



Delta Dental of Minnesota  
Serving North Dakota

## PLATINUM LEVEL SPONSOR


As one of this year's Platinum Level Conference Sponsors, Delta Dental of Minnesota will be providing a short overview of their business and an introduction of our lecture series speaker today, Dr. Karl Koerner.

We would like to thank all of our sponsors for supporting our annual meeting. We could not make this successful without their partnerships. Please visit the exhibit hall, thank them for their support, and receive a drawing ticket for the drawings to be held today during the Attendee/Exhibitor Social from 4-6 pm.


From your NDDA Board of Trustees and NDDA Central Office team, thank you for attending!




[www.DrLowDog.com/resources/](http://www.DrLowDog.com/resources/)




The Latest from the Blog



Flowers That Heal: Gifts from the Garden  
April 15, 2017



Africa Is a Stress-Filled World  
March 1, 2017




Natural Allergy Remedies  
December 10, 2016

Tieraona Low Dog, M.D.

Copyright © Integrative Medicine Concepts, LLC. All Rights Reserved.

## Cancer Prevention for the 21<sup>st</sup> Century



**Tieraona Low Dog, M.D.**

Author of National Geographic's  
"Fortify Your Life" "Healthy At Home"  
and "Life Is Your Best Medicine"

[www.DrLowDog.com](http://www.DrLowDog.com)

Tieraona Low Dog, M.D.

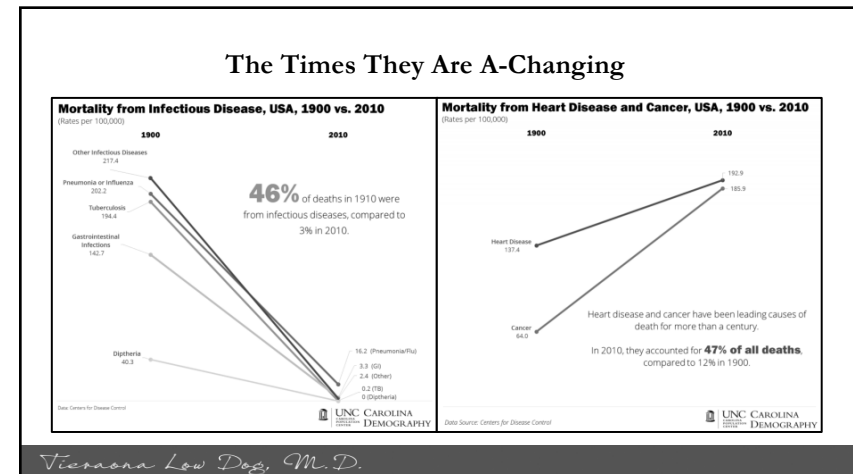
*"God grant me the serenity to accept the things I cannot change;  
Courage to change the things I can;  
And wisdom to know the difference."*



*Reinhold Niebuhr*

Tieraona Low Dog, M.D.

Copyright © Integrative Medicine Concepts, LLC. All Rights Reserved.



## Epigenetics



- The mapping of **human genome** one of the greatest scientific undertakings of past century, **detailing with incredible accuracy the blueprint of our species.**
- It paved the way for field of **epigenetics**, showing that when it comes to our genes, **nurture is inextricably linked with nature.**
- That it is the **way we live our lives - from the moment of conception to our last breath - that influences the expression of our genes.**

*Victoria Low Dog, M.D.*

- If the American public embraced a **healthier lifestyle:**

- **no smoking**
- **no or moderate alcohol consumption**
- **limited or no exposure to toxic chemicals**
- **healthy nutrition**
- **balance of exercise and rest**
- **stress management**
- **and healthy social networks**

**93% of diabetes, 81% of heart attacks, 50% of strokes, and 36% of all cancers could be prevented.**

Ford, et al. *Arch Intern Med.* 2009; 169(15):1355-62.

*Victoria Low Dog, M.D.*

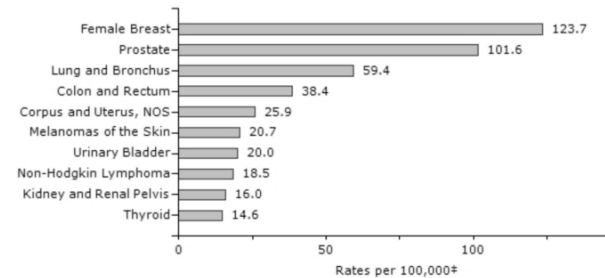
## Some Fast Facts

- In 2010, 1.6 million people were diagnosed with cancer.
- In 2030, estimated to increase to 2.3 million.
- Cancer rates are **increasing globally**, people diagnosed at younger ages.
- In US, **one in four people will die from cancer.**
- But *many people survive the disease.*
- **>12 million people have survived cancer** treatment and are looking to prevent cancer recurrence.

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

Top 10 Cancer Sites: 2013, Male and Female, United States—All Races

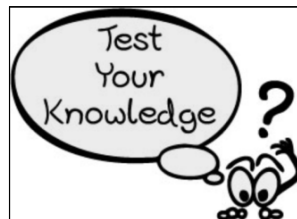


<https://nccd.cdc.gov/uscs/toptencancers.aspx>

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Cancer Prevention Knowledge Quiz (AICR)



Aside from not smoking, research has shown which of these to be a **major cause of cancer?**

1. Hormones in meat
2. Artificial sweeteners
3. Obesity
4. Genetically modified foods

*Vianna Low Dog, M.D.*

## Cancer Prevention Knowledge Quiz (AICR)



Alcohol has been shown to increase the risk for which cancers?

1. Esophageal cancer
2. Prostate cancer
3. Mouth cancer
4. Breast cancer
5. Lung cancer
6. None of the above

*Vianna Low Dog, M.D.*

## Cancer Prevention Knowledge Quiz (AICR)



Coffee increases cancer risk.

1. True
2. False

*Vicenna Low Dog, M.D.*

## Coffee and Cancer

- World Health Organization's International Agency for Research on Cancer concluded drinking coffee **does not cause breast cancer, prostate cancer, or pancreatic cancer.**
- After examining > 1,000 studies, it found that coffee consumption was associated with **reduced risks of liver and endometrial cancers.**
- The AICR includes **coffee on roster of foods that fight cancer.**
- USDA says up to **5 cups per day** can be part of a healthy diet.

[www.latimes.com/science/sciencenow/la-sci-sn-fda-coffee-cancer-20180829-story.html](http://www.latimes.com/science/sciencenow/la-sci-sn-fda-coffee-cancer-20180829-story.html)

*Vicenna Low Dog, M.D.*

## Cancer Prevention Knowledge Quiz (AICR)



Select all that apply: Diets high in \_\_\_\_\_ increase cancer risk.

1. Complex carbs
2. Red meat
3. Fats
4. Artificial sweeteners

*Vicenna Low Dog, M.D.*

## Cancer Prevention Knowledge Quiz (AICR)



Physical activity reduces cancer risk.

1. True
2. False

*Vicenna Low Dog, M.D.*

### Cancer Prevention Knowledge Quiz (AICR)



A diet high in fruits can cut cancer risk.

1. True
2. False

*Viviana Low Dog, M.D.*

### Cancer Prevention Knowledge Quiz (AICR)



Which of the following increase breast cancer risk?

1. Food additives
2. Stress
3. Alcohol
4. Soy

*Viviana Low Dog, M.D.*

### Recommendations for Cancer Prevention WCRF/AICR

- *Do not smoke or use tobacco products.*
- *Body Fatness* – be as lean as possible within normal range of body weight
- *Physical Activity* – be physically active at least 30 minutes per day
- *Avoid sugary drinks. Limit consumption of energy-dense foods.*
- *Plant Foods* – eat more veggies, fruits, whole grains and legumes

*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

### Recommendations for Cancer Prevention WCRF/AICR

- *Limit intake of red meat and avoid processed meat*
- *Alcoholic Drinks* – limit 2 serving/d men, 1 serving/d women
- *Limit consumption of salty foods and food processed with salt*
- *Don't rely on dietary supplements to protect against cancer*
- *Breastfeeding* – breastfeed babies exclusively for up to six months
- *Cancer Survivors* – after treatment, follow recommendations above

*Viviana Low Dog, M.D.*

## Smoking Cessation



- Tobacco smoking accounts for 21% of global cancer deaths.
- Smoking cessation dramatically reduces risk for oral cancers.
- Survey 1,802 dentists found > 90% of dental providers routinely ask patients about tobacco use, 76% counsel patients, and 45% routinely offer cessation assistance, defined as referring patients for cessation counseling, providing a cessation prescription, or both.
- Patients are twice as likely to try quitting with advice from a clinician
- Check [www.smokefree.gov](http://www.smokefree.gov) for your state quit line number

Lee YC, et al. *Ann Glob Health* 2014; 80(5):378-383.

