



FRUITS, VEGETABLES AND CANCER PREVENTION - 1

Cancer is the second highest cause of death in the Caribbean. There is a lot of evidence to show that our diets play a role in both the development and the outcome of cancer. Cancer experts report that around one third of cancers are preventable by good nutrition. This is because there are some foods and food constituents that probably decrease the chance of us getting cancer. At the same time, there are others that seem to increase the chance of getting cancer. This issue of Nyam News briefly looks at some dietary factors that may contribute to development of cancer and then some dietary factors that seem to help to prevent cancer.

What is Cancer?

Our bodies consist of numerous microscopic cells that are continuously dividing to form new body structures and to repair or maintain existing ones. This process is finely tuned and controlled by various mechanisms in the body. A tumour is formed when cells divide and reproduce abnormally, forming a mass in the body. Tumours may be benign in which case, they are non-cancerous. Cancer is the term that refers to tumours that spread and invade other areas of the body, causing serious damage. These tumours are called malignant.

Cancer Causing Agents

Substances that lead to the formation of cancer are called *carcinogens*. Dietary carcinogens include some natural pesticides produced by plants for protection against fungi, insects or animal predators; as well as ingredients in some pesticides and other chemicals added to food. Other carcinogens include some food preservatives and colourings, as well as mycotoxins - poisonous substances produced by spoiling and mouldy foods, and some substances found in smoked, cured, charred and jerked meats. Our bodies can also produce

carcinogenic substances as a result of normal body functions. For example, free radicals called *reactive oxygen species* are formed during the normal metabolism of the body. These free radicals circulate throughout the body, interacting with other cells and making them more likely to begin dividing uncontrollably and thus become cancerous. Cancers usually develop very slowly and the foods we eat can

affect many of the stages from the initiation to the establishment of the tumour.

Which Foods Help to Prevent Cancer?

Experts believe many plant foods, such as fruits and vegetables, contain specific nutrients and other constituents that may be protective against some specific types of cancers.

The protective compounds in fruits, vegetables and other plant foods all work together, with a balance that cannot be achieved by taking dietary supplements. Here is a summary of some of the foods and dietary factors found to be protective against specific cancers. As you can see, these include fruits and vegetables on the whole, and many substances which are found in good supply in fruits and vegetables.

Fruits, Vegetables and their Constituents and Cancer Risk

Foods of Food Constituents	Probably Decreases Risk of Cancers at these Sites....
Vegetables	<ul style="list-style-type: none"> • Mouth, pharynx & larynx • Oesophagus • Stomach
Fruits	<ul style="list-style-type: none"> • Mouth, pharynx & larynx • Oesophagus • Stomach • Lung
Foods containing folate, e.g. orange, green leafy vegetables.	<ul style="list-style-type: none"> • Pancreas
Foods containing carotenoids, e.g. carrot, tomato, pumpkin, squash, mango, cantaloupe.	<ul style="list-style-type: none"> • Mouth, pharynx & larynx • Lung • Oesophagus
Foods containing beta carotene, e.g. carrot, mango, pumpkin .	<ul style="list-style-type: none"> • Oesophagus
Foods containing lycopene, e.g. tomato, watermelon.	<ul style="list-style-type: none"> • Prostrate
Foods containing vitamin C, e.g. citrus fruits, cherry, guava	<ul style="list-style-type: none"> • Oesophagus
Foods containing selenium	<ul style="list-style-type: none"> • Prostrate
Allium vegetables, e.g. (e.g. onions, scallion, leek, chives, garlic).	<ul style="list-style-type: none"> • Stomach
Foods containing dietary fibre, e.g. fruits, vegetables	<ul style="list-style-type: none"> • Colorectal
Garlic	<ul style="list-style-type: none"> • Colorectal

Source: Food, nutrition, physical activity and the prevention of cancer - A global perspective. World Cancer Research Fund & American Institute for Cancer Research, 2007.

Put Some Colour on Your Plate

Generally, fruits and vegetables get their diverse colours from their content of carotenoids, flavonoids, and other phytochemicals. Many of these are also anticancer compounds. Carotenoids in orange, ripe paw paw (papaya), mango, cantaloupe, squash, pumpkin, and carrot give them their characteristic yellow or orange colours, while tomato and watermelon contain lycopene. Xanthophylls are a class of carotenoids generally found in green fruits and vegetables such as green bell peppers (sweet pepper), pakchoi, spinach, dasheen bush, baghi, callaloo, and broccoli. Choose brightly coloured fruits and vegetables for greater quantities of these anti-cancer antioxidants and phytochemicals.

Five (or More) a Day

The advice from several authorities in cancer prevention is to aim for a balanced diet that includes a minimum of five servings of fruits and/or vegetables each day. Some authorities even suggest nine servings a day for decreasing cancer risk. These should comprise a variety of fruits and raw or cooked vegetables. Cooking destroys some beneficial compounds found

in vegetables such as vitamin C, a powerful antioxidant which may exert a protective effect against cancer. However, on the other hand, cooking makes many of the anticancer compounds found in vegetables, such as lycopene, more available for easier absorption. It is best then to consume a combination of fruits and raw, and cooked or processed vegetable and vegetable products.

The following list gives examples of one serving of fruits and vegetables:

- ½ cup of cooked vegetables or vegetable juice
- 1 cup of raw vegetables
- ¼ cup of dried fruit
- 1 small fresh fruit
- ½ cup canned fruit (in natural juice)
- ½ cup fruit juice (not juice drinks or fruit drinks that are diluted).

Eat at least 1 serving fruit or vegetable with your meals. There are many ways to include fruits and vegetables into your diet. Here are some suggestions:

- Drink fruit or vegetable juice instead of sugar sweetened drinks. Be cautious about the amount of added sugar in either home or commercially prepared juices.
- Try a different or unusual fruit or vegetable sometimes.

- Find creative/different ways to prepare or combine your vegetables.
 - Add vegetables to your stewed meat.
 - Add vegetables to stewed peas or beans.
 - Add fruits to your vegetable salads for a change in flavour. This is especially helpful for children, who do not like the taste of some vegetables.
 - Add vegetables such as lettuce, tomato, and cucumber to your sandwiches.
 - Reach for a fruit such as a mango or ripe banana or dried fruit to satisfy your sweet tooth.
 - Add fresh fruit topping to your reduced portion of desserts such ice cream, cakes, and puddings for a delicious accompaniment.
 - Have a fresh fruit cup for dessert or as a snack sometimes.
 - Make greater use of seasonal fruits and vegetables.
 - Grow your own. Share excess with neighbours and friends.
 - Give gift bags/baskets consisting of fruits and vegetables.
- Enjoy a variety of fruits and vegetables daily to help decrease your risk of cancer. You will be improving your overall health and have a better quality of life.