



Health Hunters Newsletter

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Inside This Issue

Obesity and the Risk of Cancer	1-4
Riordan IVC & Cancer Symposium	3
Patient Profile	4
Cancer has a Sweet Tooth	5-6
The Fat Truth about Cancer & Obesity	5-6
Check Your Health	7
Invest in the Vision	8
Lunch & Lecture	8



Obesity and the Risk of Cancer

by Dr. Nina Mikirova

According to the World Health Organization (WHO) criteria, a BMI greater than or equal to 25 kg/m² is overweight, while obesity is defined as having a BMI equal to or higher than 30 kg/m². The marked increase in the worldwide incidence of obesity, particularly in children, has been noted by the WHO: worldwide there were 1.5 billion overweight and 500 million obese adults in 2008, and nearly 43 million children under the age of five were overweight in 2010.

Within the last four decades the prevalence of obese people in the United States increased and is currently 66% of adults with a BMI > 25 kg/m² and half of those have a BMI of >30 kg/m². However, according to the latest reports, after 30 years of constant rise, obesity rates in the United States appear to be stabilizing among both adults and children, probably as a result of obesity-prevention initiatives and efforts to address the nation's obesity problem.



Obesity and being overweight are major risk factors for several diseases, such as cardiovascular diseases (heart disease and stroke), diabetes, osteoarthritis and musculoskeletal disorders, fatty liver, gall stones, psychological disorders, and psychosocial problems. Increased mortality has also been related to obesity.

Consequently, the obesity—cancer link has recently received much attention. Obesity is responsible for approximately 20% of all malignancies, although its influence is gender and site specific. Obesity has increased the death rate in the United States by 52% in men and 62% in women.

Epidemiological studies have shown that obesity is associated with increased risk of several cancer types, including colon, breast, endometrium, liver, kidney, esophagus, gastric, pancreatic, gallbladder, and leukemia, and can also lead to poorer treatment and increased cancer-related mortality. It has been shown that cancers that are associated more with abdominal adiposity than with BMI predominantly include colon, premenopausal breast, endometrium, and pancreas tumours.

Cancer risk in obesity is different between ethnic groups in that African Americans appear rather susceptible to cancer, in contrast to Hispanics who appear to be relatively protected while the association of increased BMI with breast cancer is particularly strong in the Asia-Pacific populations.

Obesity and the Risk of Cancer continues on page 2...

Contact the Editor

Please send any comments or suggestions to newseditor@riordanclinic.org.

Thank you for reading,

Megan Neathery
Editor

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The weight accumulation with age is linked to an increase in postmenopausal breast cancer risk in women, and the cohort studies have shown that breast cancer risk was lowered by 50% in women who intentionally underwent weight loss higher than 10 kg after menopause.

Concerning the role of childhood obesity in adult cancer, a study that evaluated cancer risk of subjects aged 2–14 showed that among these subjects the risk of cancer in adult life was increased by 9% in connection with increase in childhood BMI. Also, an excess of weight in teenagers was linked to doubling the mortality risk of colon cancer in adulthood.

The association between obesity and a higher cancer risk is mainly due to anthropometric parameters, or parameters of the human body, and lifestyle factors which activate different biological mechanisms.

Anthropometric parameters are BMI, weight increase, and the amount of body fat, particularly visceral, or abdominal, fat. Lifestyle factors include sedentary habits and diet parameters, such as a hypercaloric and/or low-quality diet.



Both epidemiological studies in people and experiments in animals suggest that alterations in caloric intake or in quality of diet may significantly influence the risk of cancer development and progression. It is well known that caloric excess will lead to increased cancer incidence and that positive energy balance appears to promote cancer cell proliferation and tumour progression.

We do not yet have a clear scientific demonstration that avoiding increasing or reducing body weight significantly reduces the risk of cancer; however, the data from the surgical treatment of obese patients with a BMI higher than 40.0 are leading in this direction. In addition, the limited long-term calorie intake extended longevity (study in rodents).

It has been estimated that half of the cancers occurring today are preventable by applying knowledge that we already have. About one-third of cancers in high income Western countries are attributable to factors relating to food, nutrition, and physical activity.

