TissueRecovery.com

Didrik Sopler, Ph.D., L.Ac.

Where Recommendations are Based on Scientific Evidence

Feel better, recover faster

Scientific based nutrition during and after conventional cancer treatment.

By

Didrik Sopler, Ph.D., L.Ac.

1-800-883-1252

Cancer is multifactorial.

The environment has the principle role in causing cancer.

Lichtenstein P, et al. 2000

The inflammatory process itself provides the prerequisite environment for the development of malignancy.

O'Byrne KJ, Dalgleish AG. 2001

Chronic systemic inflammation

- Includes up regulation of mediators of the inflammatory response such as cytokines and prostaglandins

Cytokines and prostaglandins may suppress cell mediated immune responses and promote angiogenesis.

Angiogenesis

- The growth of new blood vessels
- A step in the transition of tumors to malignancy

- Chronic inflammation may also lead to the production of reactive oxygen species that may induce DNA damage and mutations

Inflammation is…

- a critical component of tumor progression
- The tumor microenvironment is largely orchestrated by inflammatory cells

Coussens LM, Werb Z. 2002

Inflammation is…

- An indispensable participant in the neoplastic process, fostering proliferation, survival and migration

- The tumor cells have co-opted some of the signaling molecules of the innate immune system, such as, selectins, chemokines and their receptors for invasion, migration and metastasis

- The concentration of interleukin 6 (IL-6) and C-reactive protein (CRP), both inflammatory markers, were significantly increased in carcinoma patients relative to a control group and to a benign breast tumor group

Zakrzewska I, et al. 2003.

- Plasma CRP concentrations are elevated among persons who develop colon cancer

- Supports the hypothesis that inflammation is a risk factor for the development of colon cancer

Erlinger TP, et al. 2004

Why do we get low-grade systemic inflammation?

- Anything that will cause a chronic activation of the immune system can lead to low-grade inflammation

Some reasons

- Chronic bacterial and viral infections
- Chronic gastrointestinal dysfunction triggering an immune response, inflammatory response
- Examples: bacteria, parasites, food allergies, food sensitivities, non-steroidal anti-inflammatory drugs which can irritate and damage the mucous membranes

- Trans-fatty acids have been found to increase CRP levels

- Usually found in fried foods and processed foods

King DE, et al. 2003., Baer DJ, et al. 2004

- For many people a major cause of systemic inflammation is insulin resistance

- Insulin resistance has been documented to increase systemic inflammation and increase C-reactive protein (CRP)

Clifton PM. 2003., Lee WY, et al. 2004., Wannamethee SG, et al. 2005

- Increased insulin levels as found in insulin resistance triggers inflammation and has shown to increase C-reactive protein (CRP)

Pradhan AD, et al. 2003

- Chronic exposure to insulin and insulin-like growth factor 1 (IGF1) enhances carcinogenesis and can increase the risk for cancer

Giovanni E. 2003., Yu H, Berkel H. 1999

- There is increasing evidence that insulin is a growth factor for tumor formation

- The mechanism may include enhanced DNA synthesis resulting in tumor cell growth, inhibition of apoptosis and altered sex hormones

Gupta K, et al. 2002

- Chronic hyperinsulinemia may be a cause of cancers of the colon, pancreas, endometrium and possibly the breast

Kaaks R, Lukanova A. 2001

- Insulin resistance develops gradually
- After a meal, insulin transfer the blood glucose into the cells to be used for energy. When receptors on the cells get less responsive to the insulin the insulin is less effective in transferring the glucose into the cells. **This is called insulin resistance.**

- High glycemic index foods, drinks, trans fat, lack of physical activity and chronic stress can all contribute to insulin resistance

- The glycemic index is a measure of how much a food will elevate the blood sugar when compared to glucose or white bread

- Researchers at Harvard concluded that higher consumption of sugar-sweetened beverages is associated with an increased risk for development of type 2 diabetes and weight gain

Schulze MB, et al. 2004

- Emerging evidence from research suggests that high dietary intake of fructose has become an important cause in the development of the metabolic syndrome

