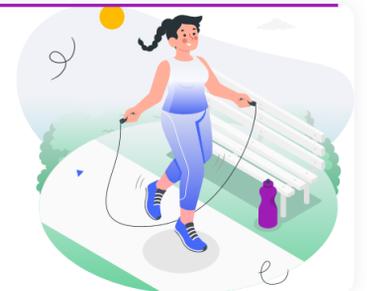
Your recommendations are prioritized according to the likelihood of it having an impact for you based on your genetics, along with the amount of scientific evidence supporting the recommendation.

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

1



Avoid Cigarette Smoke



Helps with the following



White Blood Cells

IMPACT



EVIDENCE



People who smoke may have more white blood cells. This may be because smoking increases inflammation [\[R, R, R, R\]](#).

Avoiding cigarette smoke may help lower white blood cell count [\[R, R, R, R, R\]](#).



PERSONALIZED TO YOUR GENES

Your IL6 gene variant is linked to a higher white blood cell count in smokers [\[R\]](#). Take special care to avoid cigarette smoke.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
STEAP1B	rs1800795	/	

Joint Inflammation

IMPACT
 4 / 5

EVIDENCE
 5 / 5

Smoking may increase the odds of developing rheumatoid arthritis. The risk may be higher for heavy smokers and men [\[R, R, R, R\]](#).

In people with arthritis, smoking may worsen the symptoms. It may also increase the risk of heart disease. For this reason, **experts recommend that all smokers quit** [\[R, R, R, R\]](#).



PERSONALIZED TO YOUR GENES

Smoking may contribute to rheumatoid arthritis by targeting many of your gene variants at once [\[R, R\]](#).

Smoking may worsen the impact of your PADI4 gene variant on rheumatoid arthritis [\[R\]](#). **Take special care to avoid cigarette smoke.**

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs1748033	/	

Pancreas Inflammation

IMPACT
 4 / 5

EVIDENCE
 5 / 5

Smoking is the most important risk factor for pancreatic disease. It may increase the risk by **87%** [\[R\]](#).

Smoking may contribute to **acute pancreas inflammation**. The risk may rise in [\[R, R, R, R, R\]](#):

- Current smokers: by 42-75%
- Former smokers: by 30-63%

For every **10-cigarettes/day**, the risk may rise by **30-40%** [\[R, R\]](#).

Smoking may also increase the risk of **chronic pancreas inflammation** in current smokers by **250%**. The risk is only **27-40%** higher in former smokers, suggesting the beneficial effects of quitting [\[R, R, R, R, R, R\]](#).

Smoking may damage the pancreas by [\[R, R\]](#):

- Promoting oxidative stress
- Increasing inflammation
- Worsening blood vessel function

Experts recommend quitting smoking to support gut health [\[R, R, R\]](#).

People who currently smoke may have a **76%** higher risk of developing Crohn's disease. This may not be the case for ulcerative colitis [\[R, R\]](#).

Current smokers with Crohn's disease may have more flare-ups and need surgery more often. The same may be true for **former smokers with ulcerative colitis**. Smokers with ulcerative colitis are urged to quit under doctor supervision [\[R, R, R\]](#).

 PERSONALIZED TO YOUR GENES

People with your **EGLN2** gene variant may be at a higher risk of Crohn's disease if they smoke [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs3733829	/	

Experts say that cigarette smoke may increase the odds of psoriasis. Both smoking and secondhand smoke are harmful. In fact, **the more you smoke, the greater your risk** [\[R, R, R, R, R, R\]](#).

Smoking may also make psoriasis symptoms worse and reduce treatment response [\[R, R\]](#).

Smoking may worsen psoriasis by increasing [oxidative stress](#) and inflammation [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Smoking may worsen psoriasis in people with your **CHRNA3** gene variant [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs6474412	/	

Smoking and exposure to secondhand smoke may be linked to higher odds of eczema. This is likely because cigarette smoke impairs the function of the skin barrier and immune system [\[R, R, R\]](#).

H. pylori

IMPACT 

EVIDENCE 

Experts recommend avoiding cigarettes to help protect the stomach. This is likely because smoking can damage the lining of the stomach. This lining protects the stomach from the acid that digests your food [\[R, R, R\]](#).

It is unclear if smoking increases the risk of *H. pylori* infection. Some studies have found smoking nearly doubles the risk. Other studies have found a connection only in men or no link at all [\[R, R, R, R, R, R\]](#).

Despite mixed evidence for prevention, **smoking increases the risk of *H. pylori* complications** such as [\[R, R\]](#):

- Gastritis (stomach inflammation)
- Ulcers
- Bleeding in the gut

Smokers may also have more difficulty getting rid of *H. pylori*. **Those who quit smoking may have better treatment outcomes than those who keep smoking** [\[R, R\]](#).

Yeast Infection

IMPACT 

EVIDENCE 

People who use tobacco products may be more likely to carry *Candida* in their mouths. In line with this, smoking may increase the risk of oral thrush [\[R, R, R, R\]](#).

Smoking may damage tissues in the mouth and worsen immune function. This may make infection more likely [\[R\]](#).

CRP (Inflammation)

IMPACT 

EVIDENCE 

Smoking is linked to chronic inflammation. Quitting may help reduce it [\[R, R, R, R, R, R, R, R\]](#).

Beneficial effects may be seen **as early as 1 year after quitting** [\[R, R, R, R\]](#).

 PERSONALIZED TO YOUR GENES

Your IL6 gene variant is linked to inflammation in smokers. Quitting smoking may cancel out the negative effects of this variant [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs2069840	/	

Flu

IMPACT 

EVIDENCE 

Smokers may be at increased risk of catching the flu, as well as being hospitalized or admitted to the ICU due to this condition [\[R, R\]](#).

Cigarette smoke may contribute to the flu and other respiratory infections by [\[R, R\]](#):

- Irritating the airways
- Impairing mucus clearance
- Reducing immune function in the airways

 **Strep Infection**



Smokers may be at increased risk of strep infections such as tonsillitis (tonsil inflammation) [\[R\]](#).

Similarly, children exposed to secondhand smoke are more likely to have strep throat [\[R, R\]](#).

Cigarette smoke may contribute to strep throat and other respiratory infections by [\[R, R\]](#):

- Irritating the airways
- Impairing mucus clearance
- Reducing immune function in the airways

 **Allergies**



 **HPV Infection**



Smoking is linked to a **50% higher** risk of HPV infection. The infection may also be more persistent in smokers [\[R\]](#).

Smoking may contribute to infections by weakening the immune response [\[R\]](#).



Probiotics



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



The following probiotics may help improve joint pain and physical function in people with rheumatoid arthritis:

- [Lactobacillus casei](#) (taken for 2 months) [R, R]
- [Bacillus coagulans](#) (taken for 2 months) [R]
- [L. rhamnosus](#) and [L. reuteri](#) (taken for 3 months) [R]

Probiotics may help by reducing inflammation. However, not all studies found an anti-inflammatory effect [R, R, R].



PERSONALIZED TO YOUR GENES

Your HLA-DQA1 gene variant is linked to rheumatoid arthritis. It likely increases joint inflammation. Probiotics may reduce inflammation by decreasing HLA-DQA1 activity [R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
HLA-DQA2	rs660895	/	



C. difficile Infection

IMPACT



EVIDENCE



Probiotics may help prevent *C. difficile* infections and diarrhea in populations at risk such as people taking antibiotics, hospitalized patients, infants, and elderly people. However, the evidence is mixed [R, R, R].

Lactobacillus probiotics have been most widely studied. While a review of studies recommended their use to prevent *C. difficile* infections, another one found the evidence insufficient. *L. casei* may be the most effective species. Other *Lactobacillus* probiotics that may help include [R, R, R, R]:

- [L. rhamnosus](#) [R, R, R]
- *L. plantarum* [R, R]
- *L. acidophilus* [R, R]
- *L. paracasei* [R]
- *L. delbrueckii* [R]
- *L. helveticus* [R]

The probiotic yeast [Saccharomyces boulardii](#) may also reduce *C. difficile* infections and diarrhea [R, R, R].

Other studied probiotics are:

- *Bifidobacterium lactis* [R]
- *B. longum* [R]
- *Streptococcus thermophilus* [R]

However, experts don't recommend the use of probiotics due to the mixed evidence and their potential to cause harm [R, R].



Pancreas Inflammation

IMPACT



EVIDENCE



Supplementation with **probiotics (with at least 2 strains)** may help with pancreas inflammation by reducing [\[R, R\]](#):

- Hospital stay
- Organ failure risk (by up to **60%**)

Probiotics **may not** provide greater benefits when combined with prebiotics [\[R, R\]](#).



Gut Inflammation

IMPACT



EVIDENCE



According to experts, probiotics may be helpful for some people with IBD. This is because people with IBD often lack “good” gut bacteria [\[R, R, R\]](#).

Probiotic supplements that contain *Lactobacillus*, *Bifidobacterium*, and *Streptococcus* species may support gut health in people with ulcerative colitis [\[R, R, R\]](#).

Probiotics may be less effective for Crohn's disease [\[R, R, R, R, R\]](#).

Please note: *Talk to your doctor before taking probiotics* [\[R\]](#).



