# Women's Cancer:

## Origins, Risks and the Power of Personal Choices

According to the National Cancer Institute, one in three American women will be diagnosed with cancer in their lifetime. Despite billions of dollars spent on cancer care since the mid-1940's, the age-adjusted yearly mortality for the three most common women's cancers (breast, uterine and ovarian) have changed little. These sobering facts leave us with a lot of questions. Why does cancer happen so frequently? Why has success been so limited? Perhaps most importantly, what can you do to reduce your risk?

Understanding cancer begins with understanding the human body. A brief article like this cannot provide the whole story, but can give you the "30,000 foot view." We hope we will inspire you to ask more questions and seek out more answers as you lay the groundwork for a health promoting life. In other words, this is just the beginning.

## Cancer Basics: It's All about the Cell

At its core, cancer is a state of abnormal cell function and growth. We are composed of trillions of cells, each one uniquely adapted for a particular process. Cells combine to form tissues which in turn comprise organs. Organs work in concert as systems devoted to respiration, circulation, digestion and other basic functions. When combined, these dynamic activities result in the amazing organism we know as the human being.

But let's go back to that most basic of building blocks — the cell. Each cell is directed by both genetic inheritance and environmental exposures to function either optimally or at a less than ideal level. Imagine a car recently made in a factory. If the correct blueprints are used and the best materials incorporated by well-trained, conscientious laborers, then as the vehicle rolls out the factory door, it is ready to function at its peak. You might think of this car as having "good genetics." If, however, faulty blueprints, flawed workmanship, bad luck or imperfect materials are used, then at its inception the vehicle will already have one strike against it. To use the same analogy, when the proud new owner of this vehicle returns home — if she treats her car poorly, uses impure fuel, fails to clean or maintain the car — dysfunction sets in prematurely. Whether the vehicle has the family genetics of a Ferrari or a Hyundai, poor care will result in untimely and often unnecessary problems.

## Taking Care of your "Car"

It is the same situation with our own personal "cars" — our bodies. You cannot control in which womb or factory you were created nor the raw materials and craftsmanship put into your frame. You can, however, control the maintenance and daily care of your "vehicle." As they say in car sales, as soon as you drive it off the lot "you own it." Fortunately for all of us, we can influence our genetic inheritance. We can, as they say, "nurture nature."

## The Cell Cycle and Cancer Development

Every cell in our body has a purpose and progresses through a cycle of life — some over a few days while others survive for decades. Just as the whole person passes through stages of infancy, adolescence, adulthood and seniority, each cell goes through periods of rest, growth, productivity, multiplication and eventually death. This cycle is very tightly regulated. Much like a student must master certain reading, writing and math skills to move on to the next grade, the cell must pass certain tests and internal checks before it grows further and/or multiplies. These tests are given by the immune system and, if the cell fails to pass inspection, it is killed or blocked from multiplying. As you would imagine, a cycle without appropriate controls could lead to excess production, rapid death, or prolonged senescence. It is at this level — at the level of cell growth and function — that we believe cancer begins. In most forms of cancer there is either excessive stimulation to grow or a loss of normal inhibition resulting in rapid, uncontrolled cell division and potential formation of a tumor (collection of abnormal cells) prior to metastasis (spread to another part of the body).

If this inappropriate cell growth and multiplication occurs in the linings of an organ or gland we call it a carcinoma. In soft tissue such as muscle and blood vessels we call it a sarcoma. If it involves blood forming tissue it is a leukemia and if affecting cells of the immune system it is a lymphoma. The three most common women's cancers are those affecting the breast, the uterus, and the ovary and are most frequently defined as carcinomas. Of these, breast cancer is the most common with 1 in 8 women expected to develop the condition in her lifetime.

## Hormones and the Link to Women's Cancer

Hormones are molecules released by one part of the body to influence the growth and development of another. Cancer tends to arise in the most hormonally sensitive tissues in the body. You can think of hormones as the language of cells as they communicate through the blood vessels and lymphatic channels. Hormones influence every cell in the human body but some more so than others.

