



# CORE<sub>news</sub>

FRED HUTCHINSON  
CANCER RESEARCH CENTER  
A LIFE OF SCIENCE

Colorectal Research in Epidemiology

Autumn 2006

## CORE Family Studies

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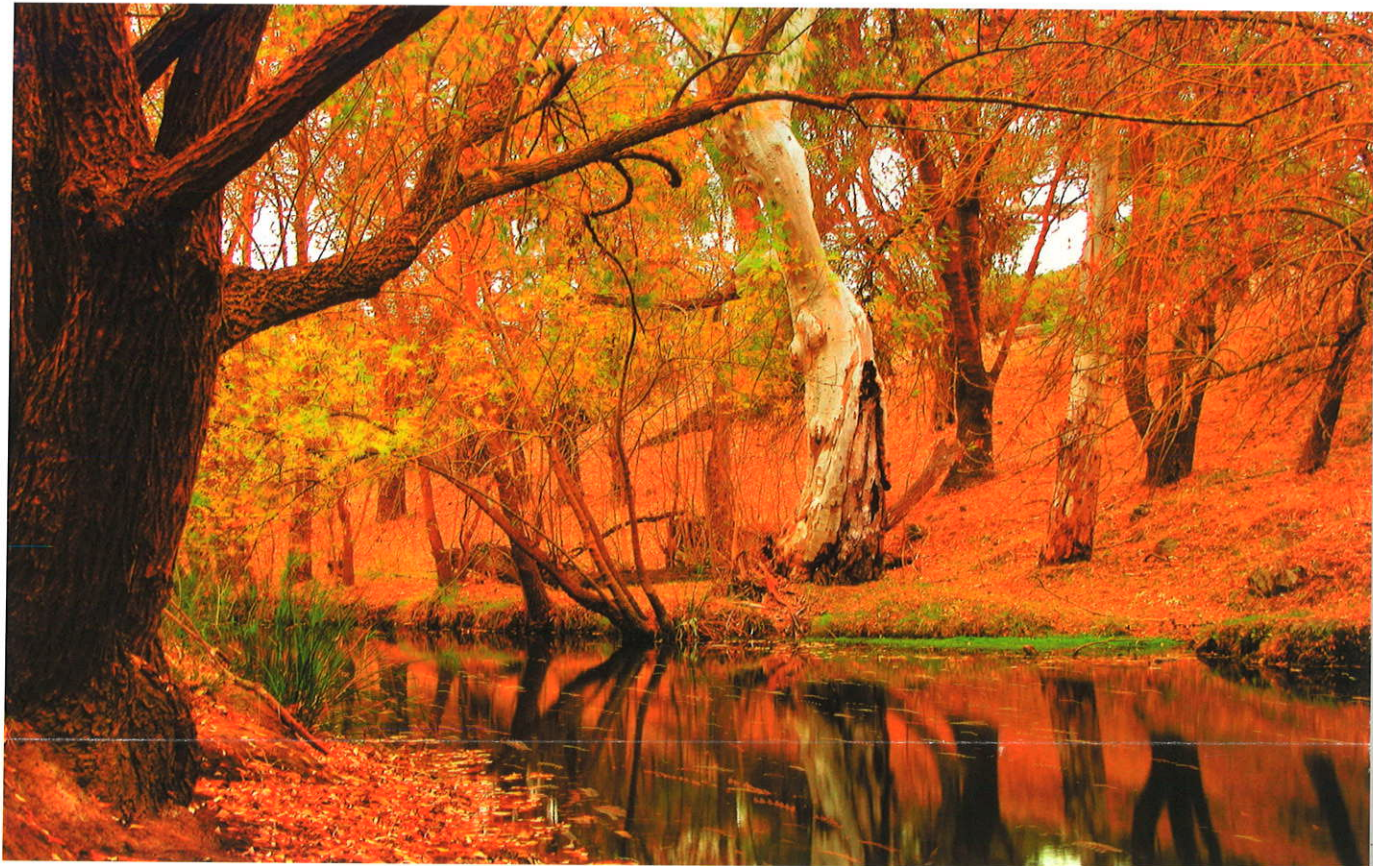
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Greetings!

In 1998, we began inviting individuals from western Washington who had recently been diagnosed with colorectal cancer and their family members to join our long-term study of colorectal cancer. We also collected information from the general population who are about the same age and gender and have lived in the same region as our case participants. We thank all of you who have been with us from the beginning and also those who have joined us along the way. We value your ongoing contributions and commitment as we continue our efforts. New study participants are continually invited to join our project to further advance our research.

