ADVANCING GI PATIENT CARE 2022

Powered by: GI Alliance

APRIL 23–24, 2022
SOUTHLAKE, TEXAS

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GI Alliance

RMCHCS
Rehoboth McKinley Christian Health Care Services

Diet and Gastrointestinal Cancer

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Disclosures

No financial relationships to disclose.

Objectives

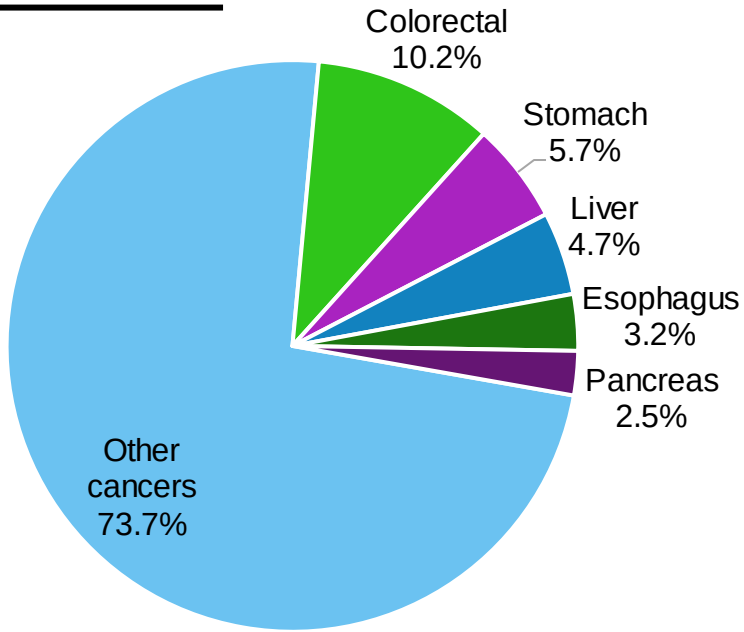
- Understand the role of diet in gastrointestinal cancer: the good, the bad & the ugly.
- Dietary patterns & components that are protective or deleterious.
- Practical steps to incorporate lifestyle medicine in daily practice.

Gastrointestinal Cancer Burden

- Gastrointestinal cancers account for 26% of the global cancer incidence burden
- 35% of all cancer related deaths are GI related
- Esophageal, gastric, and liver cancers more prevalent in Asia
- Colorectal and pancreatic cancers more common in Europe and North America

