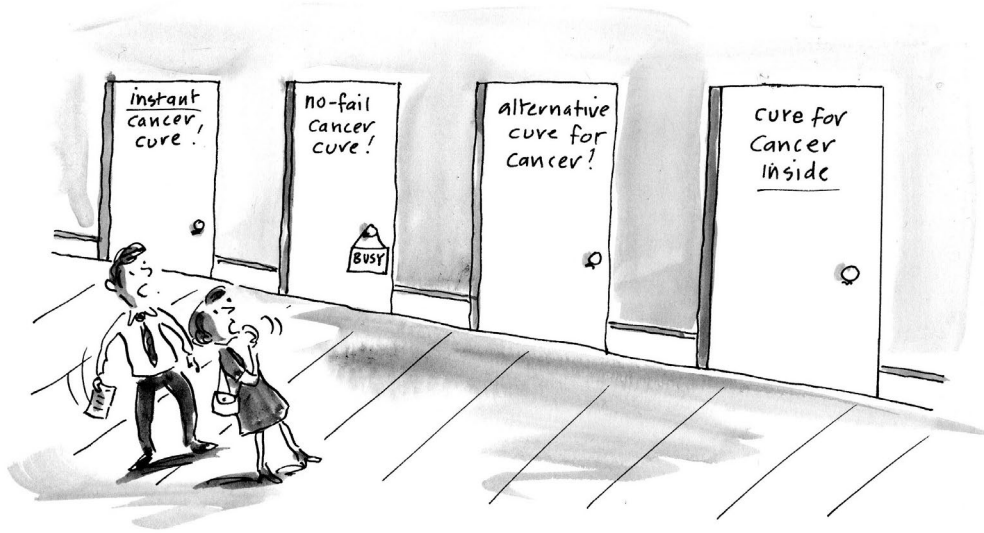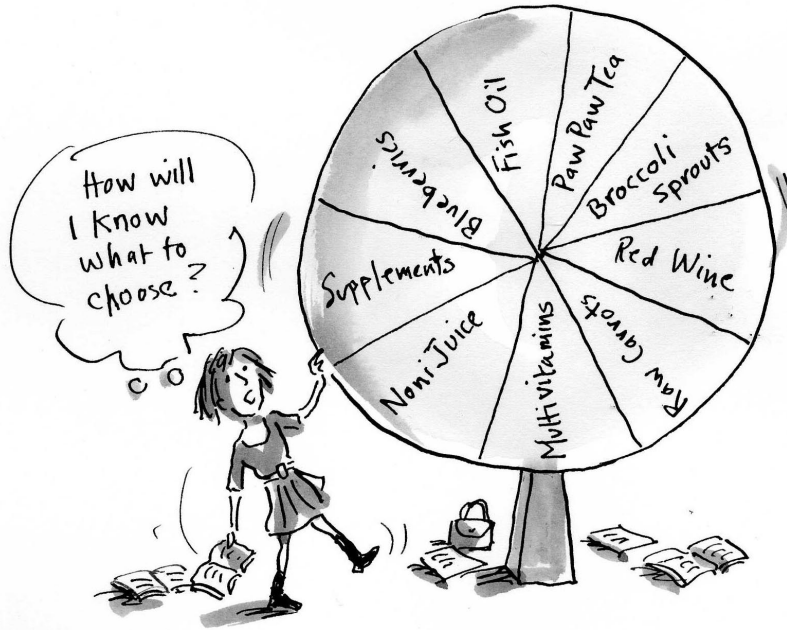# Foods That Fight Cancer