The information you have provided is vital. For instance, little is known about hereditary causes of colorectal cancer. In order to add to what is currently known, **CORE Studies** and our research partners use the information you and your family have provided to help identify new genes that may cause colorectal cancer in families. By comparing biological information

within individual Colon Family Registry families, we may be able to identify new genes related to colorectal cancer.

Additionally, remember all of those questions we asked when you first joined our project? Studying lifestyle habits such as screening practices, exercise, diet, smoking and more can help us add to our understanding of behavioral factors related to colon cancer. We have several studies planned that will utilize information collected during your interview. These studies will help us gain insight into increased or decreased risks for the development of various cancers. Look for updates in future issues of **CORE News**.

Warmest regards,

John D. Potter,  
MD, PhD

Polly Newcomb,  
PhD, MPH





## Autumn's Bounty Stew

### Ingredients

- 1 tablespoon olive oil
- 2½ lbs. bone-in chicken, skin removed (*you may substitute boneless chicken, but the bones add a bit more flavor and can be removed after cooking*)
- 1 cup onions
- 2 cloves chopped garlic
- 1 cup chopped celery
- 1 cup chopped carrots
- ½ a head of small cabbage, chopped
- 1 28-ounce can diced tomatoes
- 2 cups chicken broth
- ½ teaspoon salt
- ½ teaspoon pepper
- 1½ teaspoon sage
- 1½ teaspoon fresh thyme (1 teaspoon, if using dried)
- 1½ teaspoon fresh rosemary (1 teaspoon, if using dried)
- 1 small zucchini, peeled and chopped
- 4 cups peeled, chopped winter squash (*you may use any combination of pumpkin, butternut, acorn, etc... varieties*)
- 1 medium sweet potato, peeled and chopped
- ½ cup frozen peas

### Directions

1. Heat oil in a large Dutch oven. Add chicken and brown about 15 minutes. Remove chicken and add onion, garlic, celery and carrots to pan; sauté on medium heat about 5 minutes. Return chicken to the pan with vegetables. Add cabbage, tomatoes, chicken broth, salt, pepper, sage, thyme, rosemary and bring to a boil; simmer about 45 minutes to an hour.
2. Add zucchini, squash and sweet potato; bring to boil and simmer 30 minutes or until squash is tender. Stir in frozen peas and reheat for 5 minutes.
3. Serve with a whole grain roll and green salad.



## Specialist's Corner: Genes and Gene Testing

### *How Are Genes Linked to Disease?*

Cells in your body contain long molecules called DNA, which provide instructions for making materials called proteins. Roughly speaking, a stretch of DNA that makes a specific protein is known as a gene. Genes are tiny biochemical structures in our DNA that determine every human characteristic from the length of our arms to the color of our eyes. If a gene is defective, it could produce the wrong protein and cause something in your body not to work properly.

Many diseases are influenced by our genetic make-up. If a gene is altered in a certain way, it loses its ability to send the correct messages to our cells. If you think of genes as words, a mutation in that gene means that a word is misspelled in such a way that it no longer makes sense. In this altered form, the correct message gets lost.

These misspellings, or gene mutations, can be either acquired over time or inherited from a parent. Acquired mutations are changes in DNA that develop throughout a person's life. These acquired mutations appear in the DNA of individual cells and are often the result of errors, or misspellings, that occur during cell division when the cell is making a copy of itself and dividing into two. Acquired mutations can also occur from exposure to environmental stresses such as radiation or pollutants.

A hereditary mutation, on the other hand, is a mistake that is present in the DNA of virtually all body cells. Differing from acquired mutations, the gene alteration is present in the reproductive cells and can be passed from generation to generation, from parent to newborn. Moreover, the mutation is copied every time body cells divide.

Mutations occur constantly in every cell in the body. Each cell, however, has the ability to recognize mistakes and fix them before it passes them along to its new cells. However, a cell's DNA repair systems can fail, be overwhelmed, or become less efficient with age. Over time, mistakes can build up and cause various diseases, including cancer. Cancers that are diagnosed at older ages in patients, in particular, are more likely to be caused by acquired mutations. On the other hand, people who inherit cancer genes are more likely to develop cancer at a younger than average age.

