

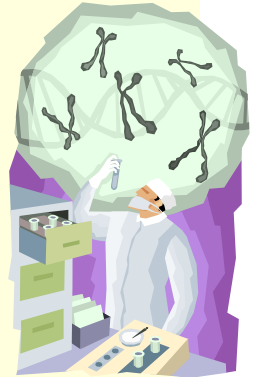
Healthy Tennessean

A Publication of the UT Center for Community Health Literacy

February 2011

CANCER PREVENTION

Did you know that our best efforts to treat cancer aren't as effective as what we know about preventing it? Cancer can appear random and unpredictable, as though it's victims are defenseless. However, research has yielded new information about risk factors that cause cancer. Armed with this knowledge, individuals can play an important role in personal cancer prevention. In 1971, President Richard Nixon issued a bounty against cancer in his State of the Union address in what became known as the national "War on Cancer." Money flowed out to fund studies and in the 40 years that have passed, we have learned a lot about the etiology and cellular mechanisms of cancer. Unfortunately, cancer remains a complex and often elusive disease that can outsmart even new and promising treatments. The truth is, being aware of your personal risk factors and doing what is in your power to *prevent* cancer has more impact than all the treatment strategies combined. Don't wait for a "miracle cure," do what you can now to reduce your risk of future cancer. Read on to learn more about what causes cancer and what you can do to prevent it.



What is Cancer?

Cancer is, essentially, the breakdown of control mechanisms that keep healthy cells dividing at a normal pace and/or help unhealthy cells terminate before they can cause problems. The development of cancer is a complex problem that occurs over time and can involve several separate events that result in the mutation of specific genes involved in cell reproduction, termination and/or repair. There are many different factors involved in whether or not a mutation leads to cancer (researchers are still trying to understand this process). In a healthy person, even when mutations occur, the immune system works hard to fix the damage and contain the problem. However, as people age or have other coinciding chronic conditions, immunity can be decreased and the effects of mutations may start to surface. The individual nature of how we respond to the environment and potential carcinogens is very unique. Individuals have different

experiences, genetic make up and exposures as well as differing efficiency in immune function at any given time. All of these variables play a role in the development of cancer in the individual.

What are Cancer "Risk Factors?"

It is unethical for scientists to set up experiments testing possible cancer causing agents on humans, so much of the information they gather comes from studies that try to piece together cancer occurrence with recalled exposures or cell and animal studies. From these studies, we have learned that certain exposures or behaviors are common in people with cancer. We call these "risk factors" because they coincide with an increased risk of cancer. The following chart shows some of the main cancer risk factors and what percentage of cancer deaths can be attributed to each factor.

Center for Community

Causes of Cancer in the United States

<u>Risk Factor</u>	<u>Percentage of cancer deaths</u>
Tobacco	30
Obesity & diet	30
Lack of exercise	5
Carcinogens in the workplace	5
Viruses (Ex: hepatitis, human papillomavirus)	5
Family history of cancer	5
Perinatal factors/growth	5
Women's reproductive factors (late or no child-bearing, late menopause, early periods)	3
Excessive alcohol consumption	3
Socioeconomic status	3
Environmental pollution	2
Ionizing/UV radiation	2
Medical procedures, drugs	1
Salt/ food additives /contaminants	1

Source: "Harvard Report on Cancer Prevention, Vol.1:Causes of Human Cancer" (1996), Vol. 7, pp.53-55.



It is important to keep in mind that we can reduce the risk of cancer, but we can't completely *eliminate* the risk. Rough estimates predict that a quarter of all cancers would still occur in healthy persons who had no contact with environmental carcinogens simply because of internal carcinogens generated during metabolism or genetic mistakes that slip through repair mechanisms (1). While some risk factors are out of our control (Ex: genetics/ aging), the risk factors that have the biggest impact are things that we **can** modify!