Nine independent academic institutions worldwide and 17 cancer centers conducted systematic reviews on the causal relationship between food, nutrition, and of weight gain and obesity. A panel of 21 international experts in nutrition, cancer, and obesity, reviewed the evidence, drew conclusions, and made recommendations.



On the basis of evidence graded as “convincing” or “probable,” a series of 10 recommendations to reduce the risk of developing cancer was made.

One of the most important factors is maintaining a healthy weight throughout life, which can be achieved by regular physical activity and limiting the



It's Not too Late to Register!

4TH Riordan IVC & Cancer Symposium

Addressing the Metabolic Roots of Cancer

October 3 – 4, 2014

Two days of lectures, conversations, and camaraderie with other medical professionals who use high-dose vitamin C in their practices.

This symposium is an excellent opportunity for IVC practitioners to become more involved with IVC Therapy, adjunct therapies and expound new approaches to treating cancer.

NEW to the SYMPOSIUM

Riordan IVC Academy Thursday, October 2

The Riordan IVC Protocol for Cancer is well recognized in the integrative and orthomolecular medicine community and is commonly used as an effective adjunct to conventional oncologic therapy. We've added a one day pre-symposium certification course in the safe administration of IVC according to the Riordan IVC Protocol. Spend the day with Riordan Clinic doctors, staff and our guests, Dr. Virginia Osborne and Dr. Tom Levy, learning all the ins and outs of IVCs, including how to successfully start IVs in your office, mix and administer to patients, the potential legal issues surrounding IVC prescriptions, and more.

Symposium (October 3 & 4, 2014) \$595

IVC Academy (October 2, 2014) \$250

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Obesity and the Risk of Cancer continued from page 2...

consumption of energy-dense foods and sugary drinks.

Other important dietary measures include consuming a diet high in plant-based foods, limiting intake of red meat, and avoiding salty foods and processed meat. Alcohol should be consumed in modest amounts, if at all.



Regarding possible mechanisms responsible for cancer prevention, regular physical activity helps maintain a healthy body weight, regulates sex hormones, insulin, and prostaglandins and has various beneficial effects on the immune system.

Four main systems have been identified as potential producers of cancer in obesity: insulin, insulin-like growth factor, sex steroids, and adipokines (cell signaling proteins secreted by adipose tissue). Obesity disrupts the dynamic role of the fat cells (adipocyte) in energy homeostasis, resulting in inflammation and alteration of hormones (for example, leptin and adiponectin) signaling.

The most popular hypothesis explaining the association between obesity and cancer is that of lower insulin sensitivity. Excess body weight and adiposity are directly correlated with insulin resistance, compensated for by the stimulation of pancreatic insulin secretion, and this commonly results in hyperinsulinemia. Elevated insulin serum levels favor faster growth and increased aggressiveness of several cancers: colorectal, pancreatic, liver, postmenopausal breast, and endometrial cancers.

In women, BMI has been regularly correlated with breast, endometrium, and other cancers linked to hormones, since an increase in circulating sex steroids from weight excess is a well-known mechanism implicated in cancer development. Data from epidemiological studies demonstrate that the postmenopausal risk of breast cancer increases in women with heightened levels of circulating sex steroids. Sex hormones are active in tumour cell growth and directly mediate the effect of obesity on cancer, in particular in tumours of the breast and the endometrium.

It has been established that fat tissue is an endocrine organ that produces and secretes polypeptide hormones, among which leptin and adiponectin are most abundant and involved in cancer development. Leptin (from Greek "thin"), the "satiety hormone," is a hormone made by fat cells which regulates the amount of fat stored in the body. It does this by adjusting both the sensation of hunger, and adjusting energy expenditures. Hunger is inhibited (sated) when the amount of fat stored reaches a certain level. Leptin is then secreted and circulates through the body, eventually activating leptin receptors in the arcuate nucleus of the hypothalamus. Leptin plays a key role in the regulation of appetite, food intake and metabolism. Higher leptin levels can be a factor for fostering cancer development and progression.

Leptin and Adiponectin have been subject to much study in cancer development. Adiponectin, that is exclusively secreted from adipose tissue, is a protein hormone that modulates a number of metabolic processes, including glucose regulation and fatty acid oxidation.

