# Choices to enhance vitality and survival

(and how to make it work in the real world)

Salish CANCER CENTER

The Puyallup Tribe's Integrative Approach to Healing

Paul Reilly, ND, L.Ac, FABNO
253-382-6300

# What is survivorship?

- Multiple definitions
- Anyone living with cancer at any stage since diagnosis
- Anyone with a history of cancer after completing treatment
- In some countries cancer is "another chronic illness" and the concept of survivor is not used

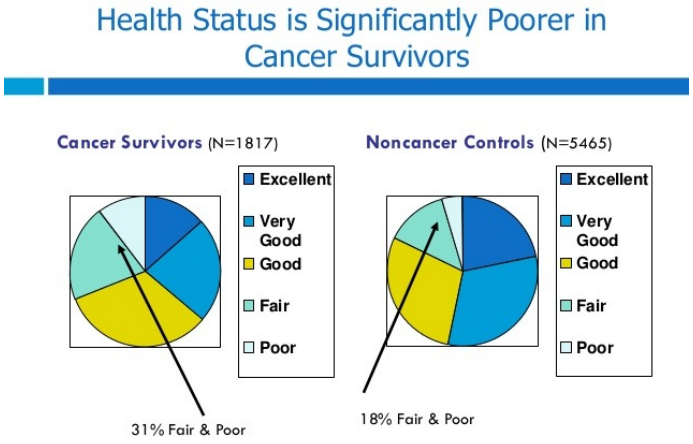
# Concerns of survivorship

- Preventing recurrence
- second cancer
- prevent and manage late effects of treatment

# Late effects of treatment

- New cancers caused by treatment
- Cardiovascular disease
- Obesity/diabetes
- Osteoporosis
- Reduced energy
- Poor quality of daily living (NCI)

# Reduced overall health




# Improving overall wellness

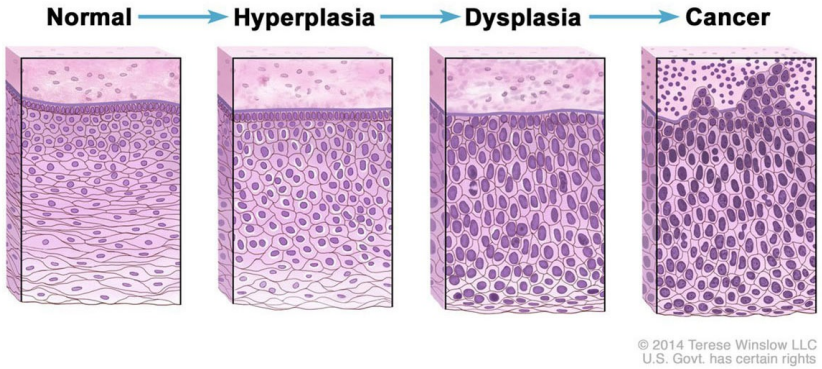
- Improved energy
- Improved sleep
- Improved fitness
- Improved immune function
- Reduced pain, digestive issues etc

# <u>You</u> are in charge

# What is cancer ?

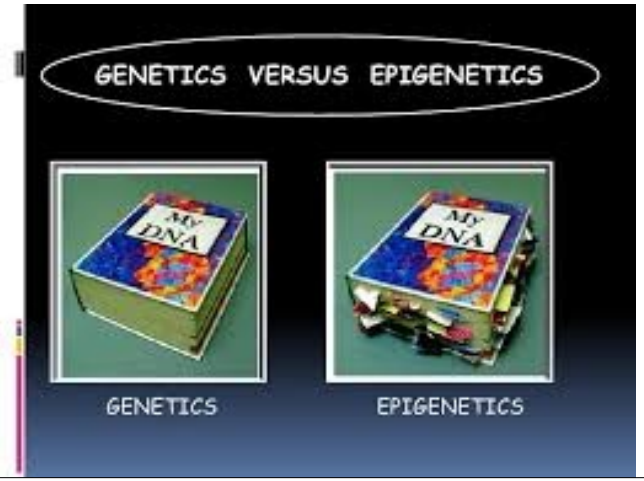
- NOT a single entity
- Over 200 various forms and subtypes
- Gene theory of cancer
- Epigenetic changes
- Cellular environment & cancer

