



An Apple A Day

A Quarterly Health Education Newsletter from the U.S. Apple Association

HEALTH NEWS

New Study: Apples Reduce Risk of Breast Cancer

Eat more apples to prevent breast cancer. That's the news out of Cornell University in the first-ever study on the direct effects of apples on breast cancer prevention in animals. Both the incidence and number of tumors were decreased in animals fed the human equivalent of one, three, or six apples a day. The higher the dose of apples fed in the study, the lower the occurrence of tumors.

In the study, published in the March 2005 Journal of Agricultural and Food Chemistry, animals were treated with a substance known to cause breast

cancer and fed extracts of whole apples or a control substance. Low, middle and high doses of whole apple extracts, comparable to human consumption of 1, 3 and 6 apples per day were given to the animals 2 weeks prior to treatment with the cancer causing substance and throughout the 24-week study. The incidence of tumors in the animals receiving the low, middle or high doses of apple extracts was reduced by 17%, 39% and 44% respectively. Likewise, the number of tumors in the animals receiving low and middle doses of apple extract were

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Fall for Apples This Harvest Season



A great new crop of apples is now being harvested across the country. Apples offer many health benefits along with their great taste and convenience. Why not add more apples to your diet today?

2005 HARVEST UPDATE

It's Harvest Time: 2005 U.S. Apple Crop is Ready

The 2005 U.S. apple harvest is now officially underway! According to the latest U.S. apple industry forecast, the total crop is estimated at 234 million bushels of apples, which is equivalent to about 79 apples per person. This figure includes both fresh and processed apples.

What does this mean for you? There are even more apple choices available at the marketplace for today's diverse consumer taste. In addition to numerous varieties of apples available, apple products such as cider, applesauce, apple slices, apple chips and apple butter are just waiting to be bought at your local farm market or supermarket!

Today's health conscious, on-the-go consumer can rest assured that eating apples contribute to good health. Just in the past year, several new studies have shown a link between apples and the reduction of breast cancer, colon cancer and improved brain function—even more reasons to add apples and apple products to your diet!

Hot Consumer Trends with Apples & Apple Products

With more families today on the go, finding healthy options at restaurants are becoming a necessity. According to Nancy Kruse, President of The Kruse Company and a well-known foodservice trends expert, "More than ¾ of mothers of school-aged kids are employed outside of the home. There is an ongoing

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A is for Apples and Antioxidants

Researchers have long known that apples are a good source of antioxidants, a group of chemicals that help ward off chronic diseases like heart disease and cancer. The major antioxidants in apples are polyphenols — phytochemicals that act like astringents, but which polyphenols are most active in the fruit has perplexed scientists. Rong Tsao, Ph.D., of Agriculture and Agri-Food Canada in Guelph, Ontario and his colleagues used three different laboratory measures to evaluate polyphenol activity in apples that are popular in Canada: Red Delicious, McIntosh, Cortland, Northern Spy, Ida Red, Golden Delicious, Mutsu and Empire apples.

The researchers found that polyphenols were five times more prevalent in the skin than the flesh of the apples; and Red Delicious, Northern Spy and Ida Red apples had the greatest antioxidant activity of any of the apples studied. Unfortunately, the research did not include many of the apples popular in the United States including Gala, Granny Smith, Jonathan, York, Stayman and Rome, which are also known to contain polyphenols.

Dr. Tsao concluded that, "When taste and texture do not matter, choosing an apple with a high proportion of polyphenols in the flesh and skin can potentially produce more health benefits, but **eating any apple is better than eating no apple at all.**"

These findings could lead to the breeding of hybrid apples that pack a heftier antioxidant punch.

(Cite: *Journal of Agricultural and Food Chemistry*, 2005, 53: 4989-4995.)

Apples Reduce Breast Cancer Risk

RESEARCH (from page 1)

reduced by 25% while those in the high dose group were reduced by 61% after 24 weeks. The time for breast tumors to appear was 11 weeks for those fed no apple extracts, 12 weeks for those fed low and middle level extract dosages, and 13 weeks for those fed the high level dosage. This study convincingly demonstrated that consumption of whole apples is an effective way to protect against cancer in animals.

