

Pneumonia

DNA Health Report

REPORT CATEGORY —



Sample Client

Report date: 15 January 2026

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DISCLAIMER

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

Personal information

NAME

Sample Client

SEX AT BIRTH

Male

HEIGHT

5ft 5" 165cm

WEIGHT

137lb 62kg



How this works

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



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



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

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



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

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

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



Genotype color info:

AA

You don't have any risk alleles

AA

You have 1 risk allele

AA

You have 2 risk alleles

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

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

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

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



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

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



Impact

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

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

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

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

Recommendation Evidence

5 / 5

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

4 / 5

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

3 / 5

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

2 / 5

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

1 / 5

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

0 / 5

No evidence in humans.

Genotype-specific Evidence

High-quality

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

Medium-quality

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

Low-quality

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

Indirect

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

In theory

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

Some things to keep in mind:

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

Introduction

Pneumonia is a lower respiratory infection that inflames the air sacs in one or both lungs. About **half a million adults** in the US get pneumonia each year. It is the leading cause of death from infection [\[R\]](#).

A variety of organisms, including bacteria, viruses, and fungi, can cause pneumonia. Signs and symptoms can vary in intensity and severity and can include [\[R\]](#):

- Fluid/pus in the air sacs of the lungs
- Chest pain
- Cough with phlegm or pus
- Fever
- Chills
- Difficulty breathing
- Fatigue
- Nausea and vomiting

Pneumonia can range in seriousness from mild to life-threatening. It is most serious for:

- Infants and young children
- People older than age 65
- People with health problems or weakened immune systems.

People who have persistent high temperatures, chest pain, or difficulty breathing should seek medical attention immediately.

Risk Factors

Key Takeaways:

- A number of studies have found genetic factors that play a role in pneumonia development
- Other risk factors include age, smoking, alcohol abuse, weakened immune system, malnutrition, and certain medications and medical conditions.
- About **1.5 million people** in the U.S. get diagnosed with pneumonia each year.
- If your genetic risk is high, you may lower overall risk by taking action on those factors that you can change. However, the incident rate is low, so the overall risk is low regardless.
- Click the **next steps** tab for relevant labs.

Pneumonia is an infection that inflames the air sacs in one or both lungs. It can range in seriousness from mild to life-threatening.

A number of studies have found **genetic factors** that play a role in pneumonia development [\[R, R\]](#).

Other risk factors for pneumonia can include [\[R\]](#):

- Age (under 5 and over 65 years)
- Smoking
- Alcohol abuse
- Weakened immune system
- Malnutrition
- Ongoing medical conditions
- Corticosteroid therapy
- Excessive, recent antibiotic use



TYPICAL LIKELIHOOD

Typical likelihood of pneumonia based on 1,020,905 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
DDX6	rs11606719	CC
FAM171A1	rs138075843	CC
PSMA4	rs76474922	AA
PTGER4	rs9283753	TT
IL6R	rs6684439	TT
SUCNR1	rs11708673	TT
NEDD9	rs200243764	GDEL()
ASIC2	rs62057446	CT
LTBR	rs4149581	CT
IREB2	rs2009746	GA
HELZ2	rs3810478	TG
ADI1	rs9309718	GA
ACVR2A	rs62169465	CT
B3GAT1	rs1154905	AC
DIRAS2	rs150438131	GG
NWD2	rs144242331	GG
CLYBL	rs76713055	AA
PRMT8	rs79345814	TT
HLA-DQA2	rs9275211	TT
MUC5AC	rs11245979	TT
FUBP1	rs34517439	CC
SGF29	rs4787458	AA
MMP10	rs470263	TT