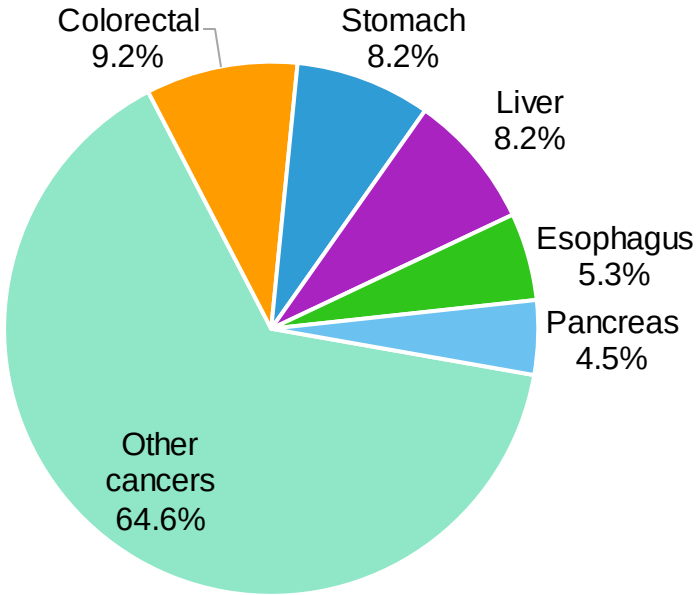
WORLDWIDE

Incidence



Number of GI cancer cases: 4.8 million

Mortality

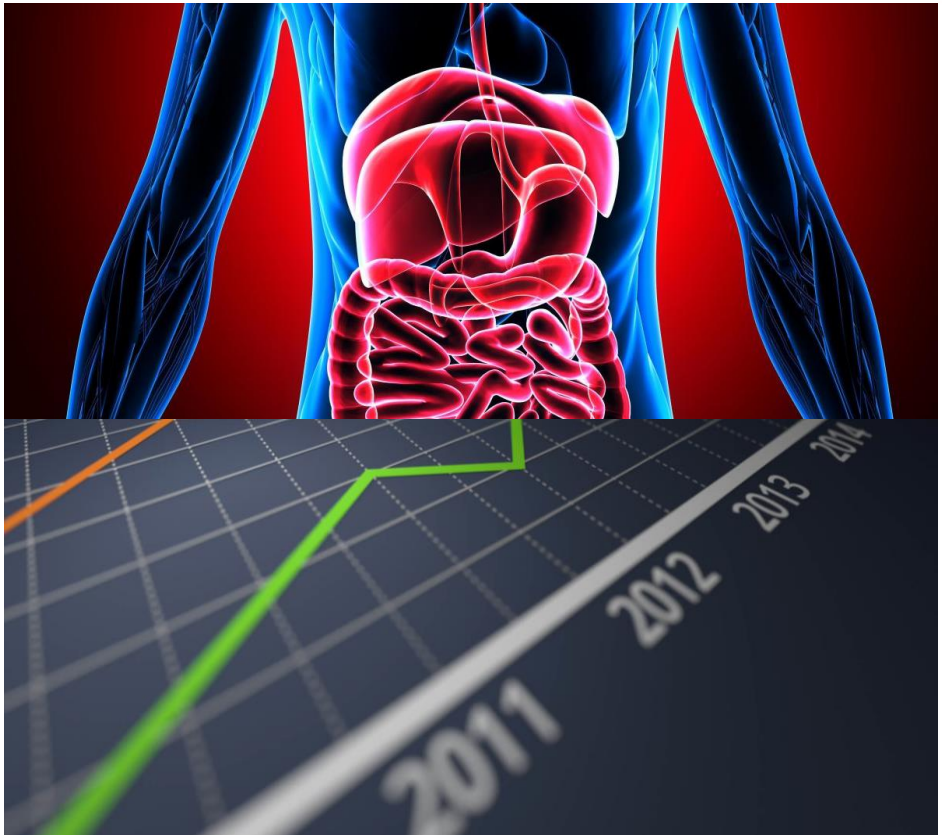


Number of GI cancer deaths: 3.4 million

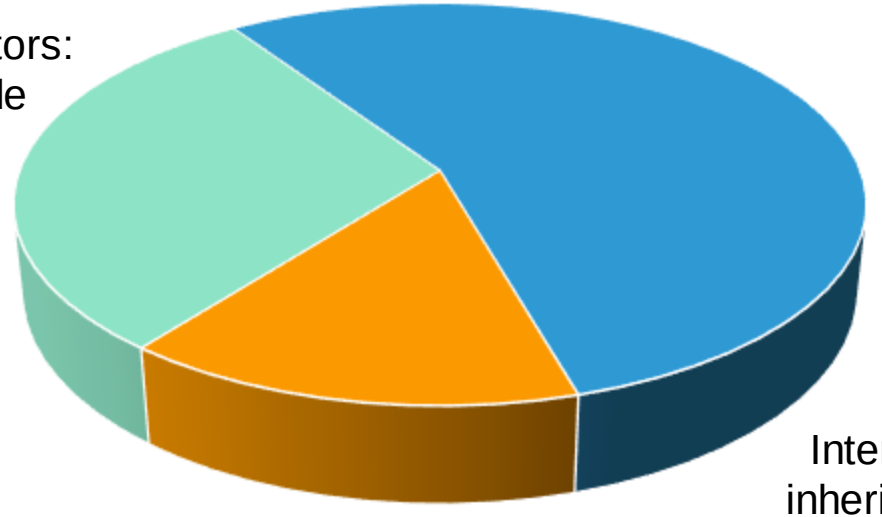
Contribution of major gastrointestinal cancer cases and deaths 2018. Source: GLOBOCAN 2018.

