

**The University of Michigan Hospitals and Health Systems**  
*Healthy Eating Tip of the Month – Sponsored by Patient Food  
and Nutrition Services*

**April – Probiotics and Prebiotics**

*The field of probiotics in the United States is rising exponentially. US probiotic sales in 2005 were \$764 million and are expected to increase in 2010 to \$1.1 billion. Included on this page are: common questions on probiotics and prebiotics, recipes made with yogurt, and other sources of information.*

*What are probiotics and prebiotics?*

- ✧ The Food and Agriculture Organization of The United Nations and the World Health Organization define probiotics as “live microorganisms which when administered in adequate amounts confer a health benefit on the host.” Probiotics are live microorganisms that are similar to the beneficial bacteria in the human gastrointestinal tract. Conversely, prebiotics are indigestible carbohydrates that can influence the growth of beneficial bacteria in the digestive tract.



## How are Probiotics and Prebiotics Beneficial?

- ✧ Research has shown there to be potentially significant benefits of using probiotics in the prevention or treatment of certain disease conditions. *However, it should be noted that probiotic benefits have shown to be strain specific, therefore it is recommended to consult your physician prior to starting a probiotic regimen.*
  
- ✧ The National Center for Complementary and Alternative Medicine (NCCAM) promotes the usage of probiotics for the following conditions:
  - Treatment of diarrhea
  - Prevention and treatment of urinary tract infections
  - Treatment of Irritable Bowel Syndrome (IBS)
  - Reduction in the reoccurrence of bladder cancer
  - Shortened length of intestinal infection caused by *Clostridium difficile* (*C. diff*).
  
- ✧ Preliminary data and case reports have also indicated the possible benefit of using probiotics for the following conditions:
  - Crohn's disease and/or ulcerative colitis
  - Small-bowel bacterial overgrowth
  - Rheumatoid arthritis
  - Dental caries
  - Lactose intolerance
  - Reduction of colon cancer
  - High cholesterol
  - Infantile allergies and/or the prevention of asthma

## *Are Probiotics Safe?*

- ✧ Many controlled clinical studies have been done to evaluate the safety of probiotics. The studies have demonstrated that probiotics are safe to use.



## *What Foods are Probiotics Found In?*

- ✧ A variety of foods are fortified with either probiotics or prebiotics. Some of these include:
  - Yogurt (Dan-Active and Activia, although all yogurts do contain some live active cultures)
  - Live Active Cheeses, Cottage Cheese, and Cereals



## *Are Probiotics Found Elsewhere Besides Food?*

- ✧ There are dietary supplements that contain probiotics. However, it is usually better to obtain nutrients through foods rather than pills. It is recommended to consult with your physician before starting a probiotic supplement.



*I've heard a lot about probiotics/prebiotics and CAM. What is CAM and how are probiotics and prebiotics associated with it?*

- ✧ CAM is the abbreviation for Complementary and Alternative Medicine. It is a group of diverse medical and health care systems, practices, and products that are not considered a part of conventional medicine, as defined by the National Center for Complementary and Alternative Medicine (NCCAM).
- ✧ Complementary Medicine is the use of non-conventional medicine in conjunction with conventional medicine. Such as using an herbal supplement along with medical approaches to assist in healing.
- ✧ Alternative Medicine is the use of non-conventional medicine in place of conventional medicine. Such as using acupuncture to help conceive a child, instead of vitro-in fertilization.
- ✧ Probiotics and prebiotics are a type of CAM. They are used either as a complementary medicine or alternative medicine in the prevention and treatment of medical conditions.



*Since a major source of probiotics is yogurt, included are yogurt containing recipes. Please note that the probiotic effects of yogurt may be lost in the cooking process if heat is involved. Regardless yogurt is an excellent source of calcium and protein!*

**Pumpkin Bread – (Makes 2 Loaves)**  
Source: Stonyfield Farm

Ingredients: 3 Eggs  
2 cups Sugar  
1/3 cup Oil  
2 cups Vanilla Stonyfield Farm yogurt (although other yogurts may be substituted)  
1 - 16 oz. can of pumpkin puree  
2 tsp. Cinnamon  
3 tsp. Nutmeg  
3 cups Flour  
1 tsp. Salt  
1 Tbsp. Baking Soda  
½ Tbsp. Baking Powder



Directions: 1. Preheat oven to 400°F. Beat eggs until foamy, add sugar, oil, yogurt, pumpkin, cinnamon, and nutmeg and mix well.  
2. In a separate bowl sift together flour, salt, baking soda and baking powder.  
3. Add dry ingredients slowly to the yogurt mixture and mix until moist.  
4. Pour into 2 greased and floured 9x5x13-inch loaf pans. Bake for 35-40 minutes. Loaves should be golden brown on top.

**Banana and Mixed Berry Smoothie** - (Makes 1 large smoothie)  
Source: Stonyfield Farm

Ingredients: 1 - 16oz container of Stonyfield Farm Lowfat Just Peachy Yogurt (Any peach yogurt will work!)  
 $\frac{1}{2}$  cup Frozen Blueberries  
 $\frac{3}{4}$  cup Frozen or Fresh Strawberries  
 $\frac{3}{4}$  cup Orange Juice  
 $\frac{1}{2}$  cup Ice  
1 medium Banana



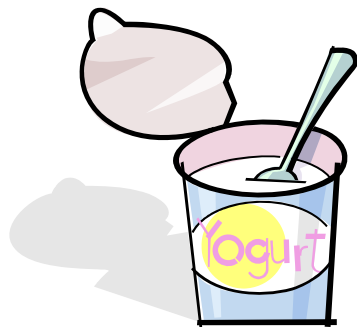
Directions: 1. Add yogurt, strawberries, blueberries, orange juice, and ice to the blender.  
2. Blend until smooth then add banana (broken in half)  
3. Blend until smooth and serve in a chilled glass.



Baked Chicken Breast with Herbs - Makes 4 servings  
Source: Stonyfield Farm

Ingredients:     Cooking spray  
                  4 Skinless chicken breast halves, with bone  
                  4 oz. Plain fat free yogurt (regular fat yogurt can be  
                  used if desired)  
                  1 cup Flavored breadcrumbs  
                  3 Tbsp. Fresh Italian parsley, chopped fine  
                  1/4 cup Grated Romano cheese  
                  1 tsp. Fresh ground pepper  
                  1 tsp. salt

Directions:    1. Preheat oven to 375 degrees. Mix breadcrumbs,  
                  parsley, cheese, salt and pepper. Place mixture on a  
                  small plate; set aside.  
                  2. Spoon yogurt into a small bowl. Rub each chicken  
                  breast half well with yogurt. Roll chicken in  
                  breadcrumbs to evenly coat. Place in shallow baking  
                  pan coated with cooking spray.  
                  3. Bake approximately 35 minutes (time may vary  
                  according to your oven), turning once. Serve with  
                  roasted potatoes and fresh spinach.



*Be Sure to Check Out the Healthy Eating Tip of the Month Project Board in the University Hospital Cafeteria!*

*Enter to Win a Yogurt Recipe Cookbook by Stonyfield Farm!*



### *Additional Online Resources:*

- ✧ [National Center for Complementary and Alternative Medicine: The National Institutes of Health](#)
- ✧ [Medline Plus](#)
- ✧ [The Mayo Clinic](#)
- ✧ [PubMed - A service of the U.S. National Library of Medicine and The National Institutes of Health](#)
- ✧ [U.S. Probiotics](#)

## *References:*

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