

Shigella Infection

DNA Health Report

REPORT CATEGORY —



IMMUNITY &
INFECTIONS

Sample Client

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Table of Contents

03 How this works

- 04 Impact
- 05 Evidence
- 06 Some things to keep in mind

07 Introduction

08 Your genetics

09 Your recommendations

24 Next Steps

- 24 Your Lab Results

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

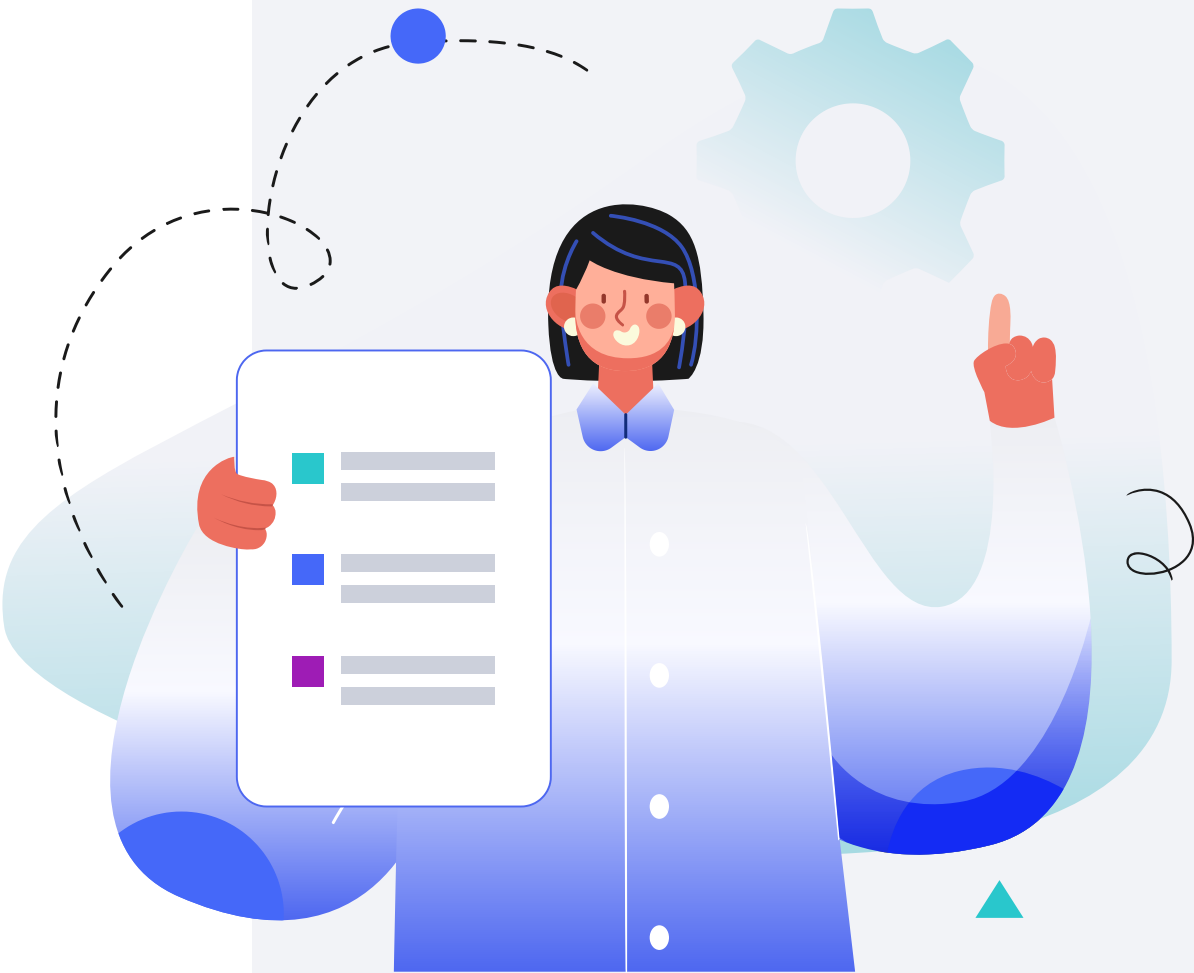
Male

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

Shigellosis is a highly contagious bacterial infection caused by a group of bacteria called *Shigella*. The bacteria typically invade the epithelial lining of the colon, resulting in severe abdominal cramps, diarrhea (which may be bloody), fever, and vomiting.