Incidence & Mortality in the USA

- Colorectal
  - 6.9% incidence & 9% mortality
- Gastric
  - 1.2% incidence & 1.9% mortality
- Liver
  - 1.4% incidence & 5% mortality
- Esophageal
  - 0.8% incidence & 2.6% mortality
- Pancreas
  - 2.5% incidence & 7.7% mortality

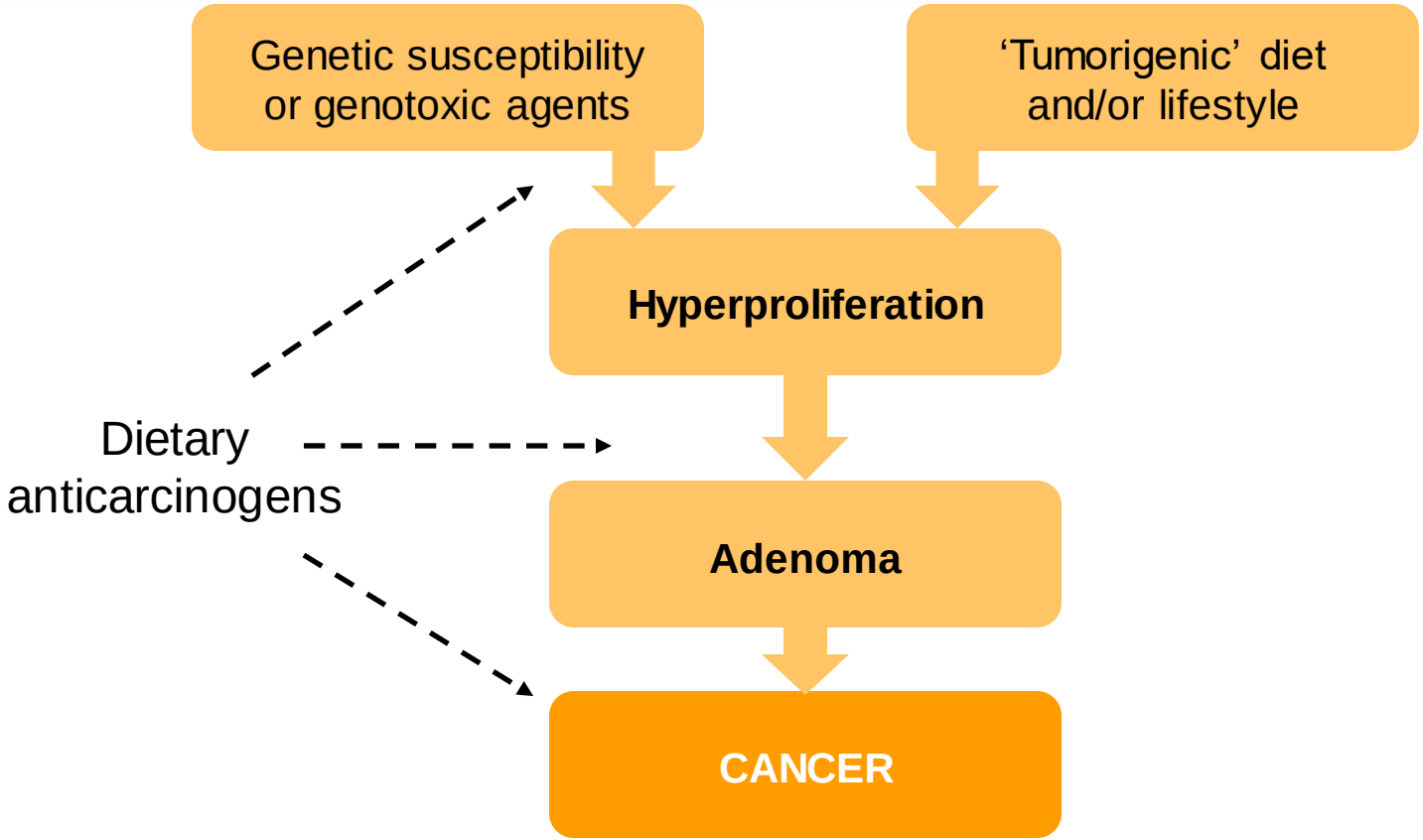


>30%