### *Gene Testing*

Scientists looking for a hereditary disease gene typically begin by studying DNA samples from members of particular families, in which a number of relatives, across multiple generations, have developed the same illness such as colon cancer. Researchers look for genetic markers—easily identifiable segments of DNA—that are inherited by persons with the disease but are not found in relatives who are disease-free. This process is called gene testing. Gene testing involves examining a person's DNA extracted from cells in a sample of blood or, occasionally, from other body fluids or tissues. Specific tests are designed to look for some irregularity that flags a disease or disorder.

Currently, various genetic tests can be performed to identify telltale DNA changes in cancer or precancer cells once cancer has been detected. Such tests can be helpful in several areas such as early detection, diagnosis, and treatment.

Much of the current excitement in gene testing, however, centers on predictive gene tests that identify people who are at a higher risk of getting a disease, before any symptoms appear. For instance, a set of genes that predispose a person to a much more common type of hereditary colon cancer (hereditary nonpolyposis colon cancer, or HNPCC) has been identified in high-risk families. The genes have also been linked to cancers of the uterus, stomach, ovary, small intestine, gall bladder, kidney, and ureter. For very high-risk families, genetic testing can be especially beneficial. This information can be tremendously useful to family members in planning screening regimes and making lifestyle choices.

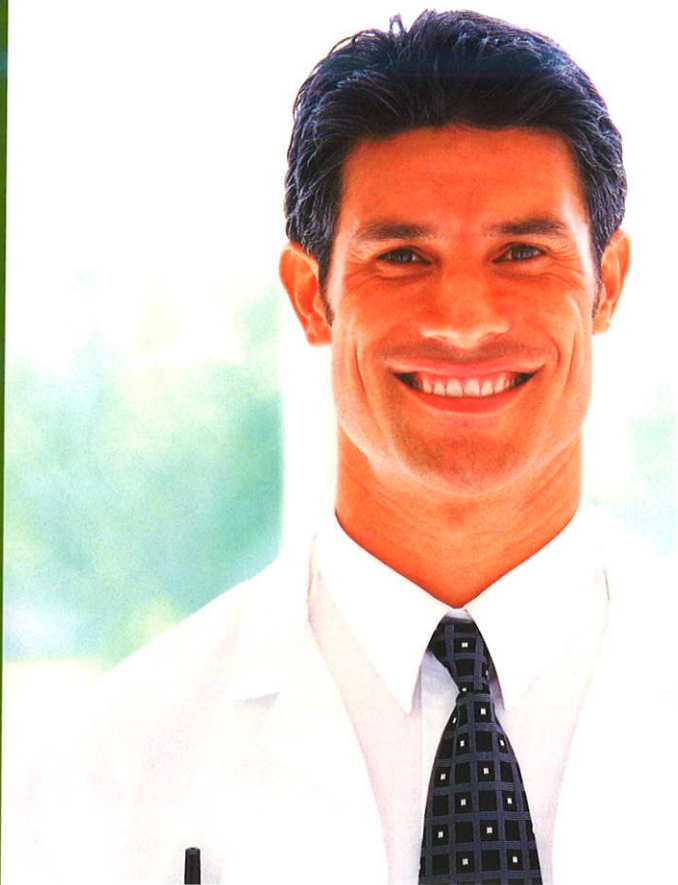


### **Where can I get more information about cancer?**



You can call the Cancer Information Service at **1-800-4-CANCER** (1-800-422-6237) and they will answer your questions and send you information at your request.





## Blood Collection and You

Your participation in **CORE Studies** is invaluable and you are the most important part of helping us learn more about biological and environmental factors that might make us susceptible to colorectal cancer and those that may be important to longevity after a diagnosis.

An extremely important part of our study is the collection of blood samples from our participants so that we may study biological and genetic factors important in this disease. We will compare characteristics of colorectal cancer patients with those of people from the general population. In doing this, we are trying to learn more about the occurrence of this cancer, risk factors, and possible underlying causes. As no one else can substitute for your unique biological characteristics, the quality of our research depends upon obtaining this blood sample from you. There are no identifying markers on the samples save for a unique number, links to which only our staff has access. Privacy is of the utmost importance to us and it is vital to the continuation of our study that we maintain strict standards of confidentiality.

Our goal is to make this important step in your participation as easy and convenient as possible. There are several ways for us to obtain this sample from you. We have two phlebotomists on staff here at **CORE Studies**, available to participants in the greater Puget Sound area, for home visits. They can even come to your place of business if that is more convenient for you.