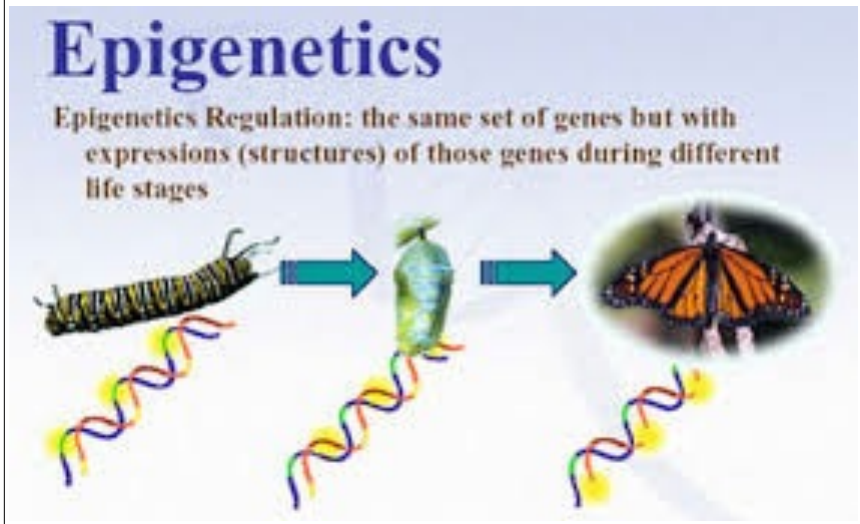
# Genes and cancer





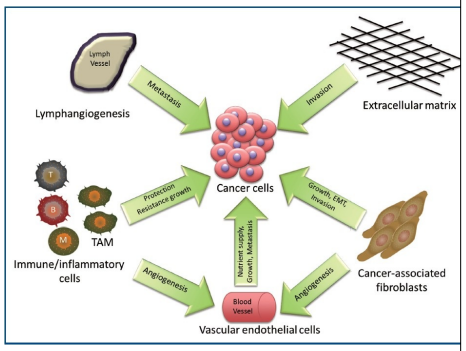

# Epigenetics & Cancer



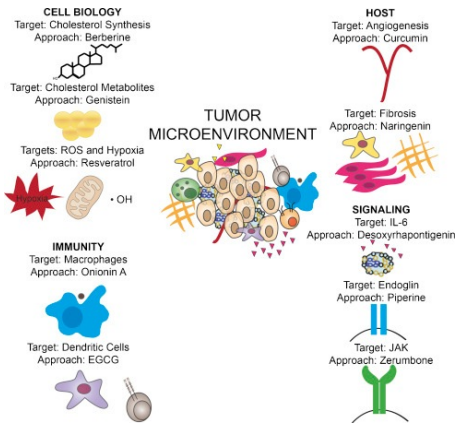

# Tumor microenvironment

- The microenvironment surrounding a tumor cell can promote or discourage tumor progression <u>independent of tumor genetics</u> (Tumor suppressor or promoter genes)
  - Int. J. Cancer 2003;107:688
  - JNCI 2002:941494



# Tumor "microenvironment"

- Chronic inflammation
- Oxidative stress
- Immune signals
- Hormones
- Glucose
- Insulin
- Low vitamin D

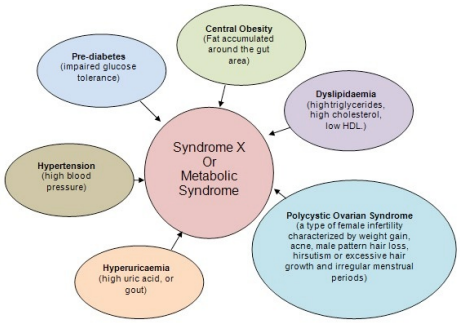



# Obesity and Cancer

- Obesity could account for 14% of all cancer deaths in men and 20% in women (NEJM 2003;348:17)
- 60% higher risk of colon cancer with higher levels of insulin. 90% increase with highest waist circumference (JNCI1999;91:1147)

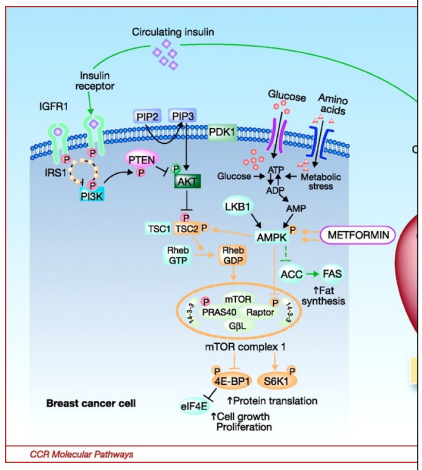
# Hyperinsulinemia & cancer

- Hyperinsulinemia is a risk factor for breast cancer
  - Cancer Causes Control. 2004 Apr;15(3): 267-75.
  - Cancer Epidemiol Biomarkers Prev. 2004 Jul;13(7):1163-72.
- Serum C peptide is higher in breast cancer cases than controls
  - » Int. J Ca. 1992;52:511




