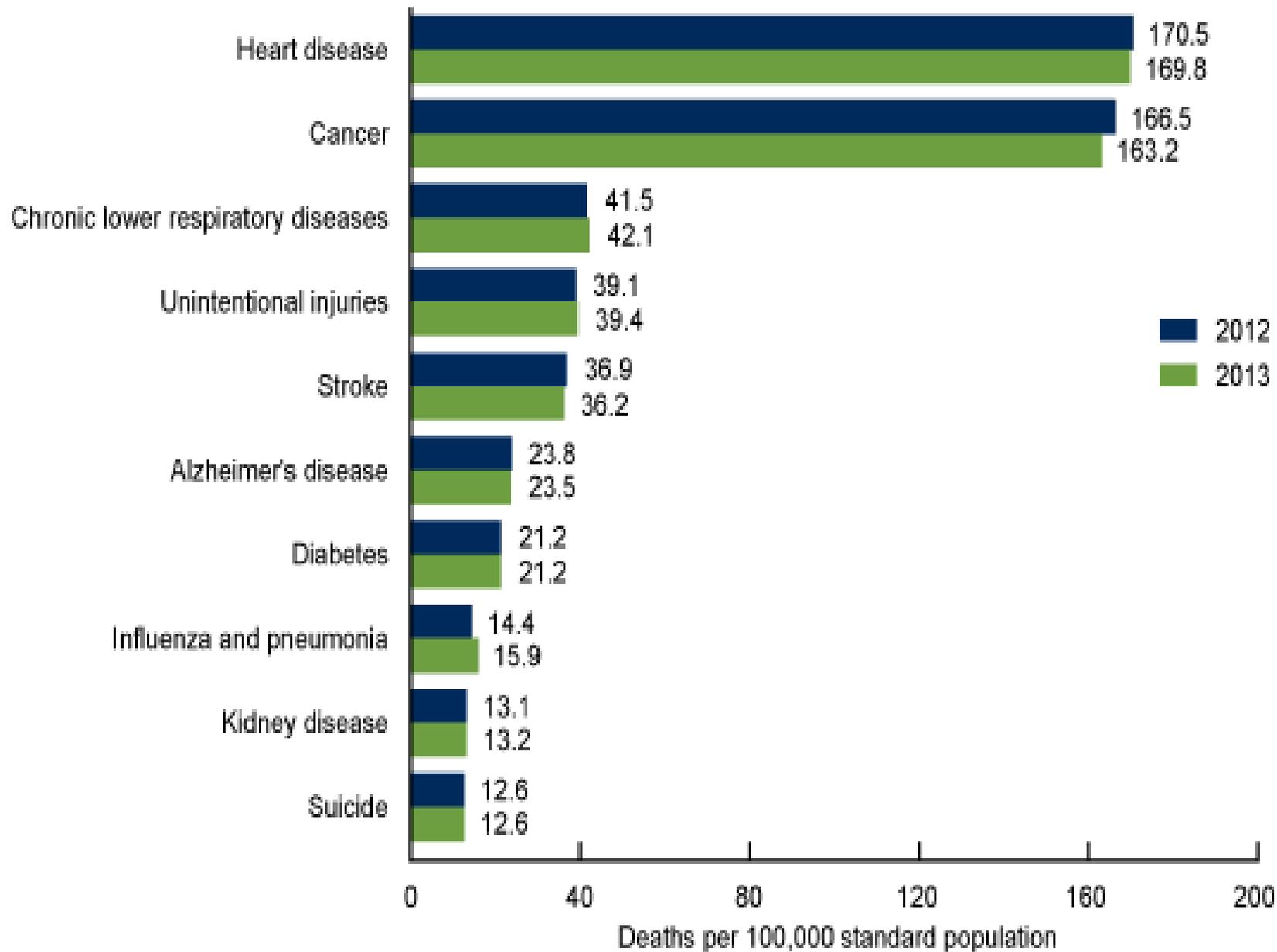


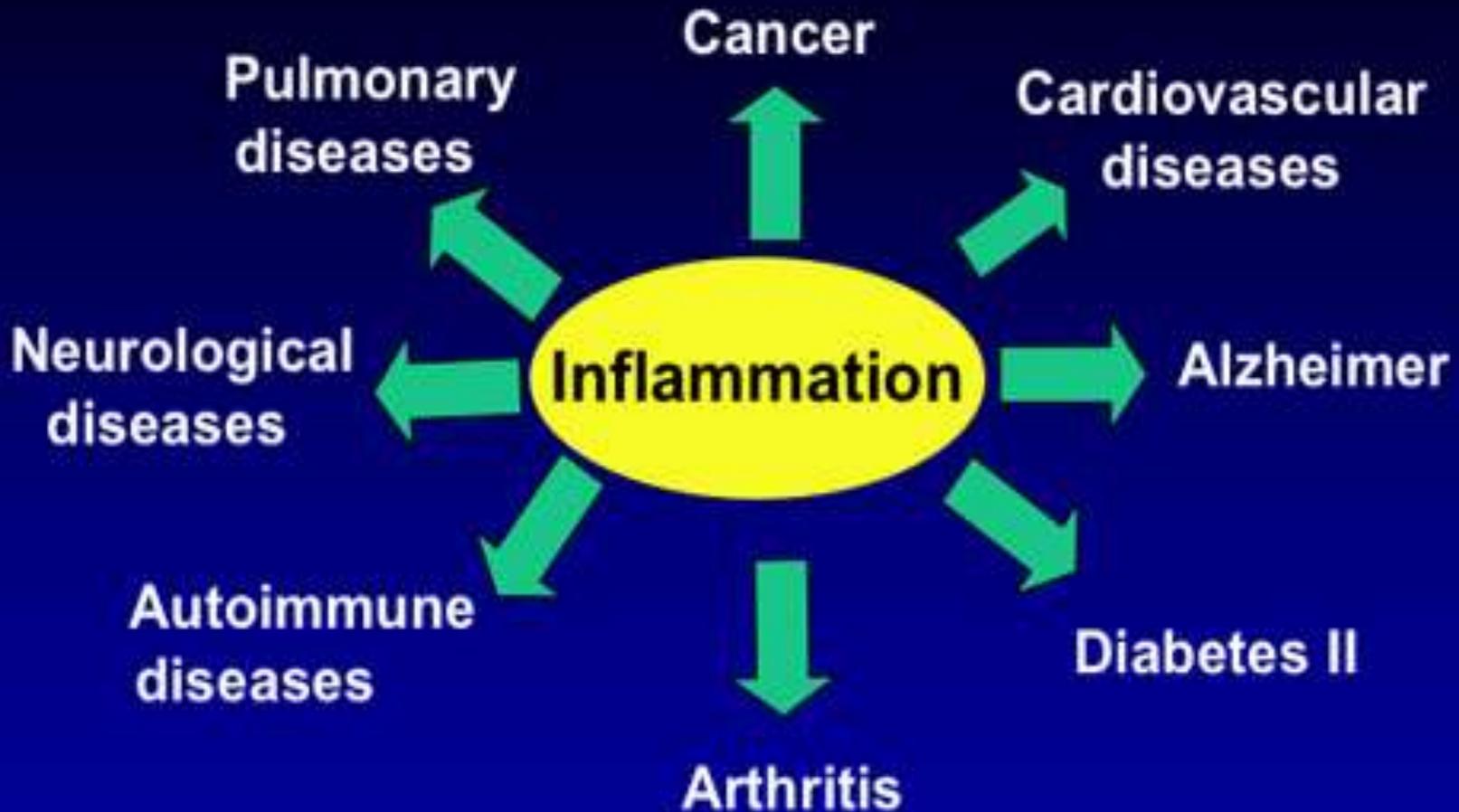


Eating For Peak Prostate Health

Presented by
Greta Macaire, MA, RD, CSO
UCSF Helen Diller Family Comprehensive
Cancer Center



