Antioxidants and Carotenoids and Tomatoes

What are they?
Antioxidants include vitamins A, C and E, minerals such as selenium, and carotenoids and flavonoids, which are found in plants. The best sources of antioxidants are fruits and vegetables. Carotenoids are the pigments that give fruits and vegetables such as carrots, cantaloupe, sweet potato, and kale their vibrant orange, yellow, and green colors. Beta-carotene, lycopene, and lutein are all different varieties of carotenoids. You can find flavonoids in fruits, red wine, and teas.

What do they do?
Antioxidants protect cells from free radicals, which are substances that work to destroy cell membranes and DNA. You are exposed to free radicals from normal body functions such as the burning of sugar for energy and the release of digestive enzymes to break down food. It is also a by-product when the body breaks down certain medicines and from environmental pollutants. Many experts believe this damage is a factor in the development of blood vessel disease (atherosclerosis), cancer, and other conditions.

Antioxidants may play a role in the management or prevention of medical conditions such as some cancers, macular degeneration, Alzheimer's disease, and some arthritis-related conditions. Smokers tend to have higher concentrations of free radicals in the blood due to the chemicals they inhale. So, it's no surprise that studies have confirmed that antioxidants lower the risk of lung cancer for smokers. Studies have also suggested that carotenoids may help prevent skin, breast, and prostate cancer. Some carotenoids are converted in the body to vitamin A, which is necessary for healthy vision and cell growth.

Health Properties of Tomatoes
Tomatoes contain all three high-powered antioxidants: carotenoids and vitamins C and E. They also have all four major carotenoids: alpha- and beta-carotene (beta-carotene has vitamin A activity in the body), lutein, and lycopene (lycopene has the highest antioxidant activity). Tomatoes are rich in potassium, a mineral important for blood pressure regulation and decreasing kidney stone formation. Tomatoes are a big part of the healthy Mediterranean diet for cardiovascular benefits. Tomato peels have a high concentration of the carotenoids found in tomatoes. So to maximize the health benefits of tomatoes, don't peel them if you can help it!

Attention Senior Citizens:
Have a nutritional question or concern? If you are participating in services offered by Schenectady County’s Senior and Long Term Care services, you are eligible to have a free consultation with a Registered Dietitian. Call Cornell Cooperative Extension, Schenectady County at 372-1622, ext. 269. Leave a message, if necessary, for dietitian to call you back.

Consumer-centered access for long-term care information, referrals and assessments. For information, call 382-8481, #9, ext.304

Schenectady County Department of Senior and Long Term Care Services denies no person services or access to service based upon race, color, sex, religion, national origin, marital status and/or handicapping conditions. Schenectady County Department of Senior and Long Term Care Services is primarily funded with County tax dollars. Supplemental funding is through the New York State Office for the Aging under Title III-B/D, III-C-1, III-C-2, III-F of the Federal Older Americans Act, and New York State Expanded In-Home Services for the Elderly (EISEP), Community Services for the Elderly Act (CSE), Congregate Services Initiative (CSI), and the Wellness In Nutrition (WIN).
Tips for Increasing Carotenoids in Your Diet

- Be creative! The more colorful your meal is, the more likely it is to have an abundance of carotenoids, as well as other healthy nutrients.
- Keep a bag of baby carrots nearby—most likely the perfect snack. Eat them plain or dipped in hummus, almond butter, or light vinaigrette or other dressing.
- Limit storage time of fruits and vegetables. Once plants containing carotenoids are pulled from the vine, their active antioxidants gradually lose their potency.
- Don't overcook vegetables. While you still get a substantial amount of carotenoids in cooked vegetables, you get much more if you eat them raw. There are a few exceptions. Carrots, for example, actually release more of their carotenoids if cooked and pureeing them has a similar effect.

**Fresh Salsa Recipe** (Serves 6)

**Ingredients:**
- 4 large fresh tomatoes
- 1 small green pepper
- 1 small white onion
- 1 clove garlic
- 1 Tbsp. cilantro
- 1 jalapeno pepper

**Directions:**
1. Wash all vegetables.
2. Dice tomatoes into small pieces.
3. Finely chop ½ cup green pepper and ¼ cup onions.
4. Peel and mince garlic.
5. Mince cilantro.
6. Remove seeds and finely chop jalapeno pepper.
7. Combine all ingredients in a large bowl.
8. Cover and store in the refrigerator for at least 15 minutes.

**Black Bean Salsa Recipe** (Serves 6)

**Ingredients:**
- 2 (15oz.) cans black beans
- 2 ears corn on cob, kernels removed (or 1 cup frozen corn)
- 1 medium tomato
- 2 Tbsp. chopped cilantro
- 1/4 cup chopped red onion
- 1/4 cup lime juice

**Directions:**
1. Wash all vegetables.
2. In a large bowl combine all ingredients.
3. Mix gently with a folding action.
4. Cover and store in the refrigerator for at least 15 minutes.
5. Store any leftover salsa in an airtight container in the refrigerator. For a spicier salsa, add 1/2 teaspoon minced jalapeno pepper and 1/4 teaspoon ground cumin.

Information used for this handout from:
http://www.webmd.com/food-recipes/features/health-properties-tomatoes#1
Recipes from Cooperative Extension

Sources used for this handout: