

The Benefits of Juicing

ON ANY given evening in Seattle, Washington, or in trendy Southern California, you can find men and women, still dressed in their business attire, sitting at a bar, unwinding after a long day's work. They place their orders, with choices ranging from straight carrot juice to combinations of all sorts of fruits and vegetables: wheat grass, kale, dandelion, cucumber, cabbage, celery, beet, lettuce, parsley, mango, papaya, pineapple, watermelon, cranberry, grapefruit, and apple. Juicing, meet the babyboomers. Welcome to yuppiedom. Say hello to the mainstream. "Can I get you a papaya, mango cooler?"

Once confined to the fringes, to earthy-smelling health food stores, wooden-floored co-ops, and the infrequent vegetarian restaurant, juicing and fresh juice have finally stepped out into the open. Rather than having to search for freshly-juiced fruit and vegetables in specialty stores, today in San Diego, California, you can have fresh carrot juice delivered to your door every morning. And in many grocery stores across the country one can now buy pints, quarts, and half gallons of fresh-squeezed orange juice or recently-pulped carrot juice.

Thousands of other people are juicing fruits and vegetables themselves. With an investment of a few hundred dollars, anyone can set up their own in-home juice bar. Then, with a little patience, time, and perseverance, it's possible to make fresh juice a regular part of your daily diet.

The trend couldn't come at a better time. Recently, the National Cancer Institute began a campaign to get people to do one simple thing—eat more fruits and vegetables. Specifically, the recommendation was to eat five servings of fruit and three servings of vegetables a day. The reason is simple: a diet high in fruits and vegetables



will prevent or cure a wide range of ailments.

Breast cancer, cancer of the colon, esophagus, stomach, lungs, ovaries, and rectum—pick an ailment these days, it seems, and researchers somewhere are searching for chemicals in plants that will prevent them, or offer a cure. These plant chemicals, known as phytochemicals, are at the cutting edge of nutritional research because they hold the keys to preventing some of our most deadly diseases, such as cancer and heart disease, as well as some of our most common ailments, like asthma, arthritis, and allergies.

In some ways, this isn't news. For years, epidemiological

studies that correlate disease states and diet in large populations of people have already been bearing out the value of a diet high in fruits and vegetables. Such studies, which have been done in Africa, China, the Mediterranean, Russia, and elsewhere, have shown that in cultures where the diet consists of fruits and vegetables, making it high in both carbohydrates and fiber, a number of diseases that afflict North Americans, simply don't exist. For example, during more than 30 years of study, British researchers working in Africa didn't find a single case of diverticulitis, hernia, cancer of the colon, or cancer of the prostate. The only reason that they could adduce for the lack of these diseases was differences in diet.

But these studies (more than 150 have been done in the last decade) don't really prove that it is diet that makes the health difference. There are simply too many other factors that may influence health to make the studies conclusive. Is, for example, the lack of disease due to the subject's diet, or is it because they live in a relatively unpolluted environment? If it is diet, which part of their diet, specifically, is making the difference?

These are some of the questions that led researchers at the National Cancer Institute, the Department of Agriculture, and elsewhere, to begin looking for specific substances in foods that could be providing protection against disease. Thus far they have found quite a few.

In addition to vitamin C, vitamin A, and several minerals, a tomato also contains 10,000 other chemicals, many of which researchers are trying to isolate, identify, and study.

The discovery of phytochemicals has changed the way we think about food, especially fruits and vegetables. For example, broccoli contains a substance that may prevent, even cure, breast cancer. Citrus fruits contain substances that make it easier for the human body to remove carcinogens, thus decreasing the chance of developing cancer. Grapes contain a phytochemical that appears to protect each cell's DNA from damage. Similarly, a number of green vegetables contain phytochemicals that appear to offer protection against cancer-causing substances. The list may be as long as the number of edible plant species: bok choy, broccoli,

brussels sprouts, cabbage, cauliflower, carrots, collards, kale, kohlrabi, mustard greens, rutabaga, turnip greens, red beets, peppers, garlic, onions, leeks, and chives are but a few of the vegetables that appear to have cancer-preventing phytochemicals.

The problem, though, is that most of us don't eat enough fruits and vegetables to reap the benefits they offer. For example, although the National Cancer Institute recommends five servings of vegetables and three of fruits each day, the average American eats only 1½ servings of vegetables and, on average, no fruit on any given day.