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

Your Recommendations

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

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

DOSAGE		DOSAGE			
1	Good Hygiene Practices	20 seconds	2	Avoid Air Pollution	
3	Regular Hand Washing		4	Exercise At Least One Hour a Day	1 hour
5	Drink at Least 8 Glasses of Water a Day		6	Zinc	10 mg
7	Probiotics	10 billion	8	Hyperbaric Oxygen Therapy	90 minutes
9	Avoid Secondhand Smoke		10	Lactoferrin	100 mg
11	Maintain Optimal Vitamin D Levels	1000 iu	12	Chlorhexidine Mouthwash	10 ml
13	Lactobacillus Rhamnosus	10 billion CFU	14	Vitamin C	500 mg
15	Visit a Dentist Regularly		16	N-acetylcysteine (NAC)	600 mg
17	Osteopathic Manipulation		18	Cat's Claw	250 mg
19	Clove	500 mg	20	Regular Toothbrushing	2 minutes
21	Lactobacillus Casei	10 billion CFU	22	Polyunsaturated Fatty Acids (PUFAs)	
23	Propolis		24	Fruits And Vegetables	
25	Diaphragmatic Breathing	10 minutes	26	Clean and Disinfect Surfaces Regularly	
27	Wear Facemasks		28	Air Purifier	
29	Avoid Crowds		30	Good Oral Hygiene	2 minutes

1



Good Hygiene Practices

IMPACT

4 / 5

EVIDENCE

4 / 5

How to implement

Wash your hands with soap and water for at least 20 seconds, especially before eating, after using the restroom, and when returning home. Shower or bathe daily using soap, focusing especially on areas that produce more sweat. Brush your teeth twice a day with fluoride toothpaste and floss daily to maintain oral hygiene.

TYPICAL STARTING DOSE

20 seconds

Description

Good hygiene practices, such as regular handwashing and proper sanitation, are essential for preventing the spread of infections and maintaining public health. Adhering to good hygiene habits can reduce the risk of illness and promote general well-being.

Good hygiene practices involve keeping your body and environment clean. Everyday, we get in contact with millions of germs. Neglecting hygiene practices creates an ideal environment for these germs, increasing the risk of infections.

Personal hygiene is the action of maintaining the body clean and healthy. Good practices include:

- Showering or bathing at least every other day
- Washing your hands multiple times a day
- Brushing your teeth at least twice a day
- Trimming and brushing your nails regularly

Domestic hygiene includes all the work done to keep people’s clothes, beddings, and houses clean.

Poor hygiene is associated with an increased risk of [\[R\]](#):

- **Respiratory infections**
- Gastrointestinal infections
- Athlete’s foot
- Head, body, and pubic lice
- Tooth decay
- Hot tub rash
- Pinworms
- Scabies
- Swimmer’s ear
- Ringworms

How it helps

Experts recommend good hygiene practices to prevent pneumonia and respiratory infections. These include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Regular hand washing
- Cleaning and disinfecting surfaces
- Coughing or sneezing into a tissue, elbow, or sleeve

Good oral hygiene is especially important because infectious bacteria can spread from the mouth to the lungs. Good habits include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Gently brushing the teeth and tongue for two minutes, at least twice a day
- Flossing daily
- Using a toothpaste with fluoride and a soft toothbrush
- Replacing a worn toothbrush at least every 3 months
- Using a mouthwash with chlorhexidine

2



Avoid Air Pollution

IMPACT3 / 5

EVIDENCE4 / 5

How to implement

Stay indoors on days when air quality indexes (AQI) indicate high pollution levels, which are often reported by weather services or government environmental agencies. **Install air purifiers** in your home, especially in bedrooms, to reduce indoor pollutants. Limit outdoor exercise when air pollution warnings are issued, opting for indoor activities instead.

Description

Avoiding air pollution by reducing exposure to pollutants in the environment is essential for respiratory and overall health. It can help lower the risk of respiratory diseases, cardiovascular conditions, and other health issues associated with poor air quality.

While city life is convenient in a lot of ways, it comes with some health hazards. Cars, factories, and other sources increase air [pollution](#) ^[R].

Air pollution plays a role in [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Lung disease
- Heart disease
- Diabetes
- Asthma
- Skin conditions

How it helps

Exposure to air pollutants increases the risk of pneumonia and its severe complications. Pollutants that may increase the risk include [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Particulate matter
- Ozone
- CO
- SO2
- NO2

Indoor pollution from burning biomass or fuels may have similar effects [\[R\]](#), [\[R\]](#).

Air pollutants may contribute by irritating the lungs and causing inflammation [\[R\]](#), [\[R\]](#), [\[R\]](#).

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

3



Regular Hand Washing

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Wash your hands with soap and water for at least 20 seconds, making sure to scrub all surfaces of your hands, including the backs, between your fingers, and under your nails. Do this several times a day, especially before eating, after using the bathroom, after blowing your nose, coughing, or sneezing, and after touching garbage.