Is there one secret ingredient in apples responsible for cancer protection? Researchers, led by Rui Hai Liu, M.S., Ph.D., suggest that it is the complex mixture of phytochemicals (antioxidants) present in fruits and vegetables, such as apples, rather than any one nutrient that offers protection from disease. There are approximately 8,000 phytochemicals present in whole foods. When isolated from whole foods into supplements, these compounds may either lose their bioactivities or not behave the same way as in complex whole foods.

Research on individual anti-

oxidants such as beta-carotene, vitamin C and vitamin E have not consistently demonstrated preventative health effects. Yet epidemiological studies have consistently shown that regular consumption of fruits and vegetables is associated with a reduced risk of many chronic diseases such as cancer, heart disease, degenerative eye diseases and diabetes. The balanced natural combination of phytochemicals present in fruits and vegetables cannot simply be mimicked by dietary supplements. Also, there is little risk of consuming toxic quantities of antioxidants from whole foods compared to supplements.

So, the bottom line is the disease-fighting phytochemicals in apples may reduce the risk of breast cancer. Previous research has confirmed that these important phytonutrients found in apples also pass through to the apple juice. Consumers may gain more significant health benefits by eating whole foods like apples and applesauce, instead of consuming dietary supplements; which do not contain the same array of balanced, complex components.

APPLE RECIPES

Apple Puff Omelet

2 large apples, peeled, cored and thinly sliced
 ¼ C sweet butter or margarine
 ¼ C brown sugar
 1 tsp ground cinnamon
 4 large eggs
 ¼ C sugar
 ¼ tsp cream of tartar
 1 Tbsp confectioners' sugar (optional)

Preheat oven to 450 degrees. Heat butter or margarine in a medium-size skillet and sauté the apples for 5 minutes over low heat. Mix together brown sugar and cinnamon. Sprinkle over apples. Toss and continue to sauté apples for about 10 minutes, until they caramelize. The mixture will be thick and syrupy. Spoon mixture into an 8X8-inch baking dish and keep hot in the oven.

Separate eggs. Whisk yolks and the granulated sugar in a small bowl until fairly thick. In a large bowl, beat egg whites with cream of tartar until stiff and shiny. Fold into yolk mixture, a third at a time. Pour egg mixture over the apples and bake for 8-10 minutes. The omelet will be puffed and golden. Remove from the oven and sprinkle with confectioners' sugar. Serve immediately.

Servings: 4 -- Prep and cook time: 35-40 minutes -- Source: U.S. Apple Association



Two Cups of Apples A Day: Fitting Apples in the Menu

The new food pyramid for healthy eating called *MyPyramid* includes eating more fruits and vegetables as a key recommendation. If you eat the average 2,000 calories per day, the pyramid recommends consuming 2 cups of fruit per day. (Visit www.mypyramid.gov for more information.) Eating apples and apple products can make it easy to achieve this goal. And remember; keep the skin on for extra antioxidants and fiber!

Unfortunately, apples don't usually come measured by the

cup, so what counts as 1 cup of fruit? Generally speaking, one apple, 1 cup apple slices, 1 cup apple juice, or 1 cup applesauce would each make one cup.

Now that we have determined how many apples we should be eating each day, how do we fit all this into daily diets. Below are some suggestions to make it easier to eat more apples and apple products without spending a lot more time in the kitchen.

For more information on apple recipe ideas, go to USApple's website at www.usapple.org/consumer.

Tips for eating more apples:

Breakfast:

- chopped apples in oatmeal
- applesauce as a topping on whole grain pancakes, waffles or French toast
- a glass of apple juice with a whole grain bagel
- apple juice, berries and yogurt blended into a smoothie

Lunch:

- apple slices on a peanut butter sandwich
- chopped apples in chicken or tuna salad
- apple slices and low fat cheese melted on a whole wheat English muffin
- applesauce instead of chips or cookies
- apple juice instead of soda

Snacks:

- apple wedges with peanut butter
- apple slices with low fat cheese
- dried apples mixed with dry cereal and nuts for trail mix
- apple slices dipped in fat-free caramel topping

Dinner:

- apple chunks, walnuts and mixed greens tossed in a light vinaigrette
- pork tenderloin baked with apple wedges and apple cider
- roasted chicken with chopped apples, raisins and whole grain bread stuffing
- baked apples with cinnamon



There are many different options to get two cups of apples into your diet each day.