Acquired risk factors: diet and lifestyle

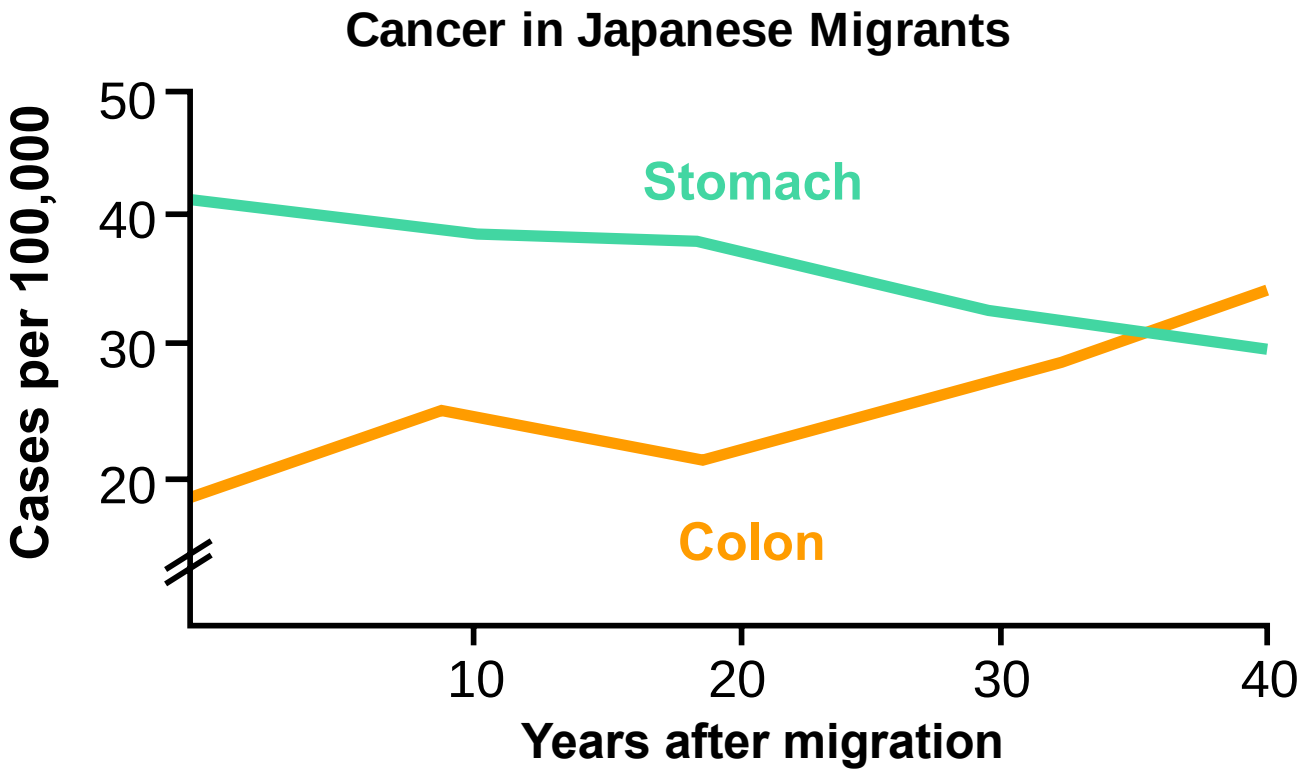


<55%
Interaction between inherited and acquired factors

<15%
Inherited risk factors


Genetic susceptibility or genotoxic agents
‘Tumorigenic’ diet and/or lifestyle
Hyperproliferation
Dietary anticarcinogens
Adenoma
CANCER