Jannat-Khah DP, et al. *Prev Chronic Dis* 2014; 6(11):E196.

*Vianna Low Dog, M.D.*

## Alcohol and Cancer



- LACE (Life after Cancer Epidemiology) found women drinking more than half-serving of alcohol/day had **35% increased risk of recurrence and 51% increased risk of death due to breast cancer**, especially if **postmenopausal and obese**.
- Women drinking ~1 serving alcohol/d had **increased survival from colorectal cancer compared to non-drinkers**.
- Mixed picture. Good evidence that moderate wine consumption has beneficial effects on heart disease and longevity.

Kwan ML, et al. *J Clin Oncol* 2010; 28(29):4410-6.

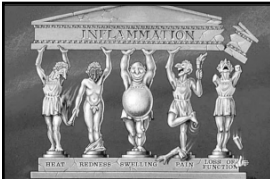
Fung TT, et al. *PLoS One* 2014; Dec 15;9(12):e115377

Pavlidou E, et al. *Diseases* 2018; 6(3): pii: E73

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Chronic Inflammation



- Inflammatory response **crucial for survival**. But there is a **dark side**.
- When inflammation becomes chronic it contributes to conditions as varied as **gum disease, osteoporosis, cardiovascular disease, Alzheimer's disease, type-2 diabetes, autoimmune disorders, cancer, and more**.
- A chronic inflammatory state can cause **DNA damage** and promote a tumor-favorable microenvironment. Example: inflammatory bowel disease is associated with an increased risk of colon cancer.

Chang SC, Yang WV. *Crit Rev Oncol Hematol* 2016; 108:146-153

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Factors That Drive Inflammation

- Pattern of **central obesity**
- Aging **“inflamm-aging”**
- **Sedentary** lifestyle, lack of exercise
- Western-dietary pattern, **high fructose intake**
- Prolonged psychosocial **stress**
- **Environmental exposures** (smoke, toxins, chemicals)
- **Alterations in oral and gut flora and intestinal permeability**

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## WCRF/AICR Recommendations to Reduce Cancer Risk



- Be as lean as possible without becoming underweight. Obesity is a cause for 11 cancers.

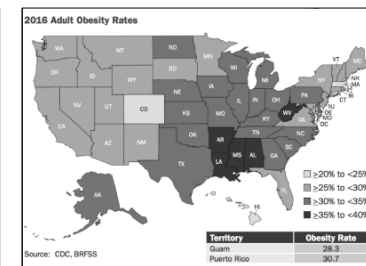
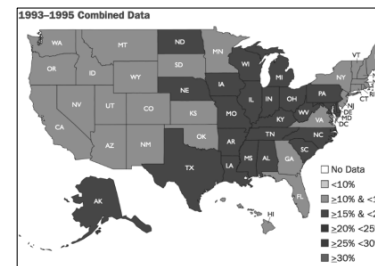


- Be physically active at least 30 minutes/d.

*Vianna Low Dog, M.D.*

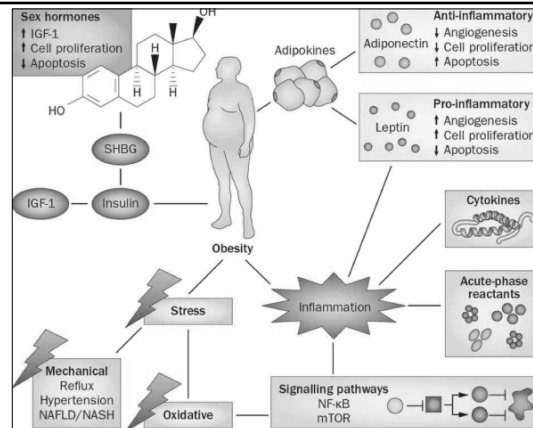
Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## The Changing Landscape of Adult Weight



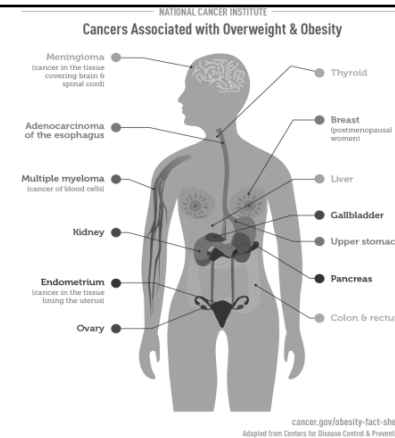
*Vianna Low Dog, M.D.*

Copyright © Medicine Lodge Ranch, LLC  
All rights reserved.



*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



*Vianna Low Dog, M.D.*

## Mechanisms?

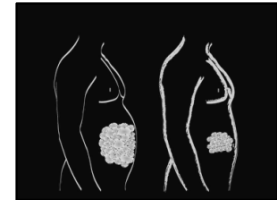
- **Fat tissue produces excess estrogen**, high levels are associated with increased risks of breast, endometrial, ovarian, and some other cancers.
- Obese people often have increased blood levels of **insulin and insulin-like growth factors (IGF-1)**. High levels of insulin and IGF-1 may promote the development of **colon, kidney, prostate, and endometrial cancers**.
- **Obesity** strongly linked with **chronic inflammation**, which can damage DNA
- Fat cells produce adipokines. **Leptin promotes cell proliferation**. Adiponectin less abundant in obese than normal weight—may have **anti-proliferative effects**.

[www.cancer.gov/about-cancer/causes-prevention/risk/obesity/obesity-fact-sheet](http://www.cancer.gov/about-cancer/causes-prevention/risk/obesity/obesity-fact-sheet)

*Vianna Low Dog, M.D.*

## Fat Cells Drive Inflammation

- Fat cells, particularly those in the belly, produce and react to hormones that drive **inflammation and insulin resistance**, which promote cell growth.
- The more cells divide, the more opportunity there is for cancer to develop.
- Waist measurements indicating increased risk:
  - **31.5 inches or more for women**
  - **37 inches or more for men**
- High risk
  - **35 inches or more for women**
  - **40 inches or more for men**



*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

"Cancer Prevention in 21<sup>st</sup> Century"

- According to AICR, estimated number of US cancers that are **currently linked to excess body fat include:**

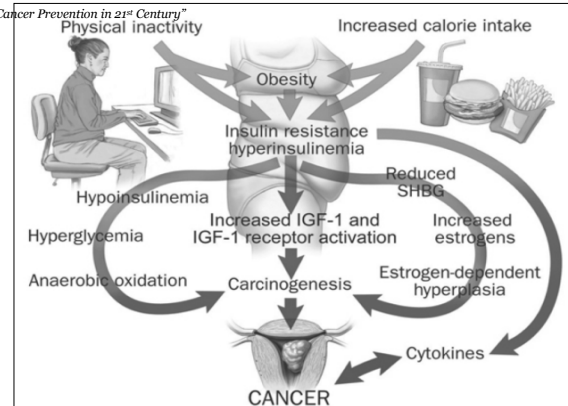
### Estimated Cancers

Percentage	Cancer Site	Cases Per Year
49	Endometrial cancers	21,300
35	Esophageal cancers	5,824
28	Pancreatic cancers	12,079
24	Kidney cancers	13,978
21	Gallbladder cancers	2,050
17	Breast cancers	35,540
9	Colorectal cancers	12,831
	<b>TOTAL</b>	<b>103,602</b>

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

"Cancer Prevention in 21<sup>st</sup> Century"



*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



## Diet and Cancer

- Study > 2000 women following “Western” diet had increased breast cancer risk, while Mediterranean Diet rich in fruits, vegetables, legumes, oily fish and vegetable oils **lowered risk of all breast cancer** subtypes, particularly triple-negative tumors.
- Another review found strong evidence of a beneficial role of the Mediterranean diet on **oral and pharyngeal cancer**.
- High adherence to **Med diet associated with a significant reduction in the risk of overall cancer mortality** (10%), colorectal cancer (14%), prostate cancer (4%) and aero-digestive cancers (56%)

Castello A, et al. *Br J Cancer* 2014; 111(7):1454-62

Filomeno M, et al. *Br J Cancer* 2014; 111(5):981-6.

Schwingshackl L, et al. *Int J Cancer* 2014; 135(8):1884-97.

*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Fruits & Vegetables



- Diets rich in fruits and vegetables (5-9 servings/d) **lowers risk of cancers of the lung, mouth, pharynx, esophagus, stomach, colon, and rectum.**
- May reduce risk of cancers of breast, pancreas, ovaries, larynx, and bladder.
- **Cruciferous vegetables include** broccoli, cauliflower, cabbage, Brussel sprouts, bok choy and kale. Rich in glucosinolates, indole-3-carbinol and, especially, isothiocyanates.

