

# LATE BREAKING NEWS

from the **National Wilms Tumor Study**

volume 6, 2007



## **Nutrition for the Cancer Survivor** **Perspectives of Members of the Children's Oncology Group** **(COG) Cancer Control – Nutrition Sub-Committee**

*by Nancy Sacks, MS, RD, LDN, Cathy Timko, MSN, CRNP and Jacqueline Halton, MD*

**A** healthy lifestyle with maintenance of a normal blood pressure and body weight may help in the preservation of the organs affected by chemotherapy including the lungs, heart, liver, bone and the remaining kidney. The purpose of this article is to review recommendations for healthy lifestyle including nutritional intervention and resources for the cancer survivor. Specific treatment recommendations from your oncologist and after-care team take priority.

### **IMPACT of CHILDHOOD CANCER on NUTRITION and PHYSICAL ACTIVITY**

Cancer survivors are often faced with nutritional challenges after treatment ends. Many patients may experience immediate or acute effects of treatment during therapy or immediately following treatment. The effects of childhood cancer on nutrition and physical activity

will be different for each cancer survivor. Some survivors may have problems with gaining too much weight, while others may have a hard time gaining weight. The effects from cancer and its treatment may appear weeks, months or even years after the treatment is completed. As indicated in the table on page 3, these late/long-term effects can have significant health implications and require continued monitoring and intervention for nutritional concerns. The goals for every survivor should include being as physically active as possible, maintaining an optimal body weight as well as adhering to a healthy diet. The American Cancer Society defines a cancer survivor in the following way: "from the time of diagnosis and for the balance of life, a person living with cancer is a survivor.<sup>2</sup>" Since survivorship spans many phases of treatment and post-treatment it is important that survivors be provided with ongoing education to continue to make informed choices.

#### **National Wilms Tumor Study**

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Good nutrition and regular exercise offer many benefits to childhood cancer survivors. These benefits include: promoting the healing of tissues and organs damaged by cancer and its treatment, building strength and endurance, reducing the risk of certain types of adult cancers and other diseases, decreasing stress, and providing a feeling of well-being.<sup>3</sup>

## SUGGESTIONS for HEALTHY EATING AFTER CANCER

The American Cancer Society has published Guidelines for Nutrition after treatment ends:<sup>4</sup> These recommendations have been modified to include more information from other sources.<sup>5-7</sup> Check with your doctor for any food or diet restrictions.

- **Ask** your dietitian to help you create a nutritious, balanced eating plan.
- **Choose** a variety of foods from all the food groups.
- **Protein**—Choose foods low in saturated fats (lean meats, poultry, fish, low-fat and non-fat dairy products), egg whites and plant based sources of protein. Avoid salt-cured, smoked, and pickled foods.
- **Carbohydrate**—Choose whole grains, fruits, vegetables and legumes which are good sources of fiber, phytochemicals and other protective substances. Many phytochemicals, which are found in fruits and vegetables have anticancer properties and act as antioxidants.<sup>8</sup> Higher levels of fruit and vegetable intake may also be associated with a reduced risk of some cancers.<sup>9</sup> A goal of at least 5 to 7 servings a day of fruits and vegetables, including citrus fruits and dark-green and deep-yellow vegetables is recommended as well as eating plenty of high-fiber foods, such as whole grain breads and cereals.
- **Fat**—Dietary fat is composed of fatty acids which are the main building blocks that the body uses to make fat. There are three types of fatty acids:
  - 1) **Saturated fatty acids (SFA)**—solid at room temperature and usually come from animal products (ie. meat fat, lard, milk, butter, cheese). SFA can also be found in some plant sources (ie. coconut and palm oil, margarines and fat spreads). A high intake of this type of fat can raise LDL (bad type of cholesterol) and increase risk for cardiovascular disease.
  - 2) **Monounsaturated fatty acids (MUFA)**—usually liquid at room temperature and found in olive and rapeseed oil, but also found in meat fat and in some nuts and seeds. This type of fat does not raise cholesterol levels,

and has been shown to lower LDL, but does not lower HDL (good type of cholesterol).