The infection is primarily spread through direct or indirect contact with human fecal matter, which can occur by consuming contaminated food or water or touching surfaces contaminated with the bacteria. Poor hygiene practices and conditions where close contact is unavoidable, such as in daycare centers or nursing homes, can amplify the spread of the disease.

Symptoms and Management

Individuals with shigellosis often experience symptoms within one to two days after exposure to the bacteria, and the illness usually resolves within five to seven days. Some cases, however, can be more severe and require medical treatment.

Complications can include dehydration due to severe diarrhea, rectal bleeding, and in rare instances, the bacteria can enter the bloodstream leading to bacteremia or other severe infections. Prevention of shigella infection is largely centered around proper sanitation practices, including thorough handwashing with soap and avoiding consumption of potentially contaminated food or water.



MORE LIKELY

More likely to have shigellosis based on 6 genetic variants we looked at



Your top variants that most likely impact your genetic predisposition:

GENE	SNP	GENOTYPE
TMEM218	rs147975801	AA
MPP7	rs2801847	GA
TNKS	rs12550437	AG
TMEM218	rs653552	AA
TMEM218	rs582240	CC
CYTH3	rs10266841	CC

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	Chinese Rhubarb	500 mg	2	Resistant Starch	40 g
3	Butyrate	300 mg	4	Drink at Least 8 Glasses of Water a Day	
5	Lactobacillus Rhamnosus	10 billion CFU	6	Avoid Raw Seafood	
7	Zinc and Folate		8	Saccharomyces Boulardii	10 billion CFU
9	Avoid Crowds		10	Probiotic Dairy	
11	Zinc	15 mg	12	Probiotic Yogurt	
13	Avoid Sugary Foods & Drinks		14	Regular Hand Washing	
15	Probiotics	30 billion CFU			

1



Chinese Rhubarb

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take a supplement containing Chinese rhubarb extract, typically available in tablet or capsule form. The common dosage ranges from 500 to 1,000 mg per day, taken with water. It is advised to consult with a healthcare provider for the exact dosage based on individual health needs. Use this supplement daily for a period as recommended by the healthcare provider, usually not exceeding 8 weeks without medical advice.

TYPICAL STARTING DOSE

500 mg

Description

Chinese rhubarb is another traditional Chinese herbal remedy known for its potential to support digestive health and relieve constipation. It contains compounds that may have mild laxative effects.

[Rhubarb](#) (also named *Rhei* or *Dahuang*) is one of the most ancient herbs in traditional Chinese medicine. Rhubarb includes approximately 60 species of plants of the genus *Rheum* L. [\[R\]](#), [\[R\]](#).

The rhubarb rhizome is considered a top medicinal plant in Chinese medicine. It is used for [\[R\]](#), [\[R\]](#):

- Constipation
- Kidney disease
- Herpes
- Gum disease

It may help due to its antibacterial and anti-inflammatory effects [\[R\]](#).

How it helps

A randomized trial with 150 children (aged 12-72 months) suspected of *Shigella* dysentery showed that *R. ribes* syrup, along with antibiotics, reduced fever and diarrhea duration, abdominal pain, and need for antipyretics without adverse effects [\[R\]](#).

Please note: *Be careful with rhubarb if you are prone to allergies. High doses of rhubarb may cause diarrhea and abdominal cramps. Avoid long-term use due to dependence risk. Rhubarb is not safe for people with gut conditions, women who are pregnant or breastfeeding, and children under 12 years of age. Make sure to consult your doctor before taking rhubarb* [\[R\]](#), [\[R\]](#).

2



Resistant Starch

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Incorporate 40g of Jo's resistant starch into your daily diet. This can be done by adding it to smoothies, yogurt, or baked goods. Ensure to spread the intake throughout the day for better tolerance.

TYPICAL STARTING DOSE

40 g

Description

Resistant starch is a type of starch that resists digestion in the small intestine, making it a prebiotic fiber that can benefit gut health. It can be found in foods like green bananas, legumes, and certain grains.

[Resistant starch](#) is starch that doesn't get digested in the small intestine [\[R\]](#), [\[R\]](#).

Some types of resistant starch include [\[R\]](#):

- **Type 1** occurs naturally in foods such as whole grains
- **Type 2** can be isolated from foods such as corn and green banana
- **Type 3** is created during the cooking and cooling process of starchy foods like potatoes

Resistant starch doesn't increase blood sugar like typical digestible starches do [\[R\]](#), [\[R\]](#).