National Cancer Institute

*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Tomatoes & Lycopene



- Tomato's red hue comes chiefly from a phytochemical called **lycopene**.
- Research has shown substantial and convincing evidence that foods containing **lycopene protects against prostate cancer**.
- In laboratory, tomato components have stopped the proliferation of several other cancer cells types, including breast, lung, and endometrial.
- **Cooked tomatoes are great way to get lycopene in diet.**

*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Dark Leafy Greens



- Spinach, kale, romaine lettuce, leaf lettuce, mustard greens, collard greens, chicory and Swiss chard are excellent sources of **fiber, folate** and a wide range of **carotenoids** such as **lutein and zeaxanthin**, along with saponins and flavonoids.
- Research has found that carotenoids in dark green leafy vegetables can **inhibit growth of certain types of breast, skin, lung, and stomach cancers.**

National Cancer Institute

*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



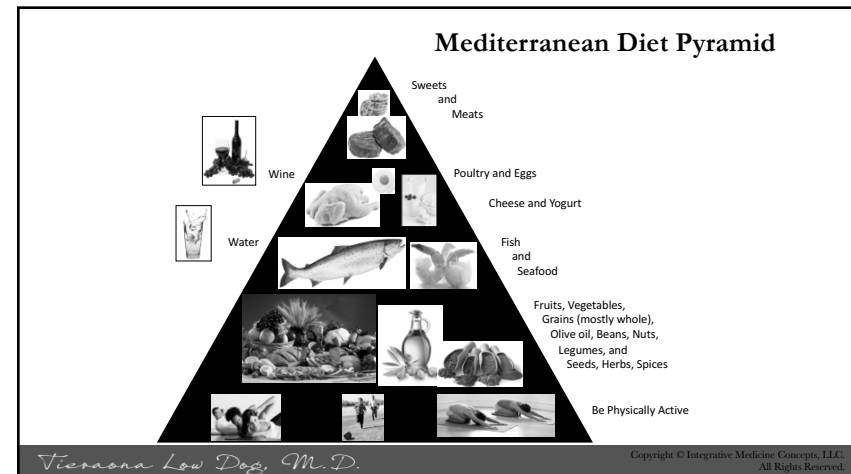
## The Allium Vegetables

- Garlic belongs to the *Allium* family, which also includes **onions, scallions, leeks and chives.**
- Impressive number published studies show consumption of onions and garlic has protective effects against stomach, prostate, esophageal cancer.
- **For cancer protection, AICR experts suggest including garlic as part of a well-balanced diet.**

National Cancer Institute

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



## Cancer Cells and Glucose

- Tumor cells have a **remarkable up regulation of glucose transporter molecules on their surface.**
- This sparked a great deal of interest in **low carb, high fat diets, such as the ketogenic diet.** May be some tumor types would be responsive to a ketogenic diet, while with others it might not be as beneficial.
- **Animal models suggest caloric restriction may lower risk of certain cancers and reduce recurrence but no good studies for review.**

Oliviera CL, et al. *J Acad Nutr Diet.* 2017 Mar 30.

*Vicenna Low Dog, M.D.*

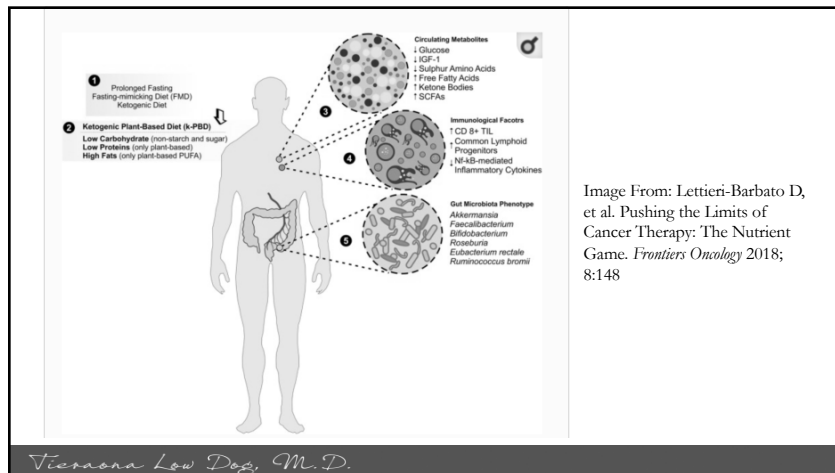
## Tumor Type

- Women's Healthy Eating and Living (WHEL) trial found **carbohydrate restriction was associated with a striking five-fold reduction in breast cancer recurrence in 50% of subjects,** specifically those whose tumors expressed the **IGF-1 receptor.**
- Unfortunately, IGF-1 testing of tumors is not yet a routine clinical practice.

Edmond JA, et al. *Cancer Epidemiol, Biomarkers Prev* 2014; DOI: 10.1158/1055-9965

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



## Keto Diet: Clinical Trial

- Randomized controlled trial women with **ovarian or endometrial cancer** randomly assigned to **ketogenic diet** (70:25:5 energy from fat, protein, and carbohydrate) or American Cancer Society diet (high-fiber, low-fat).
- **Body composition, fasting serum insulin and IGF-I** obtained at baseline and at end of 12 weeks.
- At end of study, those on **keto diet had statistically significant reduction in fasting insulin and IGF-1 levels, and greater reduction in visceral fat.**

Cohen CW, et al. A Ketogenic Diet Reduces Central Obesity and Serum Insulin in Women with Ovarian or Endometrial Cancer. *J Nutr* 2018; 148(8):1253-1260.

*Vicanna Low Dog, M.D.*

SCIENTIFIC  
AMERICAN.

PUBLIC HEALTH

## The Hunger Gains: Extreme Calorie-Restriction Diet Shows Anti-Aging Results

A new study shows five days of hunger a month may reduce risk factors for aging and age-related diseases

*Vicanna Low Dog, M.D.*

Copyright © Medicine Lodge Ranch, LLC.  
All rights reserved.

## Caloric Restriction?



Canto is 27 year old monkey on CR diet, Owen is 29 year old on unrestricted diet.

news.wisc.edu/monkey-caloric-restriction-study-shows-big-benefit-contradicts-earlier-study/  
Ravussin E, et al. : A 2-Year Randomized Controlled Trial of Human Caloric Restriction: Feasibility and Effects on Predictors of Health Span and Longevity. *J Gerontol A Biol Sci Med Sci*. 2015;70(9):1097-104

*Vicanna Low Dog, M.D.*

Copyright © Medicine Lodge Ranch, LLC.  
All rights reserved.

- 25 year study University of Wisconsin: **76 rhesus monkeys ages 7-14 years**, fed a diet reduced in calories by **30%**.
- **Disease was 3 fold greater in control group.** No evidence of diabetes in any caloric-restricted animal.
- NIA **2-year** study randomized 218 non-obese people to current diet or 25% caloric restriction (**11.7%** on average).
  - **Statistically significant reduction in inflammatory markers, weight loss, improved mood, sleep duration, etc.**

## Fasting-Mimicking Diets



Wei M, et al. Fasting-mimicking diet and markers/risk factors for aging, diabetes, cancer, and cardiovascular disease. *Sci Transl Med* 2017; 9(377).

- USC study **100 healthy people** randomized into 2 study arms to test effects of FMD done 5 consecutive days each month for 3 months.
  - **1100 calorie first day, 700 calories for 4 days (plant based, multivitamin).** Ate whatever they wanted rest of the month.
- Three cycles reduced **body weight, total body fat; lowered blood pressure, cholesterol, triglycerides and IGF-1.**
- Note: **25% drop-out rate**
- **Effects still noted 3 months AFTER study ended.**

*Vicanna Low Dog, M.D.*

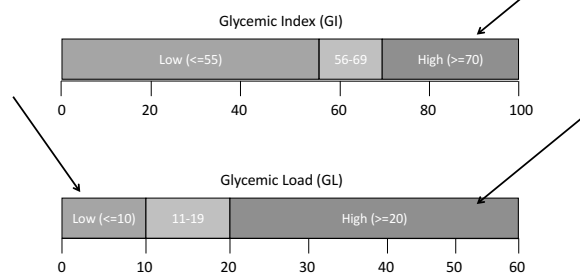
Copyright © Medicine Lodge Ranch, LLC. All rights reserved.



"THE FOOD YOU EAT  
CAN BE EITHER  
THE SAFEST  
&  
MOST POWERFUL  
FORM OF MEDICINE  
*or*  
THE SLOWEST  
FORM OF POISON."