PERSONALIZED TO YOUR GENES

Your IL23R gene variant is linked to IBD. It likely increases the activity of IL-23, an inflammatory protein. Probiotics may reduce gut inflammation by blocking IL-23 [\[R, R, R, R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
IL23R	rs11209026	/	

Allergies

IMPACT  3 / 5

EVIDENCE  3 / 5

The following [probiotics](#) may help with allergies caused by dust mites or pollen:

- [Lactobacillus paracasei](#) (strain LP-33) [R, R, R]
- [L. acidophilus](#) (strain L-92) [R, R]
- [L. casei](#) (strain Shirota) [R]
- [Bifidobacterium animalis](#) (strain NCC2818) [R]
- [L. gasserii](#) (strain OLL2809) [R]
- [B. longum](#) (strain BB536) [R]

Probiotics likely help by balancing the immune response and lowering inflammation [R, R, R].



PERSONALIZED TO YOUR GENES

Your OVOL1 gene variant is linked to allergies. This gene plays a role in skin protection against allergy triggers. Probiotics may support your skin's protective barrier [R, R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
OVOL1	rs479844	/	

Eczema

IMPACT  2 / 5

EVIDENCE  3 / 5

Supplementing with certain *Lactobacillus* [probiotics](#) may improve eczema. The most common ones include:

- [L. rhamnosus](#) [R]
- [L. reuteri](#) [R]
- [L. plantarum](#) [R, R]
- [L. paracasei](#) [R, R]
- [L. fermentum](#) [R]
- [L. sakei](#) [R]

A combination of other *Lactobacillus* and *Bifidobacterium* probiotics may also help [R, R].

Probiotics may help by balancing the immune response [R].

Note that the evidence to support probiotic use for eczema is mixed [R, R, R].

Urinary Tract Infections

IMPACT  2 / 5

EVIDENCE  2 / 5

Some probiotics may help with frequent UTIs. These include [R, R]:

- [L. acidophilus](#)
- [L. rhamnosus](#)
- [L. plantarum](#)
- [L. reuteri](#)

However, some studies found that probiotics had no benefits [R, R, R, R].

Probiotics may help by supporting the immune response against bad bacteria [R, R].

H. pylori

IMPACT 

EVIDENCE 

Probiotics may help in combination with standard treatments to eliminate *H. pylori*. They may also help heal stomach ulcers [\[R, R, R, R, R\]](#).

Probiotics containing *Lactobacillus* species may be especially helpful against *H. pylori*. These include:

- [L. gasseri](#) [\[R, R, R\]](#)
- [L. johnsonii](#) [\[R, R, R\]](#)
- [L. acidophilus](#) [\[R\]](#)
- [L. reuteri](#) [\[R, R\]](#)
- [L. delbrueckii](#) combined with [Streptococcus thermophilus](#) [\[R\]](#)
- [L. brevis](#) [\[R\]](#)

Other species such as [Saccharomyces boulardii](#) and [Clostridium butyricum](#) may help reduce side effects of *H. pylori* treatment [\[R, R, R, R, R, R, R\]](#).

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

- Reducing inflammation
- Protecting the stomach barrier
- Competing with *H. pylori* in the stomach

CRP (Inflammation)

IMPACT 

EVIDENCE 

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

Gastrointestinal Infection

IMPACT 

EVIDENCE 

Probiotics (at least 100 million CFU*), especially *Lactobacilli*, may help reduce gastrointestinal infection risk, duration, and severity. However, the evidence is mixed [\[R, R, R, R\]](#).

Lactobacillus probiotics that may help include:

- [L. rhamnosus](#) [\[R, R, R, R, R, R\]](#)
- *L. reuteri* [\[R, R\]](#)
- *L. casei* [\[R\]](#)
- *L. fermentum* [\[R\]](#)

[Saccharomyces boulardii](#), both alone and combined with zinc, may also help reduce disease duration and severity. However, the quality of most available studies is low [\[R, R, R, R\]](#).

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

- Increasing the levels of “good” bacteria
- Preventing the growth and spread of “bad” bacteria
- Enhancing the immune response

*CFU (colony forming units) = the number of active bacteria in one probiotic serving

Yeast Infection

IMPACT  3 / 5

EVIDENCE  3 / 5

Probiotics may help improve oral thrush. They may also prevent *Candida* from coming back. Helpful species include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- *Lactococcus lactis*
- *Lactobacillus rhamnosus*
- *L. acidophilus*
- *L. reuteri*
- *L. casei*
- *Bifidobacterium breve*

When added to standard therapy, oral or vaginal probiotics may help with vaginal yeast infections. Eating yogurt containing *L. acidophilus* (1 cup/day for 6 months) may also help. However, the quality of the evidence is low [\[R\]](#), [\[R\]](#), [\[R\]](#).

Probiotics may help by maintaining “good” bacteria and supporting the immune system [\[R\]](#), [\[R\]](#).



PERSONALIZED TO YOUR GENES

Your TLR1 gene variant may be linked to yeast infections. This variant may weaken the immune response against yeasts. Probiotics may help by supporting the immune response [\[R\]](#), [\[R\]](#), [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs5743618	/	

Flu

IMPACT  2 / 5

EVIDENCE  3 / 5

Supplementation with probiotics may slightly reduce the risk, duration, and severity of respiratory infections, including the flu. Tested probiotics include [\[R\]](#):

- *Lactobacillus rhamnosus*
- *L. acidophilus*
- *L. delbrueckii*
- *L. plantarum*
- *Bifidobacterium bifidum*
- *B. animalis*
- *B. longum*

Some of these probiotics may also boost the immune response to the flu shot [\[R\]](#), [\[R\]](#).

Probiotics may help by supporting immune function [\[R\]](#).

3



Vitamin D



Helps with the following



C. difficile Infection

IMPACT

● ● ● ● ● 1 / 5

EVIDENCE

● ● ● ● ● 2 / 5

People with *C. difficile* infection may have lower vitamin D levels. In turn, those with lowest levels of this vitamin may be at increased risk of *C. difficile* infection [R].

Vitamin D may help by supporting the immune function [R].



Pancreas Inflammation

IMPACT

● ● ● ● ● 1 / 5

EVIDENCE

● ● ● ● ● 2 / 5

People with chronic pancreas inflammation may be **14-17% more likely to have low vitamin D**. It may be caused by [R, R]:

- Poor absorption of vitamin D
- Poor nutrition due to alcohol intake

Vitamin D supplementation may help correct vitamin D deficiency in people with chronic pancreas inflammation [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].



Gluten Sensitivity (Celiac)

IMPACT

● ● ● ● ● 0 / 5

EVIDENCE

● ● ● ● ● 0 / 5



Eczema

IMPACT

● ● ● ● ● 2 / 5

EVIDENCE

● ● ● ● ● 3 / 5

People with eczema may have low levels of vitamin D. **Supplementation may help improve vitamin D levels and eczema symptoms** [R, R].

However, the evidence is mixed, and experts do not recommend vitamin D supplementation to treat eczema [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].



PERSONALIZED TO YOUR GENES

Your GC gene variant is linked to lower vitamin D levels [R]. Make sure to get enough vitamin D from sunlight or supplements.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs2282679	/	● ● ● ● ●

Gut Inflammation

IMPACT 

EVIDENCE 

Experts recommend **vitamin D supplements (800 IU/day)** to some people with IBD. This is because IBD may interfere with nutrient absorption. In addition, people with IBD who follow a limited diet may not be getting enough vitamins from the food they eat [\[R, R\]](#).

Unsurprisingly, **IBD has been linked to vitamin D deficiency**. Those with low vitamin D may have worse IBD symptoms and reduced quality of life. They may also have more flare-ups [\[R, R, R\]](#).

Vitamin D supplements may boost the levels of this vitamin and prevent IBD flare-ups [\[R, R\]](#).

Vitamin D may support gut health by helping to [\[R, R, R\]](#):

- Repair and maintain the gut barrier
- Balance the immune response

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

Your GC gene variant is linked to lower vitamin D levels [\[R\]](#). Make sure to get enough vitamin D from sunlight or supplements.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs2282679	/	

Urinary Tract Infections

IMPACT 

EVIDENCE 

Low levels of vitamin D are linked to more frequent UTIs [\[R, R, R\]](#).

Supplementing with vitamin D may help prevent UTIs and improve symptoms [\[R, R\]](#).

Vitamin D may protect against UTIs by [\[R, R, R\]](#):

- Supporting the immune system
- Reducing inflammation
- Strengthening the bladder barrier

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

Your GC gene variant is linked to lower vitamin D levels. Take special care to get enough vitamin D [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs2282679	/	

CRP (Inflammation)

IMPACT 

EVIDENCE 

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

Vitamin D supplements (1,000-4,000 IU/day for 12-24 weeks) may help reduce inflammation, but the evidence is mixed [\[R, R\]](#).

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

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

PERSONALIZED TO YOUR GENES

Getting more vitamin D may help reduce inflammation in people with your VDR gene variant [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs2228570	/	

Allergies

IMPACT 

EVIDENCE 

Low levels of vitamin D have been linked to **hay fever, but the evidence is mixed. Vitamin D (up to 4000 IU/day for at least 8 weeks)** may help manage the symptoms [\[R, R, R, R\]](#).

The evidence is also mixed for people with asthma. Both low and high levels of vitamin D are linked to asthma in children. However, it's unclear whether vitamin D supplements help [\[R, R, R, R, R, R\]](#).

Vitamin D may help with allergies by [\[R, R, R, R\]](#):

- Lowering inflammation
- Balancing the immune response
- Boosting lung function

However, the evidence connecting vitamin D to allergies is fairly weak [\[R, R, R\]](#).

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

H. pylori

IMPACT 

EVIDENCE 

People with *H. pylori* infection tend to have lower levels of vitamin D. In line with this, higher levels of vitamin D are linked to better treatment outcomes [\[R\]](#).

Vitamin D may help by supporting the elimination of *H. pylori* [\[R, R\]](#).