Obesity and the Risk of Cancer continues on page 4...

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Patient Profile

By Kristy Reid, MA

More than 10 million people are currently living with cancer in the United States. Many factors beyond our control contribute to the risk of cancer, such as age and family history. However, we do know that getting to a healthy weight can help lower the risks.

Earlier this year we had a co-learner come into our clinic who was battling stage four breast cancer, and was given only a few weeks to live. Her family was devastated and felt that all hope was gone. She had poor eating habits, an inactive lifestyle, and was a smoker. She met with our team of doctors and a plan was then set into place. After having a series of lab work done, our doctors recommended intravenous vitamin C, and started her on specific supplements such as hydroxy citrate to help her with the weight loss.

It has been 7 ½ months since she came in to our clinic and her case is baffling to modern day medicine. Not only is she living, but her quality of life has increased dramatically. She has lost excess fat; losing a total of 25 lbs. She now goes on daily walks with her husband, who almost lost her. Her whole lifestyle has completely changed, and she is no longer a smoker. She says that she is going to continue losing the weight and continue to fight her battle with cancer. In fact, she feels so great; her husband brags he can barely keep her in the house anymore.



Obesity and the Risk of Cancer continued from page 3...

Adiponectin enhances insulin sensitivity, and its circulating levels are inversely related to cancer occurrence and cancer stage. Adiponectin serum levels correlate negatively with BMI and even more negatively with visceral adiposity. Adiponectin has a protective role in carcinogenesis.

Obesity is correlated to chronic inflammatory response, with abnormally high cytokine production and the activation of proinflammatory signalling pathways. The subclinical low-grade chronic inflammatory state in obesity might be important in the initiation and promotion of cancer cells. Prospective studies have reported that an increase in circulating C-reactive protein (CRP) is associated with increased risk of colorectal cancer.

Antioxidant activities may be independently decreased by obesity, thus increasing systemic oxidative stress, in part through the inflammatory process and in part independently of other mechanisms.

Immunesystemalterations may be important in the higher incidence rates of cancer in obese patients since obesity has been correlated to a reduced immunocompetence, or normal immune response, in humans. Severely obese patients have a significantly lower natural killer cell cytotoxic activity as compared to normal individuals matched for age and gender.



In summary:

The following list shows the possible factors involved in the development of cancer in obesity.

Anthropometric parameters:

- body mass index (BMI)
- weight increase
- visceral fat

Lifestyle factors:

- hypercaloric diet
- high intake of animal fat
- trans-fatty acids
- refined carbohydrates and low intake of fiber, vegetables, fruit, whole grain carbohydrates
- deficiency of 25-hydroxyvitamin D (25(OH)D)
- sedentary lifestyle

Biological mechanisms:

- hyperinsulinemia and insulin resistance
- sex hormones and sex hormone binding globulin
- chronic whole body low-grade inflammation
- adipose tissue inflammation
- adipose tissue adipokine production (leptin, adiponectin, resistin, and others)
- adipose tissue vascular growth factors, shared genetic susceptibility oxidative stress

The Fat Truth about Cancer and Obesity!

by Laurie Roth-Donnell—Holistic Health Practitioner and Master Herbalist



CANCER HAS A SWEET TOOTH

By Dr. Charles Hinshaw

In 1931, the Nobel Prize in Medicine was awarded to a German scientist, Otto Warburg, Ph.D. He discovered that cancer cells have a fundamentally different energy metabolism compared to healthy cells; most cancer cells exhibit anaerobic glycolysis, the breakdown of glucose in the absence of oxygen, with lactic acid as a byproduct. This is an inefficient pathway for the production of energy, resulting in only two units of energy (ATP), compared to 38 units of energy produced by aerobic (meaning with oxygen) metabolism in normal human cells. Hence, the quest of cancer treatment via nutrition is to control blood glucose in a narrow range of 60 to 90 mg/dL, thereby starving the cancer cells. When blood glucose levels are not controlled, the tumor cells grow aggressively, utilizing glucose derived not just from ingested sources such as carbohydrates (sugars and starches), and stored glucose (glycogen), but also derived from muscle tissues in a pathway known as gluconeogenesis (making sugar from amino acids). This accounts for the low energy levels and wasting seen in many cancer patients.

