

## What's Inside

- Chronic Fatigue Syndrome** 2  
New research suggests an association to conditions that cause low blood pressure.
- Heart-Healthy Spreads** 5  
A new product claims to help lower cholesterol. Is it worth the extra cost?
- Parkinson's Disease** 7  
What you need to know about a baffling disease brought into the spotlight by a young actor's disclosure.
- Sleep Apnea** 8  
New treatments are available for this often unrecognized problem that affects more than 6 million Americans.

## Also In This Issue

- Grapefruit Juice & Drug Interactions 3
- Safer Tarnish Removal 3
- Key Disease "Phytors" 4
- Amnesia After Sex? 8

[www.jhinsider.com](http://www.jhinsider.com)

## Improving Anesthesia Outcomes



*Techniques used in breast cancer surgery may lead the way to quicker and easier recovery for other patients.*

by  
William C. Dooley, M.D.  
Chief of Breast Surgery, The Johns Hopkins Oncology Center

For many patients, the worst part of having surgery is the resulting nausea and vomiting caused by anesthesia. Although they might seem like minor, temporary problems, post-operative nausea and vomiting can slow recovery, interfere with pain medication, and leave patients depressed and frustrated.

This common post-operative consequence is so significant that in a survey taken a few years ago, nearly 85 percent of women who had undergone breast cancer surgery at the Johns Hopkins Breast Center listed nausea and vomiting over pain as their greatest problem following surgery. But after years of research and systematic observation, this problem has nearly been eliminated here.

In fact, we recently reached a treat-

ment milestone: during a 6-month period, not a single patient who underwent breast cancer surgery here reported any post-op nausea and vomiting. If our formula for success could be used as a model for other types of surgery, thousands of people each year might have an easier time recuperating – both physically and emotionally.

### Many Small Steps

It took years worth of small steps for us to conquer post-operative nausea and vomiting for our breast cancer patients. But over the years, we managed to make four key breakthroughs that, together, have reduced the number of patients who experience post-operative nausea and vomiting from 85 percent to a

mere 2 percent.

- Our first step was to identify the anesthetics least likely to cause nausea and vomiting and use those exclusively in surgery. We achieved this by surveying post-operative patients on the amount of nausea and vomiting they experienced and noting the specific anesthetics that were used. This alone reduced the

*continued on page 6*

## Future Super Foods?



*Phytochemicals have been on the front lines in the dietary battle against cancer. Will they help birth a new breed of better disease-preventing foods – and more nutritional-savvy shoppers?*

by  
Jed W. Fahey, M.S.  
Brassica Chemoprotection Laboratory,  
Department of Pharmacology & Molecular Sciences

Only a few years ago, hardly anyone knew about beta-carotene. Today, it's virtually a household word, and its cancer-fighting potential, along with other so-called "phytochemicals," is the subject of much debate.

The study of phytochemicals is the subject of a well-seasoned scientific discipline, literally referring to the thousands of chemicals contained within plants. In recent years, the term has been popularized to refer in

particular to plant chemicals that may affect health.

Along with beta-carotene, research suggests that many other phytochemicals such as isoflavones, sulforaphane, limonene, flavonoids

*continued on page 4*



## Super Foods?

and allyl sulfides may also protect against cancer and other diseases.

These phytochemicals are natural compounds that protect plants from the ravages of sunlight and other environmental threats. Though cause and effect have not been unequivocally assigned, many of these compounds are currently under investigation for their roles in blocking the formation of some cancers, and may also protect against some forms of heart disease, arthritis and other degenerative diseases.

While present in varying degrees in all plant foods such as fruits, vegetables, grains, oils, nuts and seeds, some of these foods have greater amounts of phytochemicals – making them more useful in a healthy-eating regimen.

Among the thousands of different phytochemicals in plants, each one

could potentially have some activity if ingested by humans. Some of these are currently under investigation for their potential to prevent certain cancers. More than 200 studies have provided evidence that eating more fruits and vegetables decreases the risk of cancer at several different organ sites, including the mouth and throat, lungs, stomach, colon and rectum, pancreas, breast and bladder.

### Productive Produce


Although fruits and vegetables have many nutritional benefits – including providing fiber, vitamins and minerals – the research on phytochemicals helped prompt the National Cancer Institute to initiate its suggested “5-a-day” program for healthy eating, and sparked research and consumer demand for foods such as garlic, broccoli, onions and soy products.

Still, most Americans fail to eat the recommend number of fruits and vegetables or to get adequate, regular exercise. But in the future, we expect that shoppers will have an easier time of getting the most nutritional bang per bite. Plant breeders and biotechnologists worldwide are developing nutritionally enhanced vegetables and fruit.

“Super” breeds of certain foods may be “bred” to maximize their beneficial phytochemical content.

Here at Hopkins, research initiated in the lab of Dr. Paul Talalay identified sulforaphane as a potent inducer of detoxifying enzymes and identified broccoli as a good source of it. After then setting up the Brassica Chemo-protection Laboratory to more carefully study vegetable sources of such detoxification activity, we determined that 3-day old broccoli sprouts were between 20 and 50 times richer in sulforaphane than mature broccoli. (See May 1998 issue of the Insider at [www.jhinsider.com](http://www.jhinsider.com).) In our research, sulforaphane-fed rats developed fewer cancerous tumors and their tumors developed at a slower rate.

In addition to high sulforaphane broccoli sprouts, high lycopene tomatoes and high beta-carotene cauliflower are also already on the market. Besides developing specific foods richer in phytochemicals, some package labels may even list the amounts of dominant protective substances, just as current food labels list the amount of fats, sodium and carbohydrates.


It has taken many years to learn what we now know, and we’re just beginning to fully understand the potential power of certain phytochemicals. In coming years, we hope to find more ways to harness and direct the potency of these compounds for the benefit of consumers. 

### Key Disease “Phytors”

Since different phytochemicals are present in different foods, eating a varied diet is important to ensure that you get all the cancer protection possible. So don’t fall for the “vegetable du jour” – only to abandon it when the next vegetable becomes popular. Understanding the categories and key players among phytochemicals is also important:

- ▶ **ALLIUM COMPOUNDS** such as Allyl sulfides are believed to help detoxify some carcinogenic compounds; facilitate carcinogen excretion; and have antibiotic properties. Food sources include onions, garlic, scallions, and chives.
- ▶ **CAROTENOIDS** such as alpha-carotene, beta-carotene, cryptoxanthin, lycopene and lutein work as antioxidants – helping to offset damage done by environmental pollutants such as pesticides and smoking. Food sources include dark green, orange or red fruits and vegetables – especially carrots, sweet potatoes, tomatoes, spinach,

broccoli, cantaloupe and apricots.

- ▶ **GLUCOSINOLATES** such as glucobrassicin are metabolized to produce two other phytochemicals, isothiocyanates and indoles, which trigger production of enzymes that block cell damage due to carcinogens. Food sources include cruciferous vegetables, such as broccoli, broccoli sprouts, cabbage and Brussels sprouts.
- ▶ **POLYPHENOLS** such as ellagic acid and ferulic acid are thought to prevent conversion of substances into carcinogens and inhibit mutations. Food sources include oats, soy beans and fruits and nuts – especially strawberries, raspberries, blackberries, walnuts and pecans.
- ▶ **FLAVONOIDS** comprise more than 2,000 substances that are powerful antioxidants. Food sources include coffee, tea, cola, berries, tomatoes, potatoes, broad beans, broccoli, Italian squash, onions and citrus fruits. 

*Jed Fahey, M.S., is a Faculty Research Associate in the Department of Pharmacology, Laboratory of Molecular Pharmacology.*