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

Flu

IMPACT 

EVIDENCE 

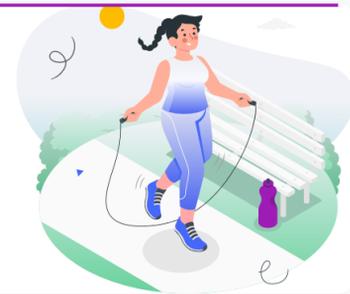
Low levels of vitamin D may increase the risk of having severe complications from the flu and other respiratory infections [\[R\]](#).

4



Maintain a Healthy Weight

Helps with the following



Joint Inflammation

IMPACT

3 / 5

EVIDENCE

5 / 5

People who are overweight or obese may be at a higher risk of developing rheumatoid arthritis. This association may be stronger in women [R, R, R, R, R].

Being overweight or obese may worsen rheumatoid arthritis symptoms. It may also prevent some medications from working as well [R, R, R, R, R].

Inflammation tends to be higher in people with more body fat. This may affect both the risk and severity of rheumatoid arthritis [R, R].

In addition, extra weight puts stress on joints like the knees and hips. **Experts agree that people with rheumatoid arthritis should try to maintain a healthy weight** [R, R, R].



White Blood Cells

IMPACT

2 / 5

EVIDENCE

3 / 5

Being overweight or obese may be associated with a high white blood cell count [R, R, R, R, R, R, R, R, R].

Fat cells can increase inflammation in the body. In line with this, obesity is linked to chronic inflammation [R, R, R, R].

Losing weight may help lower white blood cell count [R, R].



PERSONALIZED TO YOUR GENES

Your FTO gene variant is linked to obesity [R, R]. Do your best to maintain a healthy weight.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs9939609	/	4 / 5



Pancreas Inflammation

IMPACT

4 / 5

EVIDENCE

4 / 5

Obesity and high body fat may be linked to pancreas inflammation. They may increase inflammation directly or by contributing to gallstones [R].

Obese and overweight people may have a **35-50%** higher risk of pancreas inflammation and up to **4 times** higher mortality [R, R, R, R, R, R, R, R, R, R].

A 1-unit increase in BMI may increase the risk of pancreas inflammation by **18%**. Abdominal obesity is also linked to this condition. For every **10-cm increase** in waist circumference, the odds of pancreas inflammation grow by **36%** [R].

Having a low body weight may also be unfavorable. Underweight people with acute pancreas inflammation may have **82%** higher mortality [R].

Allergies

IMPACT  3 / 5

EVIDENCE  3 / 5

Experts agree that people who have trouble breathing should take special care to maintain a healthy weight. Excess weight may make it more difficult for the lungs to function. It may also make airway problems, like asthma and allergies, more likely to develop [\[R, R\]](#).

In fact, being overweight or obese may increase the odds of asthma by about **22-50%** [\[R, R, R\]](#).

Overweight children are also more likely to get hay fever [\[R\]](#).

Psoriasis

IMPACT  4 / 5

EVIDENCE  4 / 5

Experts say that obesity may increase the odds of psoriasis. It may also worsen the symptoms [\[R, R, R, R\]](#).

Being overweight or obese may affect how well some psoriasis treatments work [\[R, R\]](#).

Weight loss interventions that combine diet changes and exercise may help improve psoriasis symptoms [\[R, R, R\]](#).

CRP (Inflammation)

IMPACT  4 / 5

EVIDENCE  5 / 5

Fat cells may release inflammatory molecules. As obese people have more fat cells, they produce more of these molecules [\[R, R\]](#).

In line with this, obesity is linked to chronic inflammation in both adults and children [\[R, R, R\]](#).

Lifestyle and diet changes that support weight loss may reduce inflammation. Burning as few as 55 more calories per day may help. Adding a 15-minute brisk walk to your day can help you do this [\[R, R, R\]](#).

 PERSONALIZED TO YOUR GENES

Maintaining a healthy weight can reduce inflammation by targeting many of your gene variants at once [\[R\]](#).

Flu

IMPACT  4 / 5

EVIDENCE  3 / 5

Being underweight doubles the risk of catching the flu and other respiratory infections [\[R\]](#).

On the other hand, being obese may increase the risk of hospitalization, ICU admission, complications, and death in people with the flu. However, early antiviral treatment may reduce its effect on complications [\[R, R, R, R, R\]](#).

Being underweight is often a sign of malnutrition and poor health status. It may contribute to pneumonia by weakening the immune system [\[R\]](#).

In turn, excess weight may contribute through its association with [\[R\]](#):

- Inflammation
- Asthma
- Diabetes

Eczema

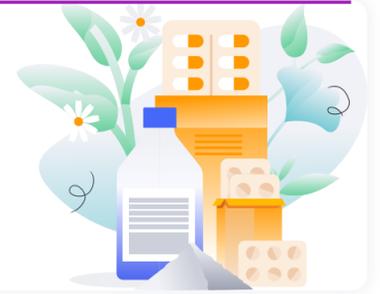
IMPACT  0 / 5

EVIDENCE  0 / 5

5



Omega-3 (Fish Oil)



Helps with the following



Joint Inflammation

IMPACT

3 / 5

EVIDENCE

4 / 5

Some experts recommend omega-3s for people with rheumatoid arthritis [\[R\]](#).

Omega-3 supplements (1.8-3.8 g/day for 3-9 months) may help with rheumatoid arthritis. They may reduce pain, swollen joints, and morning stiffness [\[R, R, R, R, R\]](#).

Omega-3s may help by reducing inflammation [\[R, R\]](#).

On the other hand, a large study found that people with genetically higher omega-3 levels may have higher odds of rheumatoid arthritis. It's not clear whether this link is applicable to omega-3 intake [\[R\]](#).

Please note: Fish oil (omega-3s) can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking fish oil [\[R\]](#).



PERSONALIZED TO YOUR GENES

Inflammation plays a major role in rheumatoid arthritis. Fish oil (omega-3) supplementation may reduce inflammation more in people with your TNF gene variant [\[R, R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs1800629	/	2 / 5



Pancreas Inflammation

IMPACT

2 / 5

EVIDENCE

2 / 5

Supplementation with **omega-3 fatty acids** may help with acute pancreas inflammation by reducing [\[R, R\]](#):

- Disease complications (e.g., infections)
- Hospital stay
- Mortality

Please note: Omega-3s can interact with blood thinners (like aspirin, Plavix, Coumadin). Consult your doctor before taking omega-3s [\[R\]](#).



White Blood Cells

IMPACT

0 / 5

EVIDENCE

0 / 5



CRP (Inflammation)

IMPACT

●●●●● 3 / 5

EVIDENCE

●●●●● 4 / 5

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

rs1800629

GENOTYPE

/

EVIDENCE

●●●●●



Gut Inflammation

IMPACT

●●●●● 0 / 5

EVIDENCE

●●●●● 0 / 5



Psoriasis

IMPACT

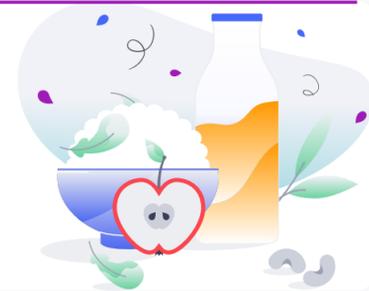
●●●●● 1 / 5

EVIDENCE

●●●●● 2 / 5



Plant-Based Diet



Helps with the following



White Blood Cells

IMPACT



EVIDENCE



People following a plant-based diet may have a lower white blood cell count [\[R, R, R, R, R\]](#).

Studies suggest that following a plant-based diet for 4 weeks may help reduce inflammation markers, including white blood cell count [\[R, R, R\]](#).

Increasing vegetable intake may be especially beneficial. Vegetables may help by decreasing inflammation, in part by modifying gut bacteria [\[R\]](#).



Pancreas Inflammation

IMPACT



EVIDENCE



Experts advise people with pancreas inflammation to eat fresh fruits and vegetables, whole grains, and lean protein [\[R\]](#).

Following a diet rich in fruits and vegetables may reduce the risk of pancreas disease, especially acute pancreas inflammation [\[R, R\]](#). In contrast, the risk may be higher in people who eat a lot of [\[R, R, R, R\]](#):

- Red meat (2.5 times higher risk of acute pancreas inflammation)
- Processed meat
- Eggs

A high intake of **dietary protein** may also be detrimental. The risk may be **5-20%** higher for acute and **45-130%** higher for chronic pancreas inflammation [\[R\]](#).



Joint Inflammation

IMPACT



EVIDENCE





Lactobacillus Casei



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



C. difficile Infection

IMPACT



EVIDENCE



Gastrointestinal Infection

IMPACT



EVIDENCE



IL-17 (Th17)

IMPACT



EVIDENCE



Gut Inflammation

IMPACT



EVIDENCE



IL-6

IMPACT



EVIDENCE



Flu

IMPACT



EVIDENCE



Supplementation with *L. casei* (at least 10^9 CFU/day) may boost the immune response to the flu shot and reduce symptom duration [[R](#), [R](#), [R](#), [R](#)].

*CFU (colony forming units) = the number of active bacteria in one probiotic serving



Yeast Infection

IMPACT



EVIDENCE



Allergies

IMPACT

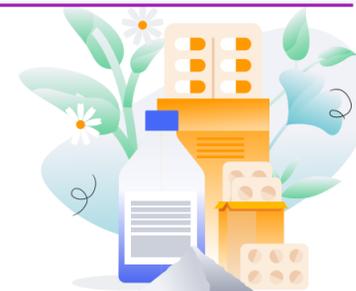


EVIDENCE





Zinc



Helps with the following



C. difficile Infection

IMPACT
●●●●● 2 / 5EVIDENCE
●●●●● 2 / 5

People with low zinc levels may be at increased *C. difficile* infection after treatment with fecal microbiota transplant. Supplementation with zinc (25-40 mg/day for 1-2 months) may help reduce infection recurrence [R, R, R].

