Get Some Culture: Eat Yogurt

Zeynep Ustunol
Dept. of Food Science and Human Nutrition

With annual retail sales in the neighborhood of $4.8 billion, cultured dairy products, and yogurt in particular, are currently driving the growth of dairy foods consumption in the U.S. (1). Origins of yogurt are uncertain. It is often reported that when goats were first domesticated in Mesopotamia about 5000 B.C. nomadic tribes stored milk in goat skin bags for transportation later to find the milk converted to a custard like product by natural wild bacteria (2). Yogurt was introduced to the U.S. market by Dannon Company in the 1940s and initially was sold as diet food. To enhance consumer acceptance strawberries and other fruit purees and preserves were added to decrease tartness. Yogurt later was accepted as dessert. The image of yogurt has changed dramatically in North America over the years. In the 1970s yogurt in its many forms became a snack and a convenience food. Today, there are more than 50 different products that are found in the dairy case at the grocery store in a variety of packages and flavors ranging from blueberry-cheese cake to lemon-meringue and mocha, yogurt with blended fruit, fruit on the bottom, go-gurt, whipped yogurt, yogurt drinks, yogurts with topping and add-ins. These hardly look like an ancient food of the nomadic tribes.

Yogurt is a fermented product resulting from fermentation of milk and/or mixture of milk and cream with the lactic acid bacteria, Lactobacillus bulgaricus and Streptococcus thermophilus. These microorganisms convert lactose to lactic acid, which provides for the unique flavor of yogurt. Due to the decrease in pH the protein structure also is altered to form a delicate gel. Other types of cultures such as Lactobacillus acidophilus and bifidobacteria are also added to most yogurts due to the data accumulating on the health benefits of ingesting probiotics. The term probiotic although not legally defined in many countries refers to 'microbial preparations that when ingested exert a positive influence on host health and physiology' (3). Today, Lactobacilli and bifidobacteria are the primary probiotics used in fermented dairy foods such as yogurt and dietary supplements. Yogurt contains no less than 3.25 percent milkfat and 8.25 percent solids not fat. However, it is also available in a variety of fat levels, including nonfat and lowfat; ‘light’ or reduced calorie forms sweetened with aspartame and various beverage forms. There are no standards of identity for frozen yogurt products.

Yogurt has enjoyed a centuries-old reputation as a health food. A one-cup (8 oz) serving contains 30 – 40% of your daily calcium needs, plus about 9 grams of high quality protein (approximately 20 % of the daily recommended value) and is an excellent source of potassium, phosphorous, magnesium, zinc and vitamins B2 (riboflavin), B3 (niacin), B6 and B12.
Beyond these important nutrition basics the live and active cultures found in yogurt are thought to provide additional health benefits.

It may have all started with Eli Metchnikoff (1845-1916) who first published his observations on lactic acid bacteria, digestive tract and the aging process. In his book ‘Prolongation of Life- Optimistic Studies’ published in 1907 Eli Metchnikoff wrote that consumption of fermented dairy products produced by lactic acid bacteria provided for improved health and longer life (4). Today, an increasing number of health foods, functional foods, and pharmaceutical preparations are promoted with health claims based on the probiotic characteristic of some of these bacteria. Gastrointestinal (GI) microflora play a widely accepted and important role in the health of the host and possess immunomodulating capacity. Probiotic ingestion is thought to alter the GI microflora by providing bacterial cells to the gut ecosystem and has been suggested as potential candidates for immune modulation (5). Dairy products such as yogurt are considered excellent carriers of probiotic organisms. Various studies have been conducted on the effect of probiotic bacteria on immune function. Improvement of the immune system due to probiotics have been attributed to strengthening of non-specific defenses against infection, increased phagocytic activity of white blood cells, increase in IgA production, proliferation of intra-epithelial lymphocytes, adjuvant effect in antigen-specific immune responses, and regulation of Th1/Th2 balance (6). However, clear mechanistic data are still lacking. With fermented dairy products, the metabolites produced by the fermentation process also may exert immunomodulatory activity.

Upon ingestion of a product such as yogurt, probiotics remain in transit in the GI system for a variable length of time, and it is commonly believed that the probiotic effects are more likely to occur if the bacteria remain alive for as long as possible and are present in a sufficiently large quantity in the GI tract. Thus, the National Yogurt Association has established criteria for live and active culture yogurt in conjunction with its ‘Live and Active Cultures’ seal program. For manufacturers to carry the ‘Live and Active Cultures’ seal, refrigerated yogurt products must contain at least 100 million organisms per gram of product at the time of manufacture. Frozen yogurt products must contain 10 million organisms per gram at the time of manufacture. These levels are based on research involving clinical studies. To achieve and maintain an effect, the probiotic must be repeatedly administered to ensure a sufficient population level over time. In case of heat-treated yogurt, these organisms are killed due to post-fermentation heating.

Other reported health benefits of eating yogurt include aiding with lactose intolerance, helping to reduce osteoporosis, helping to combat yeast infections and providing protection against colon cancer.

So, yogurt gets the “thumbs-up” by most health professionals, parents, and kids. Given all the health benefits of yogurt you may even want to go straight for the big tubs. Okay, at least it is easier to handle and store than the goatskin bags!

References