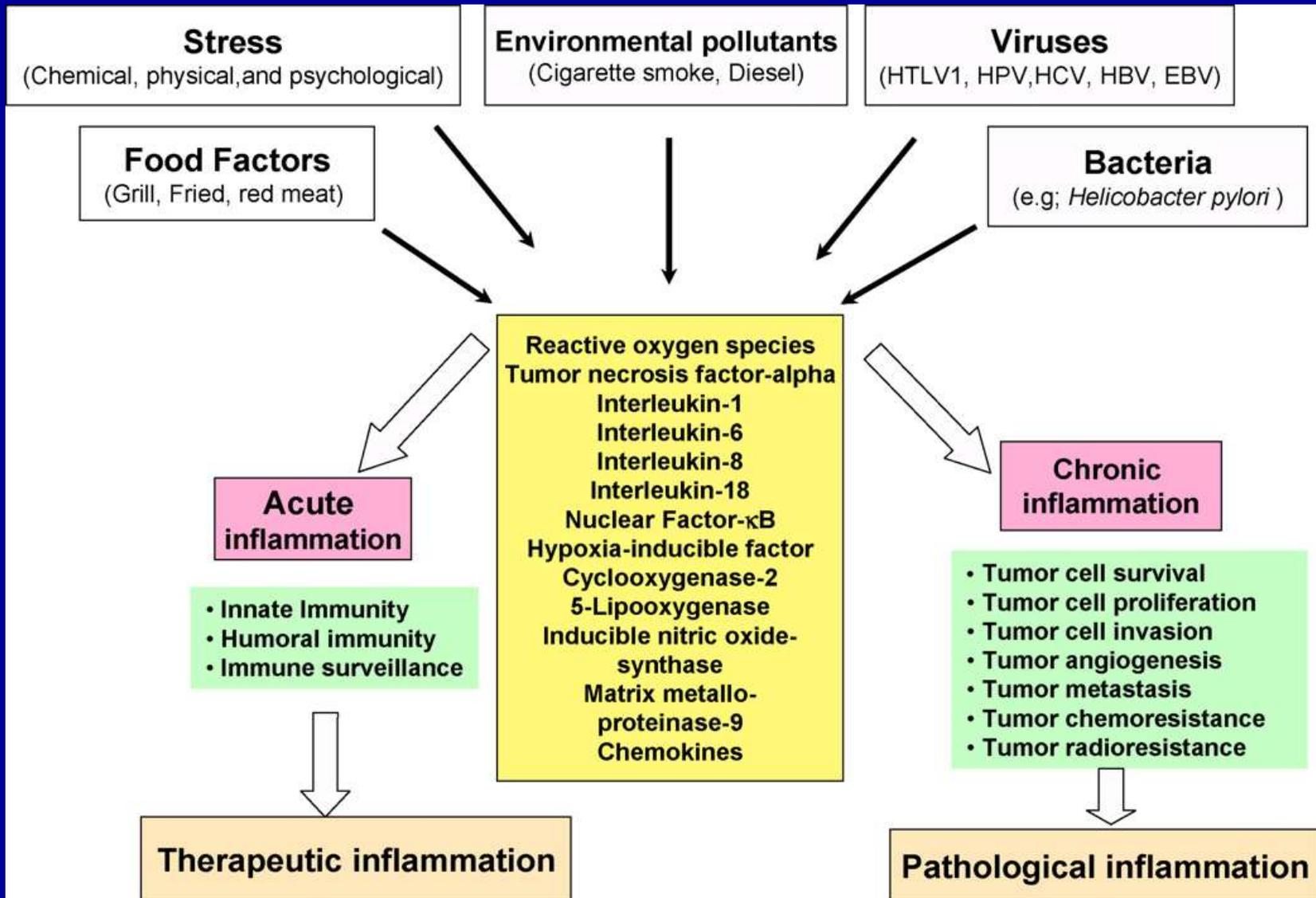
Chronic Inflammation and Chronic Disease



C-Reactive Protein (CRP), Heart Disease & Prostate Cancer

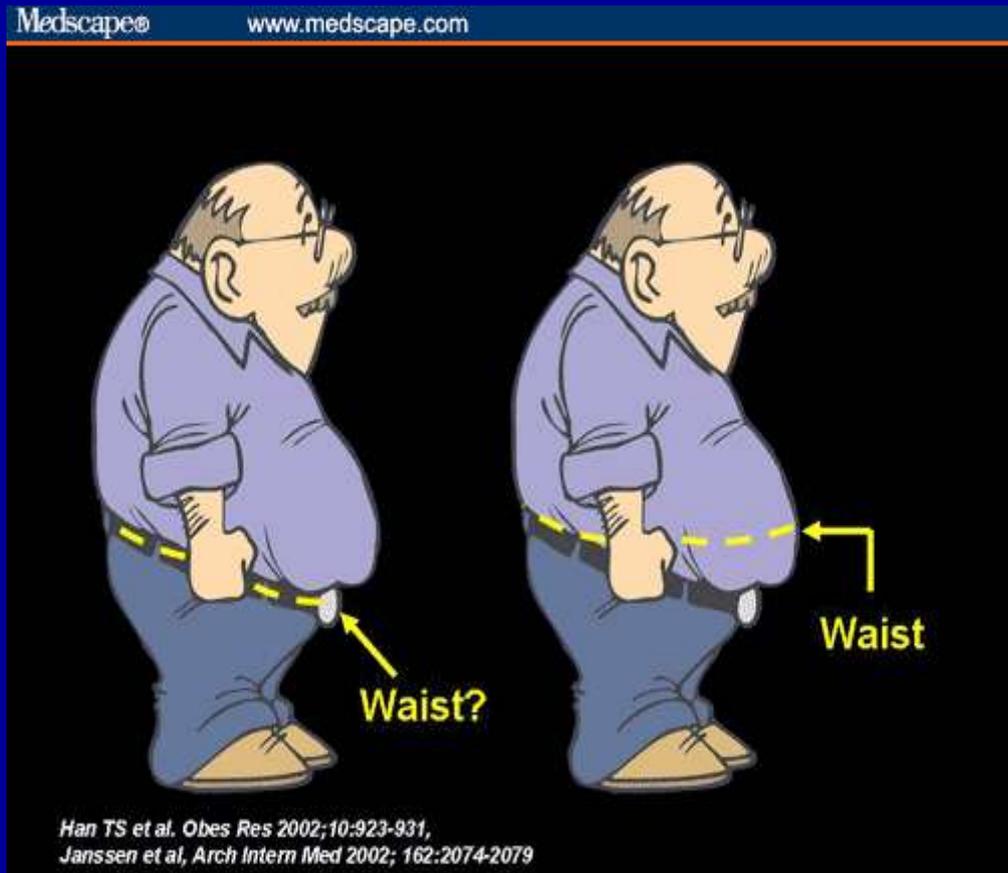
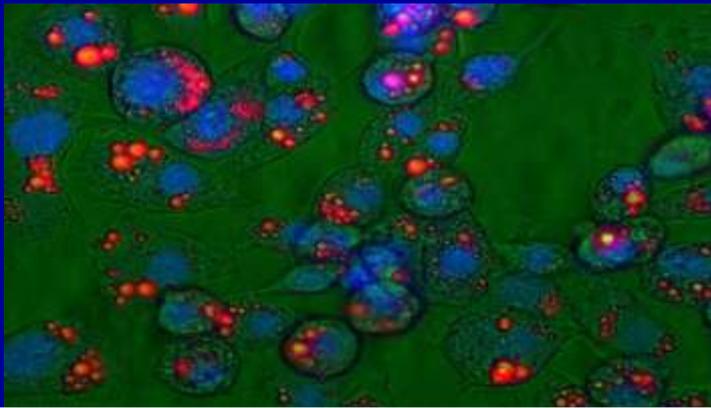
- CRP is a marker of chronic inflammation in the body:
 - High CRP is associated with an increased risk of cardiovascular disease (CVD) regardless of cholesterol levels.
 - High CRP in men with prostate cancer is associated poorer overall survival, progression free survival and cancer specific survival.
- CRP or high sensitivity CRP (hsCRP) blood test:
 - Low risk for CVD: less than 1.0 mg/L
 - Average risk: 1.0 to 3.0 mg/L
 - High risk: above 3.0 mg/L