Apples Aid Fight Against Colon Cancer

Taking a mouthwatering bite out of an apple might also take a bite out of colon cancer risk, according to Francis Raul, Ph.D., research director of the French National Institute for Health and Medical Research in Strasbourg. Eating apples may help reduce the risk of developing colon cancer by significantly reducing the growth of precancerous lesions in the colon, according to Dr. Raul's findings.

Dr. Raul and his colleagues have found that procyanidins, plant-generated compounds found in high concentrations in apples and apple foods, reduced the number of pre-cancerous lesions in rats by nearly 50 percent. Procyanidins extracted from apples were added to the animals' drinking water, in a relatively low concentration of 0.01 percent.

"Our work suggests that eating the whole apple might offer some anti-cancer benefits," said Dr. Raul. "That is certainly something we can comfortably say without more study."

Procyanidins are effective against colon cancer in part because they stop newly-forming cancer cells from multiplying and give them the chemical signal to "self-destruct" known as apoptosis, according to Dr. Raul. "Procyanidins do not have any impact on 'normal' colon cells, they only act specifically on cells that are multiplying very quickly," he said. The primary focus of Dr. Raul's work has been the impact of procyanidins on colon cancer prevention. With further testing, he hopes to find a way to use procyanidins to help cure existing cases of colon cancer.

Procyanidins hail from a family of plant-generated compounds called proanthocyanidins. In August of 2004, the U.S. Department of Agriculture reported that apples are a top food source of proanthocyanidins, commonly known as "condensed tannins," which contribute to foods' astringent flavor.

USDA Unveils MyPyramid for Kids

One of the main messages of the federal government's new food guidance system, known as MyPyramid, is that "one size doesn't fit all." Following that advice, the U.S. Department of Agriculture (USDA) recently released MyPyramid for Kids, a food guidance system specifically designed to work for and appeal to children aged 6 to 11.

"This is a fun approach to addressing the very serious problem of childhood obesity," said USDA Secretary Mike Johanns.

"MyPyramid for Kids will be helpful in teaching children good eating habits, which include apples and apple products, that will serve them well as they grow," said Wendy Davis, director of communications and consumer health for USApple.

Apples can be a great way to get even the most finicky child to get the fruit they need for a healthy diet -- because apples offer variety. With over 2,300 varieties of apples available in the United States, there is an apple for every kid's tastes. This also

gives kids the option to eat more than one apple a day!

In addition, children can choose either fresh apples, applesauce, apple juice, apple cider, apple chips or apple slices to meet their daily fruit recommendation.

The MyPyramid for Kids slogan for children is "Eat Right. Exercise. Have Fun." The website includes tips for families and fun activities for children, including worksheets, coloring pages and the "MyPyramid Blast Off Game," an online game that lets children try their hands at putting together a healthy menu.

In addition there are lesson plans that provide nutrition and physical activity information that can be included in Math, Science, Health, Language Arts and Physical Education curriculum for elementary school students.

The MyPyramid for Kids activities for children and classroom materials for educators are also available on the web at MyPyramid.gov.


October is National Apple Month — celebrate with an apple a day!





NATIONAL APPLE MONTH

Contact Us for More Information

Looking for more information on some of the topics covered in this newsletter? Did you received this from a friend, and are interested in receiving your own free e-mail subscription? The U.S. Apple Association is interested in hearing from you. Here's how to contact us:

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A Close Look at MyPyramid For Kids

MyPyramid for Kids reminds you to be physically active every day, or most days, and to make healthy food choices. Every part of the new symbol has a message for you. Can you figure it out?

Be Physically Active Every Day

The person climbing the stairs reminds you to do something active every day, like running, walking the dog, playing, swimming, biking, or climbing lots of stairs.

Choose Healthier Foods From Each Group

Why are the colored stripes wider at the bottom of the pyramid? Every food group has foods that you should eat more often than others; these foods are at the bottom of the pyramid.

Eat More From Some Food Groups Than Others

Did you notice that some of the color stripes are wider than others? The different sizes remind you to choose more foods from the food groups with the widest stripes.

Every Color Every Day

The colors orange, green, red, yellow, blue, and purple represent the five different food groups plus oils. Remember to eat foods from all food groups every day.



Make Choices That Are Right for You

MyPyramid.gov is a Web site that will give everyone in the family personal ideas on how to eat better and exercise more.

Take One Step at a Time

You do not need to change overnight what you eat and how you exercise. Just start with one new, good thing, and add a new one every day.