3) **Polyunsaturated fatty acids (PUFA)**—usually liquid at room temperature. There are two subclasses of fatty acids that are PUFAs (Omega-6 and Omega-3):

- **Omega-6 fatty acids** are found in vegetable oils from corn, sunflower, safflower, cottonseed and soybean. This type of fat can lower LDL as well as HDL.
- **Omega-3 fatty acids** are found in soybean, linseed (flax) and canola oil as well as deep-sea fish (i.e. sardines, tuna and wild salmon), or “fatty fish.” Focus on foods high in Omega-3 fatty acids rather than saturated fats as these types of oils have been documented to have a role in reducing the risk of heart disease, inflammation and other chronic diseases<sup>10-13</sup> as well as the risk for certain kinds of cancers.<sup>14,15</sup>
- **Trans fatty acids** are created when liquid vegetable oils are manufactured to create more solid fats for spreading (i.e. margarine and in baked goods). These fats are often referred to as “hydrogenated fats” and have been shown to increase LDL and reduce HDL which can be associated with increased risk of cardiovascular disease.<sup>7</sup>
- **Buy** a new fruit, vegetable, low-fat food, or wholegrain product each time you shop for groceries.
- **Decrease** the amount of fat in your meals by baking or broiling foods.
- **Drink** alcohol only occasionally if you choose to drink.
- **If** you are overweight, consider losing weight by reducing the amount of fat in your diet and increasing your activity. Choose activities that you enjoy. Check with your doctor before starting any exercise program.

**Adults:** Engage in at least 30 minutes of moderate to vigorous physical activity, above usual activities, on 5 or more days of the week; 45 to 60 minutes of intentional physical activity are preferable.

**Children and adolescents:** Engage in at least 60 minutes per day of moderate to vigorous physical activity at least 5 days per week.

- **Use** the American Cancer Society Nutrition Guidelines for Cancer Survivors to help choose foods for a well-balanced meal plan. These are available at [www.cancer.org](http://www.cancer.org).

## Special Considerations for Survivors of Wilms' Tumor

Treatment for Wilms' tumor has proven to be so successful that the majority of children are cured. Many pediatric cancer centers have developed aftercare programs to assess, follow and treat the delayed effects of childhood cancer therapy. All forms of treatment for Wilms' tumor including surgery, radiation and chemotherapy may cause toxicity. Children with localized disease (stage 1 and 2) undergo a nephrectomy and receive two chemotherapy agents. Children with stage 3, 4 and tumors with unfavorable histology Wilms' tumor receive more intensive chemotherapy, radiation therapy and a nephrectomy.

The following chart summarizes the known late effects:<sup>1</sup>

Therapy	Late effect
Dactinomycin	No known late effects
Vincristine	Numbness in limbs mostly with tingling and clumsiness
Doxorubicin	Damage to the heart muscle which may lead to heart failure A new cancer or leukemia
Cyclophosphamide	Damage or scarring of urinary bladder tissue Infertility A new cancer or leukemia
Etoposide	Damage to the liver A new cancer or leukemia
Radiation, abdomen	Problems with soft tissue or bone growth Increased risk for developing another cancer Liver damage
Radiation, lung	Problems with soft tissue or bone growth Scarring of the lung with difficulty breathing
Nephrectomy	Proteinuria, hyperfiltration, renal insufficiency, hydrocele (males only)

As discussed briefly, there are many organs that can be affected by cancer and treatment in the person with Wilms' tumor. Treatment for Wilms' tumor generally requires removal of one kidney (nephrectomy). The kidneys are vital organs and filter out waste products from the blood, help to control blood pressure, and stimulate red blood cell production. A person can live a healthy life with only one kidney, but there are some steps to take to protect the remaining kidney in order to keep it as healthy as possible. It is suggested to have medical check-ups to monitor blood pressure and kidney function. Your doctor will let you know how often the follow-up should be. In addition, it is important to drink plenty of water, especially if you are outside in hot weather or involved with sports.<sup>16</sup> Cancer survivors can be at risk for other nutrition-related chronic diseases including diabetes and heart disease.<sup>17-19</sup> The guidelines that have been presented in this article are similar to those proposed by the American Heart Association for maintaining health and minimizing risks for chronic diseases.<sup>20</sup>