Inflammation's Role in Cancer



Abdominal Obesity and Inflammation

Fat cells especially visceral fat (the kind around the waistline) are active cells → secreting chemicals (TNF-alpha, IL-6, CRP, leptin) that promote chronic inflammation.

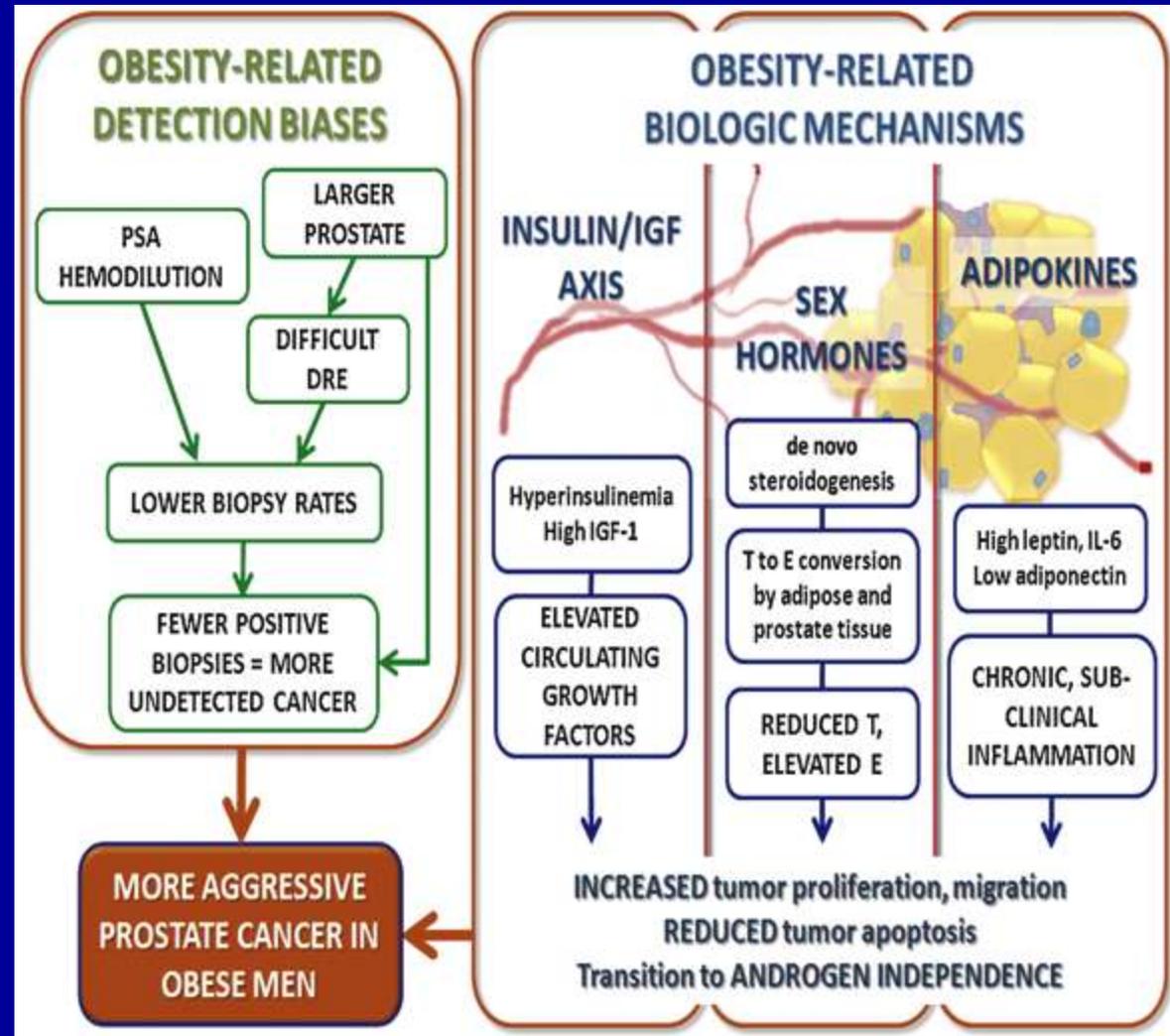


Linked with an increased risk of death from any cause, heart disease and cancer.