*Vicanna Low Dog, M.D.*

## Glycemic Index & Glycemic Load Rating Chart



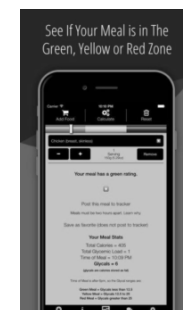
*Vicanna Low Dog, M.D.*

## Glycemic Index/Load

Low Glycemic Diet Calculator

- **Glycemic load** is measurement of impact of **carbohydrates on blood sugar/insulin.**
- International **consensus** conference concluded that given **consistency of scientific evidence**, diets **low in glycemic index/load** should be promoted in the **prevention and management of diabetes and coronary heart disease**, and are **particularly important in individuals with insulin resistance.**

Augustin LS, et al. Glycemic index, glycemic load and glycemic response: An International Scientific Consensus Summit from the International Carbohydrate Quality Consortium (ICQC). *Nutr Metab Cardiovasc Dis* 2015 Sep;25(9):795-815.



*Vicanna Low Dog, M.D.*

Copyright © Medicine Lodge Ranch, LLC. All rights reserved.

## Glycemic Load and Mood

- 82 healthy weight and healthy overweight or obese adults enrolled in randomized, crossover controlled feeding study.
- Compared to a low GL diet, consumption of **high GL diet** resulted in:
  - 38% higher score for **depressive symptoms** ( $P = 0.002$ )
  - 55% higher score for **total mood disorder** ( $P = 0.05$ )
  - 26% higher score for **fatigue/inertia** ( $P = 0.04$ ), compared to low GL diet.



Breymeyer KL, et al. *Appetite* 2016; Dec 1;107:253-259.

*Vicanna Low Dog, M.D.*

Copyright Medicine Lodge Ranch, LLC  
All rights reserved.

## Glycemic Load

### Individual Food Portion

Low	0-10
Moderate	11-19
High	20+

### Whole Day

Low	< 80
Moderate	80-120
High	>120

*Vicanna Low Dog, M.D.*

Food	Serving Size	Glycemic Load	Food	Serving Size	Glycemic Load
Grapefruit	½ large	3	Asparagus	½ cup	2
Apple	1 medium	6	Broccoli	1 cup	4
Banana	1 large	14	Green beans	1 cup	3
Raisins	1 small box	20	Tomato	1 medium	2
Watermelon	1 cup	8	Subway sandwich	6 inch	17
Carrots	1 large	5	Turkey breast		
Orange	1 medium	6	Butter pecan ice cream	5.5 ounces (small)	22
Sweet potato	1 cup	17	Vanilla ice cream cone	4.5 ounces (small)	19
Baked potato	1 medium	28	Potato chips, fat free	1 bag (8 ounces)	49
French fries	1 medium serving	26	Tortilla chips, white corn	3.5 ounces	38
Snickers	1 bar	35	White bread	1 slice	10
Reese's cup	1 miniature	2	White rice	1 cup	33
White table wine	5 ounces	1	Brown rice	1 cup	23
Red table wine	5 ounces	1	Spaghetti	1 cup	38
Grape juice	6 ounces	12			

*Vicanna Low Dog, M.D.*

Copyright Medicine Lodge Ranch, LLC  
All rights reserved.

## Pictures of Low/High GI Meals & Snacks



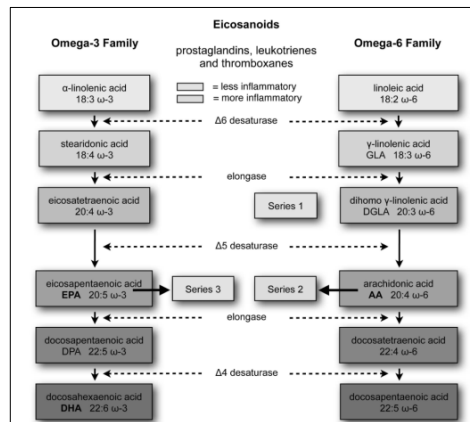
GI = 80 GL = 32



GI = 61 GL = 12

*Vicanna Low Dog, M.D.*

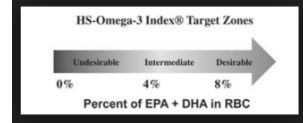




*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC. All Rights Reserved.

## Omega 3 Fatty Acid Levels



- **Omega-3 Index** indicates the percentage of EPA+DHA in red blood cell fatty acids and is gold standard for evaluating omega 3 levels.
- Canadian government found that the mean Omega-3 Index level of Canadians aged 20-79 was 4.5%.
- **Fewer than 3% of adults had levels associated with low CHD risk; 43% had levels associated with high risk.**

Langlois K, et al. *Health Rep* 2015; Nov 18;26(11):3-11

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC. All Rights Reserved.

## Different Types of Fish Oil

- **Supplementation is alternative to eating fish; however, not all supplements are equal.**
- Randomized, crossover study of 35 healthy individuals compared four popular brands/types of omega 3 fatty acids:
  - Concentrated triglyceride (rTG)
  - Ethyl ester (EE)
  - Phospholipid krill oil (PL)
  - Triglyceride salmon oil (TG)

Laidlaw M, et al. *Lipids Health Dis* 2014; 13:99

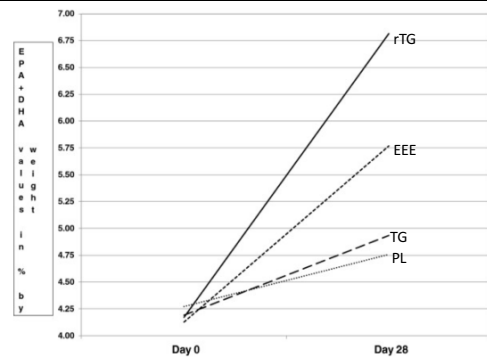
*Vicenna Low Dog, M.D.*

## Dosing According to Manufacturer's Recommendations

TRT	Product	EPA & DHA per capsule*	Tested values	Label use: caps/day	Daily dosage of EPA + DHA
rTG	Nordic Naturals ProOmega®	325 mg EPA	329.6 mg EPA	2	EPA: 650 mg
	Triglyceride	225 mg DHA	226.0 mg DHA		DHA: 450 mg
EE	Minami MorEPA®	756 mg EPA	774.2 mg EPA	1	EPA: 756 mg
	Platinum Ethyl Ester	228 mg DHA	233.7 mg DHA		DHA: 228 mg
PL	Source Naturals ArcticPure®	75 mg EPA	78.0 mg EPA	2	EPA: 150 mg
	Krill Oil Phospholipid	45 mg DHA	46.7 mg DHA		DHA: 90 mg
TG	New Chapter				
	Wholemeg® Salmon	90 mg EPA	96.4 mg EPA	2	EPA: 180 mg
	Oil Triglyceride	110 mg DHA	109.5 mg DHA		DHA: 220 mg

*Vicenna Low Dog, M.D.*

Copyright © 2016 Integrative Medicine Concepts, LLC. All Rights Reserved.



Mean levels of EPA + DHA for four supplement groups at Day 0 and Day 28.

*Vianna Low Dog, M.D.*

## Omega 3 and Prostate Cancer?

- **SELECT** trial raised concerns about potential link between omega 3s and **increased prostate cancer/aggressive cancer.**
- European Food Safety (EFSA) concluded, “**there is no evidence for a role of EPA and/or DHA intake in the development of prostate cancer.**”
- Also, “supplemental intake of EPA and DHA combined at doses up to 5 g/d does not give rise to safety concerns for adults.”

EFSA Journal 10(7): doi:10.2903/j.efsa.2012.2815

*Vianna Low Dog, M.D.*

## Seafood Calculator

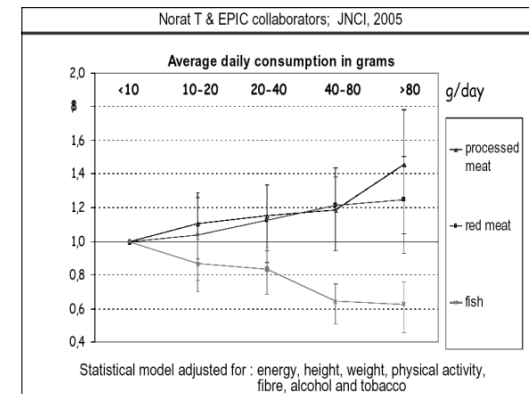
[www.cwg.org/research/cwg-s-consumer-guide-seafood/seafood-calculator](http://www.cwg.org/research/cwg-s-consumer-guide-seafood/seafood-calculator)

Calculations are based on 4 oz. serving size

CATEGORY	SPECIES	WEEKLY MERCURY	SUSTAINABILITY	CONCLUSION
<b>EWG'S BEST BETS!</b> Very High Omega-3s, Low Mercury, Sustainable	SALMON	NaN%	Best Choice: Wild Alaska	⊗
	SARDINES	NaN%	Best Choice: Pacific	⊗
	MUSSELS	NaN%	Best Choice: Farmed	⊗
	RAINBOW TROUT	NaN%	Best Choice: Farmed	⊗
	ATLANTIC MACKEREL	NaN%	Best Choice: Not Trawled	⊗

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



"Cancer Prevention in 21<sup>st</sup> Century"

## WCRF/AICR Recommendations on Meat

- Limit consumption of red meats (beef, pork, lamb). **Aim for no more than 16 ounces (500 g) per week to reduce risk of cancer. Avoid processed red meats.**



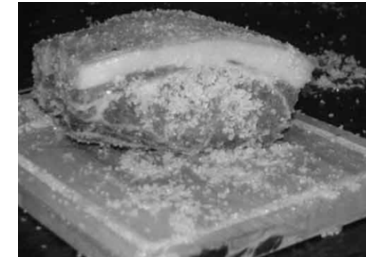
*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Processed Meats: Test Your Knowledge

Which of the following preparations are considered processed meats?