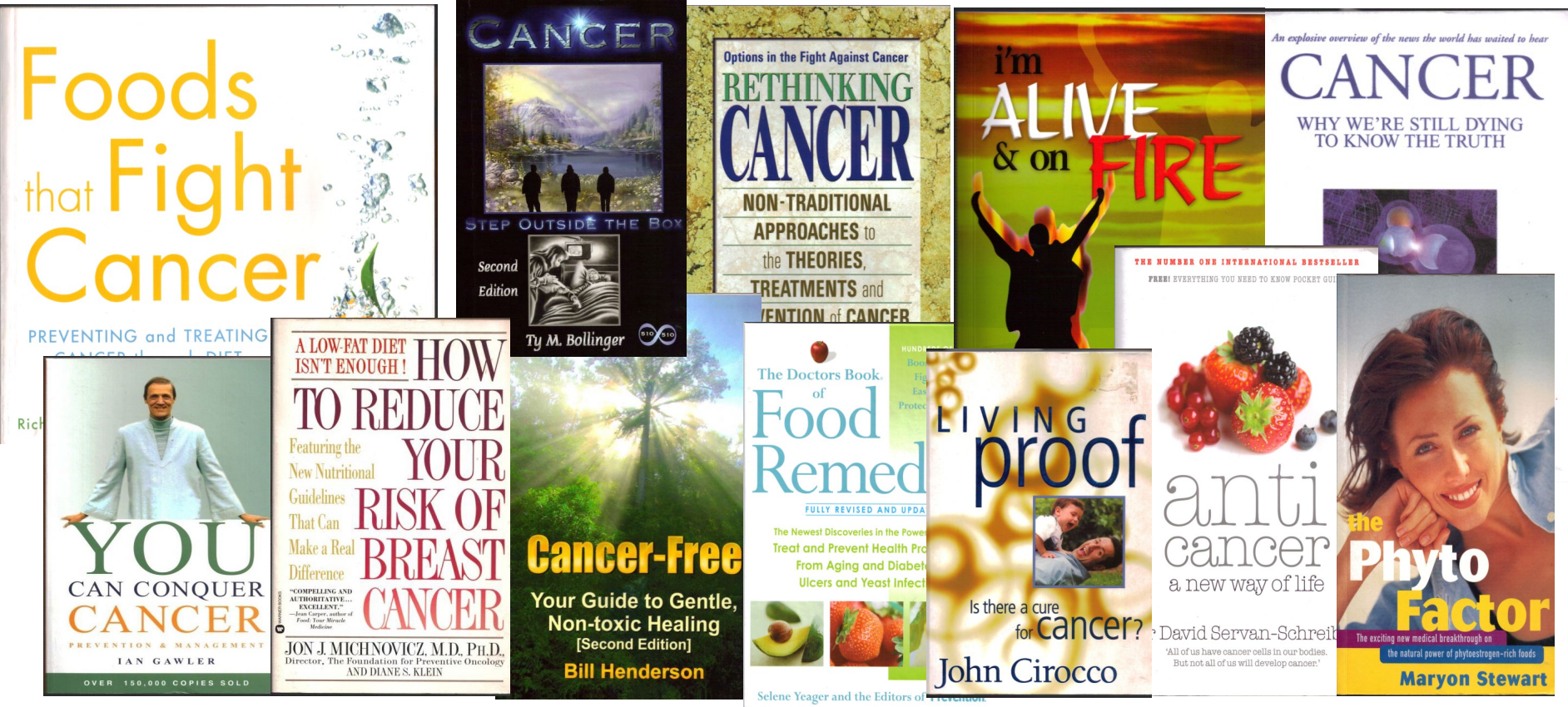## Dr David Wilkinson

Is this you?

- You had cancer treatment and want protection for the future

- You have a risk factor for cancer, such as family history

Or this?

- You are interested in a natural approach

- You feel isolated and alone, trying to decide what to do

Try some light reading:

Peruse a few scientific journals

- American Journal of Clinical Nutrition

- American Journal of Epidemiology

- Anticancer Research

- British Journal of Nutrition

- Cancer Causes Control

- Cancer, Epidemiology, Biomarkers, and Prevention

- Cancer Letters

- Cancer Prevention Research

- Clinical Cancer Research

- Carcinogenesis

- International Journal of Cancer

- Journal of Agriculture and Food Chemistry

- Journal of Clinical Oncology

- Journal of Nutrition

- Nutrition and Cancer

- Nutrition Research

Do you end up like this?

- You want evidence

- You are becoming from stressed from trying to figure it all out for yourself

Cancer is caused by our environment (nearly always)

In Australia, we are expecting

50,000 deaths per year from cancer

(about 30% of annual deaths)