Description

Regular hand washing is a simple yet highly effective hygiene practice that helps prevent the spread of infectious diseases and illnesses. It is essential for reducing the transmission of harmful pathogens and maintaining overall health.

How it helps

Regular hand washing can prevent the spread of germs that could cause or worsen respiratory infections.

Experts recommend good hygiene practices to prevent pneumonia and respiratory infections. Regular hand washing is among the most important ones [\[R, R, R\]](#).

4



Exercise At Least One Hour a Day

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Dedicate a minimum of 60 minutes to moderate-intensity activities such as brisk walking, swimming, or cycling. Do this most days of the week, aiming for at least 5 days to optimize benefits.

TYPICAL STARTING DOSE

1 hour

Description

[Exercise](#) can do wonders for your health. It can help you lose weight, improve your heart health, boost your mood, and more [\[R\]](#).

There are many ways you can be active. You can walk, run, swim, dance, or play team sports. **Everything counts, and it's never too late to start!**

Try to get at least **60 minutes of moderate physical activity on most days**, including walking. **Getting a mix of cardio (min 150 min/day) and strength training (min 2 times a week) may be optimal.**

How it helps

Being physically active may reduce the risk of having pneumonia and dying of this condition. People with low leisure-time physical activity may benefit the most from increasing it [\[R, R\]](#).

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

5



Drink at Least 8 Glasses of Water a Day

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

Consume a total of at least 64 ounces (or approximately 1.9 liters) of water over the course of the day. This can be divided into 8 glasses, each containing 8 ounces of water. Aim to drink evenly throughout the day to avoid dehydration.

Description

Water is an essential nutrient for nearly every process in your body, helping to mainting brain and gut function, maintain a health weight, as well as energy and performance levels, among others.

Water is essential for life. It supports nearly every process in your body [\[R\]](#).

Water helps maintain [\[R\]](#):

- Energy and performance levels
- Brain function
- Gut function
- Healthy weight

Most experts recommend drinking **around 8 glasses (64 oz. or 2 L) of water daily**. You might need more or less than this, depending on how active you are, where you live, or what your overall health is like [\[R\]](#).

How it helps

Experts recommend drinking plenty of fluids to help loosen the mucus in the lungs [\[R\]](#).

Drinking sufficient fluids (at least 1.5 L/day) may reduce the risk of having pneumonia and dying of this condition [\[R\]](#).

A meta-analysis of 22 studies associated dehydration with 2-fold higher risk of medium-term mortality in patients with pneumonia. Greater dehydration further increased the risk. Educating patients to drink at least 1.5 L/day reduced subsequent healthcare use [\[R\]](#).

6



Zinc

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

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

TYPICAL STARTING DOSE

10 mg

Description

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

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

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

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

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

How it helps

In children from developing countries, supplementation with zinc (10-20 mg/day for 4-12 months) may reduce the risk of having pneumonia and dying of this condition [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

In patients with severe pneumonia, high doses of zinc given as an add-on to conventional treatment may reduce the risk of death. However, there is insufficient evidence to recommend supplementation [\[R\]](#), [\[R\]](#), [\[R\]](#).

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

7



Probiotics

IMPACT

3 / 5

EVIDENCE

3 / 5

How to implement

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

TYPICAL STARTING DOSE

10 billion

Description

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

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

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

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

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

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

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

How it helps

Drinking milk fermented with probiotics may help prevent respiratory infections and pneumonia [\[R\]](#).

Probiotics may reduce the risk of pneumonia in hospitalized patients, including the following groups of patients [\[R\]](#):

- Patients undergoing surgery [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Patients admitted to the ICU [\[R\]](#), [\[R\]](#)
- Patients on mechanical ventilation [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#)

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

8



Hyperbaric Oxygen Therapy

IMPACT

3 / 5

EVIDENCE

2 / 5

How to implement

Schedule and attend sessions in a hyperbaric oxygen therapy chamber as your doctor prescribes, typically for about 60 to 90 minutes per session. The exact number of sessions required can vary based on the condition being treated, but it often ranges from 20 to 40 sessions, which may be conducted daily or a few times a week.

TYPICAL STARTING DOSE

90 minutes

Description

Hyperbaric oxygen therapy increases the amount of oxygen in the blood and tissues, which can help to improve circulation, reduce inflammation, and promote healing.