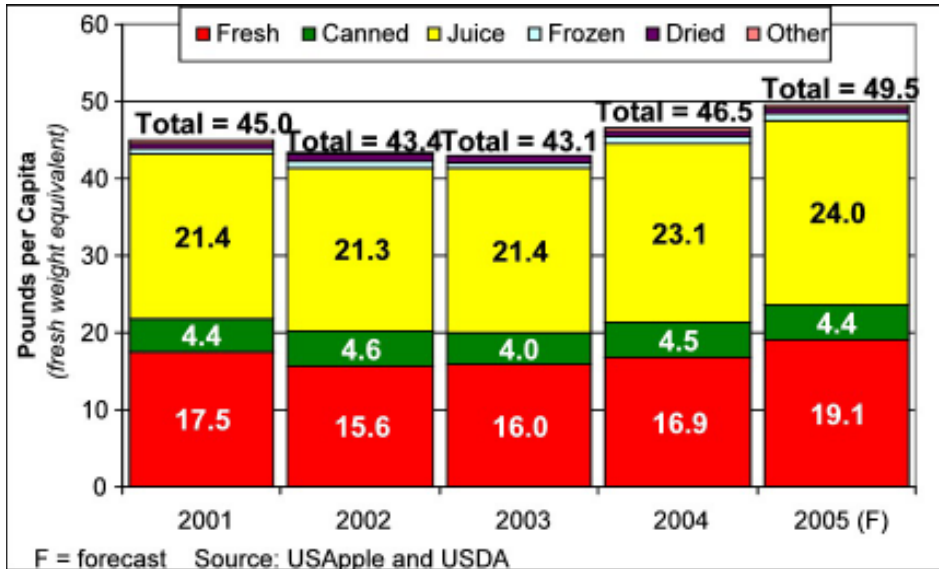
U.S. Apple Consumption to Grow

U.S. consumers are expected to eat more apples and apple products in 2005 than they have over the last few years, according to estimates by USApple and the U.S. Department of Agriculture.

Apple consumption per capita is expected to grow from just

under 45 pounds in 2001 to almost 49.5 pounds in 2005.

There will not be any big changes in how Americans eat their apples, juice will still be at the top, followed closely by fresh apples, with other products falling behind.



2005 Apple Harvest is Now Underway

Harvest (from page 1)

demand for convenience as a result.” Apple growers, packers and processors are now offering fresh sliced apples in handy packaging, in addition to new, creative options for sauce, juice and cider. Numerous restaurants across the nation are responding to consumer interest in health and offering nutritious menu choices with apples and apple products. Apples can be found in salads, as a sauce or dressing, or as a quick snack with a side of peanut butter or caramel, which is a great treat for kids and mothers alike. Now mothers and their families can purchase high-quality, fresh fruit at restaurants as either a meal or snack, and it can easily fit into their busy lifestyles. In addition, apple slices, applesauce and apple juice can also be found at quick service restaurants in kid’s meals or as a separate side item on the menu.

Consumer Wants & Needs

According to the recent Food

Marketing Institute (FMI) *U.S. Grocery Shopper Trends* report, when looking at the nutrition label, consumers are most concerned with fat and cholesterol before anything else. Conveniently, apples are fat and cholesterol free and can easily fit into a healthy diet.

Variety and convenience are also key factors for today’s consumer when buying foods at the supermarket. At the store, consumers each have their own individual needs, creating multiple niche markets for the food industry. “There is no longer an average shopper” states Michael Sansolo, Senior Vice President for the Food Marketing Institute. The wealth of apple varieties and innovative apple products now offered at supermarkets and restaurants are available to meet these diverse consumer needs.

For those that desire quick cooking with apples and apple products, convenient apple recipes can be found at USApple’s website at www.usapple.org/consumer.

Keep ‘Em Cool: Apples Should Be Refrigerated

What is the best way to keep apples at their peak in your home? Put them in the crisper drawer of the refrigerator, the experts say. The great-tasting, good-for-you apples you pick this fall will keep their crunch for up to three months if properly stored.

Apples ripen ten times faster at room temperature than refrigerated.

“To keep apples crisp keep them cold,” said Wendy Davis, R.D., a registered dietitian with the U.S. Apple Association.

“When apples are placed in a bowl on the dining room table, plan to eat them immediately to ensure good quality,” she said. “Keep them off the windowsill too.”