And a quarter of cancers are preventable

Medical Journal of Australia 2012 :
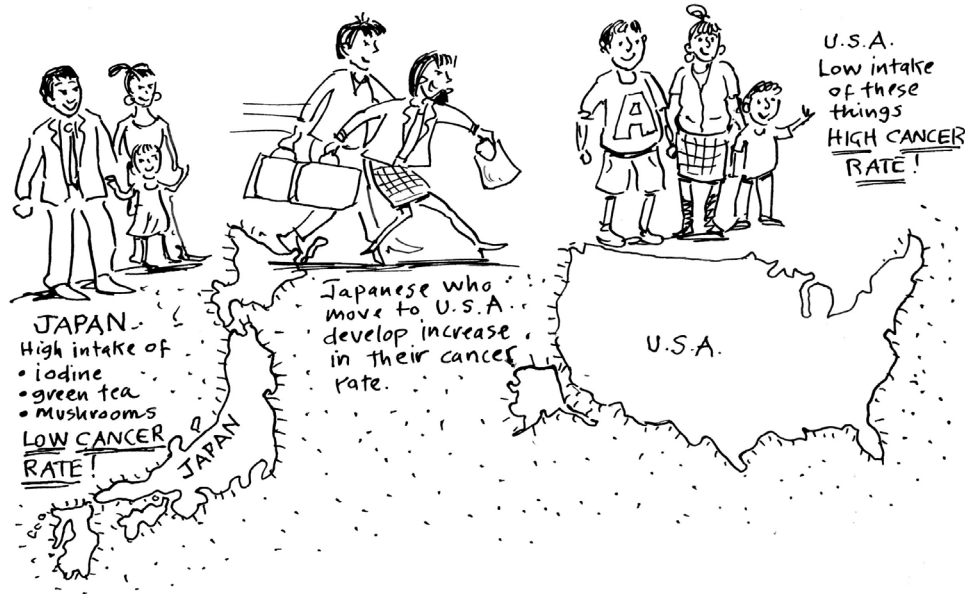"Estimating the future burden of cancers"

Cancer is caused by our environment (nearly always)

In the USA, in 2017,

there were an estimated

1,688,780 new cancer cases

and ***600,920 cancer deaths...***

1/3 are attributable to ***poor nutrition,***

physical inactivity and obesity

Cancer facts and figures 2017 American Cancer Society
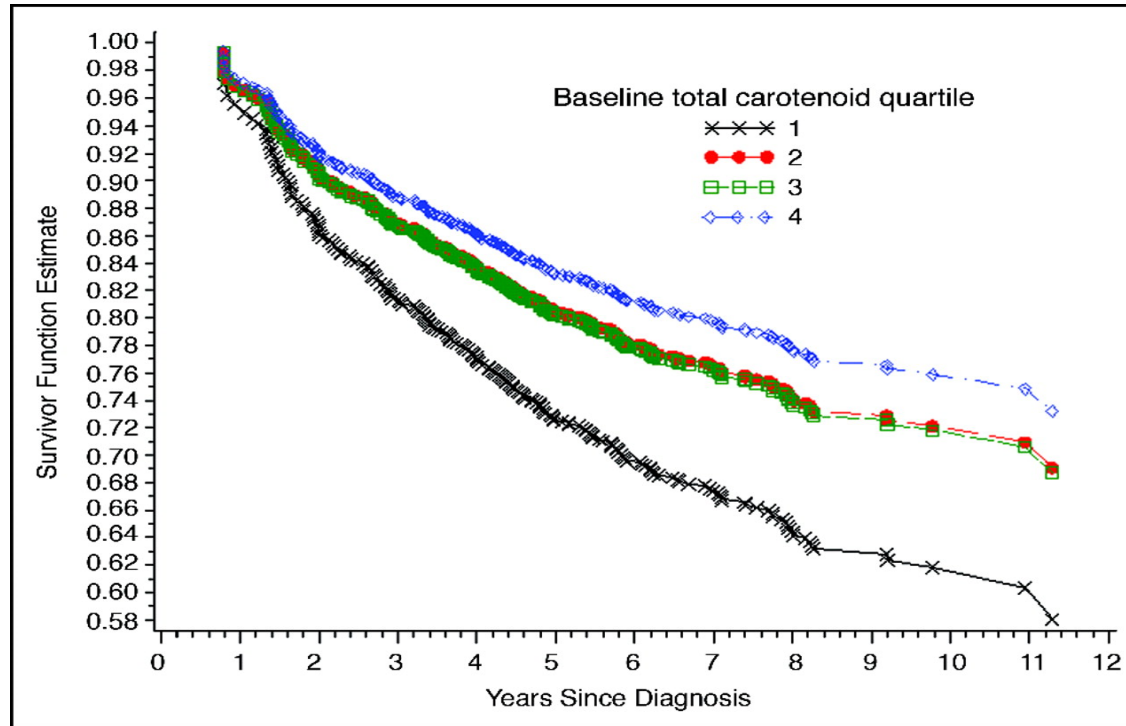www.cancer.org/acs

Types of Research

Population studies

Laboratory research

Randomized trials

1551 women with a history of breast cancer : Risk of recurrence or a new cancer

Rock, C. L. et al. J Clin Oncol; 23:6631-6638 2005

Pub Med : Database of medical journals

Angiogenesis

Beliveau R, Gingras D: Foods That Fight Cancer

Angiogenesis

William Li: Can we eat to starve cancer?