Zinc may help by reducing diarrhea and promoting the growth of “good” gut bacteria [R, R].

Please note: A high intake of zinc may cause stomach pain and gut irritation. Medical bodies recommend against taking more than **40 mg** of zinc per day [R, R].



Joint Inflammation

IMPACT
●●●●● 0 / 5EVIDENCE
●●●●● 0 / 5

Gastrointestinal Infection

IMPACT
●●●●● 3 / 5EVIDENCE
●●●●● 4 / 5

Supplementation with zinc (5-40 mg/day) may reduce diarrhea duration, stool frequency, and hospital stay length in children. Studied forms include [R, R, R]:

- Zinc sulfate
- Zinc gluconate
- Zinc acetate
- Zinc bisglycinate

However, zinc may only help in case of zinc deficiency.

Products combining zinc with *Saccharomyces boulardii* or smectite may be most effective for childhood gastrointestinal infections, but only in low- and middle-income countries [R].

Zinc may help by supporting gut lining repair and enhancing the immune response [R].

Please note: A high intake of zinc may cause stomach pain and gut irritation. Medical bodies recommend against taking more than **40 mg** of zinc per day [R, R].



CRP (Inflammation)

IMPACT
●●●●● 3 / 5EVIDENCE
●●●●● 3 / 5

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



Flu

IMPACT
●●●●● 1 / 5EVIDENCE
●●●●● 1 / 5

Zinc supplementation (up to 40 mg/day) may reduce the duration of flu symptoms by half. However, it may not reduce the incidence of this and other respiratory infections [R].

Zinc may help by supporting immune function [R].

Please note: A high intake of zinc may cause stomach pain and gut irritation. Medical bodies recommend against taking more than **40 mg** of zinc per day [R, R].



HPV Infection

IMPACT

● ● ● ● ● 2 / 5

EVIDENCE

● ● ● ● ● 2 / 5

Supplementing with zinc sulfate for 1-3 months may [\[R, R\]](#):

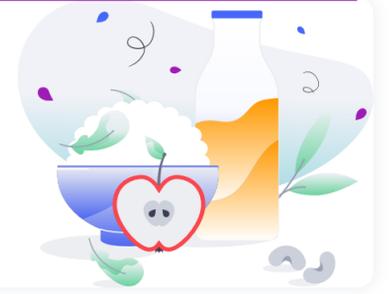
- Reduce the risk of HPV infection
- Improve warts caused by HPV infection
- Reduce progression to cervical lesions

Zinc may help by reducing oxidative stress and supporting the immune system [\[R, R\]](#).

Please note: *A high intake of zinc may cause stomach pain and gut irritation. Adults should not ingest more than **40 mg** of zinc per day [\[R, R\]](#).*



Vegetarian Diet



Helps with the following



White Blood Cells

IMPACT
●●●●● 2 / 5

EVIDENCE
●●●●● 3 / 5

Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



Joint Inflammation

IMPACT
●●●●● 1 / 5

EVIDENCE
●●●●● 1 / 5

Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#)



CRP (Inflammation)

IMPACT
●●●●● 2 / 5

EVIDENCE
●●●●● 3 / 5

Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



Eczema

IMPACT
●●●●● 1 / 5

EVIDENCE
●●●●● 1 / 5

Recommendation References: [\[R\]](#)



Eosinophils

IMPACT
●●●●● 1 / 5

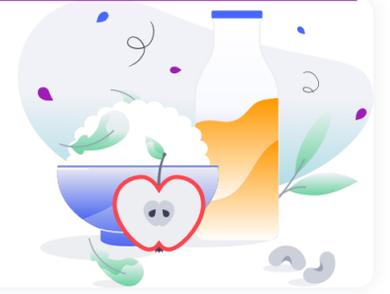
EVIDENCE
●●●●● 1 / 5

Recommendation References: [\[R\]](#)

10



Vegan Diet



Helps with the following



Joint Inflammation



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



White Blood Cells



Recommendation References: [\[R\]](#)



CRP (Inflammation)



Recommendation References: [\[R\]](#)



Neutrophils



Recommendation References: [\[R\]](#)



Monocytes



Recommendation References: [\[R\]](#)

11



Glutamine



Helps with the following



White Blood Cells

IMPACT



EVIDENCE



CRP (Inflammation)

IMPACT



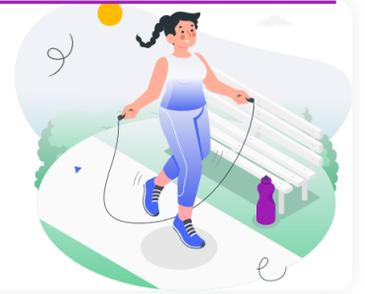
EVIDENCE



12



Avoid PAHs Exposure



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



White Blood Cells

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#)



CRP (Inflammation)

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#)

13



Black Seed Oil



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Gluten Sensitivity (Celiac)

IMPACT



EVIDENCE



Allergies

IMPACT



EVIDENCE





Lactoferrin



Helps with the following



C. difficile Infection

IMPACT
● ● ● ● ● 1 / 5

EVIDENCE
● ● ● ● ● 1 / 5

Lactoferrin may help prevent antibiotic-associated diarrhea caused by *C. difficile* and other germs [R].

Lactoferrin may prevent infectious germs from invading the gut [R, R].



H. pylori

IMPACT
● ● ● ● ● 2 / 5

EVIDENCE
● ● ● ● ● 3 / 5

Lactoferrin (400 mg/day for 1 week) in combination with standard treatment may help to eliminate *H. pylori*. However one study did not find this benefit [R, R, R].

Lactoferrin may help by reducing *H. pylori* growth. It may also decrease inflammation [R].



Gastrointestinal Infection

IMPACT
● ● ● ● ● 1 / 5

EVIDENCE
● ● ● ● ● 2 / 5

High doses (600 mg/day) of lactoferrin may reduce digestive symptoms in nursery school workers [R].

Similarly, eating yogurt containing lactoferrin (100 mg/day) for 15 weeks reduced school absence due to gastrointestinal infections in a study [R].

Lactoferrin may prevent infectious germs from invading the gut [R, R].



Yeast Infection

IMPACT
● ● ● ● ● 0 / 5

EVIDENCE
● ● ● ● ● 0 / 5



Psoriasis

IMPACT
● ● ● ● ● 0 / 5

EVIDENCE
● ● ● ● ● 0 / 5



CRP (Inflammation)

IMPACT
● ● ● ● ● 0 / 5

EVIDENCE
● ● ● ● ● 0 / 5



Lactobacillus Plantarum



Helps with the following



C. difficile Infection

IMPACT



EVIDENCE



Flu

IMPACT



EVIDENCE



Consuming a probiotic with two *L. plantarum* strains (CECT7315 and CECT7316, providing 5.5×10^9 CFU/day) during the 3 months after getting the flu shot may boost the immune system [R].

Probiotic mixes with *L. plantarum* may reduce the incidence and severity of the flu [R, R].

*CFU (colony forming units) = the number of active bacteria in one probiotic serving



Eczema

IMPACT



EVIDENCE



Yeast Infection

IMPACT

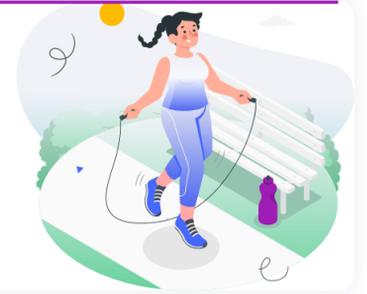


EVIDENCE





Relaxation Techniques



Helps with the following



Genital Herpes

IMPACT



EVIDENCE



Psychological stress is associated with recurrent genital herpes sores [\[R\]](#).

According to limited evidence, practicing **cognitive-behavioral stress management** (for at least 10 weeks) may help control herpes infection. Other techniques like applied relaxation may also help, but the evidence is scarce [\[R, R, R\]](#).



Gut Inflammation

IMPACT



EVIDENCE



Stress has a negative impact on gut health. It may [\[R, R, R\]](#):

- Increase inflammation
- Increase leaky gut
- Disturb gut bacteria

People with IBD tend to have more flare-ups when they're stressed. Stress may even contribute to the onset and progression of IBD. However, the evidence is limited [\[R, R, R, R, R, R, R\]](#).

Experts recommend managing stress to increase the quality of life in people with IBD [\[R, R, R, R\]](#).

Relaxation techniques based on mindfulness and meditation may help reduce stress. They may also improve IBD symptoms, but the evidence is mixed [\[R, R, R, R\]](#).



PERSONALIZED TO YOUR GENES

People with your CRHR1 gene variant may be more prone to stress [\[R\]](#). Take special care to reduce stress by practicing relaxation techniques.

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs80143279	/	



CRP (Inflammation)

IMPACT



EVIDENCE



Stress is linked to chronic inflammation. 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

Stressful life events may trigger and worsen eczema. In turn, **eczema may influence mental health** [R, R, R, R, R].

Stress may increase skin inflammation and impair the skin barrier [R].

Relaxation techniques may improve eczema symptoms [R].