How it helps

A Cochrane review of 3 trials and 151 patients with pneumonia concluded that oxygen therapy reduces the risk of death in the ICU, endotracheal intubation, and the length of ICU stay and intubation [\[R\]](#).

Hyperbaric oxygen therapy increases the amount of oxygen in the blood, aiding in fighting bacteria and enhancing antibiotic effectiveness. This can speed up healing and recovery in conditions such as pneumonia.

Please note: Hyperbaric oxygen therapy is a potentially dangerous procedure that should only be performed under medical supervision. People with pneumothorax or congestive heart failure are at especially high risk of adverse effects. Because highly concentrated oxygen can easily catch on fire, avoid potential fire sources around hyperbaric oxygen chambers, oxygen gas cylinders, tanks, and concentrators [\[R\]](#), [\[R\]](#).

9



Avoid Secondhand Smoke

IMPACT

3 / 5

EVIDENCE

2 / 5

How to implement

Implementing a smoke-free lifestyle involves communicating your needs to family, friends, and coworkers, requesting they respect your choice by smoking away from you. At home, establish strict no-smoking policies indoors. When out, choose smoke-free venues and accommodations. Advocate for smoke-free environments in your community and support legislation that promotes public health by reducing exposure to secondhand smoke. Utilize air purifiers at home to reduce any residual particles.

Description

Avoiding secondhand smoke is crucial for maintaining good health. Exposure to secondhand smoke can lead to respiratory problems, cardiovascular disease, and an increased risk of lung cancer, even in non-smokers. Protecting oneself from secondhand smoke involves staying away from smoking areas, ensuring smoke-free environments at home and work, and advocating for smoke-free policies in public spaces.

How it helps

Smoking may increase the risk of pneumonia. Former smokers may also be at increased risk, but less than current smokers. Secondhand exposure to cigarette smoke may also increase the risk of pneumonia, but only in older people [\[R\]](#).

Smokers may also be at increased risk of pneumonia as a complication of surgical procedures [\[R\]](#).

Cigarette smoke may contribute to pneumonia by [\[R\]](#), [\[R\]](#):

- Irritating and damaging the airways
- Preventing mucus clearance
- Impairing immune function in the lungs

10



Lactoferrin

IMPACT3 / 5

EVIDENCE2 / 5

How to implement

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

TYPICAL STARTING DOSE

100 mg

Description

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

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

Lactoferrin may help support [\[R\]](#) [\[R\]](#):

- Immunity
- Iron status

How it helps

Lactoferrin boosts your immune system, allowing your body to better resist and fight against the bacteria or viruses that cause pneumonia. In addition, when pneumonia does occur, it helps reduce inflammation in your lungs, improving your symptoms and recovery time.

A [meta-analysis of 6 randomized controlled trials](#) found that lactoferrin **reduced the odds of developing respiratory infections (pooled OR = 0.57)**. However, the authors asked for more large well-designed RCTS [\[R\]](#).

11



Maintain Optimal Vitamin D Levels

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

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

TYPICAL STARTING DOSE

1000 iu

Description

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

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

- Mood
- Immunity
- Heart health
- Blood sugar control

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

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

How it helps

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

Genetically predicted lower vitamin D levels may be associated with an increased risk of pneumonia. Over 38 years, 6342 bacterial pneumonias were observed in observational analyses and 13,916 in genetic analyses. Individuals with <25 nmol/L 25-hydroxyvitamin D had a 1.27 (95% CI: 1.16 to 1.40) higher risk in observational analysis. Genetic analysis showed OR 1.12 (95% CI: 1.02 to 1.23) per 10 nmol/L lower vitamin D, strongest near CYP2R1. No evidence linked vitamin D to urinary tract infections, skin infections, sepsis, or gastroenteritis. Low vitamin D is associated with higher bacterial pneumonia risk [\[R\]](#).

Low levels of vitamin D may be linked to pneumonia [\[R\]](#).

Supplementation may reduce the risk of repeated pneumonia episodes in children. However, the evidence is mixed [\[R, R\]](#).

Vitamin D may help by supporting a healthy immune system and reducing inflammation [\[R\]](#).

12



Chlorhexidine Mouthwash

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Use chlorhexidine mouthwash by rinsing with 10-15 ml (about two teaspoons) of the solution for 30 seconds twice daily, morning and evening, after brushing your teeth. Do this for up to two weeks or as directed by your dentist.