Filmed February 2010 at TED2010

www.angio.org

Apoptosis

Leaves "falling off"
Programmed cell death
Examples:
    Tadpole tails
    Shaping of the human hand
    Removing cancer cells

Inflammation

DNA damage
DNA repair errors (mutations)
Growth factors
Promotes angiogenesis
Facilitates invasion

THE FIRE OF INFLAMMATION (FED BY OMEGA 6 OILS, OBESITY AND METABOLIC SYNDROME) CAN BE PUT OUT BY THE WATER OF OMEGA 3 OILS, TURMERIC, GREEN TEA, RED GRAPES AND BROCCOLI.

Study 1:
"Dietary Influences On Survival After Ovarian Cancer"
Nagle et al, University of Qld
International J of Cancer, 2003

- 609 women followed for 7 years

- Pre-diagnosis diet assessed

- Vegetables esp **crucifers** - 25% better survival

- Red meat - bad

Study 2:
"Pre-diagnosis diet and survival after a diagnosis of ovarian cancer"
Playdon, Nagle et al, (Aus Ov Ca Study Group)
British Journal of Cancer, 2017

- 800 women followed over 9 years
- High **fibre** intake – 31% decrease in mortality
- **Fish, leafy green vegetables** - good
- Saturated fat, High glycaemic index - bad

Dr William Li (Angio.org)

To prevent ovarian cancer:

Endives

Fish

Tomatoes

Ginger

Green tea

Lignans (flaxseeds)

Review paper
Koshiyama (Japan)
Healthcare, 2019

"The effects of the dietary and nutrient intake on gynecological cancers"

- Cervix
- Endometrium
- Ovaries

Cervical cancer:
Prevention of HPV and CIN

- Increase vegetable consumption
- **Papaya, onions, green tea, tomatoes, broccoli**
- Radiotherapy and chemotherapy enhanced by quercetin, apigenin, PUFAs

Endometrial cancer

- Risk factors are obesity and oestrogen
  - Oestrogens are formed in adipose tissue
- Also: sugar intake, high insulin levels and diabetes
  - Insulin stimulates growth of endometrial cells
  - And increases IGF-1
- Risk is reduced by:
  - **Fish** (omega 3 PUFAs)
  - Kaempferol (**green tea, onions, crucifers**)

Ovarian cancer:
Stop inflammation

- Pro-inflammatory:
    - saturated fat, carbohydrates

- Anti-inflammatory:
    - omega 3 PUFAs (**Flaxseeds, fish**), vegetables

Also:

- Red meat and processed meat increase risk

- Poultry is okay

Inflammation

DNA damage
DNA repair errors (mutations)
Growth factors
Promotes angiogenesis
Facilitates invasion

THE FIRE OF INFLAMMATION (FED BY OMEGA 6 OILS, OBESITY AND METABOLIC SYNDROME) CAN BE PUT OUT BY THE WATER OF OMEGA 3 OILS, TURMERIC, GREEN TEA, RED GRAPES AND BROCCOLI.

Other studies

risk [5]. A systematic review suggested that total, animal and dairy fat were most consistently associated with higher risk [6]. Pre-diagnosis diet (n = 341 ovarian cancer patients) of higher versus lower fruits and vegetable intake was associated with a 39% greater survival time an effect largely driven by consumption of green, yellow and cruciferous vegetables [7]. One study (n = 636 cases) showed 27% lower mortality in women reporting a high diet quality score – a score that reflected greater vegetable, fruit, and fiber and lower fat, and animal fat intake [8].