## Another Area of Growing Interest: Complementary and Alternative Medicine (CAM)

Some cancer survivors choose to incorporate complementary and alternative medicine (CAM) which refers to medical health and lifestyle practices that are used along with or in place of conventional therapies. Examples are biologically based therapies—dietary supplements, antioxidants, herbal medicines, and special diets. Some other types of CAM therapies include relaxation therapy, massage therapy, spiritual healing, and acupuncture. A recent study by Yates *et al*<sup>21</sup> found that more than 90% of cancer



patients surveyed were using at least one form of CAM (prayer, relaxation and exercise were most widely used). If you are interested in pursuing any forms of CAM therapy it is important to be well informed. The National Center for Complementary and Alternative Medicine and the National Cancer Institute at the National Institutes of Health can provide current information about different CAM approaches.<sup>22</sup>

As a cancer survivor you have completed many different types of therapy as part of your treatment and may be experiencing a variety of complications and side effects. It is important that the clinicians participating in your care continue to provide support, information and resources so that you can make decisions that will result in a healthy lifestyle which has a decreased risk for developing chronic conditions.

(See enclosed insert for complete article references and list of resources.)



## Your Participation in the Study Benefits Thousands

In March of 2006 we submitted an application to the National Institutes of Health for approval to be funded for another five years. Every five years we have to compete with many other researchers for continued funding. Currently fewer than 10% of applications are approved, clearly a very competitive process. In July we learned that our application was approved. Reviewers noted "This application is considered highly significant as the long term effects of Wilms tumor therapy are important not only for survivors of Wilms tumor, but also to survivors of other pediatric cancers."

Our application would not have been successful without each of you returning our forms, agreeing to our requests for additional information, and enrolling your children on the study. Thank you. We want to share the reviewer's comment to let you know that thousands of survivors of other childhood cancers have benefited from your contribution to the study. Chemotherapy and radiation therapy (RT) used to treat Wilms tumors are also used to treat other childhood cancers. Over the years the NWTS has pioneered changes in how RT and chemotherapy are given which has reduced toxicities and duration of treatment. Other children benefited from these treatment changes and have you and your families to thank for the improvements.

We thought you would like to know that you have made significant contributions to the lives of many, many people besides your fellow Wilms tumor survivors. You have our heartfelt thanks and congratulations.



## Why We Need to Hear Your Good News

*by Norman Breslow, Ph.D.*

As the statistician and Principal Investigator for the NWTS Late Effects Study, I sometimes receive e-mail from former Wilms tumor patients who have just been diagnosed with a second tumor or who have had a complicated pregnancy. I refer such correspondence to NWTS staff members who will contact the person to obtain further details. What many former patients fail to recognize, however, is the importance of hearing also from the great majority of you who have not experienced problems with your health. This is so that we may report to you, and to the physicians who treated you via articles in the medical literature, accurate information on rates of occurrence of second tumors, low birth weights and other factors that we track. Such rates consist of both a numerator and a denominator. The numerator is the number of cases (e.g. of a second tumor or a low birth weight baby) that occur before a certain age. The denominator is the much larger total number of former patients who have been followed through that same age. We can only include you in the denominator if we receive news from you regarding your health status. If we hear more frequently from patients in the numerator, we overestimate the rate and make it appear that the medical conditions following diagnosis and treatment of Wilms tumor are worse than they really are. This is sometimes known as the principle that "bad news travels fast." It can lead physicians to make treatment decisions for their current patients based on wrong information.

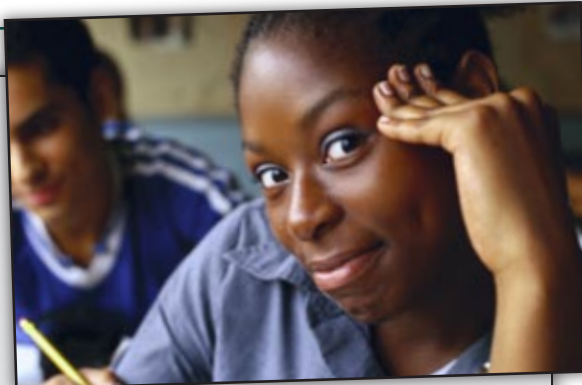
So I urge all of you to keep in touch with us on a regular, annual basis. While of course we need you to report any adverse medical condition, we also want to hear your good news—of graduation, employment, marriage, pregnancy or just the fact that you are still at your present address and receiving our newsletters. I hope to hear from all of you soon.