This leads to a simple concept: sugar feeds cancer. In laboratory studies this concept has demonstrated longer survival, and sometimes cures, in animals fed a diet designed to control blood glucose levels, as compared to control animals with no glucose control. In humans, studies show similar results, favorable with low levels of blood glucose, and unfavorable in patients having higher levels of blood glucose. Interestingly, one of the most sensitive tests for

Cancer has a Sweet Tooth continues on page 6...

There is scientific evidence that now links obesity with increased risks of the following cancer types:

- Esophagus
- Pancreas
- Colon and rectum
- Breast (after menopause)
- Endometrium (lining of the uterus)
- Kidney
- Thyroid
- Gallbladder

One study, using NCI Surveillance, Epidemiology, and End Results (SEER) data, estimated that in 2007 in the United States, about 34,000 new cases of cancer in men (4%) and 50,500 in women (7%) were due to obesity.

The percentage of cases attributed to obesity varied widely for different cancer types but was as high as 40% for some cancers, particularly endometrial cancer and esophageal adenocarcinoma.

A projection of the future health and economic burden of obesity in 2030 estimated that continuation of existing trends in obesity will lead to about 500,000 additional cases of cancer in the United States by 2030. This analysis also found that if every adult reduced their BMI by 1%, which would be equivalent to a weight loss of roughly 1 kg (or 2.2 lbs.) for an adult of average weight, this would prevent the increase in the number of cancer cases and actually result in the avoidance of about 100,000 new cases of cancer.

Several possible culprits that may link obesity with the increased risk of certain cancers are:

- Fat tissue produces excess amounts of estrogen, high levels of which have been associated with the risk of breast, endometrial, and other cancers.
- Obese individuals often have increased levels of insulin in their blood (a condition known as hyperinsulinemia or insulin resistance), which may promote the development of certain tumors.
- Fat cells produce hormones, called adipokines that may stimulate or inhibit cell growth. For example, leptin, which is more abundant in obese individuals, seems to promote cell proliferation, whereas adiponectin, which is less abundant in those who are obese, may have anti proliferative effects.
- Fat cells may also have direct and indirect effects on other tumor growth regulators.
- Obese individuals often have chronic low-level, or “sub-acute,” inflammation, which has been associated with increased cancer risk.

Other possible mechanisms include altered immune responses, effects on the nuclear factor kappa beta system, as well as oxidative stress.

Many studies have shown that being overweight and obese are associated with a modest increase in the risk of postmenopausal breast cancer. This higher risk is seen mainly in women who have never used hormone therapy and for tumors that express both estrogen and progesterone receptors. Overweight and obesity in some studies, by contrast, have been found to be associated with a reduced risk of premenopausal breast cancer.

The relationship between obesity and breast cancer may be affected by the stage of life in which a woman gains weight and becomes obese. Epidemiologists are actively working to address this question. Weight gain during adult life, most often from about age 18 to between the ages of 50 and 60, has been consistently associated with the risk of breast cancer after menopause. The increased risk of postmenopausal breast cancer is thought

The Fat Truth about Cancer & Obesity continues on page 6...

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the detection of cancer is the PET (position emission tomography) scan. PET scans use labeled glucose to detect sugar-hungry tumor cells, and thus can plot the effectiveness of cancer treatment.

The role of glucose in the growth and metastasis of cancer cells is irrefutable. Control of blood glucose levels can improve results in nearly all cancer therapies. The goal then becomes how to control glucose blood levels. Several of the tests named in Dr. Mikirova's article, OBESITY and the RISK of CANCER, relate directly to glucose control. These tests include blood levels of glucose. The American Diabetes Association standards for blood glucose are: normal less than 110 mg/dL, impaired 110 to 126 mg/dL, and diabetic greater than 126 mg/dL. Fasting blood glucose testing, plus Hemoglobin A1C testing, can give an accurate picture of current and average levels of blood glucose. Additional tests include measurement of blood insulin levels. Steps to lower blood glucose and insulin levels center on diet, with control of sugar consumption and maintenance of glucose control through the utilization of the glycemic index values of all sugars and starches before ingestion. Exercise should also be a part of glucose and insulin control. The Paleolithic diet of our ancestors is estimated to have maintained blood glucose levels between 60 and 90 mg/dL. Beyond diet, there are several medications, foods and supplements which can help maintain the desired 60 to 90mg/dL levels of blood glucose.



to be due to increased levels of estrogen in obese women. After menopause, when the ovaries stop producing hormones, fat tissue becomes the most important source of estrogen. Because obese women have more fat tissue, their estrogen levels are higher, potentially leading to more rapid growth of estrogen-responsive breast tumors.