Prospective randomized trial

A randomized trial of diet and physical activity in women treated for stage II—IV ovarian cancer: Rationale and design of the Lifestyle Intervention for Ovarian Cancer Enhanced Survival (LIVES): An NRG Oncology/Gynecologic Oncology Group (GOG-225) Study☆,,☆☆

Cynthia A. Thomson[a,*], Tracy E. Crane[a], Austin Miller[b], David O. Garcia[a], Karen Basen-Engquist[c], and David S. Alberts[d]

[a]Mel & Enid Zuckerman College of Public Health, Department of Health Promotion Sciences, University of Arizona, 1295 N. Martin Ave., PO Box 245209, Tucson, AZ 85724-5209, United States

Crupifers

- Rocket
- Bok choy
- Broccoli
- Brussels sprouts
- Cabbage
- Cauliflower
- Collard greens

- Horseradish
- Kale
- Mustard
- Radish
- Turnip
- Wasabi
- Watercress

How does it work?

Sulforaphane

- Detoxifies
- <u>Apoptosis</u>
- <u>Blocks angiogenesis</u>
- Stem cells
- Inhibits cell migration

Indole-3-Carbinol

- Detoxifies
- <u>Apoptosis</u>
- Synergizes with paclitaxel (in HER2 +)
- <u>Blocks oestrogen, reduces 16aOH-E1</u>
- Synergizes with Tamoxifen

Chemistry : Myrosinase

Glucoraphanin in broccoli
*is converted by
Myrosinase*

to become

Sulphorafane

Glucobrassicin in broccoli
*is converted by
Myrosinase*

to become

Indole-3-Carbinol

The Internet : Partly Right

Photo: Getty Images

Broccoli

All cruciferous veggies (think cauliflower, cabbage, kale) contain cancer-fighting properties, but broccoli is the only one with a sizable amount of sulforaphane, a particularly potent compound that boosts the body's protective enzymes and flushes out cancer-causing chemicals, says Jed Fahey, ScD. A recent University of Michigan study on mice found that sulforaphane also targets cancer stem cells—those that aid in tumor growth.

Helps fight: breast, liver, lung, prostate, skin, stomach, and bladder cancers

Your Rx: The more broccoli, the better, research suggests—so add it wherever you can, from salads to omelets to the top of your pizza.

[health.com]

2 of 11

The Secret : Don't boil me!
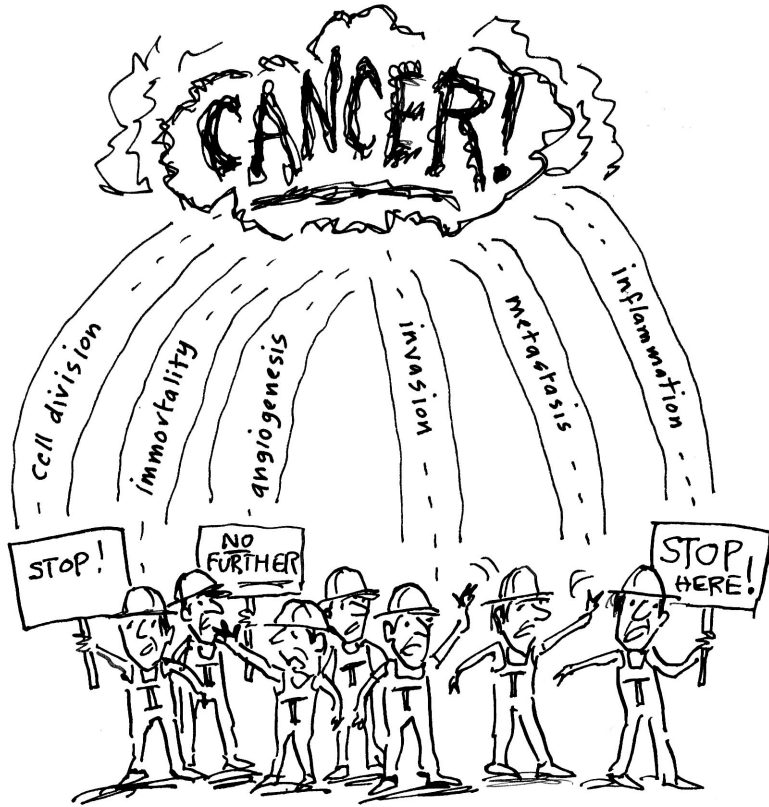
Green Tea

Camellia sinensis
Green tea
EGCG

How does it work?