1. Curing
2. Smoking
3. Braising
4. Preserved nitrates/nitrites

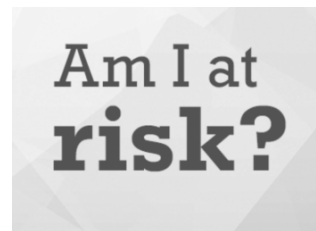


*Vianna Low Dog, M.D.*

## Processed Meats: Test Your Knowledge

Consumption of processed meats can increase the risk of which cancers?

1. Breast
2. Colon
3. Liver
4. Stomach



*Vianna Low Dog, M.D.*

## Processed Meat: Test Your Knowledge

Which of the following **would not** be considered a processed meat?

1. Ground turkey burger
2. Bratwurst
3. Canned tuna
4. Hot dog



*Vianna Low Dog, M.D.*

"Cancer Prevention in 21<sup>st</sup> Century"

- **Red meat** refers to beef, pork, goat and lamb –*hamburgers, steak, pork chops*
- **Processed meat** preserved by smoking, curing, salting or adding other chemical preservatives. *Sausage, bacon, ham, lunch meats, turkey bacon, smoked chicken, are processed meats.*
- WHO showed person eats a little less than 2 ounces/d processed meat (e.g., one small hot dog or two slices of salami) 18% more likely to develop colorectal cancer than those who don't.



*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC. All Rights Reserved.

## What About Grilling?



Which of the following statements are true?

1. **Marinating** meat, poultry, seafood before grilling reduces production of HCA.
2. **Grilling vegetables** produces the same carcinogens as grilling meat.
3. Cook your **meat on high heat and fast** (seared).

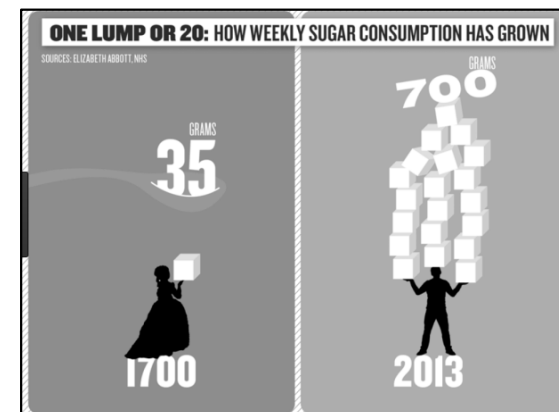
*Vicenna Low Dog, M.D.*

## Tips for Grilling

- **Grilling meat at high temperatures** produces polycyclic aromatic hydrocarbons and heterocyclic amines (HCAs).
- Studies show **marinating meat, poultry and seafood for 30 minutes** reduces formation of HCAs. Vinegar, lemon, wine + herbs and spices.
- Cook meat over **low flame to reduce burning and charring**. **Precooking** reduces formation of carcinogens from grilling.
- **Grilled veggies and fruits do not produce HCAs.**
- It's **WHAT** you cook, however, more than **HOW** you cook it!

<http://www.aicr.org/can-prevent/what-you-can-do/quiz-grilling-and-cancer-risk.html>

*Vicenna Low Dog, M.D.*



*Vicenna Low Dog, M.D.*

Copyright Medicine Lodge Ranch, LLC. All rights reserved.

## Intestinal Permeability and Systemic Inflammation

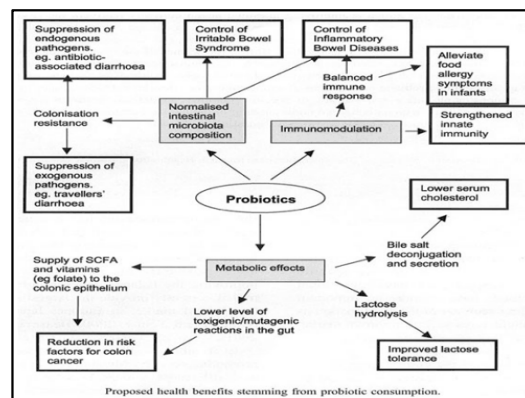
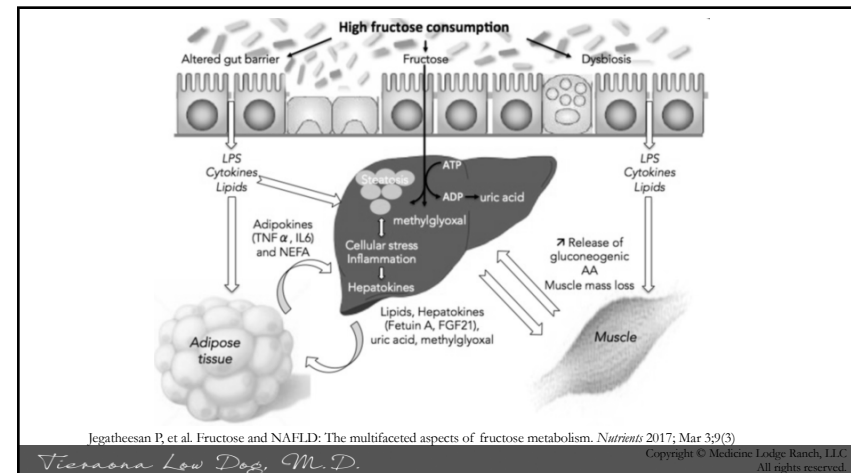
- **High fructose consumption** is associated with changes in microbiota composition that **alters gut permeability** by **reducing expression of tight junction proteins**. This causes bacterial translocation and drives inflammation.
- **Insulin resistance** is associated with alterations in **gut permeability**.

Boroni Moreira AP, et al. *Nutr Hosp* 2012; 27(2):382-90

Jegatheesan P, et al. *Nutrients* 2017; Mar; 9(3): 230.

*Vicanna Low Dog, M.D.*

Copyright © Medicine Lodge Ranch, LLC  
All rights reserved.



*Vicanna Low Dog, M.D.*

Copyright © Medicine Lodge Ranch, LLC  
All rights reserved.

## Probiotics

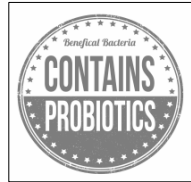
- **Regulate/modulate immune function**, reduce risk intestinal infection.
- **Improve intestinal barrier function**
- Induce **hypo-responsiveness to food antigens**
- Improve **glucose control** and **reduce inflammatory cytokines**.
- Inhibit tumorigenesis and **may inhibit cancer progression**
- **Lactobacillus species** most commonly used probiotic in clinical trials: reduce abundance of *Enterobacter* and regulate immune response in patients with colorectal cancer.

Gianotti L, et al. *World J Gastroenterol*. 2010;16:167-175

*Vicanna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC  
All Rights Reserved

## Probiotics: Infection



Hao Q, Dong BR, Wu T. Probiotics for preventing acute upper respiratory tract infections. *Cochrane Database Syst Rev*. 2015 Feb 3;(2):CD006895.

- Probiotics **modulate innate and adaptive immunity in elders and also reduce length of respiratory/flu infection in children and adults.**
- Review of 12 studies with 3720 participants found moderate-quality evidence shows number of **people who develop URTI is reduced when taking probiotics and probiotics reduce duration of URTI by ~ 2 days.**

*Vianna Low Dog, M.D.*

## Vitamin D

- Important for **calcium** regulation
- Higher blood levels **improve breast cancer survival and reduce risk of colorectal cancer.**
- Low vitamin D causes **muscle weakness, lower back and hip pain.**
- **Obesity increases the risk of deficiency.**



Kim Y, et al. *Br J Cancer* 2014; 110(11):2772-84.  
Ma Y, et al. *J Clin Oncol* 2011; 29(26):3775-82

*Vianna Low Dog, M.D.*

## Vitamin D and Cancer



- Review found **four forms of cancer that benefit from vitamin D supplementation during treatment: prostate, breast, and colorectal cancers and melanoma.**
- Review of 30 studies show that higher vitamin D status is **strongly associated with better breast cancer survival.**
- Many **treatments increase risk of osteoporosis,** warranting calcium and vitamin D supplements.