The relationship between obesity and breast cancer risk may also vary by race and ethnicity. There is limited evidence that the risk associated with being overweight and obese may be less among African American and Hispanic women than among Caucasian women.

As a holistic health practitioner, I prescribe herbs to most of my clients, as they can support almost every physical health issue or emotional complaint. They are gentle, effective, supportive and absorbed quickly—your body recognizes them as a food, as that's exactly what they are, plants, roots, bulbs, bark, flowers, berries, and seeds. Nature has given us the tools, now we just need to appreciate the value they provide and make the decision to improve our health in the most natural, supportive and effective ways possible.

Below are two of the most widely used herbs to normalize estrogen hormones, which seem to be directly linked to breast cancers.

CHASTE TREE (*Vitex agnus-castus*)

One of my favorite and most readily used female hormone-balancing herbs. It normalizes the monthly cycle while reducing the emotional symptoms of PMS such as irritability, sore breasts, spotting, erratic or missed periods, painful periods and infertility. It is also prescribed where the client has relative estrogen excess that results in the development of endometriosis and fibroids. This herb also indirectly supports a healthy balance of progesterone production.



CALENDULA (*Calendula officinalis*)

This detoxifying herb regulates the female reproductive system and relieves painful periods, as well as regulates estrogen excess (which may cause endometriosis). It's also wonderful for the digestive system, healing gastritis and ulcers, and reducing inflammation of the stomach and bowels. I also use this herb for acne - it's a beautiful anti-inflammatory herb and a lymphatic cleanser. It stimulates the immune system, helps the body fight infection and reduces lymphatic congestion and swollen lymph glands.



As for controlling obesity, I always recommend a balanced whole food diet that will support optimal health and reduce the negative side effects of highly processed foods and artificial ingredients that contribute to obesity and cancer. Exercise is imperative to maintaining a healthy weight and body function. I recommend at least a 30 minute walk each day, as a starting point.

As always, consult your primary care physician regarding any new health regimen you are considering and Live Well!

SOURCES:

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Lunch & Lecture Series 2014

REV UP YOUR HEALTH

The Importance of Nutrient Testing

Low on energy? Get your nutrient levels up! Join Dr. Ron Hunninghake and the Riordan Clinic panel of doctors as they discuss the importance of knowing your key nutrient levels and the need to “fill up” your reserves to feel your best.

Learn about our targeted CHECK YOUR HEALTH laboratory panels, and ask our doctors how these specialized nutrient tests can benefit you!



When: Thursday, September 11
12:00–1:00p.m.

Cost: FREE, Lunch is included.

So that we are better prepared for lunch RSVP's are required for this event

Reservations **REQUIRED**

Call 316-927-4723 or email us at reservations@riordanclinic.org



INVEST IN THE VISION

New Art on Display

We are pleased to continue showcasing Kansas artists. The artwork adds color to Riordan Clinic waiting and treatment areas and “feeds the soul.” Seven artists are now displaying their paintings, photographs and 3D wall art: Diane Curtis, Bob Schmidt, Chiaw-Weai Loo, Martha Wherry, Lincoln Scott, John Ellet, and Dorothy Miller.



The artwork is for sale and Riordan Clinic will receive a portion of each sale. The funds will be put toward furthering the education efforts of the clinic. We are grateful to the artists and especially to Diane Curtis for coordinating this opportunity for the enjoyment of co-learners and visitors to the Clinic.

If you would like to view the artwork or tour the display, please contact

Mona Wilson at
mwilson@riordanclinic.org or **Paula Smith at**
psmith@riordanclinic.org.



Perhaps the works of a Kansas artist would be a perfect holiday gift for someone special.

