



**The Power of Probiotics**  
Fermented Foods for Optimal Health



Presented By:



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**Disclaimer**



This class is not intended to treat, diagnose or mitigate any disease.

Dietary supplements and foods can interact with prescription medications. If you are taking a prescription medication, become informed about the possible interactions.

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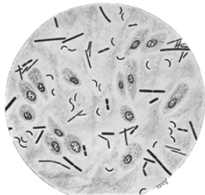
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**The Natural Grocers Difference**



**THE 5 FOUNDING PRINCIPLES**  
of Natural Grocers

- 1 focus on **EDUCATION**
- 2 **HIGHEST** quality
- 3 **EVERY DAY**
- 4 supporting **LOCAL** communities
- 5 **GREAT EMPLOYEES**



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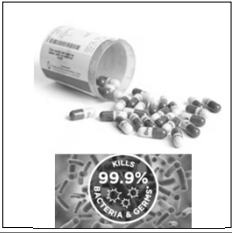
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**The War on Bugs** 

Since the discovery of bacteria over 300 years ago, humans have characterized them as “dangerous,” “pathogenic” “germs,” and have generally tried to avoid or eradicate them



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**My Best Friends are Bugs** 

Bacteria can be found on every surface of the human body and the digestive tract houses 4-5 pounds of bacteria

These bacteria are referred to as the “gut microbiota”

It turns out, many of these bacteria are not harmful at all...

Some are very helpful, in fact, humans have a symbiotic relationship with these microbes



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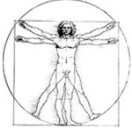
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**Being Human** 

Our DNA is what makes us who we are.

Your genetic material determines your height, weight, eye color, hair color and many of the other things that make you unique

The human genome project was a 13 year long project, and at the time it was completed, one of the greatest scientific accomplishments of all time



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**Being Human**

We now know that the human genome contains between 20,000-25,000 genes

The discovery that “simpler” organisms like rice (~55,000 genes) and wheat (164,000 genes) have more genes than humans left scientists scratching their heads

However, when the bacteria residing in the gut are considered, there are over 5 million genes influencing human health



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**A Superorganism**

*The gut microbiota has now been referred to as “Our second genome”*

*The mutualistic relationship shared between humans and microbes makes us much more than human...*

Human health is actually a conglomerate of symbiotic communications that shape our health and genetic expression

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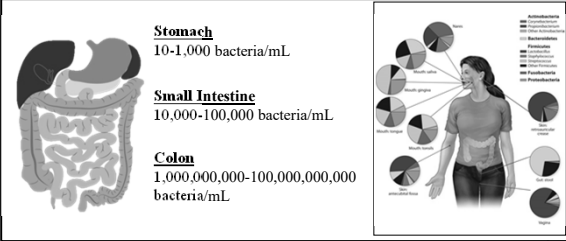
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**They’re Everywhere**

**Stomach**  
10-1,000 bacteria/mL

**Small Intestine**  
10,000-100,000 bacteria/mL

**Colon**  
1,000,000,000-100,000,000,000 bacteria/mL



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### Mutualistic Symbiosis



We feed, shelter, and house these bacteria

In return, they play a tremendous role in human health

The bacteria living in our gut play a valuable role in influencing **overall gut health** as well as:

Immune Function	Brain Health	Appetite
Inflammation	Skin Health	Metabolism

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### Mutualistic Symbiosis



Each person has a highly unique bacterial “fingerprint”

This fingerprint is shaped by your environment, diet, and lifestyle

Healthy diet Low stress Healthy environment	⇒	Healthy microbial ecosystem	⇒	Optimal health
Unhealthy diet High stress Toxic environment	⇒	Dysbiotic microbial ecosystem	⇒	Health problems

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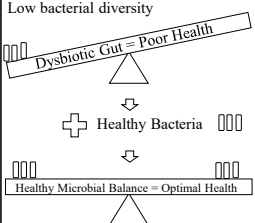
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### Mutualistic Symbiosis



