

# Probiotics and Prebiotics

## Important Definitions:

**Probiotic** - “live microorganisms which when administered in adequate amounts confer a health benefit on the host” (FAO/WHO Working group, 2002, p. 8 ).

**Prebiotic** - “a non-digestible food ingredient that beneficially affects the host by selectively stimulating the growth and/or activity of one or a limited number of bacteria in the colon, that can improve the host health” (ISAPP, 2003, p. 8)

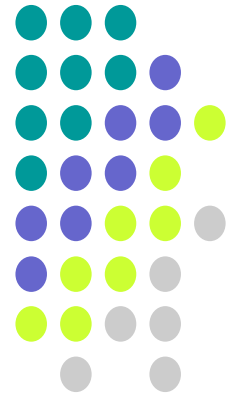


## We eat food to nourish

**our bodies.** A basic, varied diet can usually meet the body’s nutrient and energy needs. With advances in scientific research, the work of food manufacturers and increasing globalization of our food supply, more and more specialty foods and nutritional products are being put on the market. These products claim to improve health. It can be difficult, however, to determine how valid these health claims really are.

*“Our digestive tract houses millions of bacteria”*

Prebiotic and probiotic products are one group of foods that are becoming increasingly popular. These foods focus on improving digestive health. Our digestive tract houses millions of bacteria. These bacteria serve several functions. They are involved in digestive processes and produce fatty acids and vitamins for use in the body. These bacteria serve as a protective barrier within the digestive tract. They prevent infection by pathogenic bacteria that may enter the body and work with the immune system to prevent infection. Prebiotics and probiotics have the main purpose of influencing the composition, growth and population of bacteria in the intestine for optimal intestinal health and protection of the body (Ouweland, 2007).



# Probiotic and Prebiotic Foods

## **Probiotic Foods:**

***All contain live beneficial bacteria.***

**Yogurt**  
**Buttermilk**  
**Kefir**  
**Tempeh**  
**Miso**  
**Sauerkraut**

All of these foods result from the fermentation of a food, using bacteria, to produce another food with different sensory characteristics and functions. Yogurt, kefir and buttermilk are made from milk. Specific types of bacteria and/or yeast are added to the milk and the mixture is allowed to incubate for a specified time, at a certain temperature to allow fermentation. Sauerkraut is fermented cabbage and miso and tempeh are fermented soy beans.

***“When prebiotics and probiotics are eaten together, they work together and have a synergistic effect”***

(Arvanitoyannis & Van Houwelingen-Koukaliaroglou, 2005).

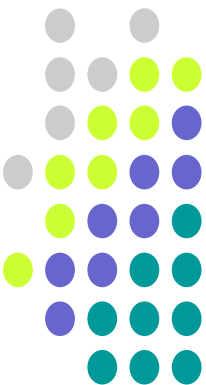
## **Prebiotic Foods:**

***Encourage the growth of beneficial bacteria***

**Jerusalem artichokes**  
**Soy beans**  
**Onions**  
**Greens**  
**Flax**  
**Legumes**  
**Garlic**

These foods all naturally contain a prebiotic compound called inulin. Inulin can be added to other foods too, like bread. Inulin is extracted from the chicory root for commercial use.

Inulin is not broken down by the human digestive system. It is fermented specifically by the beneficial bacteria of the colon, and encourages their growth (Murphy, 2001)

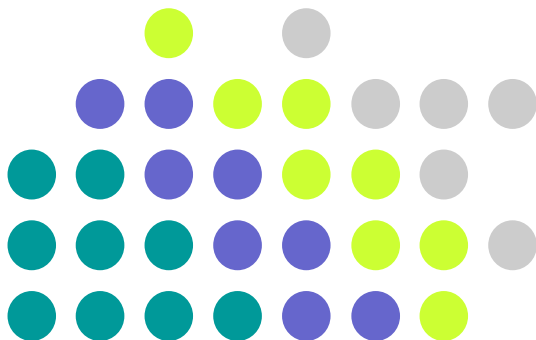


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## How do Prebiotics and Probiotics Work?

Probiotic bacteria enter your digestive system with food and travel to the stomach. The stomach is very acidic and these conditions would kill most bacteria. An effective probiotic bacteria will survive the harsh conditions of the stomach and move into the small intestine. The bacteria will start to live and grow in the small and large intestine. Now in the intestines, the bacteria can do their work and pass health benefits onto the host (Agrawal, 2005)

Prebiotic compounds also enter the digestive system with food. They move into the stomach and small intestine, but are not broken down and absorbed like most nutrients in food. Like fibre, the prebiotic moves into the small and large intestine. The good bacteria living in the intestines can use prebiotic compounds as a source of energy. Because the good bacteria “eat” these compounds, they are able to thrive in the intestines (Murphy, 2001) .