Basciano H, et al. 2005

- The metabolic syndrome includes increased insulin resistance, cholesterol and triglycerides

- Accumulation of fat around the waist is a sign that you may start to develop insulin resistance

- Hyperinsulinemia and abdominal obesity are recognized as markers of insulin resistance and are also risk markers for postmenopausal breast cancer

Stoll BA. 1996

- Lack of physical activity, obesity and a diet rich in rapidly digestible carbohydrates and low in fiber encourage development of insulin resistance and hyperinsulinemia (high insulin levels)
- Alters hormonal balance, increasing risk for breast cancer

Kaaks R. 2001

What to do

- Nutritional and lifestyle modifications that improve insulin sensitivity may not only decrease atherosclerosis, but also reduce breast cancer risk in women

Stoll BA. 1999

- Phytosterols common in plant foods have anticarcinogenic (anti-tumor) properties
- Studies indicate that populations with low breast cancer incidence consume a diet high in phytosterols
- Dietary changes have shown to increase circulatory levels of phytosterols

Muti P, et al. 2003

- Greater adherence to a Mediterranean type diet is associated with reduced death from both cardiovascular disease and cancer

Trichopoulou A, et al. 2003

- Study including 497,308 participants documented a modified Mediterranean type diet is associated with lower abdominal fat

Romaguera D, et al. 2009

- A diet high in complex carbohydrates and leguminous fiber improves all aspects of diabetic control

Simpson HC, et al. 1981

Following a Mediterranean style diet is associated with

- lower insulin resistance
- lower waist circumference
- lower fasting glucose
- lower triglycerides
- higher HDL (the good cholesterol)

Rumawas ME, et al. 2009

- Higher degree of adherence to a Mediterranean type diet is associated with lower overall cancer incidence

Benetou W, et al. 2008

Major characteristics of the Mediterranean diet favorably affect cancer risk.

Bosetti C, et al. 2009

TissueRecovery.com

Didrik Sopler, Ph.D., L.Ac.

Where Recommendations are Based on Scientific Evidence

How to decrease systemic inflammation and improve insulin resistance

Foster-Powell K, Miller JB. 1995

A very low glycemic index diet which includes

- Very low glycemic index carbohydrates
- Both omega 6 and omega 3 fat in the right ratio
- High quality protein adjusted to the person's need according to the level of physical activity
- Plenty of fiber rich food
- Plenty of antioxidant rich food
- Plenty of vitamin, mineral rich food

Avoid these items

- High glycemic index foods such as cookies, candy, donuts and sugar
- High glycemic index beverages such as soft drinks, fruit punches, shakes and fruit juice
- Alcohol, since it increases the risk of breast cancer
- Bread, cereal and potatoes since most of them have a high glycemic index
- Transfat because it is toxic

Foods with very low glycemic index

- Vegetables
- Legumes

Foster-Powell K, Miller JB. 1995

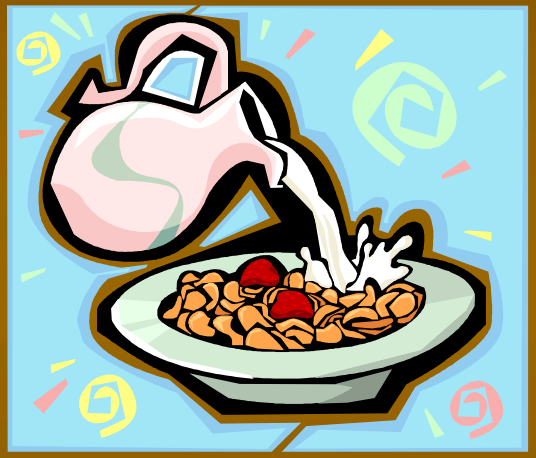
You can eat some medium glycemic index foods, but not large amounts at one time.