Cool air helps maintain quality, juiciness, and crispness, and helps prevent decay. Storage at 32-35 degrees F. is ideal.

Although the refrigerator is the preferred storage place, consumers can also keep apples in a cool cellar, garage, or porch.

Remember to keep apples away from other produce. Apples can absorb odor from cabbage, carrots, figs, onions, meat, eggs, and dairy products.

Other tips:

- Select apples that are bruise-free, and handle them gently to prevent bruising.
- Wash individually-sold apples in cool water before serving.
- Coat apple slices and dices in vitamin C-fortified 100% apple juice-or a mixture of one part lemon juice to three parts water – to prevent browning.

Apples Shown to be Smart Move for Brain Health

Apples may provide food for thought – literally, by protecting the brain from damage that causes neurodegenerative diseases such as Alzheimer's and Parkinson's. According to Dr. Chang Y. Lee at Cornell University, apple nutrients protected brain cells against oxidative damage known to trigger neurodegenerative diseases. (Cite: *Journal of Food Science*, 2004, 69:357-360)

Dr. Lee's research team pretreated mouse brain cells with different concentrations of phenolics, a class of plant-based nutrients extracted from fresh apples. The brain cells were then exposed to oxidative stress, which can damage and even kill cells. Brain

neurons are particularly vulnerable to oxidative cell damage, which contributes to Alzheimer's and other neurodegenerative diseases.

Lee and his colleagues reported that neuronal cells treated with apple nutrients experienced 70-90 percent less accumulation of damaging oxidative substances than untreated control cells. They used not just one, but three different tests to confirm that apple phenolics protected brain cells from oxidative damage.

Dr. Lee and his colleagues concluded that eating apples may reduce risk of chronic diseases including Alzheimer's disease.

Dr. Lee and his team also reported in the December 2004

Journal of Agricultural and Food Chemistry that the apple phytonutrient quercetin appears to be largely responsible for the protective effect on the brain. This is the latest of several studies suggesting that quercetin, found most abundantly in apples, may provide a range of health benefits.

More Support for Apples and Brain Health

In yet another study, Dr. Thomas Shea at the University of Massachusetts-Lowell reported that apples and apple juice improved memory and learning, and protected against oxidative damage in the brain, based on their examination of elderly mice. Even mice genetically predisposed to develop Alzheimer's were protected from oxidative damage when apple juice concentrate was added to their diet. They performed at the same level as control mice even when they were fed a diet designed to bring on oxidative stress and damage. (Cite: *Journal on Nutrition Health and Aging*, 2004, 8: 92-97)

Eating Apples a Smart Move

While cautioning that in vitro and animal studies are considered preliminary findings rather than dietary recommendations, one of the nation's leading apple research experts characterized the Cornell reports as promising.

"The Cornell research adds to the growing body of evidence suggesting that nutrients found in apples and apple products may provide a variety of protective effects, including promoting heart, lung and brain health, and they taste great, too," said Dianne Hyson, R.D., M.S., Ph.D., head of nutrition research at the University of California-Davis and assistant professor of family and consumer sciences at California State University-Sacramento.

APPLE RECIPES

Ginger Apple Stir Fry

- 1 pound boneless skinless chicken breast, cut into strips
- 2 teaspoons sesame oil
- 4 green onions, sliced
- 1/3 pound pea pods
- 1 small sweet red pepper, cut into strips
- 2 garlic cloves, minced
- 2 tablespoons ginger, minced
- 10 shitake and/or white mushrooms, sliced
- 1/4 tsp. pepper
- 1/3 cup applesauce, unsweetened
- 1/3 cup chicken broth or water
- 2 tablespoons apple cider vinegar
- 2 tablespoons soy sauce
- 1 tablespoon cornstarch



Heat sesame oil in nonstick skillet or wok. Add garlic and ginger, and stir for approximately 30 seconds. Add chicken and cook in hot oil. Remove chicken from skillet. Add vegetables and cook while stirring until tender crisp, sprinkle with pepper. Combine applesauce, soy sauce, vinegar, cornstarch and chicken broth or water. Add chicken to vegetables, add sauce mixture and cook until sauce is thickened and clear. Serve over steamed brown rice.

Servings: 4 -- Prep and cook time: 40 minutes -- Source: U.S. Apple Association



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