Knowing your personal risk factors and choosing to do what you **can** do to prevent disease can diffuse the helpless feelings that "cancer" sometimes evokes. Save your effort for prevention strategies that have been rooted in research. Balance and moderation go a long way to aid in prevention. You do not have to live an unpleasant and restricted life to prevent cancer!!

10 Commandments for Cancer Prevention

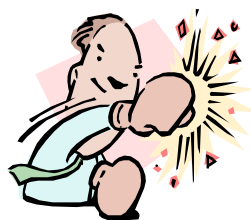
1. **Avoid tobacco.** This includes primary and secondhand smoke exposure and chewing tobacco.
2. **Pick healthy foods.** Eat plenty of fruits and vegetables, whole grains, legumes and fish. Avoid or limit red, processed and charbroiled meats. Avoid excess intake/calories and saturated fat.
3. **Stay physically active.** Movement is beneficial with or without weight reduction.
4. **Maintain a healthy weight.** Obesity raises the risk of many cancers.
5. **Alcohol in moderation.** Excess alcohol intake raises the risk of several cancers and becomes a greater threat when combined with smoking. Avoid alcohol if possible or limit intake to 1-2 drinks/day. Women metabolize alcohol less efficiently than men, making the risks even



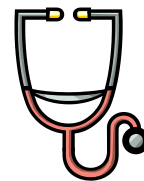
10 Commandments for Cancer Prevention (Cont'd)

greater for women.

6. **Avoid radiation exposure.** Avoid unnecessary medical imaging tests; check your house for radon gas emissions; always use sunscreen and avoid tanning beds. It is not necessary to avoid power lines, microwaves or cell phone use.
7. **Avoid environmental and workplace toxins when possible.** Examples include: asbestos fibers, benzene, aromatic amines and polychlorinated biphenyls (PCBs). Be aware of possible exposures.
8. **Avoid infections that can cause cancer.** This includes HIV, hepatitis viruses and human papillomavirus. Practicing safe sex and avoiding intravenous drug use can reduce exposure.
9. **Talk to your doctor about a daily aspirin.** Particularly beneficial for men, aspirin has been found to lower colon and prostate cancer and offer heart protective benefits.
10. **Get enough vitamin D.** Experts recommend 600 IU daily up to age 70 and 800 IU daily for those over age 70.



you, the better. It is beneficial to maintain a good doctor/patient relationship so that your provider knows what is “normal” for you and can spot anything out of the ordinary. It may seem a little frightening to get checked for cancer, but keep in mind that treatment options are the most effective when problems are found early in the disease process. The following are screening tests that help to identify potential problems:



- **Mammography**– Used to take a picture of breast tissue and detect abnormalities that may not be found in clinical or self breast exams.
- **Pap smear**– Cells from the cervix are sampled and analyzed to detect any changes that would suggest cervical cancer. (*The HPV vaccines are another tool used to prevent cervical cancer by helping the immune system block HPV infections.*)
- **Digital rectal exams, sigmoidoscopy and colonoscopy** are all preventative screenings that can help to detect colon or rectal cancer.
- **Prostate Specific Antigen (PSA) blood test and digital rectal exams** can be used to screen for prostate cancer.
- **Routine skin checks** performed by a health care provider can help to identify changes in moles or skin spots that may suggest skin cancer.

Screening and Check-ups

Avoiding known, modifiable risk factors is the first line of defense against cancer, but it is also important to stay current on recommended check-ups and screenings. If you experience any warning signs that suggest cancer, the sooner your health care provider can examine

Screening check lists and other materials are available at the **American Cancer Society** web site to help you keep up with personal cancer prevention: <http://www.cancer.org>. Remember...



An Ounce of Cancer Prevention is Worth a Pound of Cure!!

Adapted from Harvard Men's Healthwatch– April 2009.

1. Trichopoulos, D., et al. What Causes Cancer? Sci. Am. 1996 Sept 275(3):80-87.

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