- Blocks cell signals
- <u>Promotes apoptosis</u>
- <u>Stops angiogenesis</u>
- Arrests dividing cells
- Prevents invasion into tissues
- <u>Anti-inflammatory</u>
- Binds carcinogens
- Antioxidant
- Protects against UVB damage
- Detoxifies
- Improves function of intestinal flora
- <u>Helps reduce body weight</u>

The Internet : Partly Right

6 / 11   Anti-Cancer Diet: Green Tea

Tea contains antioxidants called catechins, which may help prevent cancer in a variety of ways, including keeping free radicals from damaging cells. Lab studies have found that catechins in tea can shrink tumors and reduce tumor cell growth. Some — but not all — studies in humans have also linked drinking tea to a lower risk of cancer. Both green and black teas contain catechins, but you'll get more antioxidants from green tea, so you may want to consider a cup or more in your anti-cancer diet.

Preparation:

How long to wait?
Tea bags or loose leaves?

Concentration of catechins (mg/g) in green tea

Boiling Water:

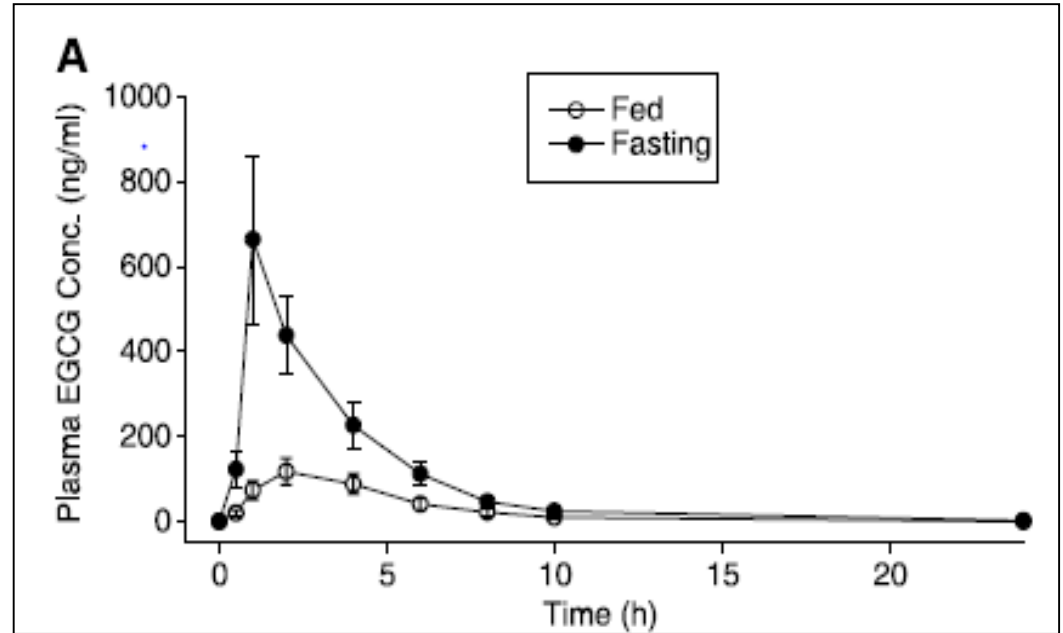|		
Steep for	30 secs	43
	5 mins	117
*Tea **bag***	(5 mins)	72
*Tea **leaves***	(5 mins)	117

Drink Green Tea:
With or Without Food?