Colorectal Cancer



Esophageal Cancer

INCREASES RISK	DECREASES RISK
• **Overweight or obese** • **Consuming alcoholic drinks** • **Regularly consuming maté** • *Processed meat* • *Drinking hot beverages*	• *Consuming vegetables* • *Consuming fruit* • *Being physically active*

Gastric Cancer

INCREASES RISK	DECREASES RISK
• **Being overweight or obese** • **Alcoholic drinks** • **Foods preserved by salting** • *Processed meat* • *Grilled, barbecued or smoked meat and fish* • *Low fruit intake*	• *Citrus fruit*

Liver Cancer

INCREASES RISK	DECREASES RISK
• **Overweight or obesity** • **Alcoholic drinks** • **Foods contaminated by aflatoxins**	• **Coffee** • *Fish* • *Physical activity*

Pancreatic Cancer

INCREASES RISK	DECREASES RISK
• **Excess weight or obesity** • **Adult attained height** • *Red meat* • *Processed meat* • *Alcoholic drinks* • *Food and beverages containing fructose* • *Foods containing saturated fatty acids*	• *Healthy diet: fresh foods and vegetables* – *Case-control studies only*

Role of diet in colorectal cancer incidence: umbrella review of meta-analysis of prospective observational studies

Veettil et al. JAMA 2021

World Cancer Research Fund & American Institute for Cancer Research

2017	DIET, NUTRITION, PHYSICAL ACTIVITY AND COLORECTAL CANCER		
		DECREASES RISK	INCREASES RISK
STRONG EVIDENCE	Convincing	Physical activity[1,2]	Processed meat[3] Alcoholic drinks[4] Body fatness[5] Adult attained height[6]
	Probable	Wholegrains Foods containing dietary fibre[7] Dairy products[8] Calcium supplements[9]	Red meat[10]
LIMITED EVIDENCE	Limited – suggestive	Foods containing vitamin C[11] Fish Vitamin D[12] Multivitamin supplements[13]	Low intakes of non-starchy vegetables[14] Low intakes of fruits[14] Foods containing haem iron[15]
	Limited – no conclusion	Cereals (grains) and their products; potatoes; animal fat; poultry; shellfish and other seafood; fatty acid composition; cholesterol; dietary n-3 fatty acid from fish; legumes; garlic; non-dairy sources of calcium; foods containing added sugars; sugar (sucrose); coffee; tea; caffeine; carbohydrate; total fat; starch; glycaemic load; glycaemic index; folate; vitamin A; vitamin B6; vitamin E; selenium; low fat; methionine; beta-carotene; alpha-carotene; lycopene; retinol; energy intake; meal frequency; dietary pattern	
STRONG EVIDENCE	Substantial effect on risk unlikely		