Low bacterial diversity



Healthy bacteria like *lactobacilli* interact with the food compounds in our gut and produce short-chain fatty acids, vitamins, neurotransmitters, and immunomodulatory compounds from our food

These compounds are known as symbiosis factors

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**Where Do We Get Healthy Bacteria?** 



We get our first microbes at birth from our mother

After infancy, our diet and lifestyle influences the composition of our microbiota

Other tools that can be used to cultivate a healthy microbiota include fermented foods and probiotic supplements

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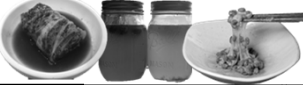
**Traditional Fermented Foods** 

Many ancient cultures used fermentation as a way to not only preserve food but also enhance health

When cultures move away from their traditional diets – they often suffer from increased rates of western disease

Historically, traditional fermented foods contained between 100 million and 1 billion CFU per gram or mL

Modern methods of food preservation rely more heavily on pickling, freezing and canning – all of which kill off microbes



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**How Do Probiotics Work?** 

Probiotics can influence the makeup of our gut bacteria so we have a healthier population living in the gut

The probiotics themselves can support health directly by supporting gut health and producing beneficial compounds

Probiotics can also change the way that the current bacteria living in our gut behave—so often they don't need to colonize the intestine to support health

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## All Health Begins in the Gut

Many probiotics are capable of influencing digestive function and regularity

*Saccharomyces boulardii* is a probiotic yeast shown to support digestive health in people travelling abroad or after a gut-disruptive event

Other probiotics that support regularity include:  
*Lactobacillus rhamnosus GG, L.casei, L.acidophilus, L.plantarum, L.bulgaricus, L.reuteri, Bifidobacterium bifidum, B.infantis*

**Benefits of regular bowel movements include:**  
 Elimination of toxins  
 Maintaining optimal nutritional status  
 Infrequent bowel movements have been associated with neurological disease and cardiovascular issues  
 Supports intestinal health

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## The Pros of Probiotics

Probiotics produce a number of beneficial compounds, such as:

<p><b>Lactic acid</b>-Lactic acid keeps the gastrointestinal tract at an optimal pH and supports a healthy microbial balance in the gut</p>	<p><b>Neurotransmitters</b> that influence the function of the “enteric nervous system” as well as those that influence the function of the central nervous system</p>
<p><b>Enzymes</b>-These enzymes help breakdown food to support healthy digestion and make sure we get optimal nutrition from the food we eat</p>	<p>Probiotics have been shown to make:                  GABA, dopamine, serotonin, norepinephrine, histamine, acetylcholine</p>

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## The Pros of Probiotics

Probiotic bacteria produce:

**Short-chain fatty acids** such as butyrate that support colon cell health, a healthy appetite, and modulate immune function

Short-chain fatty acids are produced through the breakdown of prebiotic fibers such as inulin, GOS, FOS, and other fibers

Certain vitamins, such as some of the **B vitamins, vitamin K**, and other compounds that support health and protect the body from oxidative damage

Consuming probiotics has been shown to boost the body’s natural free radical scavenging capacity

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## The Gut-Immune Axis

In the gut, probiotics support:	
A strong and healthy gut barrier	The gut barrier is our first line of immune defense <small>Look for: <i>L.rhamnosus GG</i>, or a combination of <i>B.infantis</i>, <i>L.acidophilus</i> and <i>L.plantarum</i></small>
Healthy production of secretory IgA antibodies	IgA is one of the most important immune supportive proteins in the gut <small>Look for: <i>Saccharomyces boulardii</i>, <i>L.casei</i>, <i>L.lactis</i>, <i>B.bifidum</i>, <i>L.rhamnosus</i></small>
The immune system	Probiotics modulate inflammation and teach immune cells how to be effective, but not over active <small>Look for: Multi-strain probiotics containing <i>B.bifidum</i>, <i>B.infantis</i>, <i>L.rhamnosus</i>, <i>L.casei</i>, <i>L.salivarius</i> and <i>Lacidophilus</i></small>

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## The Gut-Immune Axis

Probiotic supplemented gut 	<b>Healthy Immune System</b> Probiotics support gut barrier function Between 70-80% of our immune system is located in the gut Probiotic bacteria make compounds that train our immune system so that it is not over or under active Immune cells travel throughout the body	<b>Resulting in</b> A healthy gut A healthy microbial balance in the gut Healthy levels of inflammation Seasonal immune support
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## The Gut-Immune Axis

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## The Gut-Immune Axis



Immune cells can leave the digestive tract and migrate to other tissues and provide immune support in those areas—such as in the lungs!