Obesity & Prostate Cancer

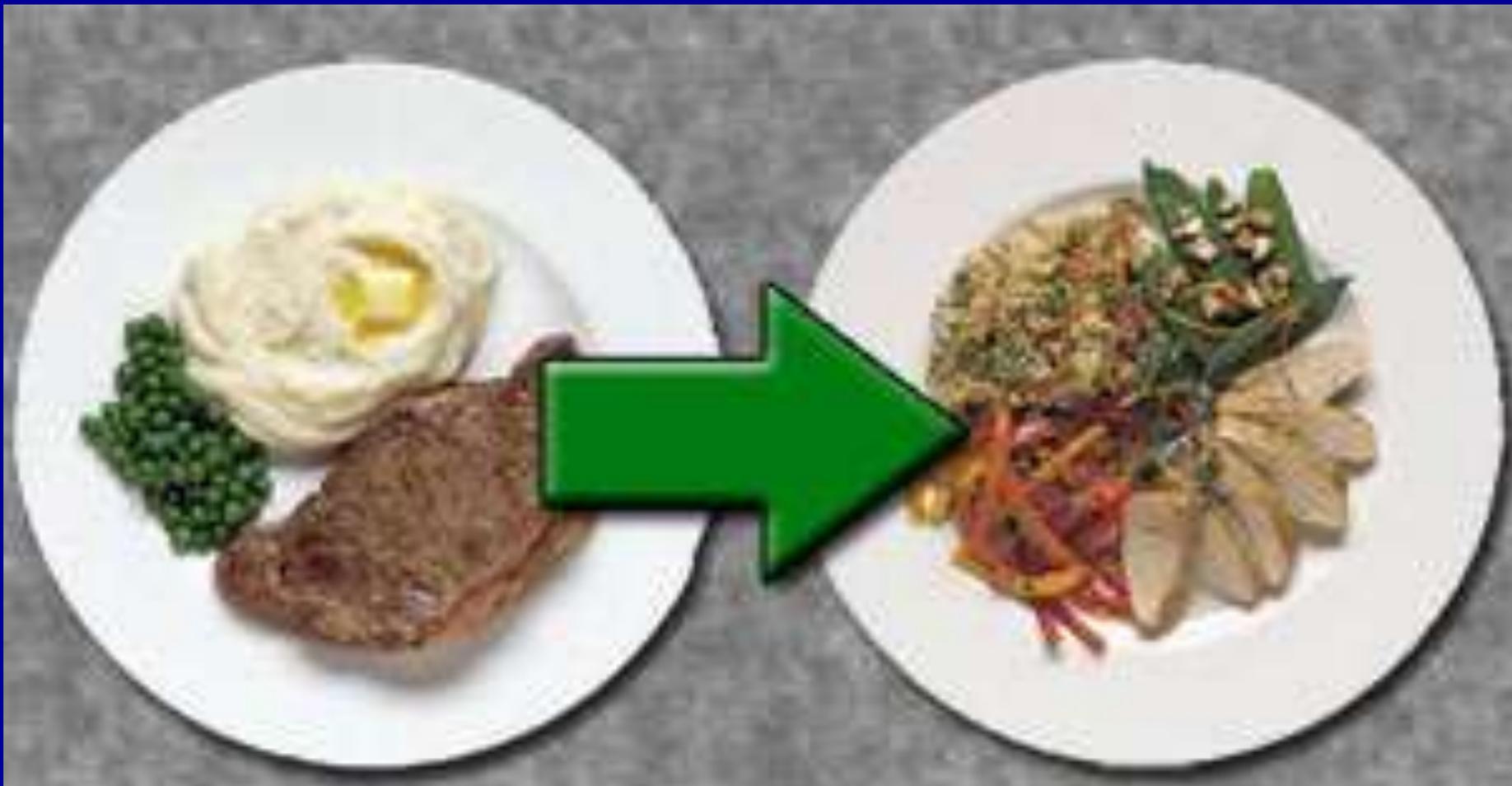
Obesity is associated with a higher risk of:

- Advanced prostate cancer.
- Recurrence after prostatectomy.
- Fatal prostate cancer.



Diet & Inflammation

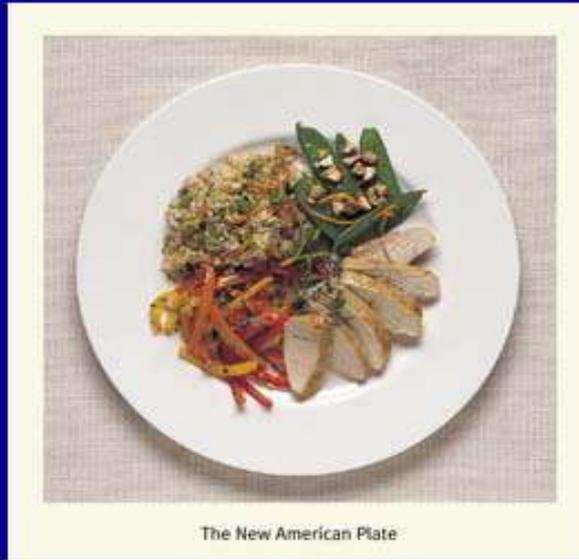
Nutrient	Overall Effect on Inflammatory Markers in the blood.
Mediterranean Diet Pattern	↓
Western Diet Pattern	↑
Saturated Fat and Trans Fat	↑
Monounsaturated Fat	↓
High Omega-6/3 Ratio	↑
Refined grains, added sugars, sugary drinks	↑
Dietary Fiber	↓
Vegetables & Fruit	↓
Foods rich in vitamin C, E, beta-carotene & magnesium	↓
Alcohol	Moderate = ↓/ Excessive = ↑



Men with prostate cancer (PCa) consuming a Western dietary pattern had a 239% higher risk of PCa-specific death and a 73% higher risk of all-cause mortality compared to men eating a non-Western dietary pattern.

Kenfield SA, *et al.* AACR, advances in PCa research. San Diego, CA: AACR; 2014

Plant Based Diet



Your plate should hold $\frac{2}{3}$ (or more) vegetables, fruit, whole grains and beans and

Adherence to this recommendation has been associated with a lower risk of localized, aggressive and overall PCa.

Arab L, *et al.* Nutr Cancer. 2013;65(5):633-43.

Er V, *et al.* Cancer Epidemiol Biomarkers Prev. 2014 Jul 13.

Choose Mostly Plant Foods



- A plant-based diet has been linked with a reduced risk of cancer, heart disease, obesity, diabetes, hypertension and Alzheimer's disease.
- The health benefits come from a ***whole eating pattern*** vs. one particular food.
- Helps achieve two goals:
 - Increased intake of vitamins, minerals, dietary fiber, and health promoting phytonutrients
 - Reduced consumption of animal fats and animal protein, salt, sugars, additives & preservatives

Phytonutrients:

- Natural plant compounds that promote health via actions such as:
 - Anti-inflammatory
 - Anti-oxidant
 - Immune boosting
 - Stimulating apoptosis (cancer cell death)
 - Repairing DNA damage caused by smoking & other toxic exposures
 - Detoxifying carcinogens



Phytonutrients & Prostate Cancer



Tomatoes and Tomato Based Products

- 18% lower risk of early PCa in men eating >10 servings per week.
- 20% lower risk of progression in men with PCa that consumed ≥ 2 servings per week of tomato sauce.
- Rich in lycopene:
 - Easier to absorb from cooked tomato products (paste, sauce, juice).
 - Better absorbed when combined with a little fat such as olive oil or nuts.
 - Best to obtain from food sources rather than supplements.

Cruciferous Vegetables

- Include arugula, bok choy, broccoli, Brussels sprouts, cabbage, cauliflower, collard greens, mustard greens, radishes, rutabagas, turnips, watercress, wasabi
- 59% decreased risk of progression seen in men with PCa that consumed ≥ 5 servings compared to ≤ 1 serving per week.
- Rich in glucosinolates, isothiocyanates, and indoles:
 - To maximize the benefits let crucifers "aerate" on your cutting board for 5 minutes after chopping and avoid over-cooking.

A double-blind, placebo-controlled randomised trial evaluating the effect of a polyphenol-rich whole food supplement on PSA progression in men with prostate cancer—the UK NCRN Pomi-T study

R Thomas^{1,2,3}, M Williams¹, H Sharma¹, A Chaudry² and P Bellamy³

BACKGROUND: Polyphenol-rich foods such as pomegranate, green tea, broccoli and turmeric have demonstrated anti-neoplastic effects in laboratory models involving angiogenesis, apoptosis and proliferation. Although some have been investigated in small, phase II studies, this combination has never been evaluated within an adequately powered randomised controlled trial.

METHODS: In total, 199 men, average age 74 years, with localised prostate cancer, 60% managed with primary active surveillance (AS) or 40% with watchful waiting (WW) following previous interventions, were randomised (2:1) to receive an oral capsule containing a blend of pomegranate, green tea, broccoli and turmeric, or an identical placebo for 6 months.

RESULTS: The median rise in PSA in the food supplement group (FSG) was 14.7% (95% confidence intervals (CIs) 3.4–36.7%), as opposed to 78.5% in the placebo group (PG) (95% CI 48.1–115.5%), difference 63.8% ($P = 0.0008$). In all, 8.2% of men in the FSG and 27.7% in the PG opted to leave surveillance at the end of the intervention ($\chi^2 P = 0.014$). There were no significant differences within the predetermined subgroups of age, Gleason grade, treatment category or body mass index. There were no differences in cholesterol, blood pressure, blood sugar, C-reactive protein or adverse events.