## Follow-up Clinics that Specialize in Treating Survivors of Childhood Cancer

In recent months there has been considerable press regarding the *New England Journal of Medicine's* October 12, 2006 article titled "Chronic Health Conditions in Adult Survivors of Childhood Cancer."

Oeffinger K. C., Mertens A. C., Sklar C. A., Kawashima T., Hudson M. M., Meadows A. T., Friedman D. L., Marina N., Hobbie W., Kadan-Lottick N. S., Schwartz C. L., Leisenring W., Robison L. L., the Childhood Cancer Survivor Study. *N Engl J Med* 2006; 355:1572-1582, Oct 12, 2006.

This important article from the Childhood Cancer Survivor Study emphasizes the need for survivors of childhood cancer to seek medical care from clinics and providers who are knowledgeable in the long-term effects of childhood cancer treatment. These clinics are called long-term follow-up clinics. Unlike general practice units that may only occasionally see an adult survivor of childhood cancer, these facilities specialize in diagnosing and treating the late effects of childhood cancer and provide the follow-up required. To assist you in finding a late effects clinic in your area the Children's Oncology Group maintains a Late Effects directory of services on their web site, <http://www.childrensoncologygroup.org>. If you do not have internet access please call us and we will assist you in finding a late effects unit in your area.



## Are There Scholarships Available for Survivors of Childhood Cancer?

A frequent question we receive from Wilms tumor survivors is whether there are any scholarships available to help pay for college. We all know paying for college is expensive and any help with the finances would be appreciated. This is especially true for families that have dealt with cancer and often exhausted their resources.

The good news now is that there are scholarships and grants specifically for survivors of childhood cancer. In fact, we have seen a growing number of scholarships available to students with a history of cancer while there were none just a couple of years ago. The best place to start looking is on the Internet.

Here are some links to scholarships and financial aid information online:

- The American Cancer Society (<http://www.cancer.org/docroot/home/index.asp>)
- FastWeb (<http://www.fastweb.com/>)
- College Board (<http://www.collegeboard.org/>)
- Federal Student Aid Programs (<http://studentaid.ed.gov/>)
- American Council on Education (<http://www.collegeispossible.org>)
- College Scholarships (<http://www.collegescholarships.com>)
- FinAid (<http://www.finaid.org/scholarships/cancer.phtml>)

We urge individuals to research other organizations in their communities, churches, and local and regional libraries. Some departments may offer additional scholarships that are not publicized. Many scholarships require an essay as part of their application. This would be a great opportunity to share your experience in overcoming cancer. Good luck! If you have other sources to share, please let us know.



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## Meet NWTS Founder Dr. Giulio D'Angio

One of the guiding principles of the NWTS is “Cure is not enough,” a dedication to reducing the duration and intensity of treatment in order to minimize late effects. It was Dr. Giulio D'Angio, co-founder of the NWTS in 1969, who first articulated this important goal and who, through the years, kept it as a major objective of our study. Dr. D'Angio has long maintained a strong personal interest and concern for participants of the NWTS. Not only do the staff of the DSC hold him as a “father figure,” he is also a warm and concerned “grandfather” to those of you who have sought his advice over the years. We would like to acquaint you with Dr. D'Angio through this article.

Born in 1922, the second son of an Italian family, he was also the first family member born in the U.S. He attended public schools in Brooklyn and Mount Vernon, New York, and to this day he recalls the excellent education he received. Following high school graduation he attended Columbia College then Harvard Medical School, graduating in 1945.

Dr. D'Angio did his internship at the Boston Children's Hospital (BCH), training under Chief Surgeon Dr. Robert E. Gross, a pioneering giant in surgery. In 1946 he served with the U.S. Army Air Corps in Japan at the 49th General Hospital in Tokyo and at the air base in Kanoya on the southern island of Kyushu. Before returning to medical training he spent several months in Florence, Italy studying cultural courses in art and Renaissance history. “I decided this was the time to indulge those interests since I was unmarried. The next opportunity would come in the distant future when I would be wheeled about in a wheelchair.”