***Bifidobacterium longum*** has been clinically studied for its ability to support a healthy respiratory tract when seasonal irritants are present

Studies show ***Lactobacillus plantarum*** helps the immune system produce the growth factors necessary for a robust healthy immune response

- Immune cells in the gut travelled to the upper respiratory tract and helped boost immune function

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## The Gut-Brain Axis

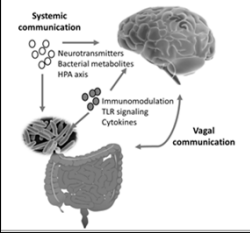


Probiotics support and communicate with our brain in several different ways

They communicate with the brain:

- Through the blood stream by producing neurotransmitters and other compounds
- Through the immune system by modulating inflammation
- Directly by sending signals through the vagus nerve

AND they indirectly support brain health by supporting other influential aspects of health



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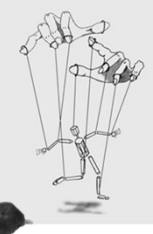
## Microbial Mind Control



It may sound creepy and maybe even shocking... but microbes are capable of influencing our behavior...

There are many examples in nature:

- Rabies virus
- *Toxoplasma gondii*
- *Candida albicans*



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## The Gut-Brain Axis



Traditional diets that contain probiotic-rich fermented foods have long been associated with supporting brain health

Brain scans of people consuming a probiotic-rich drink showed that it activated parts of the brain responsible for **emotions** and **emotional decision making**

Supplementation with *Bifidobacterium bifidum*, *L.acidophilus* and *L.casei* was shown to support insulin function and healthy blood sugar balance, and also resulted in **mood support** in study participants

A similar study using *L.acidophilus*, *L.casei*, *B.bifidum*, and *L.fermentum* found these probiotics support **insulin function** as well as **memory**

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## The Gut-Skin Axis



Skin health is also intimately linked to gut health—people suffering from gastrointestinal disorders are also more likely to also suffer from skin issues

Leaky gut and other inflammatory issues result in systemic inflammation and lead to poor skin health, so modulating inflammation in the gut is crucial for healthy skin

Studies also shows that the microbes living in the gut are capable of influencing blood sugar levels, skin pH, and hormone levels

Studies show *Bifidobacterium bifidum* as a crucial microbe for skin health  
*Lactobacillus acidophilus* has also been shown to support healthy skin

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## Probiotics for Everyone



There are also some exceptional and unexpected benefits of probiotics, such as supporting:

Appetite & Metabolism	Detoxification
Probiotic supplements containing fiber (FOS), support a healthy body weight in children and adults  It's likely that the short-chain fatty acids produced by probiotics reduce hunger	Probiotics can: 1. Decrease the absorption of heavy metals and pesticides from the gut 2. Increase detoxification processes in the intestine 3. Support liver detoxification capacity by increasing glutathione

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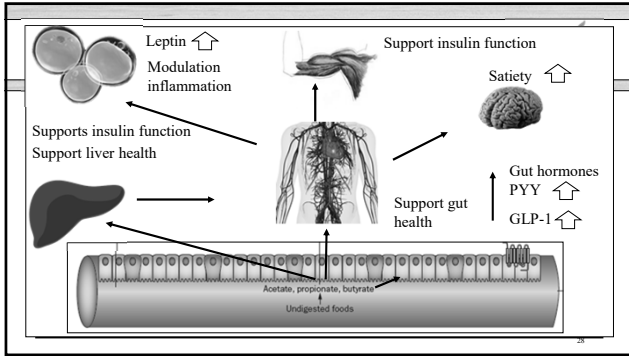
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## Probiotics for Everyone