CONCLUSIONS: This study found a significant short-term, favourable effect on the percentage rise in PSA in men managed with AS and WW following ingestion of this well-tolerated, specific blend of concentrated foods. Its influence on decision-making suggests that this intervention is clinically meaningful, but further trials will evaluate longer term clinical effects, and other makers of disease progression.

Prostate Cancer and Prostatic Disease (2014) **17**, 180–186; doi:10.1038/pcan.2014.6; published online 11 March 2014

Keywords: nutrition; active surveillance; watchful waiting

Top Anti-Inflammatory Foods

- All spices & herbs (turmeric, ginger, garlic, etc...)
- Cherries & berries (blueberries, raspberries, etc...)
- Pomegranates, red grapes, apples, citrus, pineapple, papaya
- Leafy green vegetables (spinach, chard, kale)
- Cruciferous vegetables (broccoli, cabbage, etc...)
- Orange vegetables (butternut squash, yam, carrot)
- Tomatoes, onions, celery, artichokes, soy beans
- Olive oil, tea, dark chocolate (flavanols), coffee
- Magnesium rich foods (nuts, legumes, whole grains)
- Omega-3 rich foods (flax, chia, pumpkin seeds, walnuts, fatty fish like sardines and salmon)

Top Immune Boosting Foods

- Sweet potatoes, butternut squash, carrots, apricots, cantaloupe, kale, spinach (Vitamin A)
- Citrus, berries, cherries, kiwi, peppers, tomatoes, broccoli, dark leafy greens (Vitamin C)
- Almonds, avocado, wheat germ, pumpkin seeds (Vitamin E).
- Sesame seeds, pumpkin seeds, beans, quinoa (Zinc)
- Brazil nuts, seafood, whole grains (Selenium)
- Omega-3 rich foods (flax, chia and pumpkin seeds, walnuts, fatty fish like sardines, trout and salmon)
- Fermented probiotic rich foods (tempeh, miso, kim chi, sauerkraut, kombucha tea, yogurt, kefir,)
- Garlic, onions, leeks, apples, parsley, green tea, turmeric, tomatoes, Asian mushrooms (shitake, maitake, turkey tail,

reishi)

What about organics?

EWG'S SHOPPERS GUIDE TO PESTICIDES IN PRODUCE™

DIRTY

2013 **DOZEN™** 2013

APPLES	NECTARINES
CELERY	IMPORTED
CHERRY	PEACHES
TOMATOES	POTATOES
CUCUMBERS	SPINACH
GRAPES	STRAWBERRIES
HOT PEPPERS	SWEET BELL PEPPERS

PLUS

- COLLARDS & KALE*
- SUMMER SQUASH & ZUCCHINI*

*PESTICIDES OF SPECIAL CONCERN

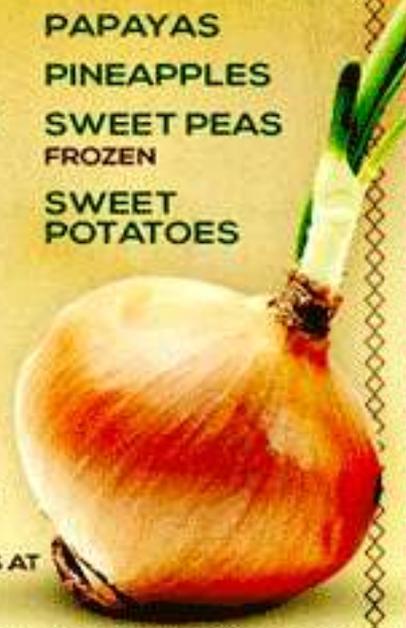


EWG'S SHOPPERS GUIDE TO PESTICIDES IN PRODUCE™

CLEAN

2013 **FIFTEEN™** 2013

ASPARAGUS	ONIONS
AVOCADO	PAPAYAS
CABBAGE	PINEAPPLES
CANTALOUPE	SWEET PEAS FROZEN
CORN	SWEET POTATOES
EGGPLANT	
GRAPEFRUIT	
KIWI	
MANGOS	
MUSHROOMS	



QUESTIONS ABOUT PESTICIDES IN PRODUCE? VISIT US AT FOODNEWS.ORG

Whole Grains

Examples of whole grains:

amaranth * barley *
brown or wild rice *
buckwheat (kasha)
farro * millet * oats
* quinoa * rye *
spelt * triticale *
wheatberries

Bran = Roughage

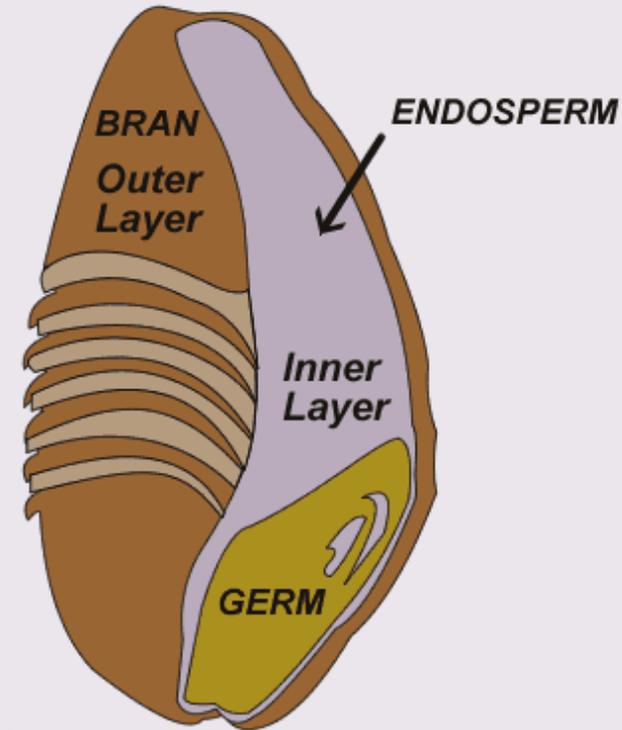
Fiber
B-Vitamins*
Trace Minerals**
Phytochemicals

Endosperm = Energy

Carbohydrates
Protein

Germ = Nutrients

B-Vitamins*
Vitamin E
Trace Minerals**
Phytochemicals
Unusual/Unsaturated lipids



*thiamin, niacin, riboflavin, pantothenic acid

**iron, zinc, iodine, copper, manganese, selenium



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AT HARVARD

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U.S. News & World Report

Characteristically Chinese

Chinese cuisine offers a range of tastes almost as vast as the country itself. For the weight-conscious, Chinese food offers a wide array of lower-calorie choices that are both delicious and distinctive. But you have to know what your choices are.

Before you contemplate your next Chinese meal, consider what you see in the food demonstration below. On your right—a whole meal consisting of soup, shrimp and broccoli in hoisin sauce, brown rice, and even a fortune cookie. It's certainly a good choice if you want to leave the table feeling satisfied.