TYPICAL STARTING DOSE

10 ml

Description

Chlorhexidine mouthwash is an antiseptic solution used to reduce plaque and prevent gum disease and oral infections. It can be recommended by dentists to improve oral hygiene and maintain healthy gums and teeth.

How it helps

Good oral hygiene is important because infectious bacteria can spread from the mouth to the lungs. Using a chlorhexidine mouthwash may reduce the risk of pneumonia, though some studies found no benefit [\[R\]](#), [\[R\]](#), [\[R\]](#), [\[R\]](#).

13



Lactobacillus Rhamnosus

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

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

TYPICAL STARTING DOSE

10 billion CFU

Description

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

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

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

How it helps

Lactobacillus Rhamnosus is a probiotic that can bolster the immune system, helping prevent infections such as pneumonia. It's not a treatment, but may reduce the chance of getting pneumonia or lighten its severity if contracted.

The aim of this network meta-analysis (NMA) was to clarify the efficacy of different types of probiotics for preventing ventilator-associated pneumonia (VAP). According to pairwise meta-analysis, “B. longum + L. bulgaricus + S. thermophiles” and “Lactobacillus rhamnosus” were superior to placebo in preventing VAP. [\[R\]](#)

14



Vitamin C

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

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

TYPICAL STARTING DOSE

500 mg

Description

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

Foods rich in Vitamin C include: [\[R\]](#)

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

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

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

How it helps

Increasing vitamin C intake (by 1-2 g/day for 8-14 weeks) may reduce the risk of pneumonia. In people with this condition, vitamin C (125-200 mg/day) may reduce its severity and duration. However, the evidence is of low quality [\[R\]](#), [\[R\]](#).

Lower serum vitamin C levels are linked to increased odds of wheezing and higher mortality from chronic lower respiratory diseases (CLRD), especially flu and pneumonia (112% for a 0.65 mg/dl decrease), in US adults [\[R\]](#).

Vitamin C may help by reducing oxidative damage and stimulating immune function in the airways [\[R\]](#).

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

15



Visit a Dentist Regularly

IMPACT2 / 5

EVIDENCE2 / 5

How to implement

Schedule and attend dental check-ups every six months for routine cleaning and examination, unless advised otherwise by your dental professional based on your specific oral health needs.

Description

Regular dental visits are crucial for maintaining oral health. Dentists can detect and address issues like cavities, gum disease, and oral cancers early, preventing them from progressing into more serious problems. Professional cleanings help remove plaque and tartar, reducing the risk of tooth decay and gum disease. Regular check-ups also provide an opportunity to receive guidance on proper oral hygiene practices.

Overall, routine dental visits contribute to long-term oral health, preventing complications and ensuring a confident smile.

How it helps

Good oral hygiene is important because infectious bacteria can spread from the mouth to the lungs. Getting professional dental care, such as oral biofilm removal, may reduce the risk of pneumonia [\[R\]](#), [\[R\]](#), [\[R\]](#).

16



N-acetylcysteine (NAC)

IMPACT

2 / 5

EVIDENCE

2 / 5

How to implement

Take 600 mg of N-Acetylcysteine (NAC) supplement daily with water. It can be taken at any time of the day, but try to take it at the same time each day for best results.

TYPICAL STARTING DOSE
600 mg

Description

NAC is a supplement that contains a form of the amino acid cysteine, a protein building block that your body uses to make the antioxidant glutathione. It is used for its potential antioxidant properties and its ability to support lung, gut, and mental health.

[N-acetylcysteine](#) (NAC) is converted to cysteine in the body. Cysteine is a protein building block (amino acid) that helps make the antioxidant glutathione [\[R\]](#).

People take NAC to potentially support [\[R\]](#), [\[R\]](#):

- Mental health
- Ovarian health and pregnancy outcomes
- Lung health
- Gut health

How it helps

Supplementation with [NAC](#) (1200 mg/day for 10 days) may reduce oxidative stress and inflammation in people with pneumonia [\[R\]](#).

In those with COVID-19 pneumonia, NAC may reduce the risk of severe illness [\[R\]](#).