After discharge from the Army he started his radiology training at Boston City Hospital. In 1956 he returned to BCH as a radiation therapist, starting a 50 year career in pediatric oncology. At that time, when only surgery could cure some cancers, exciting innovations in treatment began to be studied: chemotherapy and radiation therapy. Dr. D'Angio began working in the laboratory and was the first to observe that radiotherapy enhanced the effect of actinomycin D (dactinomycin) in mice. He was also a member of an oncology team in the trial of newly developing chemotherapy drugs. One of the most exciting observations was when a single course of dactinomycin given to a young boy caused multiple metastatic Wilms tumors to disappear.

In the 1960s two chemotherapy drugs, dactinomycin and vincristine, proved to be effective in treating Wilms tumor. At the time patients would be treated with one or the other, and the medical community began to discuss combining them, and possibly reducing the use of radiotherapy. Dr. D'Angio was approached by members of three independent pediatric cancer cooperative groups to chair the first intergroup study and thus began the NWTS. Eventually the NWTS was enrolling nearly all Wilms tumor patients in North America. The study's success was ensured by Dr. D'Angio's leadership and mentoring. Staff in Seattle have long appreciated his compassion for participants and his inclusion of us as members of a team that includes physicians and other scientists. Thirty years of study results include the publication of more than 250 articles on treatments, schedules, pathology, genetics and even on the cost and efficiency of different schedules of chemotherapy.

His NWTS experience led to his participation in organizing committees for studies of childhood Hodgkins disease and soft tissue sarcomas. With his long-term collaborator, Dr. Audrey Evans, he made the first observations about the biology and clinical evolution of neuroblastoma, another childhood cancer (Dr. Evans was profiled in *Late Breaking News*, 2004). Dr. D'Angio has long been interested in and concerned about the late effects of therapy in children. He organized and chaired the first National Institutes of Health conference on this topic, having already founded the Late Effects Study Group devoted to cured cancer patients.

Dr. D'Angio has been honored widely by national and international pediatric and radiology societies for these trail-blazing accomplishments. A past president of the International Society of Pediatric Oncology (SIOP), he has also held responsible elected and appointed positions in learned societies at home and abroad. He is a prolific author, having written more than 500 articles, books, book chapters, editorials and commentaries. Several of his papers are “firsts”.

Since his retirement as Chairman of the study, he continued as Editor-in-Chief of *Medical and Pediatric Oncology* for several years and remains active giving lectures and attending meetings of the several societies to which he belongs. On a more personal note, he recently married Dr. Audrey Evans, the coordinator of the NWTS at its inception. They have been partners in Science and Medicine for decades. Now they are partners for life.

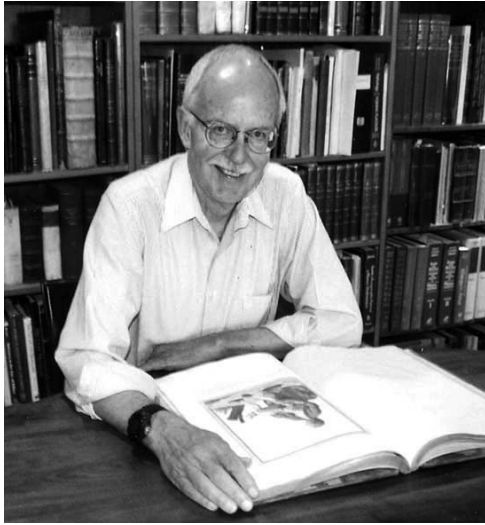


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## Meet Dr. J. Bruce Beckwith, Pioneering Pathologist

**D**r. J. Bruce Beckwith has always been an important member of the National Wilms Tumor Study (NWTS). He remained the study pathologist for thirty years from the commencement of the study in 1969 until his retirement, during which time he identified exactly what type of Wilms tumor every study patient had. His work has made his name a by-word whenever the kidney tumors of childhood are discussed.

J. Bruce Beckwith was born in Spokane, Washington on November 18, 1933 and raised on an Indian reservation in St. Ignatius, Montana. The ground-breaking spirit of those lands and their broad clear skies are reflected in his pioneering research and the clarity of his publications.



One of his early contributions to childhood cancer research was the identification of the nature of a childhood tumor called neuroblastoma. He showed that in some children, it can be looked on as a developmental abnormality while in others, its behavior is that of a malignant neoplasm. Assisted by a succession of gifted and stimulating NWTS Fellows, Dr. Beckwith clarified a confusing cluster of growths that had been considered different forms of Wilms tumor. They showed that there are indeed two types of Wilms tumor called the favorable and the anaplastic types. The former is much more responsive to therapy than the latter. Moreover, they showed there are two renal cancers that are not Wilms tumors at all, but are separate types entirely. These are the rhabdoid tumor of the kidney and the clear cell sarcoma. This separation of specific tumor types has been extremely important in devising effective means of managing each type.