If you prefer to have a draw taken at your doctor's office, we supply a blood kit to you by mail, which you simply take with you to your next doctor's visit. This kit contains instructions for your doctor on how to return the kit to us. Alternately, you may have the draw done at a clinic; we would be happy to find a clinic convenient to you. We will cover the expense of this draw by sending a check directly to your doctor or clinic. Lastly, for those participants here in the Seattle area, you can come directly to the Hutchinson Center and have your blood drawn in our clinic. For any blood draw option you choose, we will pay you \$25 for your participation in this part of our study as a token of our appreciation.

## Frequently Asked Questions

### *Who in my family is a first-degree relative?*

Your first-degree relatives are your mother, father, brothers, sisters, sons and daughters. Half of your genes are identical to theirs.

### *Who in my family is a second-degree relative?*

Your second-degree relatives are your grandmothers, grandfathers, aunts, uncles, nieces and nephews. A quarter of your genes are identical to theirs.



## Spotlight: Staff Update

**CORE Studies** is pleased to introduce two of the newest members of our interviewing staff. Lisa Myers Bulmash and Holly Santos joined us this year as telephone interviewers. Being an interviewer requires special skills, including; an attention to detail, a professional manner, and a caring and sensitive personality. Our interviewing staff embodies all of those traits and we are proud to have them.

Lisa took the scenic route to her position at the Center. She studied English literature at UCLA. Writing and talking to people from varied backgrounds led her to one of her first jobs as a television news reporter in southern California. During that time, Lisa developed an interest in health and medical issues. She moved to Seattle to continue that work, but changed gears last year. That's when Lisa joined **CORE Studies** as a telephone interviewer and data coordinator. Lisa and her family live in the Seattle metro area. They enjoy going to movies and on short road trips "when gas prices don't get in the way." In recent years, Lisa has gotten "crafty"; she enjoys making homemade cards and altering books to create new artworks.

Holly is no stranger to the Pacific Northwest; she spent part of her childhood in Oregon. But it took a while before Holly's wanderlust brought her back to the region. She's traveled extensively, including sailing the waters of the Pacific Northwest. Holly's background in research studies includes work for the University of Michigan and the University of Washington, doing everything from interviewing to research project management. She also has earned a bachelor's degree in Political Science. When she's not spending time with her two adorable large dogs, Holly likes to experiment with various projects in the arts.

We'd also like to introduce you to two other noteworthy **CORE Studies** staff members. If you elect for the convenience of a home blood draw, you will meet one of our two licensed phlebotomists:

Barbara Nist has been with the Fred Hutchinson Research Center for 23 years. Barb is a people person so this job is a perfect fit for her busy schedule, giving her an opportunity to meet great new people every day all



*Left to right: Holly, Barbara, Cassidy, and Lisa*

over western Washington. Barbara says, "In an effort not waste the knowledge gained in this job, I plan to be reincarnated as a Washington State geography teacher." She is a tournament bridge player and just returned this summer from playing the world championships in Verona, Italy. Barbara serves on the board of directors of the American Contract Bridge League, providing her opportunity to travel all over North America. Fortunately enough to have a family that loves Washington, her four children, seven grandchildren, and 89 year-old mother are all close by, allowing her plenty of time for spoiling.

Kassidy Benoscek is a recent addition to our study staff and we are thrilled to have her. She is a busy mom to four daughters, ages 8, 10, 11, and 13. Kassidy loves the flexibility that being a phlebotomist at **CORE Studies** affords her. She truly enjoys the travel and the opportunity to personally meet our participants that this position offers. Kassidy also has a passion for cooking and has taken culinary arts classes to add to her natural talent. In fact, she teaches children's cooking classes out of her home. Her interest in both cooking and health-care has led her to continue her education and she is on her way to earning a degree in Nutrition. Kassidy grew up in Spokane, Washington, but she has lived in western Washington for 14 years, saying, "I love the Pacific Northwest!" She also enjoys reading, music, and studying different cultures to incorporate into her cooking classes. Welcome Kassidy!



## Facing a Tough Subject Head-On

You could say there are information buffs, and then there are the stonewallers, when it comes to finding out about their risk of developing cancer. If they could only find a steady source, some people would collect every last detail on their risk. Others would rather keep a nice, thick wall between them and that knowledge.

But researchers say the right personal choices could help prevent up to two-thirds of common cancers worldwide. Now, two clinics at the Seattle Cancer Care Alliance, the out-patient care facility for Fred Hutchinson Cancer Research Center, are opening their doors to anyone ready to take the first step.

"Everyone would benefit from getting information about their cancer risk along with regular screening," says Dr. Scott Ramsey, a physician and public health scientist at the Fred Hutchinson Cancer Research Center. "But doctor-patient communication about cancer risk and cancer screening is generally applied very haphazardly."