Kim Y, et al. *Br J Cancer* 2014; 110(11):2772-84.  
Jacobs ET, et al. *J Cancer* 2016; 7(3):232-40

*Vianna Low Dog, M.D.*

## Vitamin D and Colorectal Cancer

- Meta-analysis **11 studies** (7,718 CRC patients) showed an **improvement in survival outcomes** with increasing blood 25(OH)D concentrations.
- Roughly **33% increase in survival** in those with highest vitamin D levels compared to lowest. Studies included patients with stages 1-IV cancer.
- Authors concluded that there is **“robust evidence of an association between higher blood 25(OH)D concentrations and better survival in CRC patients.”**

Maalmi H, et al. Association between Blood 25-Hydroxyvitamin D Levels and Survival in Colorectal Cancer Patients: An Updated Systematic Review and Meta-Analysis. *Nutrients* 2018; 2018 Jul 13;10(7).

*Vianna Low Dog, M.D.*

## Drug Induced Osteoporosis

- Drugs include:
  - Glucocorticoids (steroids) – 1:5 cases of osteoporosis
  - **Aromatase inhibitors (breast cancer)**
  - **Anti-androgen therapy (prostate cancer)**
  - Proton pump inhibitors (heartburn)
  - Antiretroviral drugs (HIV, hepatitis)
  - SSRIs (antidepressants) and antipsychotics
  - Anticonvulsants (epilepsy)
  - Loop diuretics (e.g. lasix)
  - Heparin and oral anticoagulants



Mazzioni G, et al. Drug-induced osteoporosis: mechanisms and clinical implications. *Am J Med* 2010; 123:877-84

*Viviana Low Dog, M.D.*

## Endocrine Society Guidelines

- Serum 25(OH)D level used to evaluate high-risk folks:
  - **Insufficiency defined as 21-29 ng/mL**
  - **Deficiency defined as <20 ng/mL**
- **66.8 million Americans** had vitamin D levels between 12-20 ng/ml
- **23 million Americans** had serum levels less than 12 ng/ml
- All adults vitamin D deficient should be treated with **50,000 IU of vitamin D2/D3 once per week for 8 weeks or 6000 IU of vitamin D3 daily to achieve a blood level of 25(OH)D above 30 ng/ml, followed by maintenance therapy of 1500–2000 IU/d.**

CDC 2<sup>nd</sup> National Report on Biochemical Indicators of Diet and Nutrition in the U.S. Population  
Holick MF, et al. *J Clin Endocrinol Metab* 2011; 96(7):1911-30

*Viviana Low Dog, M.D.*

## Vitamin D

To get 600 IU/d Vitamin D3 in diet:

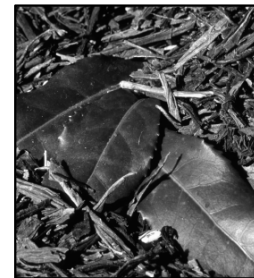
- 3-4 ounces sockeye salmon, cooked
- 11.4 ounces water-packed tuna
- 26 oil-packed sardines
- 15 large eggs
- 6 cups fortified milk **OR**
- 30-45 ounces yogurt



*Viviana Low Dog, M.D.*

Copyright © 2016 Integrative Medicine Concepts, LLC. All Rights Reserved.

## Green Tea (*Camellia sinensis*)



- **White, green, oolong and black teas** contain polyphenols and flavonoids, particularly catechins.
- Dominant catechin in green tea is epigallocatechin gallate (**EGCG**).
- Inhibits every step of carcinogenesis.
- Most studies are **epidemiological in nature.....**

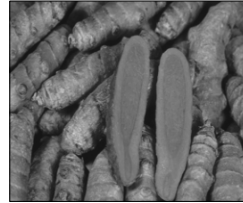
Butt MS, et al. *Crit Rev Food Sci Nutr* 2015; 55(6):792-805.  
Pellicore LS, Giancaspro GI, Low Dog T. *Drug Saf*. 2008;31(6):469-84.

*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC. All Rights Reserved.

## Turmeric (*Curcuma longa* and others)

- Rhizomes provide **bright yellow-orange culinary spice and dye**.
- Yellow pigments = curcuminoids, most abundant is **curcumin**.
- Long history of medicinal use for respiratory, skin, digestive and inflammatory conditions in India.
- More than **65 clinical trials** have shed light on its *potential* role in CVD, diabetes, cancer, fatty liver, arthritis, neuro/psych disorders.



Kunnumakara AB, et al. *Br J Pharmacol* 2016; Sep 17. doi: 10.1111/bph.13621.

Prasad S, et al. *Biochem Adv* 2014; 32(6):1053-1064

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Turmeric/Curcumin

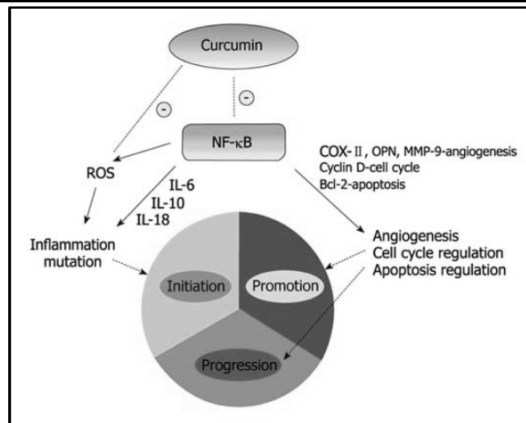
- Beneficial effects on almost every known target/molecule involved in **carcinogenesis**.
- May prevent and be beneficial adjunctive treatment for **colorectal cancer**.
- Acts alone and synergistically with EGCG (green tea) to inhibit malignant changes in **oral epithelium**.



Irving GR, et al. *Cancer Prev Res* 2013; 6(2):119-28.

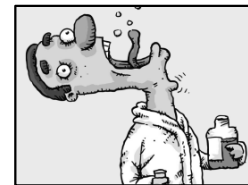
*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



## Mouthwash

- **Turmeric mouthwash** significantly reduced levels of **radiation-induced oral mucositis at all time points**.
- **Lesser incidence of treatment breaks in first half** of treatment schedule ( $P < 0.01$ ) and reduced change in body weight ( $P < 0.001$ ).

Rao S, et al. *Integr Cancer Ther* 2013; 13(3):201-210.

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

**Cooking Tips:**

- Mix ½ teaspoon turmeric in 8 ounces plain yogurt – use as a spread on sandwich or baste for chicken
- Add ½ teaspoon to 2 cups tomato soup
- Add ½ teaspoon to 2 cups steamed rice
- Add ½ teaspoon when stir frying greens such as kale, chard or cabbage

Note: ½ tsp of turmeric powder is approximately 1.5 grams and contains roughly 80-100 mg of curcumin.

*Vicenna Low Dog, M.D.*

**Golden Milk**

- 1 inch sliced fresh turmeric or 1/2 teaspoon dried turmeric powder
- 1 inch sliced fresh ginger or 1/2 teaspoon dried ginger powder
- 3 peppercorns
- 1 cinnamon stick or 1/2 teaspoon cinnamon powder
- 2-3 sliced fresh dates
- 2 cups milk or non-dairy milk alternative

Put milk in saucepan and add all ingredients. Bring to a boil, turn heat down to low simmer, cover and cook for 10-15 minutes. Strain. Drink.

*Vicenna Low Dog, M.D.*

**Absorption and Safety Issues**

- Curcumin NOT well absorbed from GI tract.
- Nanoencapsulation, bound to phosphatidylcholine, or inclusion of black pepper (piperine), enhance bioavailability.
- Note: Piperine causes inhibition of CYP3A4 at doses of 20 mg/d can cause *clinically relevant drug interactions* especially for drugs with narrow therapeutic indices.
- Dose generally 1200-1500 mg per day of turmeric extract standardized to 95% curcumin, taken in divided doses.