Another important advance has been Dr. Beckwith's study of what are called nephrogenic rests. These are groups of cells in the kidney that are "left over" from fetal life. They can disappear entirely with time, they can grow to become benign tumors, or they can undergo malignant change and become true Wilms tumors. Nephrogenic rests can be of two major types. One of them is associated with a specific developmental abnormality named for Dr. Beckwith: the Beckwith-Wiedemann syndrome which he identified years ago (Late Breaking News, 2005). The NWTS recommends that a child found to have the characteristics of this syndrome should be screened and observed closely for the possible development of Wilms tumor. Early detection improves chances for successful treatment.

In addition, the recognition of Favorable Histology (FH) contributed to the ability to reduce the amount and duration of therapy for most of the 88% of children with kidney neoplasms who have FH lesions. More intensive treatment must be used for those with the more aggressive types. These discoveries would not have been possible without the NWTS which for the first time worked with a single pathologist who examined almost of all of the cases in North America. Before the NWTS, a pathologist in even the largest pediatric oncology centers would see only a few dozen in a lifetime.

In fact, though Dr. Beckwith is best known these days for his Wilms tumor work, his long-term interests have been in the field of developmental abnormalities. He has one of the largest libraries in the world devoted to these topics. Many of those reference books are in ancient languages that he learned in order to read the texts. He is an avid fisherman and a lover of outdoor activities. This explains his choice of the Big Sky Country of Montana, his boyhood home, for his retirement years with his wife, Nancy.

He is the recipient of many honors and awards going back to his college days. More recently, he was President of the Society of Pediatric Pathology, and was elected an Honorary Fellow of the British Royal College of Pathologists, one of only 50 such world-wide. He received the Distinguished Pathologist Award of the Academy of Pathologists in North America and a similar distinction in Paris in 2005. In that same year, he also was the recipient of the Distinguished Career Award of the American Society of Pediatric Hematology/Oncology. In so doing, this society made up of clinicians, recognized how much his scholarship has contributed to better medical care for children.

Dr. Beckwith is remembered for many things. His colleagues and associates recall their time with him as a distinct privilege and pleasure. Their image of him is that of a vibrant, enthusiastic Scholar/Scientist, always striving to part the curtains that hide the unknown.

## May Someone Else Return My Annual Mailings?

The simple answer is yes, but if you are 18 years of age or older we need your permission for this. We sometimes receive a form signed by a parent or spouse, and we appreciate their willingness to help. However, we cannot accept the information unless their child or spouse, our participant, has given us written authorization for them to report to us.

If you would like someone else to report to us, please let us know and we will send you a short form to sign authorizing this. You can email your request to [nwtsg@fhcrc.org](mailto:nwtsg@fhcrc.org), leave a detailed message on our message line, 1-800-553-4878, or mail us a request at our address listed on page 1. We appreciate your continued participation and would like to do whatever we can to make it as easy as possible for you.

## Adult Consents: A Question from a Participant

**We received this question:** *My parents consented for me to participate in the study when I was diagnosed. Why are you asking me to sign another consent?*

If you were under 18 when you were diagnosed, your parents signed a consent form as your guardians. Once you have reached your eighteenth birthday, you are legally an adult. As an adult you now are responsible for what information you share with us. We can receive your consent either verbally or in writing.

While we want your continued participation in the study, the consent form also gives you the opportunity to decline participation. Whatever you decide to do, we would appreciate receiving your decision verbally, via email or in writing.

Some young adults are busy with college or new careers and prefer that we continue to contact their parents. We certainly understand this, and can do this if we have your permission. If this is your preference, please let us know, and we will continue to contact your parents until you tell us to begin contacting you directly.