 PERSONALIZED TO YOUR GENES

People with your CRHR1 gene variant may be more prone to stress [R]. **Take special care to reduce stress by practicing relaxation techniques.**

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs80143279	/	

Experts agree that stress may have a major impact on psoriasis. In fact, stressful events seem to trigger psoriasis in **up to 88%** of cases. In turn, psoriasis can cause or worsen stress [R, R, R, R, R, R].

Relaxation techniques like meditation and talk therapy may help reduce stress. In this way, they may improve symptoms in people with psoriasis [R, R, R, R].

 PERSONALIZED TO YOUR GENES

People with your CRHR1 gene variant may be more prone to stress [R]. **Take special care to reduce stress by practicing relaxation techniques.**

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs80143279	/	

Stress may worsen the immune response to the flu shot. Similarly, reduced stress and increased optimism may improve the response to this vaccine [R, R].

Stress management programs may reduce the number of sick days due to the flu [R].

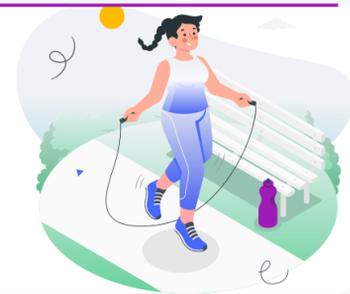
Relaxation techniques such as meditation may reduce flu severity and enhance the response to the vaccine [R, R, R].

 **EBV Infection**IMPACT
 1 / 5EVIDENCE
 1 / 5

According to one study, psychological stress may be linked to EBV infection. By contrast, reduced stress through adequate support from family and friends may reduce signs of EBV infection [\[R\]](#).



Avoid Air Pollution



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#)



Allergies

IMPACT



EVIDENCE



Some experts say that people with respiratory allergies should take special care to avoid air pollution. It may increase the risk of developing respiratory allergies and may worsen the symptoms [\[R, R, R, R, R, R\]](#).

Using air purifiers with HEPA filters may help [\[R\]](#).

Air pollution may contribute to allergies by [\[R, R, R\]](#):

- Causing [oxidative stress](#)
- Increasing inflammation
- Causing the airway to overreact to allergens



PERSONALIZED TO YOUR GENES

People with your NQO1 gene variant may be more prone to asthma when exposed to air pollution [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs2917666	/	



Flu

IMPACT



EVIDENCE



High exposure to the air pollutant SO₂ may increase the risk of catching the flu [\[R\]](#).

Exposure to indoor wood burning may also increase the risk, but the evidence is limited and mixed [\[R\]](#).

Air pollutants may contribute to the flu by irritating the airways [\[R\]](#).

Tips for lowering exposure to air pollution include [\[R, R, R, R\]](#):

- Monitoring air pollution levels regularly
- Using an appropriate face mask when pollution levels are high
- Avoiding outdoor exercise when pollution levels are high
- Cleaning and maintaining air filtration systems
- Not burning wood or trash
- Using protective respiratory equipment at work, if needed

 **Strep Infection**IMPACT
 2 / 5EVIDENCE
 2 / 5

Exposure to air pollution increases the abundance of *Streptococcus* bacteria in the respiratory tract. Pollutants that may increase the risk of strep infections include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Particulate matter
- Ozone
- Cooking fumes

Because air pollution can irritate the throat and lungs, experts recommend that people with an ongoing strep infection avoid air pollution as much as possible [\[R\]](#).

Tips for lowering exposure to air pollution include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Monitoring air pollution levels regularly
- Using an appropriate face mask when pollution levels are high
- Avoiding outdoor exercise when pollution levels are high
- Cleaning and maintaining air filtration systems
- Not burning wood or trash
- Using protective respiratory equipment at work, if needed

 **CRP (Inflammation)**IMPACT
 1 / 5EVIDENCE
 1 / 5

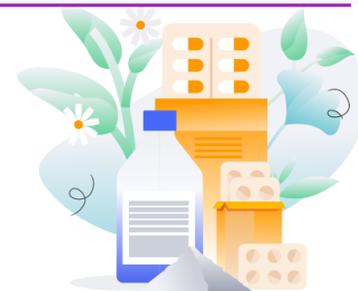
Recommendation References: [\[R\]](#)

 **Allergies**IMPACT
 1 / 5EVIDENCE
 1 / 5

Recommendation References: [\[R\]](#)



Lactobacillus Rhamnosus



Helps with the following



C. difficile Infection

IMPACT



EVIDENCE



Flu

IMPACT



EVIDENCE



Supplementation with *L. rhamnosus* (GG, 10^8 CFU/day) may reduce the number of days with respiratory symptoms in children with the flu [\[R\]](#).

L. rhamnosus (GG, 10^9 - 10^{10} CFU/day), both alone and combined with *B. animalis*, may boost the immune system after getting the flu shot [\[R\]](#), [\[R\]](#).

A probiotic mix with *L. rhamnosus*, *B. animalis*, and *L. plantarum* may reduce the incidence and severity of the flu and other respiratory diseases [\[R\]](#).

*CFU (colony forming units) = the number of active bacteria in one probiotic serving



Yeast Infection

IMPACT



EVIDENCE



Urinary Tract Infections

IMPACT



EVIDENCE



Gastrointestinal Infection

IMPACT



EVIDENCE



CRP (Inflammation)

IMPACT



EVIDENCE





Curcumin



Helps with the following



Joint Inflammation

IMPACT

●●●●● 2 / 5

EVIDENCE

●●●●● 3 / 5

Curcumin (500-1,000 mg/day for 6-13 weeks) may help with rheumatoid arthritis. It may reduce joint pain and morning stiffness [\[R, R, R\]](#).

However, curcumin may be less effective at lower doses [\[R\]](#).

Curcumin may help by reducing joint inflammation [\[R, R, R\]](#).

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



PERSONALIZED TO YOUR GENES

Your IL6R gene variant is linked to rheumatoid arthritis. It likely increases the activity of IL-6, a major inflammatory protein. Curcumin may help by reducing IL-6 levels [\[R, R, R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs12126142	/	●●●●●



Allergies

IMPACT

●●●●● 2 / 5

EVIDENCE

●●●●● 2 / 5

In people with **hay fever**, **curcumin (0.5 g/day for 2 months)** may improve symptoms like sneezing and congestion. It likely helps by balancing the immune response [\[R\]](#).

Powdered turmeric (0.5-1 g/day for 3-6 months) may improve symptoms in children with **asthma** [\[R\]](#).

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

 **Gut Inflammation**

IMPACT 

EVIDENCE 

In people with **ulcerative colitis**, curcumin may help relieve symptoms. It may be most helpful when combined with medication. However, the evidence is mixed [R, R, R, R].

Curcumin may help by reducing inflammation [R].

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

 PERSONALIZED TO YOUR GENES

Your NFKB1 gene variant is linked to ulcerative colitis. It likely increases the levels of NF-kB, a protein that causes inflammation. Curcumin may reduce gut inflammation by blocking NF-kB [R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs3774959	/	

 **CRP (Inflammation)**

IMPACT 

EVIDENCE 

Curcumin (1-2.4 g/day for 4-8 weeks) may reduce inflammation. 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].

 **H. pylori**

IMPACT 

EVIDENCE 

 **Psoriasis**

IMPACT 

EVIDENCE 



Garlic Supplement



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



IL-6

IMPACT



EVIDENCE



Please note: Garlic can interact with blood thinners (such as aspirin, Plavix, and Coumadin). In addition, garlic can irritate the stomach in some people. Talk to your doctor before taking garlic [\[R, R\]](#).



CRP (Inflammation)

IMPACT



EVIDENCE



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 [\[R\]](#).



Yeast Infection

IMPACT



EVIDENCE



Applying a garlic paste inside of the mouth for 14 days may improve oral thrush [\[R\]](#).

Taking garlic tablets (1,500-2,100 mg/day for 1-2 weeks) may help with vaginal yeast infections. They may improve signs and symptoms like redness and abnormal discharge. However, garlic tablets didn't help in one study [\[R, R\]](#).

Please note: Garlic can interact with blood thinners (such as aspirin, Plavix, and Coumadin). In addition, garlic can irritate the stomach in some people. Talk to your doctor before taking garlic [\[R, R\]](#).



H. pylori

IMPACT



EVIDENCE



Garlic is a controversial folk remedy for ulcers. Garlic extract contains a compound called *allicin* that may help fight *H. pylori*. It may also support the healing of ulcers when added to standard treatment [\[R\]](#).

However, eating garlic may not reduce the risk of *H. pylori* infection [\[R\]](#).

Please note: Garlic can interact with blood thinners (such as aspirin, Plavix, and Coumadin). In addition, garlic can irritate the stomach in some people. Talk to your doctor before taking garlic [\[R, R\]](#).



Flu

IMPACT



EVIDENCE



Supplementation with aged garlic extract (2.5 g/day for 3 months) may reduce flu incidence, symptoms, and number of days missed from work or school [\[R, R, R\]](#).

Garlic may help by stimulating the immune system [\[R, R\]](#).

Please note: Garlic can interact with blood thinners (such as aspirin, Plavix, and Coumadin). In addition, garlic can irritate the stomach in some people. Talk to your doctor before taking garlic [\[R, R\]](#).



Bifidobacterium Breve



Helps with the following



Gluten Sensitivity (Celiac)



Yeast Infection



Eczema



Allergies



CRP (Inflammation)

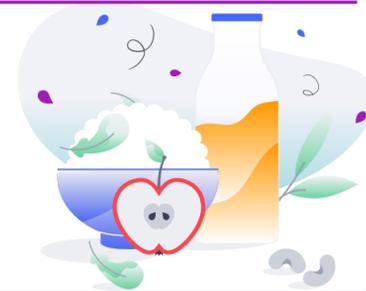


Gut Inflammation





Mediterranean Diet



Helps with the following



White Blood Cells

IMPACT

2 / 5

EVIDENCE

3 / 5

Diets that contain a lot of meat and sugar are pro-inflammatory. They may increase white blood cell levels [\[R\]](#).