That whole meal has the same number of calories as any one of the typical appetizers on the left—the single egg roll, the small portion of spareribs, or the crispy noodles. So you might want to turn to this page to remind yourself of your calorie alternatives before you order takeout or head for the nearest Chinese restaurant.



egg roll
400 calories

OR



small serving of spareribs
400 calories



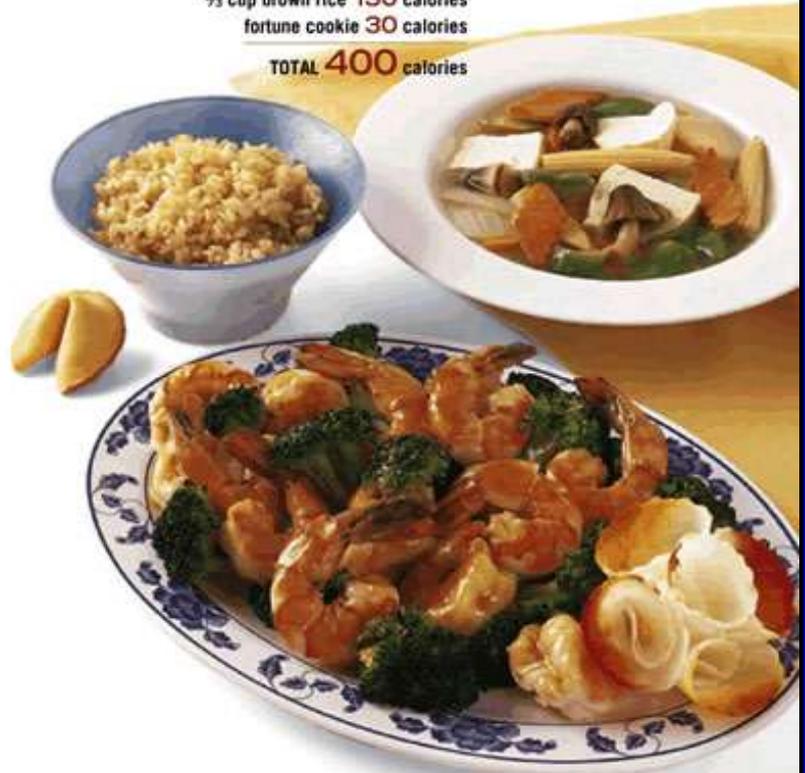
OR



dish of crispy noodles
400 calories

- bowl of Chinese vegetable soup 40 calories
- 4 oz shrimp 120 calories
- 1½ cups of broccoli 60 calories
- 2 Tbsp hoisin sauce 20 calories
- ¾ cup brown rice 130 calories
- fortune cookie 30 calories

TOTAL 400 calories



\$3.99 U.S. / \$4.99 CANADA



www.usnews.com

www.pictureperfectweightloss.com

Fish

- Fish consumption has been linked to a lower risk of PCa.
- Consuming fish ≥ 2 times a week was associated with a 17% lower risk of PCa progression.
- Greater fish consumption was associated with a 63% reduction in death from PCa.
- Fish to avoid due to high mercury content include:
 - Mackerel (King), Marlin, Orange Roughy, Shark, Swordfish, Tilefish, Bigeye and Ahi Tuna

Red & Processed Meats

- Higher consumption of red meat linked with greater risk of Pca, evidence is strongest for processed & well done meats.
 - Heterocyclic amines (HCAs) form during cooking meat
→ Levels increase with longer cooking time and higher temperatures.
 - Nitrates/nitrites and polycyclic aromatic hydrocarbons (PAHs) found in processed meats.
- Limit red meat and avoid processed meats:
 - Red meats include beef, pork and lamb.
 - Processed meats include ham, bacon, salami, hot dogs and sausages.

Dairy Products & Prostate Cancer

- A link between high intake of milk and dairy products and greater risk of PCa seen in several studies.
- In a recent study, men with PCa that consumed ≥ 1 cup of whole milk per day vs. those that rarely consumed had a 49% higher incidence of fatal PCa.
- Mechanisms thought to be involved include:
 - Saturated fat content
 - Casein protein
 - Increase in insulin like growth factor-1 from estrogen
 - Suppression of circulating vitamin D by calcium in dairy

Calcium, Vitamin D₃ & Prostate Cancer

- Risk of advanced and fatal PCa is higher in men with high calcium intake (>1500 mg/day).
- Recommendations for calcium intake:
 - 800 -1200 mg/day, avoid excess (>1500 mg/day).
 - Needs depend on diet, bone mineral density, etc...
 - Men on long-term androgen deprivation therapy (ADT) are at an increased risk for osteoporosis.
 - Non-dairy sources include: kale, broccoli, almonds, chia seeds, sardines, tofu, calcium fortified foods.
- Ensure adequate vitamin D₃ intake:
 - Check vitamin D, 25(OH) blood level to determine correct dose → 1000 IU or more/day.

Dietary Fat & Prostate Cancer

- Studies on the association between total dietary fat intake and PCa risk are mixed.
 - The type of fat appears to be of greater importance than total fat.
- In a recent study of men with PCa:
 - Higher intake of vegetable fat (olive oil, avocado, nuts, seeds) was associated with a 29% lower risk of lethal PCa & 26% lower risk of death from any cause.
 - Higher intakes of animal fat (saturated fat) and trans-fat were associated with a 30% higher risk of death from any cause.

Essential Fatty Acids (EFAs)

Omega-6

Grain-fed meats, dairy, egg yolks, sunflower oil, safflower oil, cottonseed oil, & corn oil.

Both types are essential → must consume via diet.

Caution: Imbalance of EFAs can have negative affects on health.

Omega-3

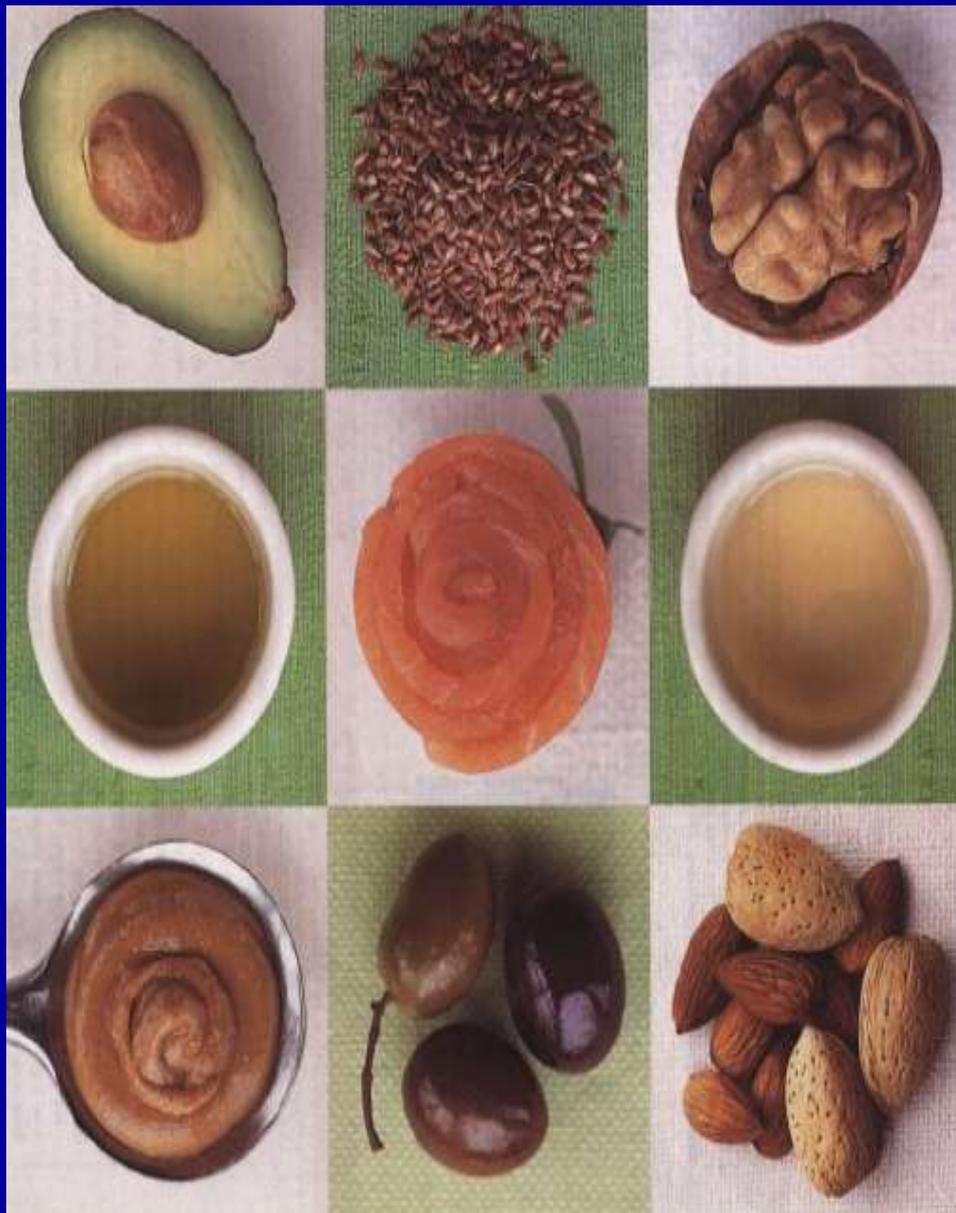
Cold-water fish (salmon, trout, sardines), flaxseeds, chia seeds, walnuts, pumpkin seeds.