Gurley BJ, et al. *Planta Med* 2012; 78(13):1490-514

Bedada SK, et al. *Drug Res* 2016; Oct 24

Supplement Facts		
Serving Size: 1oz. Servings Per Container: 16		
	Amt. Per Serving	% Daily Value
Organic Turmeric Root Extract (Supercritical CO2 Extraction)	500mg	*
Organic Black Pepper Fruit Extract (Standardized to 95% Piperine)	10mg	*

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Curcumin Bound to Phytosome: Safer If Taking Medications

**Serving Size: Two Capsules**

**Servings Per Container: 60**

**Two Capsules Contain:**

**Amount Per Serving**

**% DV**

Curcumin Phytosome† (Curcuma longa extract (root) / Phosphatidylcholine complex)

500 mg

\*

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Zinc and Taste Protection

- Zinc helps **protect cells that line the mouth** in those undergoing **chemotherapy or radiation**.
- Study found **half of women undergoing chemotherapy for gynecological cancer experienced altered taste**.
  - Serum zinc level consistently below lower limit of normal.
- RDBPCT of adult patients with **head and neck cancers received zinc sulfate (50 mg, three times a day) or placebo at start of radiation through one month post. Zinc prevented radiation induced taste alterations.**
- **Normally, do not take more than 30 mg/d except for short periods.**

Nishijima S, et al. *Gynecol Oncol* 2013; 131(3):674-8.  
 Najafizade N, et al. *J Res Med Sci* 2013; 18(2):123-6

*Vicenna Low Dog, M.D.*



## Ginseng (*Panax ginseng*) (*Panax quinquefolius*)

- Human studies in healthy people and clinical studies in patients with fatigue confirm the **antifatigue property of *P. ginseng***.
- Most studies (both species) show positive influences on intellectual work capacity in normal subjects and those with decreased cognitive functions.
- Considerable variation in quality of product and dose recommendations. *P. ginseng* often standardized to ginsenoside levels (4-10%)

Oliynyk S, et al *J Ginseng Res* 2013; 37(2): 144-166

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Cancer Related Fatigue

- American and Asian ginseng may reduce risk of **moderate-severe respiratory infections in patients with CLL**
- **Four RCT show that both species improve cancer related fatigue.**
- Largest study **364 participants from 40 institutions.**
- Randomized to placebo or 2000 mg/d of American ginseng for 8 weeks to determine effect on fatigue.
- **Ginseng reduced fatigue by almost double that of placebo in those undergoing active cancer treatment. No discernible toxicities.**



High KP, et al. *J Support Oncol* 2012; 10(5):195-201.  
 Barton DL, et al. *J Natl Cancer Inst* 2013; 105(16): 1230-1238

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

*Vicenna Low Dog, M.D.*

## Herb-Drug Interactions

- **No clinically significant drug interactions observed** using approved CYP probe drugs and P-gp probe substrates when *P. ginseng* administered for 2 weeks in healthy volunteers.
- *P. ginseng* 1 gram/d for 6 weeks, **no significant change in INR in patients on warfarin.**
- **ALWAYS talk to health care provider and/or pharmacist when mixing botanicals with drugs.**



Kim DS, et al. *J Ginseng Res* 2016; 40(4):375-81  
 Andrade AS, et al. *BMC Complement Altern Med* 2008; 8:50  
 Lee YH, et al. *nt J Cardiol* 2010; 145(2):275-6.

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



## Supplement Facts

**Serving Size: 2 capsules**  
**Servings Per Container: 25**

### Amount Per Serving

American Ginseng root 1000 mg\*  
*(Panax quinquefolius)*

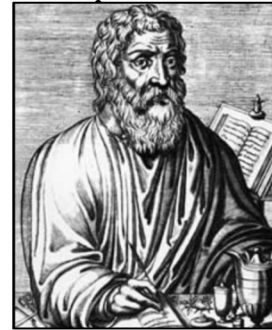
\*Daily Value not established

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
 All Rights Reserved.

*Eating alone will not keep a man well. He must also take exercise.*

*Hippocrates*



- Higher risk for heart disease, type 2 diabetes, certain cancers, Alzheimer's disease and increase lower back pain, depression and anxiety.
- **Half of baby boomers in the US report having NO exercise.**
- **80 million Americans over age of 6 years of age are entirely inactive**

*Vicenna Low Dog, M.D.*

## BENEFITS OF PHYSICAL ACTIVITY



- Movement increases blood flow to the brain, **stimulating release of endorphins that diminish pain, as well as compounds that elevate mood.**
- More than **400 studies** show exercise can **reduce risk depression/anxiety.**
- American Cancer Society, **exercise may reduce risk of cancer by reducing insulin and insulin-like growth factors levels, associated with increased cell/tumor growth.**
- Review of 73 studies found 25% average risk reduction for breast cancer amongst physically active women.

*Lynch, et al. Recent Results Cancer Res 2011; 186:13-42*

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
 All Rights Reserved.

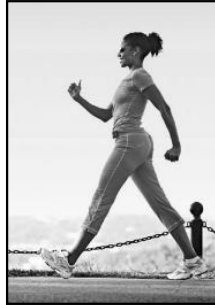
Activity	In 1 hour	In 30 minutes
Running (1 mile in 12 minutes or 5 miles/hour)	590	295
Swimming (slow freestyle laps)	510	255
Walking (1 mile in 13 minutes)	460	230
Playing basketball	440	220
Weight lifting (vigorous effort)	440	220
Heavy yard work (chopping wood or clearing brush)	440	220
Golfing (walking and carrying clubs)	330	165
Dancing	330	165
Light gardening/yard work	330	165
Bicycling (more than 10 miles an hour)	290	145
Walking (1 mile in 17 minutes)	280	140
Weight lifting (general light workout)	220	110

Source: USDA, [www.mypyramid.gov](http://www.mypyramid.gov)

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
 All Rights Reserved.

## Keep Track of Your Movement



*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

"Cancer Prevention in 21<sup>st</sup> Century"



*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



*"All substances are poisons; there is none which is not a poison. The dose differentiates a poison and a remedy."*

*Paracelsus (1490-1541)*

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.



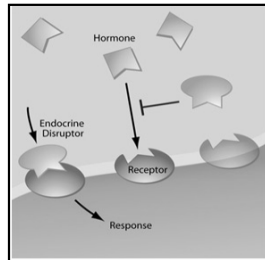
## *Safe Until Proven Dangerous*

- Unlike pharmaceuticals or pesticides, industrial chemicals do not have to be tested before they are put on the market.
- E.P.A. has mandated safety testing for only a small percentage of the 85,000 industrial chemicals in use.
- Once chemicals are in use, the regulatory burden is so high that only five substances have been banned or restricted: polychlorinated biphenyls, dioxin, hexavalent chromium, asbestos and chlorofluorocarbons.

*Vicenna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Endocrine Disruptors



Chemicals that may interfere with the body's endocrine system and produce adverse developmental reproductive, neurological, and immune effects in both humans and wildlife.

*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Endocrine Society Second Scientific Statement

- Endocrine disrupting compounds contribute to **impaired reproduction, neurodevelopment, thyroid function, metabolism, and increased propensity for hormone-sensitive cancers.**
- Unfortunately, it is **difficult to directly relate** chronic disease burden to exposures in humans.
- The increased prevalence of such diseases underscores the need to **invoke precaution** in introducing new (and usually untested) chemicals into the environment.

Gore AC, et al. *Endocr Rev* 2015; 36(6):E1-E150.



*Viviana Low Dog, M.D.*

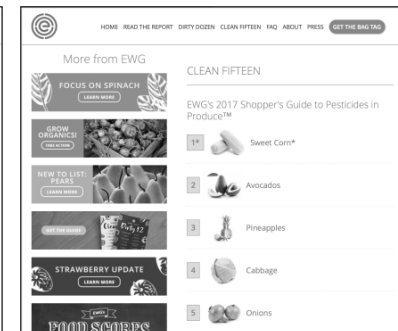
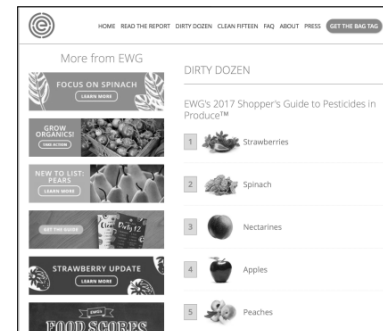
## Reducing Environmental Exposures

1. Eat **fresh** rather than processed food, when possible
2. **Organic** fruits/vegetables, dairy; **grass fed/finished** meats, **free range eggs**, when possible
3. Reduce consumption of foods/beverages **in cans and plastic containers**
4. Minimize use of personal care products containing **fragrances (skindeep.org)**
5. **Avoid** garden/household/pet pesticides or fungicides. Use **integrated pest management for home/yard.**
6. Use **water filtration system (ewgs-water-filter-buying-guide)**, consider **HEPA** filters in home



*Viviana Low Dog, M.D.*

[www.ewg.org/foodnews/index.php](http://www.ewg.org/foodnews/index.php)



*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

"If we are going to live so intimately with these [agricultural] chemicals--eating and drinking them--taking them into the very marrow of our bones—we had better know something about their nature and their power."



Rachel Carson,  
*Silent Spring*

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Insecticides and Cancer

- Meta-analysis of 16 studies found **childhood exposure to indoor residential insecticides associated with a significant increased risk of childhood leukemia and lymphomas.**
- Positive but not statistically significant association also found for childhood brain tumors.



Chen M, et al. *Pediatrics* 2015; 136(4):719-29.