- Berries
- Apples
- Pears
- Oranges
- Spaghetti

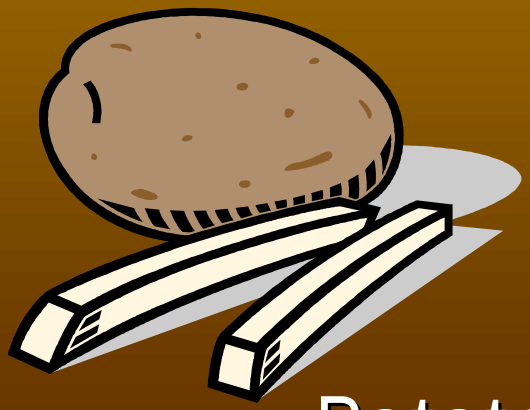
Foster-Powell K, Miller JB. 1995

Examples of some high glycemic foods

Quick Cook Oatmeal



Corn flakes



Potatoes

Bread

Rice

Nutritional components with tissue protective substances

Flaxseeds

- Increase the favorable estrogen metabolite 2-hydroxyestrone, but not the more active and potentially harmful 16 alpha-hydroxyestrone
- Documented to reduce tumor markers in postmenopausal breast cancer
- A 30% increase in apoptosis (cell death) in tumor tissue was also observed

Brooks JD, et al. 2004., Thompson LU, et al. 2005

- Proliferation rates of men with prostate cancer significantly lower among men taking flaxseeds

Demark-Wahnefried W, et al. 2008

Green Tea

- Drinking green tea regularly is associated with a slightly decreased risk for breast cancer

Shrubsole MJ, et al. 2009

- Epigallocathecin-3-gallate (EGCG) in green tea imparts antiproliferative effects against both androgen-sensitive and androgen-insensitive human prostate cancer cells

Gupta S, et al. 2000

- The active compounds in green tea significantly reduced biomarkers in patients with prostate cancer

McLarty J, et al. 2009

- Increase in green tea consumption associated with 18% decreased risk of developing lung cancer

Tang N, et al. 2009

- Research documenting reduced risk of liver cancer from green tea consumption when 41, 761 participants where followed for 9 years

Ui A, et al. 2009

- Sulforaphane induces cell cycle arrest and apoptosis in cancer cells
- Sulforaphane may be a promising therapeutic approach to treatment of cancers, including those characterized by increased inflammation and involving viral or bacterial pathologies

Myzak MC, Dashwood RH. 2006

- Sulforaphane induces autophagy, which is degradation of a cell's own components in human prostate cancer cells

Herman-Antsiewics A, et al. 2006

- Results from research indicate activation of multiple molecular mechanisms for apoptosis (cell death) in glioblastoma cells following treatment with sulforaphane

Karmakar S, et al. 2006

- Sulforaphane not only induces carcinogen-detoxifying enzymes, but also activates apoptosis and blocks cell cycle progression

Tang L, et al. 2006

- It is projected that raising minimum year-round serum 25-hydroxyvitamin D (25 (OH) D) level 40 to 60 ng/mL (100-150 nmol/L) would prevent approximately 58,000 new cases of breast cancer and 49,000 new cases of colorectal cancer each year and ¾ of deaths from these diseases in the United States and Canada

Garland CF, et al. 2009.

- Raising 25 (OH) D to 40 to 60 ng/mL are also expected to reduce case-fatality rates of patients who have breast, colorectal or prostate cancer by half

- No unreasonable risks from intake of 2000 IU per day of vitamin D3

Garland CF, et al. 2009

- Compared with women with vitamin D deficiency 25 (OH) D of < 20 ng/mL, levels above 40 ng/mL were associated with decreased breast cancer risk

Crew KD, et al. 2009

- Lower levels of 25 (OH) D were associated with higher colorectal cancer risk and higher concentrations associated with lower risk

Jenab M, et al. 2010

Alpha-lipoic acid

- A naturally occurring antioxidant, scavenges reactive oxygen species followed by an increase in apoptosis (cell death) of human hepatoma cells

Shi DY, et al. 2008., Simbula G, et al. 2007

- Research during 22 years of follow up suggest that intake of fish and long-chain n-3 fatty acids from fish may decrease the risk for colorectal cancer

Hall MN, et al. 2008

- A high omega 6 to omega 3 ratio is thought to contribute to cardiovascular disease, inflammation and cancer
- Studies in human populations have linked high consumption of fish or fish oil to reduced risk of colon, prostate and breast cancer