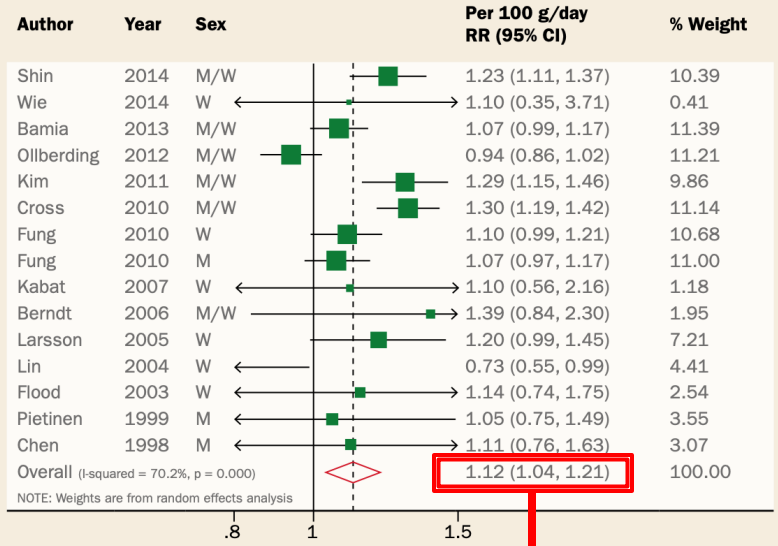
Colorectal Cancer

Increases Risk	Decreases Risk
• **Processed meat**	• **Physical activity**
• **Alcoholic drinks**	• **Wholegrains**
• **Overweight or obesity**	• **Foods containing dietary fiber**
• **Adult attained height**	• **Dairy products**
• **Red meat**	• **Calcium supplements**
• *Low intakes of non-starchy vegetables*	• *Foods containing vitamin C*
• *Low intakes of fruits*	• *Fish*
• *Foods containing heme iron*	• *Vitamin D*
	• *Multivitamin supplements*

Red & Processed Meat

- Possible mechanisms
  - Production of heterocyclic amines in meat cooked at high temperature
  - Formation of N-nitroso compounds
  - Higher fat content

Figure 6: Dose-response meta-analysis of red and processed meat and colorectal cancer per 100 grams per day



12% increase in colorectal cancer with higher red meat intake

Alcohol

- Possible Mechanisms
  - Acetaldehyde carcinogenic to colon cells
  - Increased production of reactive oxygen species
  - Solvent for cellular penetration of dietary or environmental carcinogens
  - Interfere with hormone metabolism and DNA repair

Alcohol (g/day)	RR (95% CI)
0	1.00
10	1.02 (0.98–1.07)
20	1.07 (1.00–1.16)
30	1.15 (1.06–1.26)
40	1.25 (1.14–1.36)
50	1.41 (1.31–1.52)
60	1.60 (1.51–1.69)

15% increase in colorectal cancer with 2 drinks per day

Pro vs Anti Inflammatory Diets

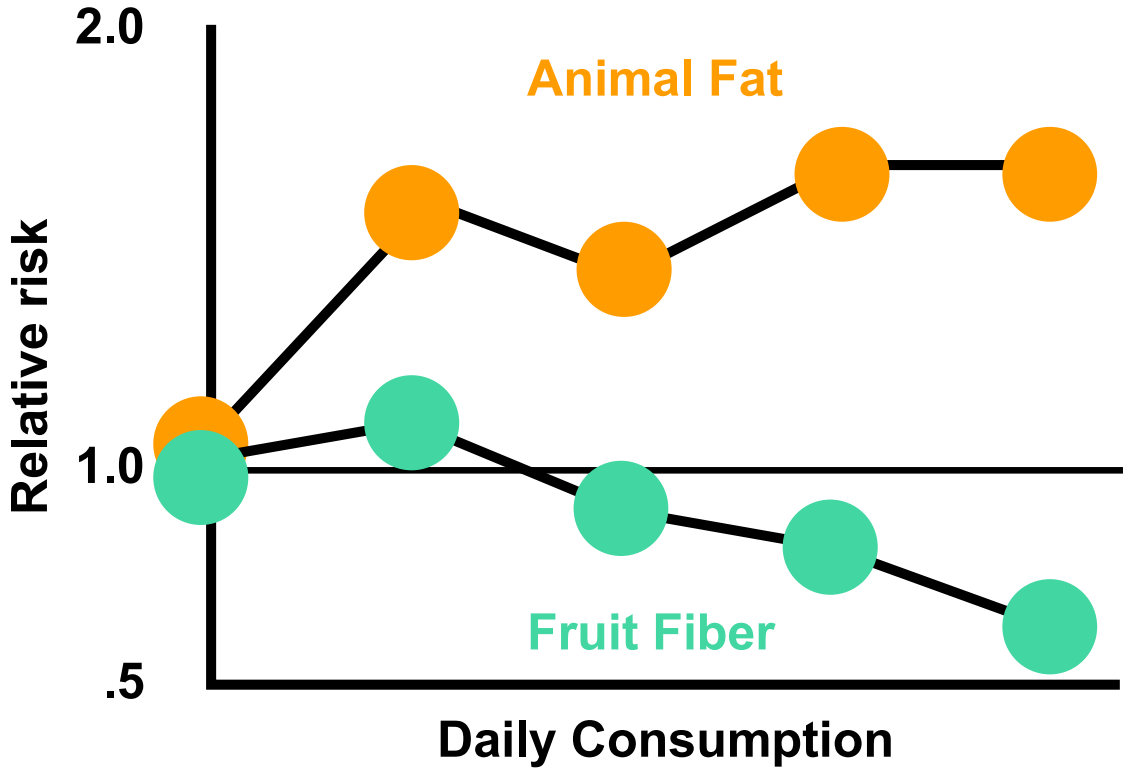
- **Pro Inflammatory**
  - Western diet
    - Low physical activity
    - High saturated fat
    - Low fruit/vegetables/whole grains/beans intake
  - Red meat/processed meats
    - Avoid direct flame and high temperature overcooking of meat
  - Smoking
  - Increased alcohol intake
  - Being overweight/obese