The Mediterranean diet is an example of an anti-inflammatory diet. It has been linked to a lower white blood cell count. However, one study found a link with lower inflammation but not with lower white blood cell levels [\[R, R, R, R\]](#).

Following the Mediterranean diet (for at least 4 weeks) may help reduce white blood cell count [\[R, R\]](#).

The antioxidants and fiber in the Mediterranean diet may help by [\[R, R\]](#):

- Lowering body fat
- Reducing inflammation



PERSONALIZED TO YOUR GENES

The Mediterranean diet may reduce inflammation more in people with your CRP gene variant [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs3093068	/	5 / 5

People who follow the Mediterranean diet may be at a **58% lower risk of Crohn's disease**. However, this diet may not help prevent ulcerative colitis [\[R\]](#).

The Mediterranean diet is high in fish and other sources of [omega-3 fatty acids](#). A diet high in fish and omega-3s may help prevent IBD [\[R\]](#).

In people with IBD, following the Mediterranean diet may improve [\[R, R\]](#):

- Quality of life
- Flare-ups
- Nutrition

The Mediterranean diet may help with IBD by reducing inflammation [\[R, R, R, R\]](#).

 PERSONALIZED TO YOUR GENES

In people with your FADS1 gene variant, the Mediterranean diet may help reduce gut inflammation [\[R, R, R, R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs174556	/	

Following the Mediterranean diet may improve asthma symptoms. This type of diet is rich in fruits, veggies, and whole grains, which may benefit people with asthma [\[R, R, R, R, R\]](#).

The Mediterranean diet may help by reducing airway inflammation [\[R\]](#).

 PERSONALIZED TO YOUR GENES

Your BCL6 gene variant is linked to allergies. This gene influences the levels of IL-4, a crucial inflammatory protein. The Mediterranean diet may help by reducing IL-4 and inflammation [\[R, R, R, R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
LPP	rs9865818	/	

 Psoriasis



Following the Mediterranean diet may reduce the odds of psoriasis. In people with psoriasis, it may improve the symptoms and slow their progression [R, R, R].

The Mediterranean diet may help with psoriasis by **reducing inflammation** [R].

It also promotes the intake of **antioxidant-rich fruits and vegetables**. People who eat more antioxidant-rich fruits and vegetables (like tomatoes and carrots) may be less likely to develop psoriasis. They may also have less severe symptoms [R, R, R, R].

 PERSONALIZED TO YOUR GENES

Your TNFAIP3 gene variant is linked to psoriasis. It may increase the activity of TNF, an inflammatory protein. The Mediterranean diet may help by reducing TNF levels and inflammation [R, R, R, R].

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs610604	/	

 CRP (Inflammation)



 HPV Infection

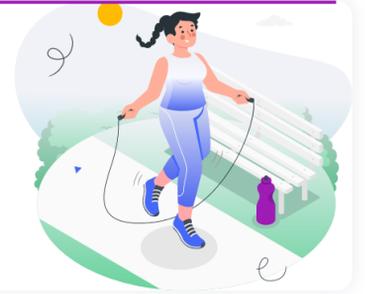


The Mediterranean diet is rich in foods and nutrients that support immunity and reduce inflammation [R, R].

Following the Mediterranean diet may be linked to a **2.5 times lower risk** of HPV infection in women. On the other hand, Western-style diets may be linked to higher odds of the infection [R].



Exercise



Helps with the following



Joint Inflammation

IMPACT

4 / 5

EVIDENCE

5 / 5

Experts recommend gentle and dynamic exercise for people with rheumatoid arthritis. It may support the joints by strengthening the muscles around them. Exercise may also reduce inflammation [\[R, R, R, R, R, R\]](#).

The following exercises may improve pain and physical function in people with rheumatoid arthritis:

- Cardio [\[R, R\]](#)
- Strength training [\[R, R, R\]](#)
- A combination of cardio and strength training [\[R, R, R\]](#)
- Aquatic exercise [\[R\]](#)

Please note: Talk to your doctor before starting a new exercise program. People with rheumatoid arthritis should be careful to stay within their comfort zone. Over-exercising may worsen the symptoms. Avoid exercising tender, injured or severely inflamed joints [\[R, R\]](#).



PERSONALIZED TO YOUR GENES

Inflammation plays a major role in rheumatoid arthritis. Exercise may reduce inflammation more in people with your TNF gene variant [\[R, R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs1800629	/	5 / 5

Studies show that in people with asthma, **regular exercise** may improve symptoms and the quality of life [\[R, R, R, R, R\]](#).

Experts recommend exercise but don't agree on whether it helps with asthma. Some say that it may improve asthma by strengthening your lungs. Others say that it has no benefits on asthma symptoms or lung function [\[R, R\]](#).

Cardio in particular may help improve the symptoms of hay fever [\[R\]](#).

Exercise may help with hay fever and asthma by reducing inflammation [\[R, R\]](#).

 PERSONALIZED TO YOUR GENES

A sedentary lifestyle may worsen the impact of your ADRB2 gene variant on asthma [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs1042713	/	

Exercising regularly may lower the odds of developing Crohn's disease by **37%**. This may be especially true for Europeans [\[R\]](#).

Experts agree that moderate exercise can support gut health in people with IBD. It likely helps by reducing inflammation. Aerobic exercise such as running or biking may also improve the composition of gut bacteria [\[R, R, R, R\]](#).

Some people with severe IBD may need to avoid long or intense exercise. In this case, even **low-moderate intensity exercise (2-3 times/week)** may help improve quality of life [\[R, R, R, R\]](#).

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

 PERSONALIZED TO YOUR GENES

Regular exercise is a great way to reduce inflammation by targeting many of your gene variants at once [\[R\]](#).

Exercise may reduce inflammation more in people with your TNF gene variant [\[R, R\]](#).

Long-term exercise may reduce inflammation more in people with your IL6 gene variant [\[R\]](#).

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs1800629	/	

GENE	SNP	GENOTYPE	EVIDENCE
/	rs1800797	/	

Moderate to vigorous exercise may reduce the risk of respiratory infections by stimulating immune function in the airways [\[R, R, R, R, R\]](#).

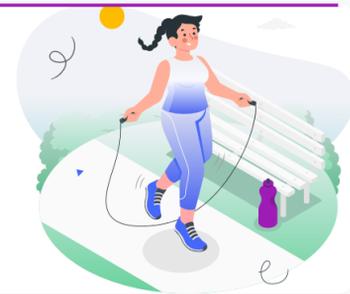
However, it's important to stay within your comfort zone. **Periods of intense physical training may predispose to respiratory tract infections by temporarily reducing immunity** [\[R, R\]](#).

Physical activity may boost the immune response to the flu shot. However, the evidence is mixed [\[R, R\]](#).

Exercise may help by strengthening the breathing muscles and supporting immune function [\[R, R, R\]](#).



Good Hygiene Practices



Helps with the following



C. difficile Infection

IMPACT

4 / 5

EVIDENCE

5 / 5

Because contact with infected people is the main source of *C. difficile* transmission, healthcare workers and visitors should be especially careful with their hand hygiene. Experts recommend using soap and warm water over alcohol-based hand sanitizers because alcohol doesn't effectively destroy the spores [R, R, R].

Healthcare workers attending infected patients should also use disposable equipment such as gloves, stethoscopes, and thermometers to prevent spreading the infection [R, R].

Importantly, hard surfaces, towels, clothes, and bedsheets are sources of transmission because they may contain *C. difficile* spores. Thorough disinfection with products that kill the spores helps prevent disease spreading in hospital and long-care settings [R, R, R, R].

People with *C. difficile* infection should wash their hands frequently and minimize close contact with others. This also includes [R]:

- Not sharing towels or toilets
- Not cooking or handling food for others



Gastrointestinal Infection

IMPACT

4 / 5

EVIDENCE

5 / 5

Hand washing is probably the most effective strategy to prevent the spread of gastrointestinal infections. Experts recommend washing hands with soap and warm water [R, R]:

- Before eating
- Before preparing or manipulating food
- After visiting the toilet or cleaning it
- After attending to any person with diarrhea or vomiting
- After changing a baby's diaper
- After handling or cleaning dirty clothes or bedding
- After handling pets, cattle, or wild animals

Infection-causing microbes can live in hard surfaces, towels, clothes, and bedsheets for up to several months. For this reason, it is important to clean them regularly and thoroughly [R].

People with gastrointestinal infections should minimize close contact with others. This also includes [R]:

- Not sharing towels or toilets
- Not cooking or handling food for others



Flu

IMPACT

4 / 5

EVIDENCE

4 / 5

Experts recommend good hygiene practices to prevent the flu and other respiratory infections. These include [R, R]:

- Regular hand washing
- Cleaning and disinfecting surfaces
- Coughing or sneezing into a tissue, elbow, or sleeve
- Avoiding touching your eyes, nose, or mouth
- Avoiding crowds during peak flu season
- Avoiding close contact with people who are sick
- Staying home if sick
- Wearing facemasks

These good hygiene practices may reduce flu incidence and absenteeism from work or school [R, R, R].