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

17



Osteopathic Manipulation

IMPACT

1 / 5

EVIDENCE

2 / 5

How to implement

Schedule an appointment with a licensed osteopathic physician (DO) who specializes in osteopathic manipulative treatment (OMT). Initially, you might need to go for treatment once a week for 4-6 weeks, depending on your condition's severity and response to treatment. After the initial period, the frequency may be reduced based on your physician's advice.

Description

Osteopathic manipulation is a hands-on medical approach used by osteopathic physicians to diagnose, treat, and prevent medical conditions. It involves techniques like stretching, pressure, and resistance to support musculoskeletal health and overall well-being.

Osteopathic manipulation involves applying pressure to different parts of the body. A practitioner will move your muscles and joints to relieve pain and other health issues [\[R\]](#).

How it helps

In older people hospitalized with pneumonia, osteopathic manipulation added to conventional therapy may reduce [\[R, R, R, R\]](#):

- Antibiotic use
- Length of hospital stay
- Severe complications

18



Cat's Claw

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take 250-350 mg of cat's claw extract daily, preferably with a glass of water. This dosage can be split into two separate doses, one in the morning and one in the evening. Continue this regimen for at least 4 to 8 weeks to observe potential benefits.

TYPICAL STARTING DOSE

250 mg

Description

Cat's claw is an herbal supplement derived from a tropical vine known for its potential anti-inflammatory and immune-boosting properties. It's used in traditional medicine to support joint health and overall well-being.

Cat's claw (*Uncaria tomentosa* and *Uncaria guinaensis*) is a vine native to the Amazon rainforest and other tropical regions of Central and South America. Its curved thorns look like cat’s claws [\[R\]](#).

Cat's claw has been used for centuries in South American traditional medicine for [\[R\]](#):

- Fever
- Fatigue
- Muscle and joint pain

How it helps

In a non-placebo-controlled trial of 23 participants receiving the pneumococcal vaccine, supplementation with cat’s claw extract (350 mg, 2x/day) for 2 months improved the immune response to the vaccine [\[R\]](#).

Cat's claw boosts the immune system, helping to fight off bacteria or viruses like those causing pneumonia. Its anti-inflammatory properties can also reduce the inflammation and fluid build-up in the lungs that are common in pneumonia.

19



Clove

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a clove supplement in capsule form, following the manufacturer's recommended dosage, usually ranging from 500 mg to 1000 mg daily with meals. Continue as long as needed or as directed by a healthcare provider.

TYPICAL STARTING DOSE
500 mg

Description

Clove is a spice known for its strong flavor and potential health benefits. It contains compounds like eugenol that have antioxidant and anti-inflammatory properties, making it a valuable addition to herbal remedies and culinary dishes.

How it helps

A comparative randomized triple-blind clinical trial with 168 intensive care unit patients found that clove mouthwash (6.66%, 2x/day for 5 days) reduced the incidence of ventilator-associated pneumonia (VAP) more than control, chlorhexidine 0.2%. 20.2% of the patients in the intervention group and 41.7% of those in the control group acquired VAP. The risk of VAP was 2.06 times higher in the control group than in the intervention group, but the severity of VAP did not differ significantly between the patients in the two groups [R].

Clove supplements contain antimicrobial properties that can help combat pneumonia-causing bacteria. Its expectorant properties can also aid in clearing mucus from the lungs, improving respiratory health.

20



Regular Toothbrushing

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Brush your teeth twice a day using fluoride toothpaste, once in the morning and once before going to bed, for at least two minutes each time. Ensure to cover all surfaces of your teeth using gentle, circular motions.

TYPICAL STARTING DOSE

2 minutes

Description

Regular tooth brushing is vital for maintaining good oral hygiene. It helps remove plaque, a bacterial film that forms on teeth and gums, preventing tooth decay and gum disease. Brushing also combats bad breath and removes food particles, reducing the risk of cavities. Additionally, it promotes healthy gums and prevents the buildup of tartar.

Consistent brushing, combined with flossing, is a fundamental part of daily oral care, contributing to overall dental health and preventing long-term dental issues.

As part of your toothbrushing routine, try to:

- Gently brush the teeth and tongue for two minutes, at least twice a day
- Use a toothpaste with fluoride and a soft toothbrush
- Replace a worn toothbrush at least every 3 months
- Floss daily

How it helps

Good oral hygiene is important because infectious bacteria can spread from the mouth to the lungs. Regular toothbrushing has a central role in maintaining good oral hygiene. It may help reduce the risk of pneumonia [\[R\]](#).