### National Wilms Tumor Study

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## Nutrition for the Cancer Survivor – Perspectives of Members of the Children’s Oncology Group (COG) Cancer Control - Nutrition Sub-Committee

by Nancy Sacks, MS, RD, LDN, Cathy Timko, MSN, CRNP and Jacqueline Halton, MD

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### Resources:

American Cancer Society (ACS): provides information on all aspects of cancer and cancer support  
[www.cancer.org](http://www.cancer.org)

American Cancer Society, Dietary Supplements: offers information on dietary supplements, vitamins, minerals, and herbal products  
[www.cancer.org/docroot/MBC/MBC\\_6\\_1\\_DietarySupplements.asp](http://www.cancer.org/docroot/MBC/MBC_6_1_DietarySupplements.asp)

American Dietetic Association Complementary Care Practice Group: website of the Complementary Care Dietetic Practice Group, promotes integration of conventional nutrition practices with evidence-based alternatives.  
[www.complementarynutrition.org](http://www.complementarynutrition.org)

American Institute for Cancer Research (AICR): offers a variety of services, from a nutrition hotline to healthful living tips  
[www.aicr.org](http://www.aicr.org)

Cancer Nutrition Info: provides information on cancer prevention and symptom management  
[www.cancernutritioninfo.com](http://www.cancernutritioninfo.com)

Children's Oncology Group: provides information about pediatric cancers and clinical trials  
[www.childrensoncologygroup.org](http://www.childrensoncologygroup.org)

Columbia University Rosenthal Center, Carol Ann Schwartz Cancer Initiative: provides information about current complementary research studies and findings  
[www.rosenthal.hs.columbia.edu](http://www.rosenthal.hs.columbia.edu)

CureSearch National Childhood Cancer Foundation and Children's Oncology Group are partners in the search to cure childhood cancer;  
[www.curesearch.org](http://www.curesearch.org)

Diana Dyer's Web Site: provides information and inspiration for cancer survivors regarding nutrition and lifestyle choices from a three-time cancer survivor.  
[cancerRD.com](http://cancerRD.com)

Guide to Internet Resources for Cancer: provides more than 100 pages and more than 4,000 links to cancer-related information.  
[www.cancerindex.org](http://www.cancerindex.org)

Lance Armstrong Foundation; aims to enhance the quality of life for those living with, through, and beyond cancer  
[www.laf.org](http://www.laf.org)

MEDLINEPLUS: provides links to current trustworthy health care informed compiled by the National Library of Medicine at the National Institutes of Health (NIH).  
[www.nlm.nih.gov/medlineplus](http://www.nlm.nih.gov/medlineplus)

National Cancer Institute (NCI): provides information on cancer diagnosis, treatment, and supportive care, including nutrition information and PDQ summaries.  
[www.cancer.gov](http://www.cancer.gov)

National Cancer Institute Cancer Information Service/PDQ: provides current, comprehensive information on all major types of cancer, treatments, and clinical trials.  
[www.cancernet.nci.nih.gov](http://www.cancernet.nci.nih.gov)

National Cancer Institute: Patient Information on Nutrition During Cancer Treatment: resources on cancer treatments and effects on nutrition status.  
[Cancer.gov/cancerinfo/pdq/supportivecare/nutrition/patient](http://Cancer.gov/cancerinfo/pdq/supportivecare/nutrition/patient)

National Cancer Institute: Summary of Complementary Therapies: offers summaries of substances promoted to cancer patients.  
[www.cancer.gov/cancerinfo/pdq/cam](http://www.cancer.gov/cancerinfo/pdq/cam)

National Coalition for Cancer Survivorship: network of organizations and individuals concerned with the support of cancer survivors and their families.  
[www.canceradvocacy.org](http://www.canceradvocacy.org)

Office of Dietary Supplements: NIH site about dietary supplements.  
[www.ods.od.nih.gov](http://www.ods.od.nih.gov)

Oncolink: provides information on different types of cancer, treatment options, clinical trials and resources.  
[cancer.med.upenn.edu](http://cancer.med.upenn.edu)

Oncology Nursing Society: provides information for health care providers, people with cancer, and their caregivers.  
[ons.org](http://ons.org)

Oncology Nutrition Dietetic Practice Group Web Site: includes valuable resources for patients, dietitians, and other health care professionals  
[oncologynutrition.org](http://oncologynutrition.org)

Quackwatch: a nonprofit corporation whose purpose is to combat health-related frauds, myths, fads, and fallacies.  
[www.quackwatch.org](http://www.quackwatch.org)