Instead, it feeds good bacteria in the colon that [\[R\]](#), [\[R\]](#):

- Support healthy gut function
- Support immunity
- Reduce inflammation

How it helps

In a non-placebo-controlled trial of 73 children with shigellosis, eating a rice-based diet supplemented with cooked green banana (250 g/L) for 5 days eliminated mucus (in 59% of children) and fecal blood (in 96%), and reduced number of stools/day, fecal volume (by 25-40%) [\[R\]](#).

3



Butyrate

IMPACT1 / 5

EVIDENCE1 / 5

How to implement

Take butyrate supplements orally with a full glass of water, typically starting with a dose of 300 to 600 mg per day. It can be taken with or without food, but if stomach upset occurs, try taking it with meals. The specific dosage and duration of use should be based on the guidance of a healthcare professional, tailored to individual health needs.

TYPICAL STARTING DOSE

300 mg

Description

Butyrate is a short-chain fatty acid produced by gut bacteria during the digestion of dietary fiber. It plays a crucial role in maintaining gut health, supporting the integrity of the intestinal lining, and contributing to overall digestive well-being.

[Butyrate](#) is a short-chain fatty acid produced when the gut bacteria ferment indigestible fibers. It prevents inflammation in the gut and is essential for maintaining a healthy barrier between the large bowel and the bloodstream [\[R\]](#).

People take butyrate to support gut health, improve insulin sensitivity, and promote weight loss.

How it helps

In a placebo-controlled trial of 80 patients with shigellosis, applying a sodium butyrate enema (80 mM) 2x/day for 3 days reduced macrophages, pus cells, IL-8 and IL-1β in the stool, while improving rectal histopathology and increasing IL-37 levels [\[R\]](#).

4



Drink at Least 8 Glasses of Water a Day

IMPACT

0 / 5

EVIDENCE

0 / 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

Keeping hydrated is crucial in managing shigellosis because the infection often causes severe diarrhea, which can lead to dehydration. Drinking water helps replenish fluids lost through diarrhea and supports overall recovery.

5



Lactobacillus Rhamnosus

IMPACT

0 / 5

EVIDENCE

0 / 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 beneficial in combating shigella infection by enhancing the gut's immune response. By doing so, it can help to reduce the severity of symptoms and possibly shorten the duration of the infection.

6

Avoid Raw Seafood

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Do not consume seafood that is uncooked or undercooked, including sushi, sashimi, ceviche, and raw oysters. Always ensure that seafood is cooked to an internal temperature of 145 degrees Fahrenheit before eating. Practice this avoidance consistently to reduce the risk of foodborne illnesses.

Description

Avoiding the consumption of raw seafood is recommended to reduce the risk of foodborne illnesses, including bacterial and parasitic infections such as salmonella.

Seafood is a healthy source of protein and essential nutrients such as omega-3 fatty acids and vitamins. Fish and shellfish are also low in saturated fat and cholesterol, making them a good choice for a balanced diet.

However, eating raw seafood can be dangerous as it may contain toxins and harmful germs that can cause food poisoning. Eating raw fish or shellfish, such as sushi or oysters, can increase the risk of food-borne illnesses such as **anisakiasis and salmonella infection**.

Make sure to cook seafood properly to reduce the risk of food poisoning.

How it helps

Raw seafood can be contaminated with bacteria, including Shigella. Avoiding raw seafood reduces the risk of infection by eliminating a common source of the bacteria.

7



Zinc and Folate

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Take a zinc supplement of 15 mg per day and a folate supplement of 400-800 mcg per day with a glass of water, preferably with a meal to enhance absorption. Continue this regimen daily for at least three months to observe benefits.

Description

Zinc and folate are essential nutrients found in various foods, with zinc predominantly sourced from animal products and folate from leafy greens and legumes. Zinc plays a crucial role in immune function and wound healing, while folate is vital for cell division and the prevention of neural tube defects during pregnancy.

Zinc and [vitamin B9](#) (*folate*) are essential nutrients. Among other roles, they help make DNA and protect it from damage [\[R\]](#), [\[R\]](#).

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

Rich sources of folate include [\[R\]](#), [\[R\]](#):

- Beef liver
- Spinach
- Black-eyed peas
- Fortified rice
- Asparagus
- Citrus fruits

How it helps

Zinc supplements can help reduce the duration and severity of diarrhea caused by shigellosis, as zinc supports the immune system and helps restore the gut lining. Folate supports overall cellular function, including immune cells, contributing to a faster recovery.