21



Lactobacillus Casei

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Take a supplement containing Lactobacillus casei daily, with a dosage recommended by the product's manufacturer or a healthcare professional. The specific amount can vary, but it is commonly found in doses around 10 billion colony-forming units (CFUs). Continue this regimen for at least 4 weeks to observe potential health benefits.

TYPICAL STARTING DOSE
10 billion CFU

Description

Lactobacillus casei is a probiotic bacterium known for its potential to support gut health and immune function. It contributes to a balanced gut microbiome and may help alleviate digestive issues like diarrhea.

[Lactobacillus casei](#) is a [probiotic](#) bacterium found in fermented foods (e.g., cheese), as well as in the reproductive and gastrointestinal tracts of humans and other animals [\[R, R\]](#).

People mainly take *L. casei* to support a healthy gut microbiota [\[R\]](#).

How it helps

In a non-placebo-controlled trial of 150 hospitalized patients expecting to receive mechanical ventilation, receiving a dairy product with *L. casei* Shirota (80 mL/day oral plus 80 mL/day enteral) for 28 days reduced the incidence of pneumonia and colonization with resistant bacteria in the oropharyngeal cavity. However, it had no effects on mortality or length of hospital stay [\[R\]](#).

L. casei may help by strengthening the immune system. A strong immune system helps the body fight off infections like pneumonia more effectively.

22



Polyunsaturated Fatty Acids (PUFAs)

IMPACT

1 / 5

EVIDENCE

1 / 5

How to implement

Incorporate foods rich in polyunsaturated fatty acids (PUFAs) into your daily diet. Examples include eating fatty fish like salmon, mackerel, or sardines two to three times a week, using plant-based oils like flaxseed, soybean, and canola oil in cooking and salads, and adding nuts and seeds such as walnuts and flaxseeds to your meals or snacks daily.

Description

Polyunsaturated fatty acids (PUFAs) are fatty acids with at least two double bonds. They are considered "healthy fats" and include **omega-3 and omega-6** fatty acids [R].

[Omega-3 fatty acids](#) help [R, R]:

- Lower inflammation and blood sugar
- Protect the heart, brain, and eyes

Omega-6 fatty acids play important roles in [R]:

- Skin health
- Energy production
- Immunity

Good sources of PUFAs include [R, R, R, R]:

- Fish and seafood
- Plant oils (e.g., flaxseed, corn, sunflower, soybean, and grapeseed oil)
- Seeds (e.g., safflower, sunflower, and pumpkin seeds)
- Walnuts
- Tofu

How it helps

Increased dietary intake of the PUFAs alpha-linolenic acid and linoleic acid may reduce the risk of pneumonia in men. Fish is high in PUFAs, and it may reduce the risk in those with a low intake of PUFAs from plants [R].

PUFAs may reduce the risk of infections that cause pneumonia by reducing inflammation and insulin resistance [R].

How to implement

Description

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

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

How it helps

In a trial of 55 primary pneumo-sepsis patients, three intervention groups received either propolis alone (1,000 mg/day), propolis (1,000 mg/day) plus melatonin (20 mg/day), or melatonin alone (20 mg/day), while a control group received a placebo. The combination of propolis and melatonin significantly improved interleukin-6 and CRP levels, gavage intake, and certain clinical outcomes compared to the control group, though there were no significant differences in oxidative stress, hematological indices, or 28-day survival rates between the groups [R].

24



Fruits And Vegetables

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

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

Description

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

How it helps

Fruits and vegetables are rich in vitamins and minerals as well as fiber, which can help support the immune system and overall health during recovery.

25



Diaphragmatic Breathing

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Practice diaphragmatic breathing for 10-15 minutes per day. Sit or lie down in a comfortable position, place one hand on your chest and the other on your belly. Breathe in slowly through your nose, ensuring your belly moves out more than your chest. Exhale slowly through your mouth or nose, consciously relaxing the belly. Repeat this process, focusing on the movement of your belly rather than your chest.

TYPICAL STARTING DOSE

10 minutes

Description

Diaphragmatic breathing, also known as deep breathing, can help reduce stress and anxiety by activating the body's relaxation response. It promotes better oxygen exchange, reduces muscle tension, and supports overall mental and physical well-being.