There are also some exceptional and unexpected benefits of probiotics, such as supporting:

Healthy Aging	Women's Health
<p>Aging male mice supplemented with probiotics show a rise in their testosterone levels</p> <p>Probiotics have been shown to support bone health in post-menopausal models of bone loss</p>	<p><i>Lactobacilli</i> support urogenital health and bone health in women</p> <p>Especially <i>Lactobacillus rhamnosus GR-1</i> and <i>Lactobacillus reuteri RC-14</i></p>

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## Probiotics for Everyone

There are also some exceptional and unexpected benefits of probiotics, such as supporting:

Gluten Digestion	Exercise Recovery
<p><i>Bifidobacterium longum</i> helps support a healthy microbial balance in the digestive tract of people with gluten sensitivity</p> <p><i>Lactobacillus rhamnosus GG</i> support the repair of the gut lining after it has been damaged by gluten</p>	<p>Often intense or prolonged exercise can lead to leaky gut – probiotics such as <i>Bifidobacterium bifidum</i>, <i>B. lactis</i>, <i>Lactobacillus acidophilus</i>, <i>L. brevis</i> support gut health in athletes</p>

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**Probiotics for Oral Health** 

We have lots of bacteria living on pretty much every surface of our body, including the mouth!

Probiotic lozenges containing different types of *Streptococcus salivarius* (K-12, M-18), support a healthy oral microbiota and support:

- Ear, nose, and throat health
- Fresh breath
- Dental health



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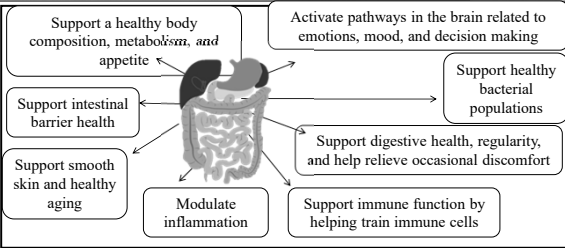
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**Summary** 



- Support a healthy body composition, metabolism, and appetite
- Activate pathways in the brain related to emotions, mood, and decision making
- Support healthy bacterial populations
- Support intestinal barrier health
- Support digestive health, regularity, and help relieve occasional discomfort
- Support smooth skin and healthy aging
- Modulate inflammation
- Support immune function by helping train immune cells

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**Summary** 

**Why should we take probiotics?**

We need to have healthy microbes living in our gut in order to have healthy digestion, a healthy immune system, a healthy metabolism, and optimal brain health

These microbes have often been disrupted by our Western lifestyles and diets

Probiotic-rich fermented foods have been a part of traditional diets for thousands of years

Probiotics are good bacteria that can help reinforce the healthy bacteria living in the gut

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## Choosing a Probiotic

<b>Choosing a probiotic</b>	Looking for specific support?
Cultivating overall health?	Specific strains of bacteria are better for men, women, children, adults, and seniors
Look for: <ul style="list-style-type: none"> <li>A multi-strain probiotic</li> <li>Probiotic-rich fermented foods</li> <li>A product that works for you and you will remember to take!</li> </ul>	<ul style="list-style-type: none"> <li>Certain strains are best for certain aspects of health so look for specific strains of bacteria for targeted support</li> <li>Many probiotic manufacturers have formulated unique products to contain microbes for specific reasons</li> </ul>

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## Feeding Gut Bugs

Healthy microbes in the gut need to be fed! The best foods for probiotics are fermentable fiber— <b>prebiotics</b>	For optimal effectiveness probiotics should be paired with prebiotics
<b>Inulin:</b> Found in artichokes, garlic, leeks, onions, and asparagus	However, many people consume probiotics to help support gut health, but cannot tolerate fermented fibers—rest assured, studies show that probiotics alone can still support gut health
<b>Fructooligosaccharides (FOS):</b> Found in many fruits and vegetables	
<b>Resistant starch:</b> Found in grains, legumes, or other starchy vegetables that have been cooked and cooled	

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## Resources

Books

Customer Literature File – Probiotic Health Benefits

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