In women, the cells lining the ducts of the breasts, the inside of the uterus (endometrium) and the ovaries are particularly sensitive. Hormones released from the pituitary gland in the brain, the thyroid in the neck, the adrenals and other sources are released in the body in both a daily and monthly rhythm. In response, breast, uterine and ovarian tissues dramatically fluctuate in size, function and growth. This is particularly evident during a women's monthly cycle as hormones flood the body inducing an egg to ripen, the uterine lining to thicken and proliferate and the breast tissue to expand and sensitize. While this dramatic fluctuation is part of the normal cycle until menopause, the high concentrations of hormones and the rapid response of tissues may easily be set off balance. It is easy to see how the rapid changes in these organs, if left unchecked, could lead to excessive growth and eventually cancer.

*Article continues on next page.*

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## Understanding your Risk

There are many factors which influence a woman's risk for cancer. We briefly described the two major categories: genetic inheritance and the environment in which we live. Another way to separate this risk is into non-modifiable and modifiable categories.

Although we cannot change our genetics, or the past, we can use the knowledge to alter how we care for our bodies today and plan our future tomorrow. Tables 1-4 (see below) list common both modifiable and non-modifiable risk factors associated with breast, uterine, cervical and ovarian cancer. Look carefully to get to know your risks.

## Feeding the Flame

Many of the risk factors identified have a common characteristic; they increase inflammation at the cellular level. In an article in *Nature* in 2002, the authors summarized our present understanding, "It is now becoming clear that the tumor microenvironment, which is largely orchestrated by inflammatory cells, is an indispensable part of the neoplastic (cancer) process."

While cellular inflammation is a normal part of the body commonly seen with everything from aging to infection and injury; chronic and persistent inflammation becomes a source for disease. In fact, chronic inflammation has been linked to the risk of other disorders including heart disease, diabetes, alzheimers and osteoporosis.

## In Search of the Fountain of Youth

The most universal source of inflammation is aging. Unfortunately none of us have discovered the fabled fountain of youth so we all progress steadily toward the grave. As we age our bodies become less efficient at controlling inflammation and oxidation both from harmful exposures and from the daily stressors of life. Using our car analogy, the older car is more likely to rust/oxidize then a newer comparable model. The frame has been exposed to the elements for a longer time, the paint is more worn, the engine less efficient. Other common sources of inflammation include the very hormones which provide women their gender-specific physical characteristics. Estrogen in particular is a potent growth promoter and pro-inflammatory molecule. As a result, women who have their first periods before the age of 12 and menopause after the

### Table 1: Breast Cancer Risk Factors

**Non-Modifiable**

- Family history of cancer
- Personal history of cancer
- Age over 40
- Ethnicity:
  Caucasian greater than African-American
- First menstrual cycle before 12
- Last menstrual cycle after 55

**Modifiable Increased Risk:**

- Obesity
- Tobacco
- Alcohol consumption
- No or 1st child after 35
- Oral contraceptive use
- Hormone replacement
- Night work
- Environmental toxins
- Radiation exposure
- Toxic exposures

**Lower Risk:**

- Health promoting diet
- Breastfeeding a child more than 1.5 yr
- Regular exercise habits

### Table 2: Uterine Cancer Risk Factors

**Non-Modifiable**

- Family history
- Personal history
- Age
- Ethnicity
- Early menses before 12
- Late menopause after 52

**Modifiable Increased Risk:**

- Obesity
- Diabetes
- Estrogen replacement therapy
- Toxins: Tamoxifen, PCBs etc
- No/late pregnancy
- Diet
- Oral contraceptive use

### Table 3: Cervical Cancer Risk Factors

**Non-Modifiable**

- Family history
- Personal history
- Age after 30

**Modifiable**

- Sexual habits
- Human Papilloma Virus
- Tobacco
- Impaired immunity: HIV
- Diet
- OCPs
- Toxins: DES, etc.

### Table 4: Ovarian Cancer Risk Factors

**Non-Modifiable**

- Family history
- Personal history
- Age after 50
- Ethnicity:
  Caucasian greater than African-American
- Infertility

**Modifiable**

- Obesity
- Estrogen replacement therapy
- No/late pregnancy
- Diet

age of 55 have higher rates of both breast and uterine cancer. They have been exposed to estrogen for longer periods of time. It is this same effect which links oral contraceptives and hormone replacement therapy to cancer risk. These products stimulate the breast and uterine tissue to grow and, in time, this constant stimulation increases the risk of uncontrolled growth or cancer.