# Insulin & survival

- High insulin levels may be the best predictor of whether a woman's breast cancer recurs
  - » JCO 2002;20:42
  - After adjustment for age, body mass index, family history, estrogen receptor (ER) status, tumor stage at diagnosis, and systemic treatment (chemotherapy or tamoxifen), WHR was directly related to breast cancer mortality in postmenopausal women (for highest quartile vs. lowest, relative risk = 3.3 Am J Epidemiol. 2003 Nov 15;158(10):963-8.
  - High levels of insulin were associated with poorer survival for postmenopausal women [odds ratio, 1.9 Cancer Epidemiol Biomarkers Prev. 2004 Jul;13(7):1163-72.



# Inflammation & cancer

- Chronic inflammation can contribute to cancer
  - Carcinogenesis 2010;31:37

IL-6 and survival in Breast Cancer

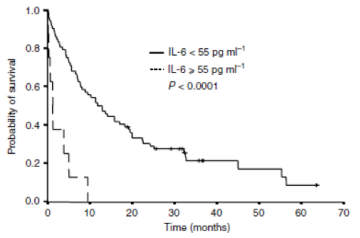
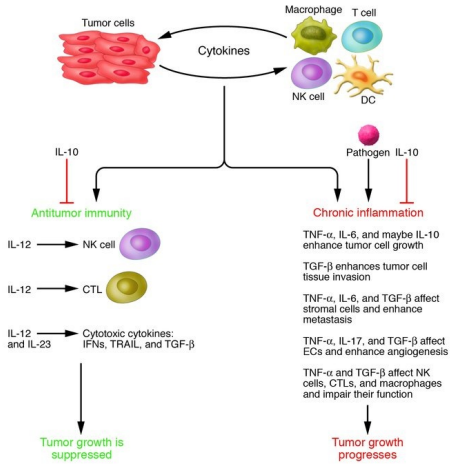



**Figure 2** Survival of patients as a function of serum IL-6 levels. Patients with high levels of serum IL-6 constituted a subgroup of very poor prognosis. The cutoff value (55 pg ml$^{-1}$) represents the highest quartile for serum IL-6 levels when detectable.

Bachelot et al. Br J Cancer, 2003.

# Inflammation & Immunity

- Chronic inflammation leads to the stimulation of myeloid derived suppressor cells
  - (J of Immunol 2006;176:284)
- Reducing inflammation leads to reduced accumulation of MDSC and reduced progression of tumors in animals
  - (Ca Res 2007;67: 10019)




## Do BRCA Mutations Determine Your Destiny?

You are likely aware that the BRCA1 and BRCA2 mutations are very closely associated with breast and ovarian cancer. Indeed, if you have a BRCA mutation, your lifetime risk of developing breast cancer is now estimated to be greater than 80%. If you have a BRCA mutation, it seems almost like destiny that you're going to get cancer, regardless of your health choices.

However, if you look into the history of the BRCA mutations and cancer risk, you find that before 1940, the lifetime risk was 24% with a BRCA mutation, far lower than the 82% it is today. Given that life expectancies are longer today, it is clear that the environment is playing a big role in the development of breast cancer even for those with the BRCA mutations. Dr. Mary-Claire King, the scientist who discovered the BRCA mutations, recognized this environmental influence on cancer risk, specifically citing adolescent obesity, lack of exercise, and early age of menarche as factors in the rise in BRCA-associated cancers.

Science 2003;302:643)

# Taking charge of your health

# Focus on Wellness

Cancer didn't bring me to my knees, it brought me to my feet.

Michael Douglas, actor and survivor of throat cancer

# Goals for wellness

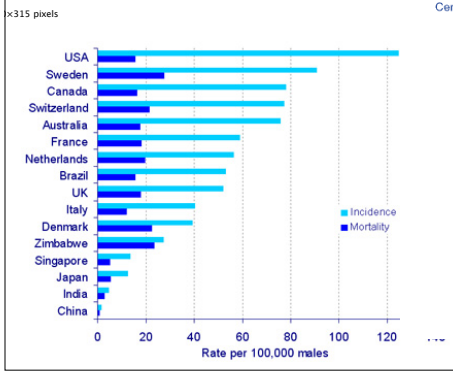
- Reduce inflammation
- Reduce insulin
- Maintain healthy weight
- Support immunity
- Improve nutritional status
- Reduce stress and stress hormones