## Are all Prebiotic and Probiotic Foods Created Equal?

In short, no all prebiotic and probiotic foods are equal. In looking at probiotic foods, remember that the bacteria must survive the digestion process before it can colonize the intestines. Bacteria are fairly specific organisms, they can only survive at a specific temperature range and pH range. If the bacteria die on the way to the intestine, there is no health benefit.

Several organizations have been extensively researching probiotic organisms. They have found that some of the most effective probiotics that can be used in food are species of: Bifidobacterium and Lactobacillus (Heller, 2001).

Foods that contain clinically proven beneficial probiotics and are currently commercially available include:

- Yogurt
- Kefir
- Juice
- Cheese

Currently, specific varieties of whole grain bread are one of the commercially available products with added prebiotics.

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# What are the Health Benefits of Consuming Probiotics and Prebiotics?

<p><b>Allergy Prevention and Recovery</b></p> <p>Experimental evidence indicates that probiotics are effective in treating atopic eczema in infants.</p> <p>It has also been shown that the incidence of allergies in infants with a high risk of allergy can be halved with the consumption of certain probiotics by their mothers when pregnant and by the infant after birth.</p> <p>It is thought that consumption of probiotics helps to form a normally functioning immune system, preventing allergies (Ouwehand, 2007).</p>	<p><b>Treatment of Peptic Ulcers</b></p> <p>Helicobacter pylori is a pathogenic bacteria that causes peptic ulcers and other gastric problems. H. pylori is normally treated with antibiotics. This treatment is expensive and has negative side effects.</p> <p>The consumption of probiotics with antibiotics is thought to be the most effective and safest treatment. (Lesbros-Pantoflickova, Corthésy-Theulaz &amp; Blum, 2007).</p>	<p><b>Diarrhea</b></p> <p>Evidence indicates that probiotic bacteria in foods can help prevent and treat diarrhoea in children. Rotavirus infections are a common cause of diarrhoea in children. In clinical trials, infected children who consumed probiotic fermented milk had lower rates of diarrhoea (Agrawal, 2005) .</p> <p>Probiotic treatments have also been used to effectively treat antibiotic associated diarrhea (Agrawal, 2005) .</p>
<p><b>Blood Pressure Regulation</b></p> <p>Milk is fermented by bacteria and the protein in the milk is hydrolyzed into smaller peptides. The peptides are absorbed in the small intestine. Consumption of these peptides in milk and yogurt have been shown in clinical studies to lower blood pressure in some individuals (Jauhiainen &amp; Korpela, 2007).</p>	<p><b>Regularity</b></p> <p>The consumption of probiotics reduces the transit time for the movement of wastes through the intestines. This results in reduced constipation and may help prevent colon cancer (Dannon, 2007).</p> <p>Prebiotics also decrease transit time through the intestines because they are a form of fibre ( Dempsters, 2007).</p>	<p><b>Reduction of Infection</b></p> <p>Probiotics and prebiotics have been shown to reduce infections in sick and postoperative patients. Because the use of antibiotics reduces the population of intestinal bacteria, using probiotics and prebiotics to repopulate the digestive tract, ensures the presence of a healthy population of good bacteria to prevent infection (Agrawal, 2005)</p>
<p><b>Lactose Digestion</b></p> <p>Individuals with lactose intolerance are missing an important digestive enzyme, lactase. Probiotic bacteria make the lactase enzyme and consumption of these bacteria can help lactose digestion (Stanton, Gardiner, Meehan, Collins, Fitzgerald, Lynch, &amp; Ross, 2001) .</p>	<p><b>Immune Function</b></p> <p>Consumption of probiotics can enhance natural immune functions (Agrawal, 2005).</p>	<p><b>Cancer Prevention</b></p> <p>Probiotics have been shown, in vitro and in animal studies, to prevent cancer by reducing DNA damage by carcinogens (Stanton et al., 2001).</p>

# References

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After reading this information package, we hope to have improved your awareness and understanding of prebiotics and probiotics. Armstrong is always looking for ways to meet the needs of our healthcare clients. To help us do this, we would ask you to complete this short survey. Based on this survey, we are hoping to better judge the demand from our clients for probiotic and prebiotic products.

Please detach this page from the inservice package and return this survey to Armstrong Foodservice via fax, mail or to your sales representative when they stop in again.



Fax: (902) 765-3856

Mailing Address:  
Armstrong Foodservice  
Attn: Dietitians  
P.O. Box 220  
Kingston, N.S.,  
BOP 1R0



1. Would you be interested in using prebiotic and probiotic in your facility as part of your menu or snacks?  
 Yes  
 No
2. Which of the following products would you most like to feature in your facility? (check all that apply)  
 Probiotic Yogurt  
 Probiotic Juices  
 Probiotic Cheese  
 Prebiotic Bread
3. The cost of probiotic and prebiotic products are slightly more than similar products not containing probiotics and prebiotics, would you be willing to pay more for these products?  
 Yes  
 No
4. Do you have any other comments or questions about probiotics and prebiotics or this information package?

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