Pro-Inflammatory:
Promote tumor growth & progression
Suppress immune function

Standard American Diet (SAD) is much higher in Omega-6 vs. Omega-3

Anti-Inflammatory:
Inhibit tumor growth & progression
Immune enhancing

Bottom Line on Dietary Fats



Eat more:

- Omega-3s: Cold-water fish (salmon, sardines), ground flax seeds, chia seeds, walnuts, pumpkin seeds, etc...
- Omega-9s: olive oil, almonds, avocados, organic canola oil, Brazil nuts, etc...

Limit/Avoid:

- Red meat, egg yolks, poultry skin, dairy products, baked goods & fried foods.
- Avoid partially hydrogenated oils (trans fat).

Physical Activity

- Benefits include → ↓ **Inflammation**, influences hormone levels, ↑ **immune function**, improves digestion, helps control body weight.
- In men with PCa:
 - Walking briskly for ≥ 90 minutes/week lowered their risk of death by 46%.
 - Vigorous exercise for ≥ 3 hours/week lowered the risk of death from PCa by 61%.
- In men on ADT:
 - Exercise benefits include greater muscular strength, cardiorespiratory fitness, functional performance, lean body mass, and less fatigue

Exercise Needed to Burn Off a Serving of French Fries



Average Serving of French Fries:
610 Calories
6.9 Ounces

Running at 5 MPH



1:05^{hrs}
150 lb Adult



0:49^{hrs}
200 lb Adult

Swimming



1:32^{hrs}
150 lb Adult



1:09^{hrs}
200 lb Adult

Leisure Bicycling



2:14^{hrs}
150 lb Adult



1:41^{hrs}
200 lb Adult

Walking at 2 MPH



3:13^{hrs}
150 lb Adult



2:24^{hrs}
200 lb Adult

Singles Tennis



1:07^{hrs}
150 lb Adult



0:50^{hrs}
200 lb Adult

Combined Healthy Lifestyle Practices



**Engaging in 5-6
healthy behaviors
= 40% lower risk
of lethal prostate
cancer.**



What can a healthy diet do for me?

- May help to inhibit prostate cancer growth
- Reduce risk of chronic diseases
- Enhance immune system
- Increase energy levels
- Facilitate recovery → Decrease treatment related side effects

Nutrition Rx for Wellness

- Plant-based diet:
 - 4-5 cups of COLORFUL vegetables & fruits daily
 - Include cooked tomatoes, cruciferous vegetables, turmeric, green tea, pomegranates & more...
 - Legumes (beans/lentils), nuts, seeds, whole grains
 - Limit meats, dairy, poultry skin, whole eggs
- Limit processed & refined foods:
 - Look for less than 5 ingredients on a label
 - Keep WHITE off your plate: bread, pasta, rice, cream sauces, sweets & added sugars



Nutrition Rx for Wellness (cont)



- Include healthy fat sources:
 - Olive oil, avocados, walnuts, almonds, ground flax seeds, other nuts and seeds, cold-water fish
- Drink plenty of fluids, water or non-caffeinated beverages, daily to help meet fluid needs:
 - Limit alcohol consumption
 - Avoid sugary drinks
- Ensure adequate vitamin D levels.
- Balance calorie intake & daily physical activity to help achieve & maintain a healthy weight.

Sample Meal Plan

Breakfast: *Oatmeal mixed with walnuts, ground flaxseed, cinnamon and berries, green tea or coffee*

Lunch: *Salad with dark, leafy greens, tomatoes, peppers, lentils, avocado, olive oil, turmeric, black pepper and lemon juice*

Dinner: *Baked wild caught salmon or tempeh in tomato sauce with quinoa cooked with herbs and garlic and broccoli*

Snacks: *Handful of almonds with an apple OR humus with vegetables OR square of dark chocolate and handful of goji berries OR ½ cup of edamame and a glass of low sodium tomato juice*

Drink plenty of water through the day.



Resources

Books/Cookbooks

- **The Spectrum**– written by Dean Ornish, 2008
- **Eat to Beat Prostate Cancer** – written by David Ricketts, 2006
- **The Cancer Fighting Kitchen** – written by Rebecca Katz, 2009

