

The Natural Pharmacy Newsletter

Wellspring Custom Pharmacy

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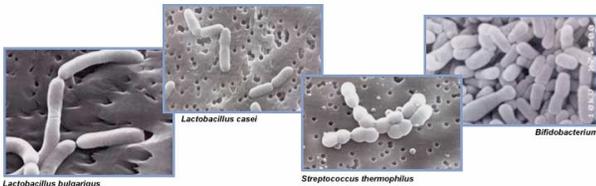
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In The News

The Importance of Probiotics and Microflora

Probiotic foods have recently become popular in the United States. Probiotics are defined as living organisms that, when administered in sufficient numbers, are beneficial to the patient. Probiotic products can be found in the dairy case of supermarkets or as dietary supplements. There are probiotic frozen yogurts and dairy-based drinks. Products sold in the pharmacy include, among others, Bifo Vida (Lactobacillus blend and Bifidobacteria blend), Pro Boulardii (Saccharomyces boulardii) and Ultra Flora or Ultra Flora 1B (Lactobacillus acidophilus), which are indicated to reduce the chance of developing diarrhea due to antibiotics and to help support the GI system as a whole (see attached page titled: Strain-specific approaches for maximum patient benefit). The FDA takes a neutral position on probiotics, policing food packages to ensure that companies do not try to equate probiotic products with disease-curing drugs.



The growth of probiotics comes as many scientists are now focused on the role of beneficial bacteria to aid digestion, boost natural defenses, and fight off bacteria that could cause health problems. Intestinal bacteria can

benefit health by breaking down toxins, synthesizing vitamins, and defending against infection. They may also play a role in preventing such diseases as peptic ulcers, colorectal cancer, and inflammatory bowel disease.

The adult human gastrointestinal (GI) tract contains all three domains of life: archaea, eukaryotes and bacteria. Archaea are a group of single-celled microorganisms, and while similar to bacteria, have evolved differently. Archaea were originally described in extreme environments but have since been found in all habitats including the digestive tracts of humans. Eukaryotes are organisms whose cells contain a limiting membrane around the nuclear material (the nucleus). Bacteria living in the human gut achieve the highest cell densities recorded for any ecosystem. The vast majority belong to two divisions, the Bacteroidetes (48%) and the Firmicutes (51%). Bacteroidetes include a number of Bacteroides genera, which have yet to be encountered in any environment other than human GI tracts. Firmicutes include the genera Clostridium, Lactobacillus, Eubacterium, Ruminococcus, and several others. The gut is a tremendously diverse system and this diversity is desirable for ecosystem stability. Cooperative activity by bacteria is required to break down nutrients and provide the host with energy. Populations of bacteria are remarkably stable within the human gut, which implies that mechanisms exist to suppress undesirable bacteria and promote the abundance of those that are needed.

Microbiologists have emphasized the importance of understanding the contributions of our natural GI flora to human health and disease for centuries. Today,

science is on the verge of fully understanding how the body maintains a state of equilibrium within its incredibly complex GI system. It has recently been shown that the recognition of bacteria by epithelial cells protects against intestinal injury. Other research indicates that normal GI flora may have the capacity to metabolize phytochemicals into compounds that may protect against cancer.

Intestinal bacteria release chemical signals recognized by specific receptors that are innate to the human immune system. This interaction helps to maintain the architectural integrity of the intestinal surface and enhance the ability of the epithelial surface to withstand injury. A deficiency in any of the numerous signaling molecules can induce intestinal inflammation, which may be a precursor of inflammatory bowel disease. Research is now ongoing to ascertain how this information can be used to treat irritable bowel syndrome, Crohn's disease, and other types of intestinal inflammatory conditions.

There is also evidence confirming the effects of Lactobacillus GG in preventing diarrhea in children. Diarrhea associated with antibiotics may result when the antibiotics disrupt the normal flora in the gut of a healthy person. Such disruptions cause dysfunction of the gut's ecosystem and allow harmful bacteria to colonize the gut and gain access to the mucosa.

Pharmacists will thus become more involved in counseling patients interested in taking probiotics. In the U.S., pharmacists can advise patients to take such probiotic products as: Bifo Vida, Pro Bouldarii, and Ultra Flora or Ultra Flora 1B (see attached page for further recommendations). The same products can be taken to help prevent traveler's diarrhea. Instruct patients to separate any probiotic and antibiotic doses by 2 hours to prevent the antibiotic from destroying the probiotic organisms. Immunocompromised patients should be advised not to use probiotics because of the potential for systemic infections. Other side effects of probiotics can include GI upset, flatulence, and discomfort.

Probiotics are available in many different dosage forms, including: capsules, pearls, powders, and even children's chewables. There are a wide variety of probiotic products available to choose from and the Wellspring Custom Pharmacy staff would be more than happy to help assist in making an appropriate selection.

References:

1. Probiotics: The New Antibiotics?

Available from: <http://www.jigsawhealth.com/resources/probiotics-new-antibiotics>

2. Sherman M. Probiotics and Microflora. *US Pharm* 2009; 34(12): 42-44.

3. Strain-specific approaches for maximum patient benefit. Metagenics, Inc.

Available from: <http://www.metagenics.com>.

Caffeine is Everywhere

Excessive ingestion can be harmful

Caffeine is present in numerous OTC products. Products that contain caffeine are generally marketed for pain relief (e.g. headache, menstrual cramps) and to help restore mental alertness or wakefulness in patients who are experiencing fatigue or drowsiness. In recent years, a surge of energy drinks have also become available that contain varying amounts of caffeine. More than 500 varieties of energy drinks are available worldwide, and the FDA does not regulate the amount of caffeine contained in these products.

Hundreds of dietary supplements and common household drinks also contain caffeine. An average cup of coffee contains approximately 100mg to 150mg of caffeine, and soft drinks such as Coca-Cola and Pepsi contain approximately 23mg to 25mg in an 8-ounce serving. The caffeine content of some dietary supplements may not be clear to patients because supplements may be labeled as containing guarana. The active component of guarana is caffeine in varying concentrations. Caffeine truly is everywhere, so many people may be unaware that they are ingesting excessive amounts. In addition, because of the widespread availability of caffeine, many believe that it is a natural and safe product.

Caffeine is a central nervous system stimulant that increases adrenaline release and mental alertness. Caffeine is also a diuretic that can produce water loss estimated at approximately 1.17mL per 1mg of caffeine. Excess stimulation of the sympathetic nervous system due to caffeine intake can result in symptoms such as: nervousness, tremors, restlessness, insomnia, gastric irritation, acute elevations in blood pressure, increased heart rate, and palpitations. The combination of these adverse effects with caffeine's ability to hasten dehydration and potentially cause electrolyte imbalances can be dangerous, especially if caffeine is ingested before physical exertion. Adverse effects have been reported at doses as low as 250mg to 300mg.

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