Green tea catechin mixture

fed to 30 volunteers
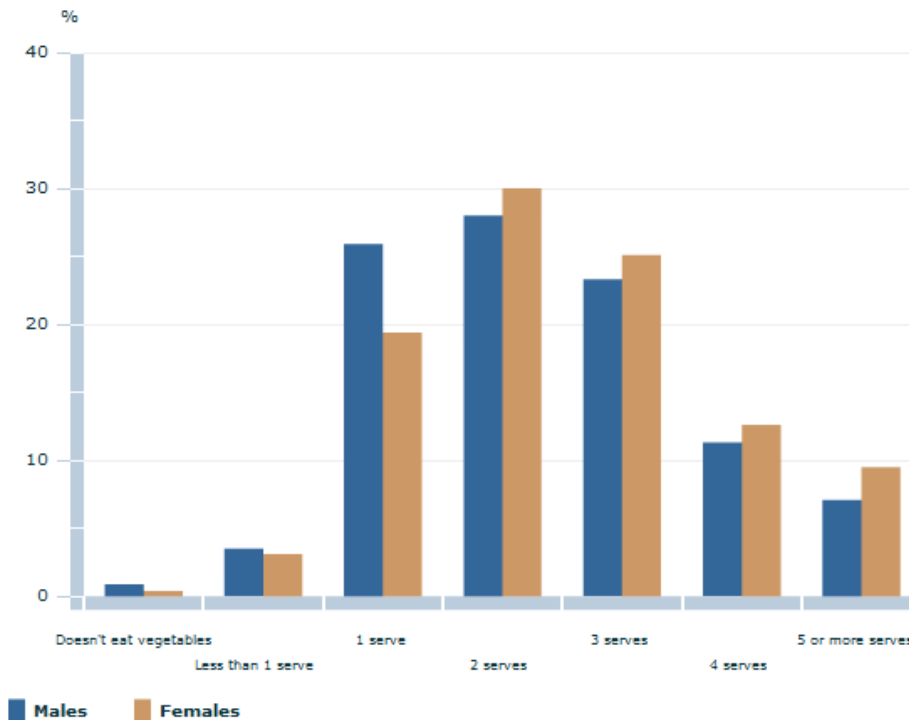

Measured blood levels of catechins

Compared intake on

empty stomach vs with food

Clinical Cancer Research 2005

How many serves do you eat?

Usual daily intake of vegetables(a), 2011-12

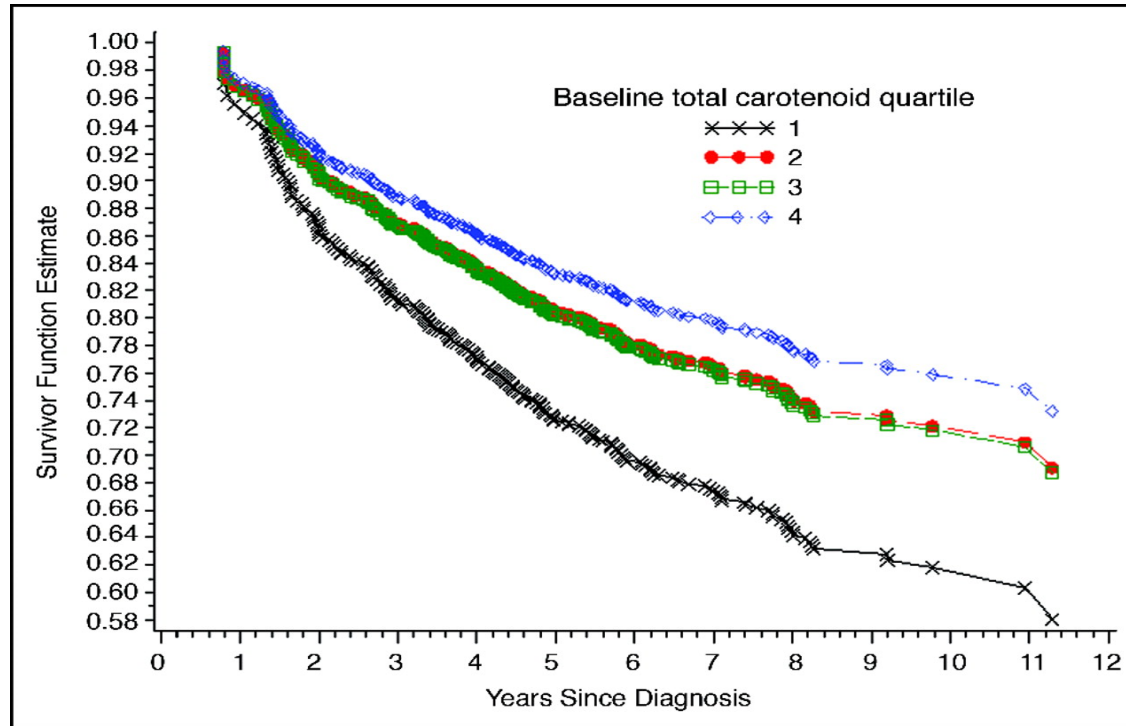Footnote(s): (a) Persons aged 18 years and over.

Source(s): _Australian Health Survey: First Results_

Everyday superfoods <u>every day</u>

kakadu plums - Searching for the
ultimate superfood, but some
everyday foods are super.

1551 women with a history of breast cancer : Risk of recurrence or a new cancer

Rock, C. L. et al. J Clin Oncol; 23:6631-6638 2005

www.foodagainstcancer.com

Book:

"Can food be medicine against cancer?"

Sign up for:

Food Against Cancer Program