Websites

- <http://www.aicr.org>
- <http://cancer.ucsf.edu/crc>
- <http://www.pcf.org>

Thank you



Mediterranean Diet Pyramid

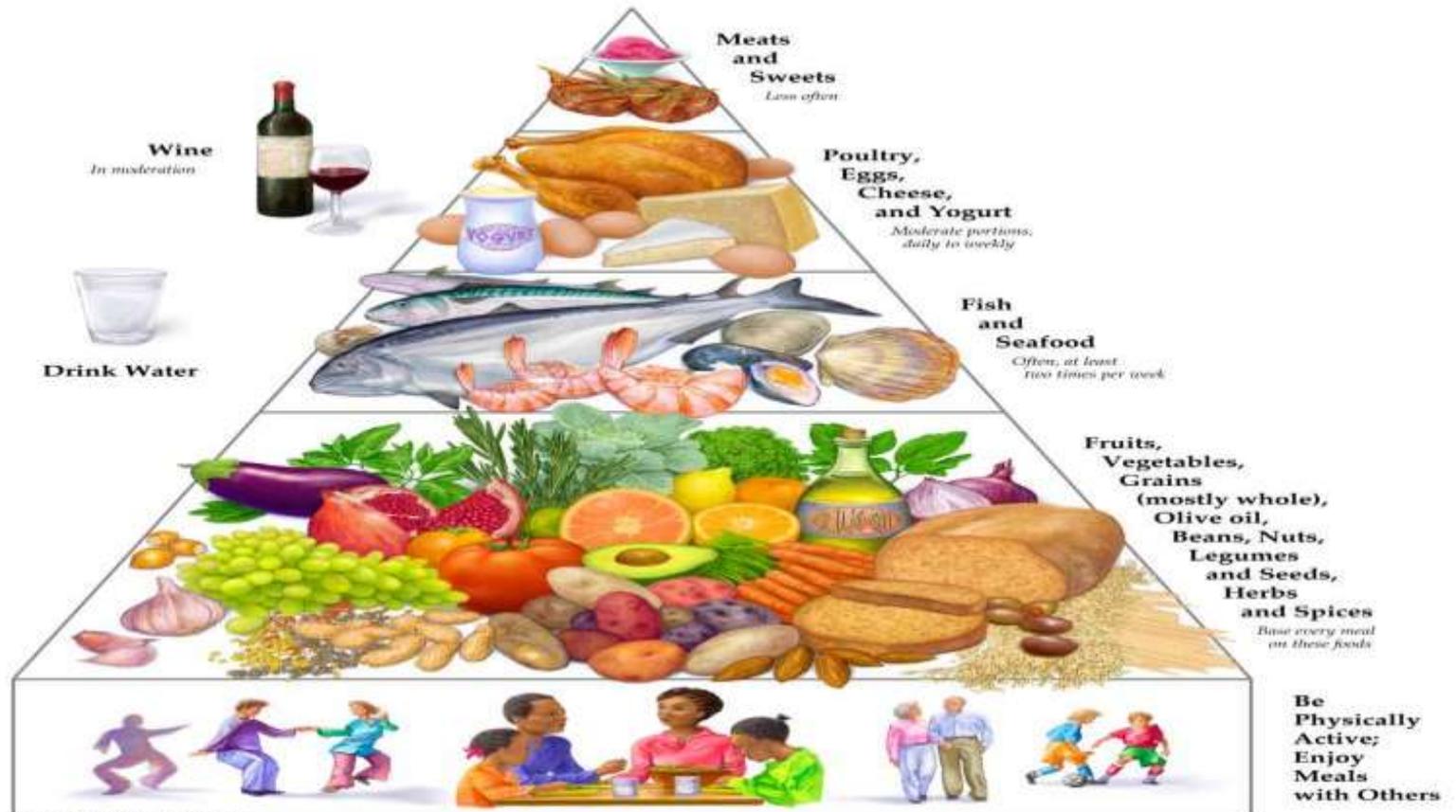


Illustration by George Middleton

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www.oldwayspt.org

Traditional Anti-Inflammatories

Many studies underway on traditional herbs used as anti-inflammatory agents include:

Boswellia Bromelain Curcuma longa Ginger Cat 's Claw



Stinging Nettle

Milk Thistle



Wintergreen



Zyflamend (extracts of rosemary, turmeric, ginger, holy basil, green tea, hu zhang, chinese, goldthread, berberine, oregano leaf, baikal skullcap)



Anti-Inflammatory Phytonutrients

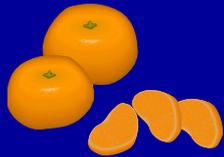


Dr. Weil's Anti-Inflammatory Foods Pyramid

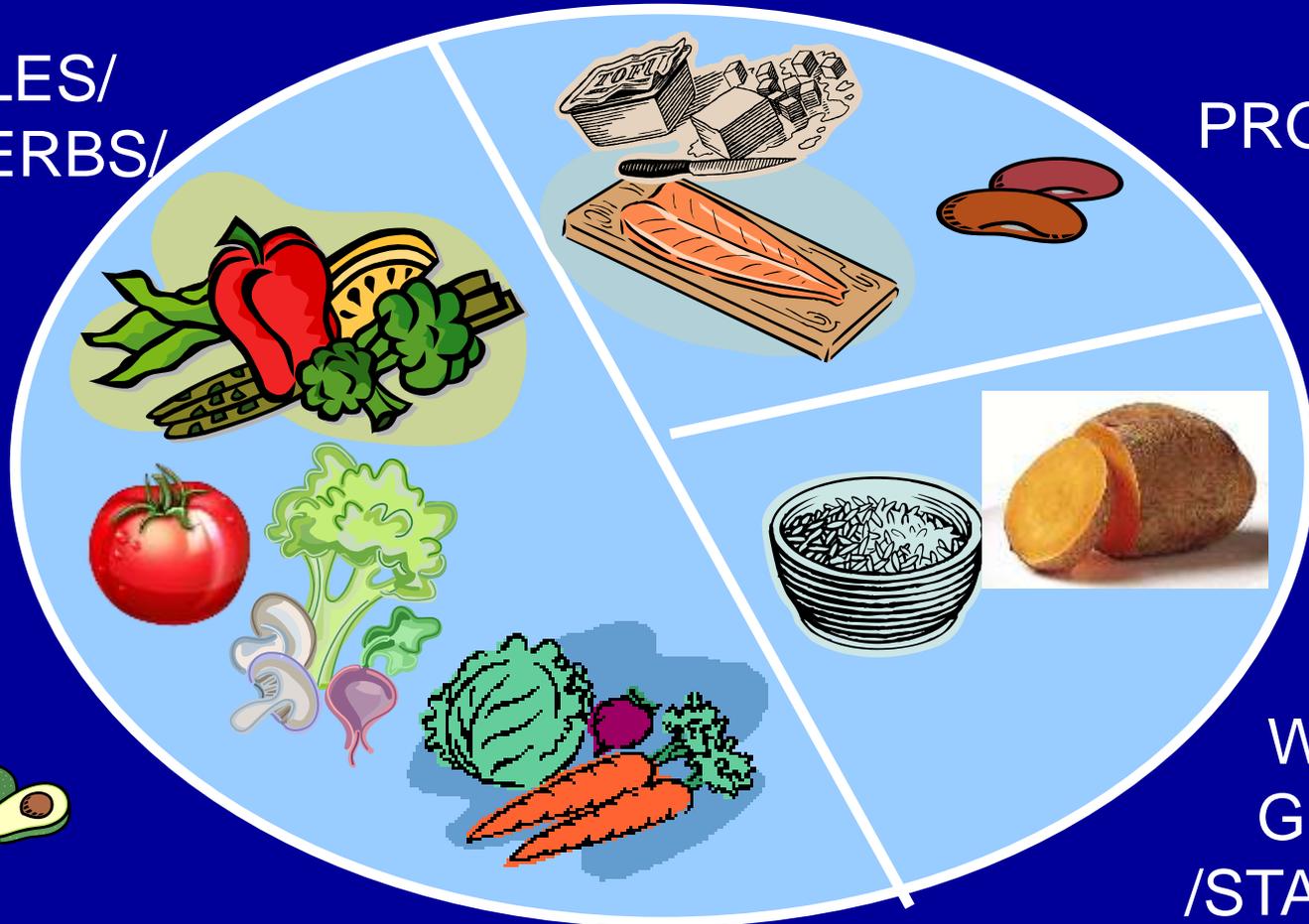
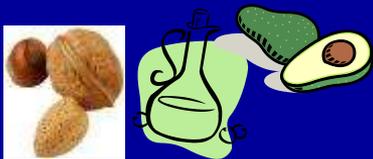


Balanced Diet - Plant Heavy

VEGETABLES/
FRUITS/HERBS/
SPICES



HEALTHY
FATS



PROTEIN

WHOLE
GRAINS
/STARCHY
VEGETABLES