Dr. Ramsey directs the Cancer Prevention Clinic (CPC), a facility designed for anyone interested in their risk for all common types of cancer. For people whose medical history puts them at higher risk of developing colorectal tumors, Dr. Bill Grady leads the Gastrointestinal Cancer Prevention Program (see accompanying article on next page).

Both physicians say most general-practice doctors don't have the time, or the specialized training, to track a patient's long-term cancer risk. "And the typical annual physical is not always the ideal setting for a full risk assessment," says Dr. Ramsey. There's just too much else to discuss with the patient during that exam.

At the CPC, each patient receives a complete evaluation from a team of specialists: physicians trained and certified in cancer prevention, as well as other experts like dietitians and physical therapists. The team develops a personalized plan for each client to reduce their



cancer risk, including education and resources to carry out the plan:

- Same-day mammography and screening for cervical cancer
- Colon cancer screening scheduled at the patient's convenience
- A personalized plan for ongoing screening tests
- Chemoprevention when appropriate (drug therapy to reduce cancer risk)
- Nutritional, fitness and tobacco cessation counseling
- Individualized support to help people successfully adopt risk-lowering behaviors

Then the patient and their primary care doctor receive a complete written summary of results and recommendations. Thorough follow-up on the information is crucial in tracking the patient's health.

Previous research has found cancer cure rates are highest when a cancer is found in the early stages. The clinic also offers interested patients the chance to participate in clinical research trials designed for leading-edge cancer prevention and early detection. If you'd like to learn more about the CPC, or about clinical trials, contact clinic coordinator Marian Johnson at **206-288-1024**.

Do you ever wonder about the relevance and importance of colorectal cancer to the immediate and extended family of people with colorectal cancer? What does it mean for the children, brothers and sisters and even more distant relatives in the family? An international group of highly experienced health professionals have contributed to a comprehensive book about colorectal cancer in families. The authors include cancer geneticists and counselors, gastroenterologists, surgeons, oncologists, molecular biologists and registry managers from all around the world. The book is written for people diagnosed with colorectal cancer and their families. It focuses particularly on inheritable colorectal cancer and is unique in its field. It was developed and co-edited by our **CORE Studies** collaborators, Professor Finlay Macrae, Head of Colorectal Medicine and Genetics at The Royal Melbourne Hospital and Terri Berk Clinical Coordinator/Social Worker, Familial GI Cancer Registry, Mt Sinai Hospital, Toronto, Canada. Please visit [www.crcbook.com](http://www.crcbook.com) for more information.



## Family History and Your Future

It's the rare person who thinks a lot about their family medical history, outside of a doctor's office. But perhaps all those questions in your last **CORE Studies** interview have gotten you thinking. And maybe you're wondering how high your risk is of developing colorectal cancer.

If you're ready to take the plunge and find out, you may consider calling the Gastrointestinal Cancer Prevention Program (GICPP). It's a specialty clinic at the Seattle Cancer Care Alliance. Created three years ago, the clinic is available for individuals with a high risk for certain cancers: colorectal, pancreatic, stomach and small intestinal cancers, as well as associated gynecological cancers. Factors that make an individual high risk for gastrointestinal cancers include one or more of the following:

- Strong family history—two or more close relatives with cancer on the same side of the family, at least one of which is a gastrointestinal cancer (*especially if cancer was diagnosed before age 50*)
- Cancer before the age of 50
- Colon polyps before the age of 40
- More than 10 colon polyps, at any age
- Two or more types of cancer
- An abnormal result on a genetic test for a hereditary gastrointestinal cancer syndrome, such as HNPCC (*hereditary non-polyposis colon cancer, also called Lynch syndrome*) or FAP (*familial adenomatous polyposis*).

At the GICPP, individuals meet with a team of cancer prevention experts: gastroenterologists, a genetic counselor, a nutritionist, and a gynecological oncologist, if necessary. At the appointment, the patient will talk to each expert separately. During those discussions, the person will learn about their risk for developing cancer and the best ways to prevent the cancer(s). The team will develop a cancer screening and prevention plan tailored to each person's cancer risks and lifestyle. Then the recommendations are shared with the patient's primary care doctor. When appropriate, the GICPP staff will help coordinate the scheduling of recommended evaluations and procedures.