## Fingers, Feet and Forks

Perhaps the most modifiable sources of inflammation are those controlled by our fingers, feet and forks. The substances you reach for, the foods you eat and the exercise you get on a daily basis can dramatically alter your systemic inflammation and thus your cancer risk.

Of these, diet appears to be the most influential. In fact, the World Health Organization reports that diet alone makes up 20-30 percent of the total risk for cancer. The more colorful fruits, vegetables and whole grains a woman eats, the lower her cancer risk. These phytonutrient-rich plant foods appear to inhibit cancer development, slow its growth and reduce recurrence rates.

A rapidly growing source of systemic inflammation in America today is obesity, in particular, visceral adiposity or belly fat. Based on biochemical analysis it appears that belly fat releases large quantities of proinflammatory cytokines (chemicals) with strange names like TNF-alpha and Interleukin 1 or Interleukin 6. These molecules circulate throughout the body and alter the normal cellular microenvironment. The good news is that losing belly fat has just the opposite effect and will reduce systemic inflammation and the risk of many cancers including breast, uterine and ovarian cancers.

Sleep patterns and stress management also strongly influence the inflammatory state of the body. During sleep the body releases anti-inflammatory molecules including melatonin which assist the body in healing and rejuvenation. Lack of sleep or insufficient night-time sleep slows the healing process, increases inflammation and impairs the immune system. Excessive daytime stress in work, relationships, travel or the like, further impairs your immune function. For this reason, people dealing with chronic stress appear to have higher rates of infections, heart disease and cancer. Many of us could fill the page with our personal stressors and this laundry list is like logs stacked on our personal fire of inflammation. Impairing the immune system with stress in this way is particularly detrimental since the immune system has the task of identifying and eradicating cells which develop cancerous traits or behavior. If your immunity is not functioning at its peak then you increase your cancer risk.

There are also many toxins in our environment which appear to increase a woman's risk of cancer. Agricultural chemicals, food preservatives, medical and pharmacologic products, industrial exposures, radiation and the like have been linked to increased risk and there is still much research to be done. We believe that "new to nature" molecules should be avoided when possible. Although some cannot be avoided completely, there are many ways you can reduce your exposure.

## Review and Taking Action

To review, the most recent scientific literature suggests that inflammation at the cellular level plays a major role in the development and growth of cancer in the human body. This inflammation alters the normal control mechanisms and cell growth becomes misregulated and dysfunctional. Each woman's cancer risk and inflammatory burden is influenced by her genetics as well as her personal choices. Knowing these basic principles empowers every woman to make intentional personal choices to enhance health and reduce her risk of disease in the future.

What are things you can do to reduce your risk of cancer, slow progression or prevent a recurrence? Although nothing is ever 100 percent, the evidence does support certain choices and behaviors. See quick tips on next page.