Strep Infection

IMPACT
 4 / 5

EVIDENCE
 4 / 5

Strep germs are typically spread through droplets when an infected person sneezes or coughs, or through shared foods and drinks. **Experts recommend good hygiene practices to prevent strep infections.** These include [\[R, R, R, R\]](#):

- Regular hand washing
- Coughing or sneezing into a tissue, elbow, or sleeve
- Avoiding crowds as much as possible
- Avoiding close contact with people who are sick
- Staying home if sick
- Not sharing food and drink utensils
- Washing dishes in hot, soapy water or in a dishwasher
- Cleaning and disinfecting surfaces
- Avoiding touching your eyes, nose, or mouth

Although less common, outbreaks linked to mass food catering services or industrial manufacture have also been reported. Transmission from an **infected food handler or incorrect food hygiene practices** were the most common causes [\[R, R, R, R, R, R, R\]](#).

EBV Infection

IMPACT
 5 / 5

EVIDENCE
 5 / 5

To help prevent EBV infection, you should avoid the following activities involving people with active or recent EBV infection [\[R, R, R, R, R\]](#):

- Kissing
- Sharing personal objects (e.g., toothbrush, drinking glasses, dishes)
- Sharing drinks and food
- Sexual contact
- Blood transfusions

If you are infected with EBV virus [\[R, R, R\]](#):

- Wash your hands regularly to prevent spread of the virus
- Use a mouthwash (20 mL, 2x/day for 8 weeks) to reduce the viruses in your mouth



Ginger



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Allergies

IMPACT



EVIDENCE



CRP (Inflammation)

IMPACT



EVIDENCE



Ginger may have anti-inflammatory and antioxidant effects. Supplementing with ginger (1-3 g/day for 6-12 weeks) may reduce inflammation [R, R].



PERSONALIZED TO YOUR GENES

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

YOUR GENETIC VARIANTS

GENE	SNP	GENOTYPE	EVIDENCE
/	rs6700896	/	



Gastrointestinal Infection

IMPACT



EVIDENCE



Taking ginger extract (10 mg every 8 hours) for 3 days may reduce vomiting in children with gastrointestinal infection and inflammation [R].

Components in ginger may help by reducing inflammation [R, R, R].



IL-6

IMPACT

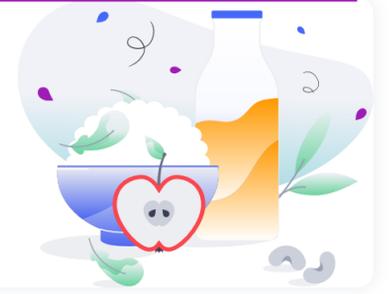


EVIDENCE





Extra Virgin Olive Oil (EVOO)



Helps with the following



Joint Inflammation



H. pylori



CRP (Inflammation)



IL-6



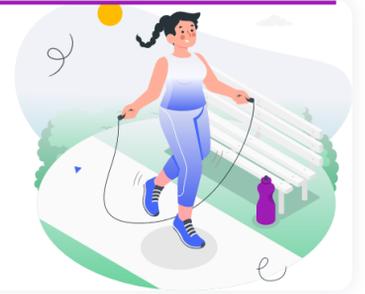
Gut Inflammation





Acupuncture

Helps with the following



Pancreas Inflammation

IMPACT



EVIDENCE



According to some experts, acupuncture may help reduce pain caused by pancreas inflammation [\[R\]](#).

In combination with standard therapy, acupuncture may help with pancreas inflammation by:

- Reducing abdominal pain and swelling
- Improving gut function

However, more research is needed to confirm these benefits [\[R\]](#), [\[R\]](#).

Please note: Acupuncture is safe for most people. However, it may come with extra risks for pregnant women, people with pacemakers, and people with bleeding disorders. Consult your doctor or a licensed acupuncturist for more information [\[R\]](#).



Allergies

IMPACT



EVIDENCE



Acupuncture may potentially improve allergies. It may help by balancing the immune response [\[R\]](#), [\[R\]](#), [\[R\]](#).

In people with respiratory allergies, acupuncture may [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Improve the symptoms
- Boost the quality of life

Please note: Acupuncture is generally safe for most people. However, it may come with extra risks for pregnant women, people with pacemakers, and people with bleeding disorders. Consult your doctor or a licensed acupuncturist for more information [\[R\]](#).



Urinary Tract Infections

IMPACT



EVIDENCE



Acupuncture may help prevent UTIs and support their treatment. However, the quality of available studies is low [\[R\]](#), [\[R\]](#), [\[R\]](#).

Acupuncture may help by balancing the immune response [\[R\]](#).

Please note: Acupuncture is safe for most people. However, it may come with extra risks for pregnant women, people with pacemakers, and people with bleeding disorders. Consult your doctor or a licensed acupuncturist for more information [\[R\]](#).



Eczema

IMPACT



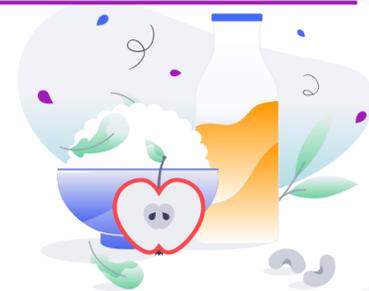
EVIDENCE





Stay Hydrated

Helps with the following



C. difficile Infection

IMPACT

4 / 5

EVIDENCE

3 / 5

C. difficile infection can cause mild to severe diarrhea. This causes considerable fluid loss and increases the risk of dehydration. Experts recommend generous hydration to replenish the lost fluids. Drinks that may help include [\[R, R, R\]](#):

- Water
- Clear soft drinks
- Dilute juices
- Clear broths
- Non-caffeinated sports drinks
- Oral rehydration solutions



Gastrointestinal Infection

IMPACT

4 / 5

EVIDENCE

5 / 5

Diarrhea and vomiting are common symptoms of gastrointestinal infections. They both cause considerable fluid loss and increase the risk of dehydration. Drinking is essential to replenish the lost fluids. Drinks that may help include [\[R\]](#):

- Water
- Clear soda
- Dilute juices
- Clear broths
- Non-caffeinated sports drinks
- Oral rehydration solutions

Certain groups of people are at especially high risk of dehydration from gastrointestinal infections. These include [\[R, R, R\]](#):

- Children
- Elderly people
- People with a weakened immune system
- People engaged in intense physical activity

People with moderate to severe dehydration may require hospitalization to receive oral or intravenous rehydration therapy [\[R, R, R\]](#).



Urinary Tract Infections

IMPACT

3 / 5

EVIDENCE

3 / 5

Not drinking enough water or holding in urine for too long may increase the risk of UTIs. However, the evidence is mixed [R, R, R, R, R, R].

Drinking more water (at least 64 oz. or 2 L per day) may help prevent UTIs [R, R, R, R, R, R, R].

Staying hydrated dilutes the urine and makes you urinate more often. This likely helps flush out bacteria [R, R, R, R].



PERSONALIZED TO YOUR GENES

Drinking more water is a great way to potentially prevent UTIs and improve your overall health [R, R, R].

People with your AHR gene variant tend to drink less water [R, R]. **Make sure to stay hydrated to prevent UTIs.**

YOUR GENETIC VARIANTS

GENE

/

SNP

rs4410790

GENOTYPE

/

EVIDENCE

4 / 5



EBV Infection

IMPACT

2 / 5

EVIDENCE

4 / 5

In people with EBV infection, drinking lots of fluids (e.g., water and fruit juices) can prevent dehydration and relieve a fever and sore throat [R, R, R].



Andrographis



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Flu

IMPACT



EVIDENCE



In people with the flu and other respiratory infections, taking andrographis (600-1200 mg/day for 3-5 days) may improve cough and sore throat [\[R\]](#).

Active components in andrographis may help with the flu because they have the following effects [\[R\]](#):

- Anti-inflammatory
- Antiviral
- Anti-allergic
- Immune-stimulating
- Pain-relieving



Gut Inflammation

IMPACT

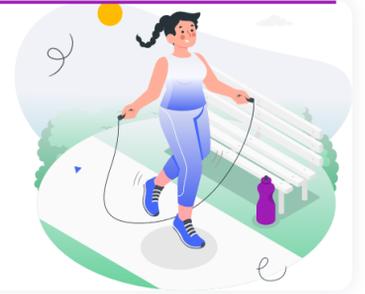


EVIDENCE





Aerobic Exercise (Cardio)



Helps with the following



Joint Inflammation



Allergies



CRP (Inflammation)



IL-6





N-acetylcysteine (NAC)



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Flu

IMPACT



EVIDENCE



Supplementation with NAC (1200 mg/day for 6 months) may reduce the frequency, length, and severity of flu-like episodes [\[R\]](#).

NAC may help by reducing oxidative stress and inflammation. It may also help break mucus down [\[R\]](#).