Maybe the business men and women who frequent trendy juice bars, the company that delivers carrot juice, and the grocery stores that are beginning to carry fresh fruit and vegetable juices are on to something. Possibly juicing could provide the answer to fixing our fruit-and-vegetable-deficient diets.

Fundamentally, however, we are not breaking new ground. If you study the traditions of most juicing programs, you discover that the vegetables being studied at various facilities around the country are often the same vegetables that have been juiced for years. Collard greens, kale, kohlrabi, mustard greens, rutabaga, peppers, carrots, and cabbage are not only being studied for their phytochemical content, they are also the vegetables that are most commonly juiced. Not only are researchers looking into the cancer-prevention capabilities of citrus fruits, grapes, and apples, these are also the fruits that we most often associate with fruit juicing.

All of this raises the question, what else is there in the wisdom of juice therapy that, up until now, traditional nutritional research has overlooked or ignored? For example, juice programs often tout the value of adding chlorophyll to the daily diet. Chlorophyll, a substance found exclusively in plants, has a structure similar to hemoglobin, the substance in blood that is responsible for oxygen transport. During the 1940s, researchers found that consuming chlorophyll enhances the body's ability to produce hemoglobin, thus improving the efficiency of oxygen transport. Since the 1940s, however, there has been little research into the value of chlorophyll.

As another benefit, consider fresh juice's ability

to deliver the important group of nutrients known as enzymes. Enzymes are the body's work force. Acting as catalysts in hundreds of thousands of chemical reactions that take place throughout the body, enzymes are essential for digestion and absorption of food, for conversion of food stuffs into body tissue, and for the production of energy at the cellular level. In fact, enzymes are critical for most of the metabolic activities taking place in our bodies at every instant.

Fresh juices are a tremendous source of enzymes. In fact, the "freshness" of juice is one of their key features, because enzymes are destroyed by heat. When we eat food that is cooked at temperatures above 114 degrees Fahrenheit, whether it is meat, grains, fruits, or vegetables, the enzymes have been destroyed by the heat. Since fruits and vegetables are juiced raw, the enzymes remain viable, although a certain deterioration occurs over time, particularly at higher temperatures.

Coincidentally, many of the phytochemicals that nutritional researchers are focusing their attention on are either enzymes, or, more often, are substances that help build or activate enzymes that play essential roles in protecting cells from damage.

In addition, fruit and vegetable juices are good sources of the traditional nutrients. Citrus fruits (grapefruit, oranges, etc.) provide healthy portions of vitamin C. Carrot juice contains large quantities of vitamin A, in the form of beta carotene. A number of green juices are a good source of vitamin E. Fruit juices are a good source of essential minerals like iron, copper, potassium, sodium, iodine, and magnesium, which are bound by the plant in a form that is most easily assimilated during digestion.

Since juicing removes the indigestible fiber (cellulose), these nutrients are available to the body in much larger quantities than if the piece of fruit or vegetable were eaten whole. For example, because many nutrients are trapped in the fiber, by eating a raw carrot one is able to assimilate only about 1% of its available beta carotene. When a carrot is juiced, removing the fiber, nearly 100% of the beta



carotene can be assimilated.

Finally, fruits and vegetables provide one more substance that is absolutely essential for good health—water. More than 65% of most of the cells in the human body are made of water, and in some tissues, for example the brain, the cells can be made up of as much as 80% water. Water is absolutely essential for good health, yet most people don't consume enough water each day. Plus, many of the fluids we do drink—coffee, tea, soft drinks, alcoholic beverages and artificially flavored drinks—contain substances that require additional water for the body to eliminate. Fruit and vegetable juices are free of these unneeded substances and are full of pure, clean water.

The remaining question is how far will the trend go? So far, the National Cancer Institute's attempts to promote the health benefits of fruits and vegetables have only affected a relatively small segment of society. But, as more and more is written about the long-term health benefits of fruits and vegetables, as increasing numbers of people learn about the possibility of preventing and curing cancer, heart disease, arthritis, and a host of other diseases by making dietary changes, the fruit and vegetables trend and the popularity of juicing will continue to grow. Who knows, maybe someday it will be hard to find a seat during happy hour at your local juice bar. □

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