# Taking Charge of your Cancer Risk

## 1. Fill Up with the Good Stuff:

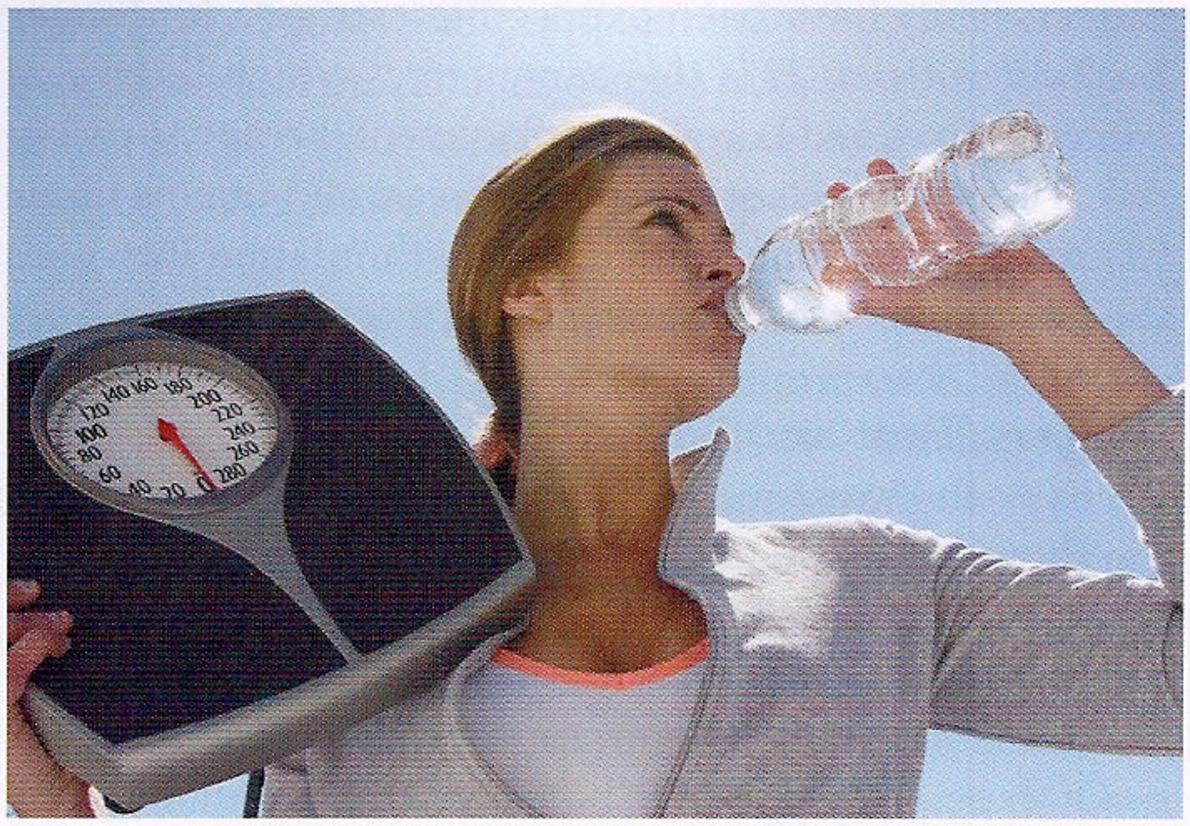
- Consume the majority of your calories as colorful fruits, vegetables, whole grains, nuts and seeds.
- When possible go with organic and locally-grown produce.
- Drink plenty of purified water and stay well hydrated especially when you exercise.

## 2. Avoid Unnecessary Toxins:

- Quit smoking. It is one of the most potent sources of free radicals and directly inflames the cells, leads to premature aging, slows healing and impairs immunity.
- Quit drinking. We used to say drink in moderation, but not only is alcohol a potent cell toxin, the latest research suggests that as little as 1/2 glass of alcohol a day increases the risk of breast cancer.
- Avoid work-related toxin exposures. Use masks and safety equipment, ventilate work areas or, if necessary, find a new job.
- Reduce unneeded medications. Discuss with your primary physician the risk/benefit and alternatives to each and every medication you are on. Unfortunately many medications alter your cancer risk. Get to know which ones and how significantly.

## 3. Cultivate Emotional Poise:

- Maintain healthy, mutually affirmative relationships and cut out the bad relationships.
- Develop stress reduction techniques you can use daily.
- Eliminate unnecessary personal or professional stress.
- Take the time to feed your spirit.
- Get regular, restful sleep.



## 4. Achieve Your Healthy Body Weight:

- Identify what your "healthy" weight is and make a plan to achieve it.
- Get help, develop a support system, stay motivated.
- You can do it!

## 5. Get Moving:

- Exercise dramatically reduces the risk of many cancers not to mention it improves mood, confidence and so much more.
- If you have any health problems, or are over 40, check with your doctor before starting.
- Then develop a plan, set goals, monitor your success.
- Find fun ways to engage in MORE movement every day.
- Remember use it or lose it!

It's time to shape your health destiny. Learn more, make a plan, develop a support system and go for it!

Wishing you good health and continued happiness. For more tips on healthful living visit us at **www.restorehealthusa.com.**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