At this point, you might wonder who pays for all this testing. For those who are at high risk for cancer, health insurance typically pays for the consultations, recommended evaluations and procedures related to cancer prevention and early detection. Depending on the insurance company, this also includes genetic testing. GICPP staff often assist patients to obtain pre-authorization for procedures and tests. If you're interested in learning more, contact Angie Brothers, clinic coordinator and genetic counselor at **206-288-1024**.

## Colon cancer protection, up in smoke?

Regular exercise. Taking aspirin or certain other painkillers, under a doctor's supervision. These are just a couple of things that have been shown to cut your risk of developing colon cancer. You might be doing all of these things and more. But new research into colon cancer shows the cigarette habit might undermine all your hard work.



A recent study led by Victoria Chia of the Fred Hutchinson Cancer Research Center indicates smokers boost their risk of colon cancer—even if they also use non-steroidal anti-inflammatory drugs (NSAIDs) regularly. These pain relievers, which include aspirin and ibuprofen, have been shown to reduce colon cancer risk by 30%. But long-term smokers who took NSAIDs still have an elevated disease risk.

Chia and her colleagues studied information contributed by close to 3,300 participants in the Seattle Colon Cancer Family Registry (CFR), with a particular interest in smokers. "We wanted to see if NSAIDs could counteract the adverse effects of smoking with regard to colorectal cancer risk," says Chia, a research associate at FHCRC working on her doctoral degree. Chia also wanted to find out if NSAIDs had any impact on a particular type of colorectal tumor associated with smoking.

The research team found NSAIDs users who smoke are still 70% more likely than non-smokers to be diagnosed with colon cancer. Those with the highest risk: people who've smoked for more than 40 years and never regularly used NSAIDs. These people are nearly three times more likely to be diagnosed with the disease than non-smokers who took the pain relievers. Smokers are also at risk of developing tumors that show defects in the DNA-repair machinery. Such genetic damage can lead to cancer.

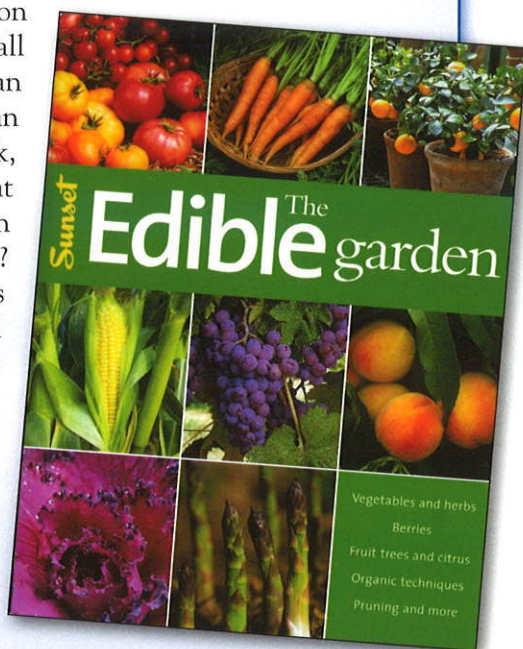
But Victoria Chia warns against taking NSAIDs on their own, solely to lower your risk of colon cancer. "You wouldn't want to do that, because this is just one study," she says. "Additional studies still need to be done along these lines, so this research is not meant to offer any sort of medical advice." Using NSAIDs for a long time can cause serious side effects, including gastrointestinal bleeding.

The study appears in the July 1 issue of the medical journal *Cancer Research*.



## Book Review: The Edible Garden

The bountiful selection of produce that Fall brings is such an inspiration and can make one think, wouldn't it be great to harvest my own fruits and vegetables? *The Edible Garden* is filled with practical advice to help you do just that. This book includes guidance on designing anything from a small rooftop garden to a large backyard haven. Easy to follow text covers tried-and-true approaches to growing herb gardens, vegetable plots, fruit trees, edible flowers, and more. You can find this book at your local neighborhood bookstore or visit a favorite one online.



## Study Staff

**Investigators:** John D. Potter, MD, PhD  
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**Psychologist:** Julie Hunt, PhD

**Project Manager:** Allyson Templeton, MS

**Field Operations Manager:** Scot Peterson

**Genetic Counselor:** Ksenia Koon, MS

**Administrative Coordinator:** Laurie Lydum

**Follow-up Coordinator:** Renae Lydum

**Clinical Data Coordinator:** Bill Wilson

**Clinical Pathology Coordinator:** Lisa Graves

**Biospecimens Coordinator:** Amber Wilson

**Interviewers:** Lederle, Lori, Lisa, & Holly

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