H. pylori

IMPACT



EVIDENCE





Barberry



Helps with the following



Joint Inflammation



Recommendation References: [\[R\]](#)



CRP (Inflammation)



Recommendation References: [\[R\]](#), [\[R\]](#)



IL-17 (Th17)



Recommendation References: [\[R\]](#)



IL-10



Recommendation References: [\[R\]](#)



Saccharomyces Boulardii



Helps with the following



C. difficile Infection



Gut Inflammation



H. pylori



IL-10





Salvia Miltiorrhiza



Helps with the following



Pancreas Inflammation

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#), [\[R\]](#)



CRP (Inflammation)

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#)



IL-6

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#), [\[R\]](#)



IL-10

IMPACT



EVIDENCE



Recommendation References: [\[R\]](#), [\[R\]](#)



Vitamin E



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



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



CRP (Inflammation)

IMPACT



EVIDENCE



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



Eczema

IMPACT



EVIDENCE



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



Artemisia Extract

Helps with the following



Joint Inflammation



Recommendation References: [\[R\]](#)



Allergies



Recommendation References: [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)



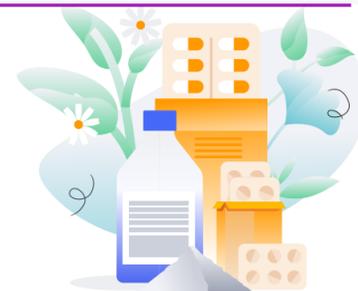
Gut Inflammation



Recommendation References: [\[R\]](#)



Milk Thistle (Silymarin)



Helps with the following



Joint Inflammation



Allergies



Gut Inflammation





Saffron



Helps with the following



Joint Inflammation



Allergies



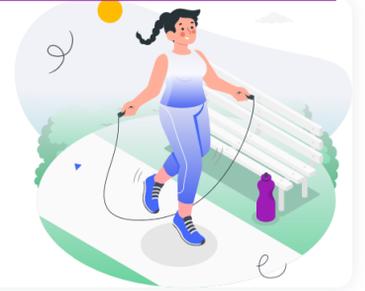
Gut Inflammation



39



Avoid Lead Exposure



Helps with the following



Joint Inflammation



Recommendation References: [\[R\]](#), [\[R\]](#)



CRP (Inflammation)



Recommendation References: [\[R\]](#)



Eosinophils

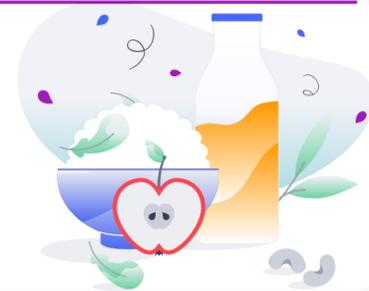


Recommendation References: [\[R\]](#)

40



Cranberry



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Urinary Tract Infections

IMPACT



EVIDENCE



Many people consume cranberries to potentially help with UTIs. However, the evidence to support their use is mixed [R, R, R, R, R, R, R, R, R].

Cranberries may help the body clear bacteria more easily with urine [R, R, R, R, R].

Please note: Cranberry may interact with blood thinners such as warfarin (Coumadin). If you are taking blood thinners, consult your doctor before consuming cranberry [R].



PERSONALIZED TO YOUR GENES

Consuming more cranberries is an inexpensive and easy way to potentially prevent UTIs [R, R].



H. pylori

IMPACT



EVIDENCE



Cranberry juice (200-500 mL/day) may help fight *H. pylori* infection. However, if a person stops drinking cranberry juice, the bacteria may come back [R, R].

Cranberry extract (1,000 mg/day) may also help when combined with standard treatment [R].

Cranberries may help by blocking the growth and activity of *H. pylori*. They may also decrease *H. pylori*'s ability to attach to the stomach lining [R, R].

Please note: Cranberry may interact with blood thinners such as warfarin (Coumadin). If you are taking blood thinners, consult your doctor before consuming cranberry [R].

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Quercetin



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Allergies

IMPACT



EVIDENCE



Quercetin (100 mg/day for 8 weeks) may improve some symptoms of **Japanese cedar pollen allergy** [R, R].

Quercetin may help by blocking the release of [histamine](#). In this way, it may reduce inflammation [R, R].



CRP (Inflammation)

IMPACT



EVIDENCE



42



Resveratrol



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Gut Inflammation

IMPACT



EVIDENCE



CRP (Inflammation)

IMPACT



EVIDENCE





Fucoidan



Helps with the following



White Blood Cells



IL-6

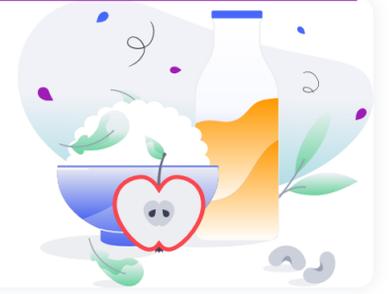


Flu





Dietary Omega-3 Fatty Acids



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



Gut Inflammation

IMPACT



EVIDENCE



Psoriasis

IMPACT



EVIDENCE





Coenzyme Q10 (CoQ10)



Helps with the following



Joint Inflammation



H. pylori



CRP (Inflammation)



46



Tocotrienols



Helps with the following



White Blood Cells



CRP (Inflammation)



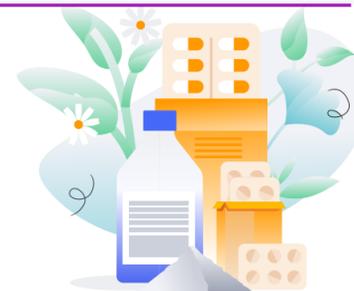
IL-6



47



L-Carnitine



Helps with the following



Gluten Sensitivity (Celiac)

IMPACT
0 / 5

EVIDENCE
0 / 5



IL-6

IMPACT
1 / 5

EVIDENCE
2 / 5

Recommendation References: [\[R\]](#)



CRP (Inflammation)

IMPACT
3 / 5

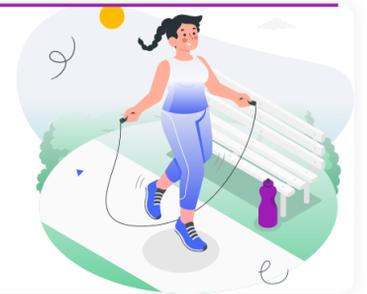
EVIDENCE
3 / 5

L-carnitine (1-2 g/day for at least 12 weeks) may reduce inflammation [\[R, R\]](#).



Safer Sex Practices

Helps with the following



Genital Herpes

IMPACT

5 / 5

EVIDENCE

5 / 5

Safer sex practices help reduce the risk of genital herpes and other STDs. They include [\[R, R\]](#):

- Using a condom or dental dam during sexual activity
- Limiting the number of sex partners (ideally to one)
- Discussing past partners, STDs, and drug use
- Avoiding alcohol and drug use
- Avoiding douching after intercourse
- Getting regular screenings
- Avoiding sex when a partner has herpes symptoms

Using a condom helps prevent genital herpes infection in both men and women [\[R, R\]](#).

A higher number of sexual partners may increase the risk of contracting genital herpes. In line with this, **sex workers** have the highest infection rates [\[R, R\]](#).



EBV Infection

IMPACT

1 / 5

EVIDENCE

3 / 5

EBV can spread through blood and semen during sexual contact [\[R\]](#).

Sexual contact usually involves kissing, which is a common way of spreading the virus. In line with this, increased sexual activity may be linked to EBV infection [\[R\]](#).

Experts recommend safer sex practices like using a condom and limiting the number of partners to prevent infections [\[R\]](#).



Chlamydia

IMPACT

4 / 5

EVIDENCE

5 / 5

Safer sex practices help reduce the risk of chlamydia and other STDs. They include [\[R, R\]](#):

- Using a condom for all types of sex
- Limiting the number of sex partners (ideally to one)
- Discussing past partners, STDs, and drug use
- Avoiding alcohol and drug use
- Avoiding douching after intercourse
- Getting regular screenings

Using a condom helps prevent chlamydia in men and women. A **combination of male and female condoms** may be the safest option [\[R, R\]](#).

Women using **birth control pills** may have **3 times higher** risk of chlamydia compared to those using condoms [\[R\]](#).

In men who have sex with men, using **pre-exposure prophylaxis (PrEP) for HIV** may be linked to **11 times higher** risk of chlamydia. Reduced condom use may be one of the reasons for this rise [\[R, R, R\]](#).

Men who go to sex workers may have a **2.5 times higher** risk of chlamydia [\[R\]](#).



Safer sex practices help reduce the risk of HPV infection and other STDs. They include [\[R\]](#), [\[R\]](#), [\[R\]](#):

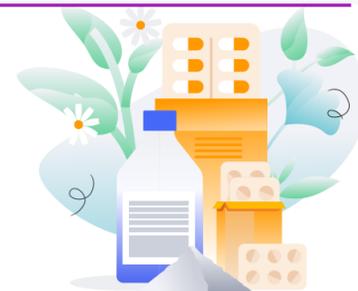
- Using a latex condom for all types of sex
- Limiting the number of sex partners (ideally to one)
- Discussing past partners, STDs, and drug use
- Avoiding alcohol and drug use
- Avoiding douching after intercourse
- Getting regular screenings

In women, having **more than two lifetime sexual partners** may raise the risk of HPV infection by **86%**. In line with this, genital warts are much more common among female sex workers [\[R\]](#), [\[R\]](#).

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Vitamin K2



Helps with the following



Joint Inflammation

IMPACT

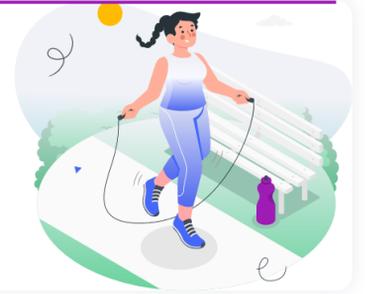
0 / 5

EVIDENCE

0 / 5



Massage



Helps with the following



Joint Inflammation

IMPACT



EVIDENCE



In people with rheumatoid arthritis, **massage therapy** may [\[R\]](#), [\[R\]](#):

- Reduce pain
- Improve joint function

To reduce pain, moderate pressure may be more effective than light pressure [\[R\]](#).

Foot reflexology may also help reduce joint pain [\[R\]](#), [\[R\]](#).



Eczema

IMPACT



EVIDENCE