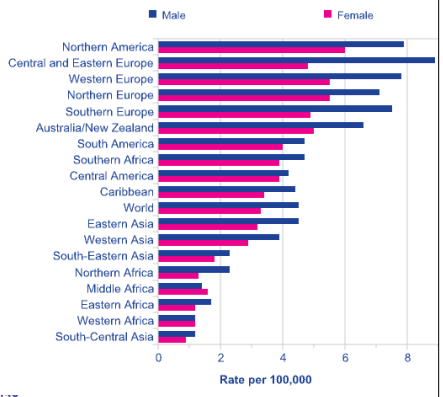
# How food fights cancer

- Antioxidants slow damage to DNA
- Nutrients can help repair DNA
- Phytochemicals change gene expression
- EFA's regulate growth signals and inflammation
- Fiber enhances cell-cell communication, and detox
- Phytochemicals enhance detox pathways
- Methyl groups improve epigenetics

# Does diet really matter?

- Swedish twins study
- Worldwide cancer rates



# HERBAL ANTI-INFLAMMATORIES

- Natural NF-KB Inhibitors: silymarin, melatonin, resveratrol, vitamin D, GLA, vitamin C, ginger, GSH, curcumin, alpha lipoic acid, ashwaganda, gugulipid, rosemary, I3C
  - Mol Ca Ther 2006;5:1434
  - J. Biol. Chem 2004;279:47148
  - J. Surg. Res. 2007;142:281
  - Blood 2005
- Suppression of NF-KB increases apoptosis and improves responses to some chemotherapy
  - Cell Death and Differentiation (2006) 13, 738–747.

# Simple food guidelines

- Eat half your plate as vegetables and salad
- Eat a rainbow of color
- Limit sweets, carbs, starches
- Limit alcohol
- Limit junk food
- Limit red meats and dairy
- Eat more beans, nuts, fish, olive oil, whole grains

# A handful of “super- foods”

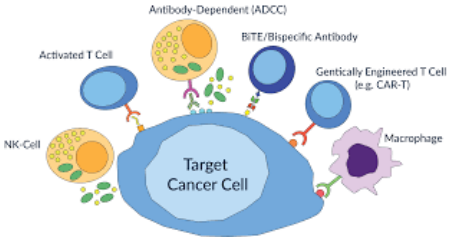
- Extra virgin olive oil
- berries
- nuts
- greens

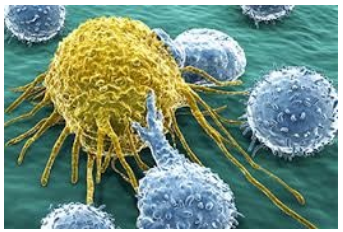
# Green tea and coffee

- Anti-inflammatory
- Antioxidant
- Improve response ro several chemotherapy agents
- Inhibit angiogenesis
- Coffee reduces mortality 18%

# Immune function

- Immunity is a crucial component of prevention
- After ca tx many people have compromised immune fxn
- Natural medicines can stimulate a robust defense even when total white cells are low



# Immune function

# Sleep

- All animals need sleep
- Sleep is when the major repair and replace functions occur
- Memory is processed and consolidated
- lack of sleep leads to elevated stress hormones

# Stress

- Concerns about recurrence
- Concerns about expensive meds/scans etc
- Money/job/family/aging
- Directly impacts BP, heart, hypothalamus
- immune function, joy, problem solving, quality of life

# Stress management

- Mindfulness
- Yoga
- Tai chi
- Joy
- “Nature bathing”
- Visualization

# Inactivity

- “Sitting is the new smoking”
- Sarcopenia, bone loss, obesity, diabetes, depression
- Reduce television time

# Biochemical individuality

- Male/female
- Racial differences
- Ethnic differences
- Roger Williams

# Personalized medicine

- Genetics
- Hormones
- Blood and urine
- Neurotransmitters
- Liver functions

# Taking control

- Genes/biochemical individuality
- Epigenetics
- Internal Microenvironment
- External environmental risks
- Lifestyle
- Diet

# What about vitamins?

- Vitamin C
- Multiple vitamin
- Fish oil
- Curcumin
- Mushrooms
- Vitamin D

- Higher vit D is signif associated with better survival after breast cancer (Carcinogenesis 2012;33:1319)
- 38% reduction of mortality in breast cancer with higher levels of vitamin D ( Eur J Ca 2014;50:1510)
- Higher vit D at time of dx assoc with better survival in multiple tumor types (J Clin Endocrinol April 2014)
- MUST test and treat according to blood levels

# Summary

- Healthy food
- Sleep
- Manage stress
- Maintain weight
- Stay active
- Have fun


- Choose health