How it helps

Diaphragmatic breathing can improve lung capacity and efficiency which may aid in the recovery process.

26



Clean and Disinfect Surfaces Regularly

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Use a household cleaner or disinfectant to clean frequently-touched surfaces such as doorknobs, light switches, countertops, and handles daily. After spraying the disinfectant, leave it on the surface for at least 1 minute before wiping it off to ensure germs are killed.

Description

Cleaning and disinfecting surfaces are crucial to prevent the transmission of infections. Surfaces can harbor viruses and bacteria, posing a risk of contamination. Regular cleaning removes dirt and grime, while disinfecting eliminates or reduces the presence of pathogens.

This practice is especially important in shared spaces and high-touch areas, as it helps break the chain of infection, protects individuals from harmful germs, and contributes to maintaining a clean and safe environment for overall public health.

How it helps

Experts recommend good hygiene practices to prevent pneumonia and respiratory infections. They include cleaning and disinfecting surfaces regularly [\[R, R, R\]](#).

27



Wear Facemasks

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Place a clean facemask over your nose and mouth before going into public spaces, especially indoor or crowded areas, making sure it fits snugly against the sides of your face without gaps. Keep it on throughout your exposure to these areas and replace the mask with a new one if it becomes damp or after each use. For cloth masks, wash them after a day’s use.

Description

Wearing facemasks is a preventive measure to reduce the transmission of infectious diseases, particularly respiratory illnesses. It is used to protect individuals and communities from viral infections by preventing the spread of respiratory droplets.

How it helps

Wearing masks can help prevent the spread of infectious agents that may cause or complicate pneumonia.

28



Air Purifier

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

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

Description

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

How it helps

Air purifiers can remove contaminants from the air, potentially reducing the risk of respiratory infections.

29



Avoid Crowds

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Minimize your time in crowded places by scheduling your errands during off-peak hours, avoiding public events known to draw large crowds, and choosing less crowded routes or modes of transportation.

Description

Avoiding crowded environments, especially during contagious disease outbreaks, can reduce the risk of viral transmission and help protect public health. It promotes social distancing measures that are crucial for preventing the spread of infectious diseases.

How it helps

Pneumonia can be contagious, so avoiding crowds can prevent the spread of respiratory infections.

30



Good Oral Hygiene

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Brush your teeth at least twice a day for two minutes each time using fluoride toothpaste. Floss daily to remove plaque from places your toothbrush can't reach and consider using mouthwash. Visit your dentist at least twice a year for professional cleanings and checkups.

TYPICAL STARTING DOSE

2 minutes

Description

Good oral hygiene, which includes regular brushing, flossing, and dental check-ups, is crucial for preventing tooth decay, gum disease, and maintaining overall oral health. A healthy mouth contributes to overall well-being and can prevent dental issues that may impact systemic health.

Oral hygiene refers to practices that keep the mouth healthy. Good habits include [R](#), [R](#):

- Gently brushing the teeth and tongue for two minutes, at least twice a day
- Flossing daily
- Using a toothpaste with fluoride and a soft toothbrush
- Replacing a worn toothbrush at least every 3 months

To help maintain good oral hygiene, it is also important to regularly see dental professionals. They can help prevent and address issues with your teeth and gums.

How it helps

Maintaining good oral hygiene can reduce the risk of bacterial growth and secondary infections in the respiratory tract.

Next Steps

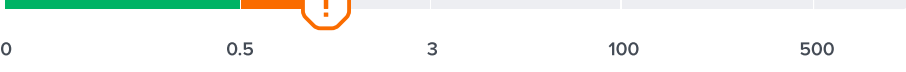
Remember, your genes only tell one important part of your health story!

Now that you've seen your DNA-based results for this health topic, let's take a look at other contributing factors.

Your lab results

Your lab results are impacted by the combined effect of your genes, environment and lifestyle.

Lab tests will give you the best picture of your current health status, while your genes provide insight into your health predispositions and which recommendations are best for you.

	WBC	6.92 x10^3/mm3		9 Nov 2025
	Zinc	17.12 umol/L		9 Nov 2025
	Vitamin D, 25-Hydroxy, Total	58.59 ng/mL		9 Nov 2025
	Albumin	4.3 g/dL		9 Nov 2025
	hs-CRP	1.6 mg/L		9 Nov 2025