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Hormone Therapy During Menopause

- Benefits likely outweigh risks for **symptomatic women before age 60 years or within 10 years after menopause.**
- Symptom control is used to determine the minimum required dose for each woman (not hormone testing!)
- When balancing benefits and risks dose, **type and route of administration need to be considered.**



deVilliers TJ, et al. *Maturitas* 2013; 391-2

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Route and Type

- **Transdermal estradiol** has least effect on lipids and clots.
- **Estrogen alone does not** significantly increase risk of breast cancer.
- **Progesterone** is associated with **lower risk of breast cancer** and venous thrombosis **compared to synthetic progestogens.**
- If symptoms primarily urogenital, **vaginal estrogen** can be used with minimal systemic absorption.

Bhupathiraju SN, et al. *Endocr Prac* 2014; 20:1201-13

L-Hermite M. *Climacteric*. 2013 Aug;16 Suppl 1:44-53.

Hale GE, et al. *Trends Cardiovasc Med* 2015; 25(6):540-9

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## HPV Vaccine (Gardasil 9)

- Estimated **24,600 newly diagnosed cancers** attributable to two high-risk HPV types targeted by all currently licensed HPV vaccines
- **Routine HPV vaccination at age 11 or 12 years; and vaccination for females through age 26 years and males through age 21** who were not adequately vaccinated previously.
  - 2 doses 6-12 months apart if before 15<sup>th</sup> birthday, 3 doses if after.
- CDC, from June 2006-2017, ~100 million doses of HPV vaccines distributed and ~ most adverse events were non-serious.
- After careful review, *none of these adverse events* were any more common after HPV vaccination than among comparison groups.

<https://www.cdc.gov/vaccinesafety/vaccines/hpv/hpv-safety-faqs.html>

*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

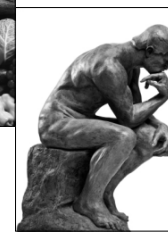
"Cancer Prevention in 21<sup>st</sup> Century"

## *It's All Connected*

BODY



MIND



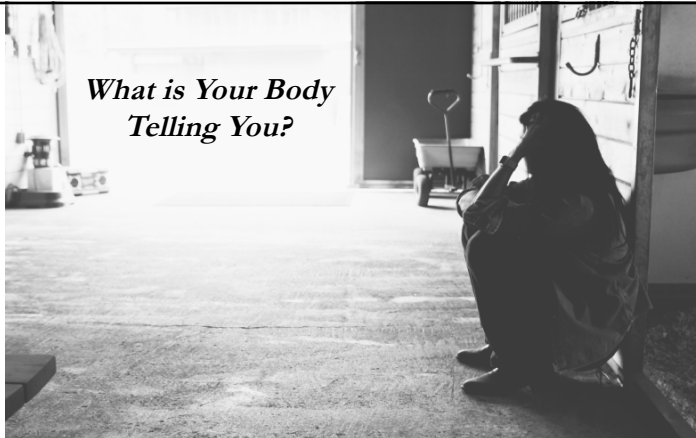
SPIRIT



*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## *What is Your Body Telling You?*

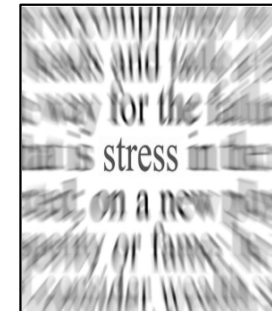


*Viviana Low Dog, M.D.*

## Stress and Cancer?

- Stress *does not* cause cancer.
- There is evidence that chronic stress, depression and social isolation may promote the growth of tumors *that are already present*.
- Excessive sympathetic tone caused by emotional stress, may decrease survival after a cancer diagnosis.

DeCock M, et al. *Oncol Rep.* 2013; 30(5): 2435-2441.



*Viviana Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

## Loneliness, Social Isolation & Your Health



### • 148 studies on the effects of social isolation on health found it is:

- As bad as smoking 15 cigarettes a day.
- As dangerous as being an alcoholic.
- As harmful as never exercising.
- Twice as dangerous as obesity.

Cacioppo JT, et al. *Ann N Y Acad Sci* 2011; 1231:17-22  
Holt-Lunstad J, et al. *PLoS Med* 2010; 7:e1000316

*Vianna Low Dog, M.D.*

Copyright © Integrative Medicine Concepts, LLC.  
All Rights Reserved.

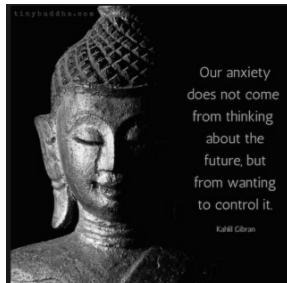
*Call it a clan, call it a network, call it a tribe, call it a family.  
Whatever you call it, whoever you are, you need one.*

~ Jane Howard



*Vianna Low Dog, M.D.*

## Self Soothing

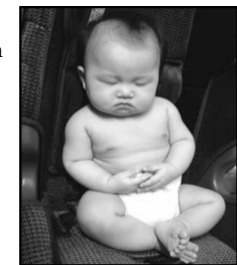


- A good way to deal with **anxiety and high stress** is to occasionally sidestep the analytical part of your brain by practicing **relaxation, meditation and/or using guided imagery.**

*Vianna Low Dog, M.D.*

## Meditation

- Meditation excellent for **reducing stress perception and pain intensity**, while **elevating mood.**
- Long-time meditators have greater activation of areas responsible for **sustaining attention, processing empathy, integrating emotion and cognition.**
- Review of **47 trials** found that meditation improves:
  - Anxiety
  - Depression
  - Pain



Goyal M, et al. *JAMA Intern Med* 2014; 174(3):357-68

*Vianna Low Dog, M.D.*

## Meditation Resources

- **Guided Mindfulness Meditation:** *A Complete Guided Mindfulness Meditation Program* from Jon Kabat-Zinn
- **Insight Timer** - ~4,000 guided meditations from more than 1,000 teachers (self-compassion, nature, stress, podcasts and more). More than 750 meditation music tracks. Free.
- **Headspace** – very good for beginners with 10 minute meditations. Free.
- **The Mindfulness App** – nice 5 day guided meditation program to get you started. Can be personalized and integrated into other health apps. Free.

*Vianna Low Dog, M.D.*

## Guided Imagery: *Imagine Yourself.....*

- An immersive, deeply relaxing intervention that uses calming words, soothing music and positive images to structure a healing experience.
- Like meditation, it **focuses attention** and **calms the mind**, working on those parts of the brain where the emotional self dwells.
- Imagery has been shown to **reduce stress, anxiety, and depression**; help with **sleep**; **lower blood pressure**, and help with **posttraumatic stress**.
- I have found guided imagery a fabulous tool for myself, kids and patients. Very helpful for those with ADHD, anxiety, depression, pain, cancer.

*Vianna Low Dog, M.D.*

## Belleruth Naparstek

- Love, love, love her. Something for everyone.
- She has Guided Imagery Meditations for:
  - Anxiety and Panic
  - Anger and Forgiveness
  - Depression
  - Healing Trauma
  - Ease Grief
  - Relieving Stress
  - Undergoing Surgery
  - Chemotherapy and Radiation



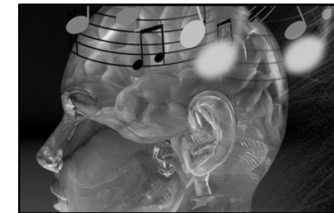
*Vianna Low Dog, M.D.*

Copyright Medicine Lodge Ranch, LLC  
All rights reserved.

## Music and Quality of Life

- After evaluating 52 music-intervention studies, Cochrane Collaboration reviewers reported that **music reduces anxiety and pain and improves mood and quality of life in people with cancer.**

Bradt J, et al. *Cochrane Database Syst Rev* 2016 Aug  
15;(8):CD006911.




*Vianna Low Dog, M.D.*

Listen.  
Are you  
breathing  
just a little  
and calling  
it a life?  
  
~ Mary Oliver

*Vianna Low Dog, M.D.* Copyright © Integrative Medicine Concepts, LLC. All Rights Reserved.

*"There are voices which we  
hear in solitude ...  
  
but they grow faint and  
inaudible as we enter into the  
world."*

Ralph Waldo Emerson



*Vianna Low Dog, M.D.* Copyright © Integrative Medicine Concepts, LLC. All Rights Reserved.




WHICH ONE WILL WIN?

THE ONE YOU FEED

Letting Go.....

*"Healing may not so much be about getting better, but about letting go, of all the expectations, all of the beliefs, and becoming who you are."*

— Rachel Naomi Remen, M.D.



*Vianna Low Dog, M.D.* Copyright © Integrative Medicine Concepts, LLC. All Rights Reserved.