Berquin IM, et al. 2008

Magnesium

- Maintains genomic stability and is an essential cofactor for DNA synthesis and repair
- Study including 40,830 Japanese men and 46,287 women documented higher magnesium intake may decrease risk of colorectal cancer in men, but not women

Ma E, et al. 2010

- High magnesium intake was shown to reduce the occurrence of colorectal cancer in 61,433 Swedish women

Larsson SC, et al. 2005

Vitamin B6

- Is involved in nearly 100 enzymatic reactions
- Has been found to be inversely associated with risk of colorectal cancer

Larsson SC, et al. 2010

Coenzyme Q10 (CoQ10)

- A potent intracellular antioxidant appears to prevent damage to the mitochondria of the heart preventing the development of chemotherapy induced cardiomyopathy
- Studies also suggest CoQ10 does not interfere with antineoplastic action of chemotherapy and might even enhance anticancer effects

Conklin KA. 2005

Vitamin K2 may also affect cancer risk

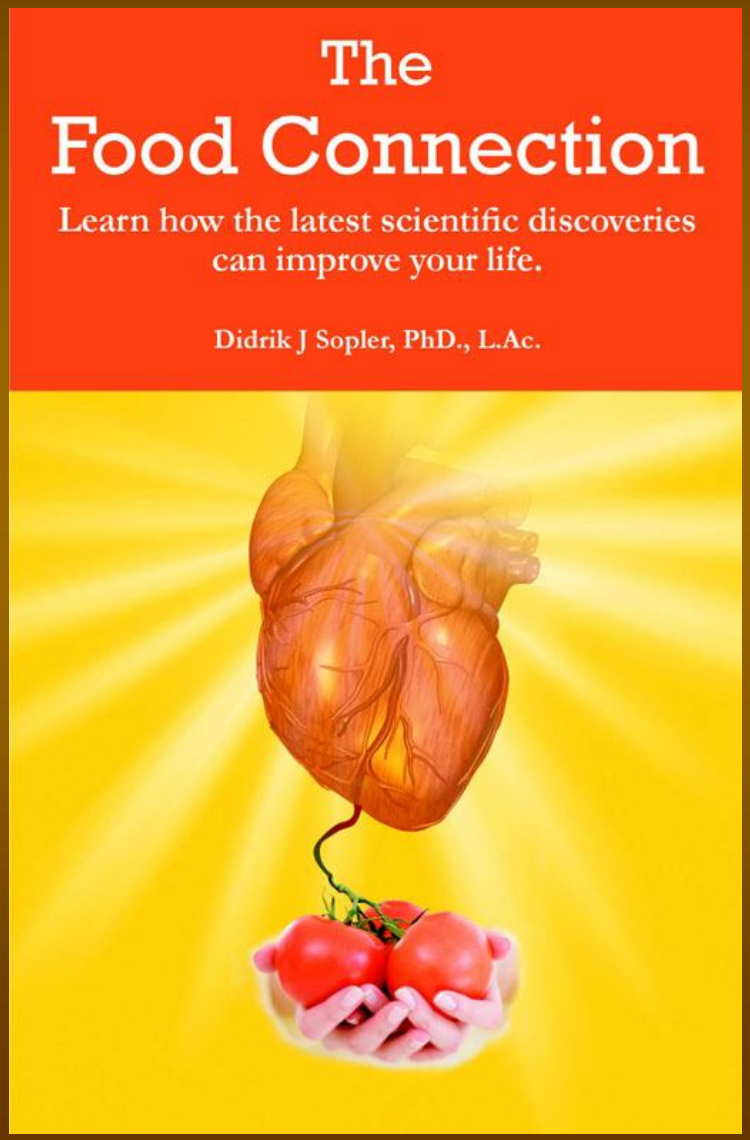
- Vitamin K2 (menaquinon) was found to be inversely associated with prostate cancer and lung cancer

Nimptsch K, et al. 2010

TissueRecovery.com

Didrik Sopler, Ph.D., L.Ac.

Where Recommendations are Based on Scientific Evidence



www.TissueRecovery.com

1-800-883-1252