8



Saccharomyces Boulardii

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

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

TYPICAL STARTING DOSE
10 billion CFU

Description

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

How it helps

Saccharomyces boulardii is a type of yeast that acts as a probiotic. It can help with diarrhea caused by infections. For Shigella infection, S. boulardii helps by supporting the gut’s natural flora and potentially reducing the severity and duration of the symptoms.

9



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

Avoiding crowded places helps minimize the risk of coming into contact with individuals who may be carrying the Shigella bacteria. Crowded conditions can facilitate the spread of infections through direct contact or through shared items, worsening outbreaks.

10



Probiotic Dairy

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Incorporate probiotic-rich dairy products, such as yogurt or kefir, into your diet daily. Aim to consume at least one serving, which typically ranges from 100 to 200 grams, per day.

Description

Probiotic dairy products, such as yogurt and kefir, contain live beneficial bacteria that support gut health and digestion, as well as the immune system, blood sugar, and mood. These products are rich in probiotics, calcium, and protein.

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

Probiotics can be taken as supplements. They can also be added to dairy products like milk and yogurt [\[R, R\]](#).

How it helps

Probiotic dairy products help restore healthy gut bacteria that can be disrupted by Shigella infection. Consuming these products can improve gut health and aid in faster recovery.

11



Zinc

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

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

TYPICAL STARTING DOSE

15 mg

Description

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

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

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

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

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

How it helps

Zinc supplementation is effective in reducing the duration and severity of diarrheal episodes caused by shigella infection. Zinc works by boosting the immune system's capacity to fight off the infection and by directly inhibiting the growth of shigella bacteria.

12



Probiotic Yogurt

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

Consume one to two servings of probiotic yogurt each day. Each serving is typically 6 to 8 ounces. Continue this practice daily for at least 1 to 2 weeks to begin noticing benefits to digestive health.

Description

Probiotic yogurt is a dairy product containing live probiotic cultures like Lactobacillus and Bifidobacterium, which can aid digestion and improve gut health when consumed regularly. It is a good source of calcium, protein, and probiotics, contributing to bone health and digestive well-being.

How it helps

Probiotics, like those found in yogurt, can help maintain or restore the gut microbiota which may be disrupted by shigella infection. This can potentially reduce the duration and severity of the symptoms.

13



Avoid Sugary Foods & Drinks

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

To avoid sugary foods, eliminate or significantly reduce consumption of foods and beverages high in added sugars such as sodas, candies, baked goods, and sugary cereals from your diet. Instead, opt for natural sugar sources like fruits. Aim to do this daily for ongoing health benefits.

Description

High-sugar foods like baked goods, sweets, and sugary drinks, can spike your blood sugar levels. Consuming a lot of these types of foods can contribute to health issues like diabetes, obesity, insomnia, and heart disease.

High-sugar foods and refined carbs have a high glycemic index (GI). This means they tend to spike your blood sugar levels. They include [\[R\]](#), [\[R\]](#), [\[R\]](#):

- Sugary drinks
- Baked goods
- Sweets
- White bread
- White rice
- Pasta

Eating a lot of sugary foods can contribute to:

- Diabetes [\[R\]](#), [\[R\]](#), [\[R\]](#)
- Weight gain and obesity [\[R\]](#), [\[R\]](#)
- Insomnia [\[R\]](#)
- Heart disease [\[R\]](#)

You may also want to avoid processed sugars and sugary drinks. They may have a role in increasing IL-1B [\[R\]](#), [\[R\]](#).

How it helps

Consuming sugary foods can worsen the symptoms of a Shigella infection, such as diarrhea, by drawing more water into the intestines. Avoiding them can help manage symptom severity and support recovery.

14



Regular Hand Washing

IMPACT

0 / 5

EVIDENCE

0 / 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 is crucial in preventing the spread of Shigella infection. Handwashing with soap and water, especially after using the bathroom or changing diapers, helps remove bacteria. This can significantly reduce the likelihood of transmitting the bacteria to your mouth or to others.

15



Probiotics

IMPACT

0 / 5

EVIDENCE

0 / 5

How to implement

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

TYPICAL STARTING DOSE
30 billion CFU

Description

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

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

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

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

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

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

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

How it helps

Probiotics, specifically certain strains like Lactobacillus GG, have been studied for their beneficial effects on gut health during shigellosis. They can help restore the balance of good bacteria in the gut, reduce the duration of symptoms, and may aid in faster recovery.

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.