Pro Vs Anti Inflammatory Diets

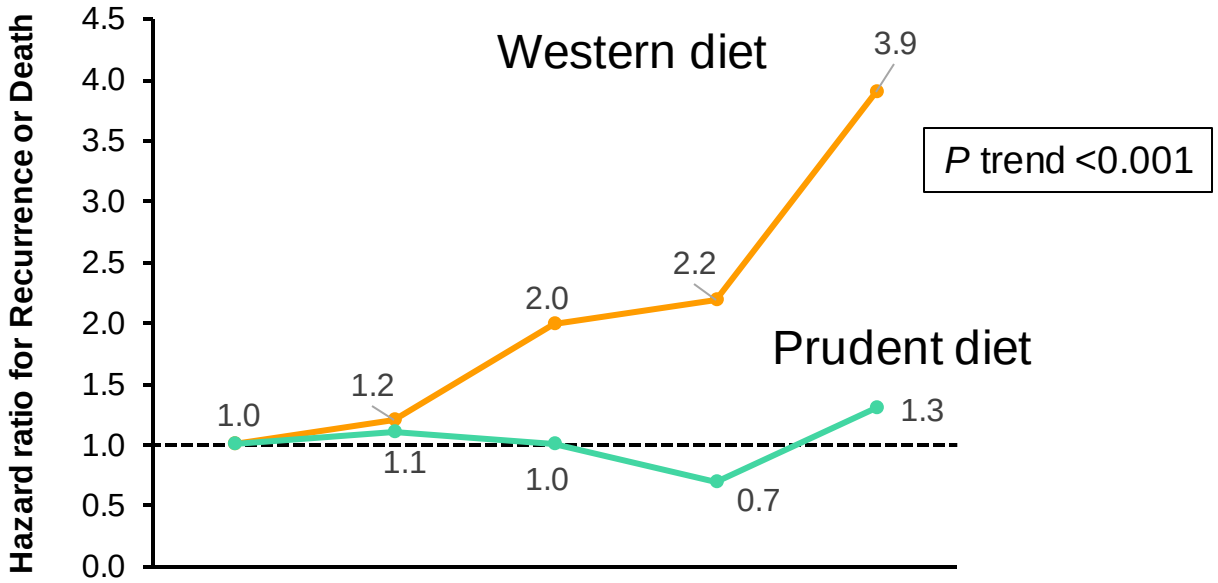
Anti Inflammatory

- High intake of fruits
- High intake of vegetables
- Omega-3 polyunsaturated fatty acids
- Robust intake of whole grains, beans/peas, leafy greens
- Moderate alcohol intake

Colorectal Cancer Chemoprevention

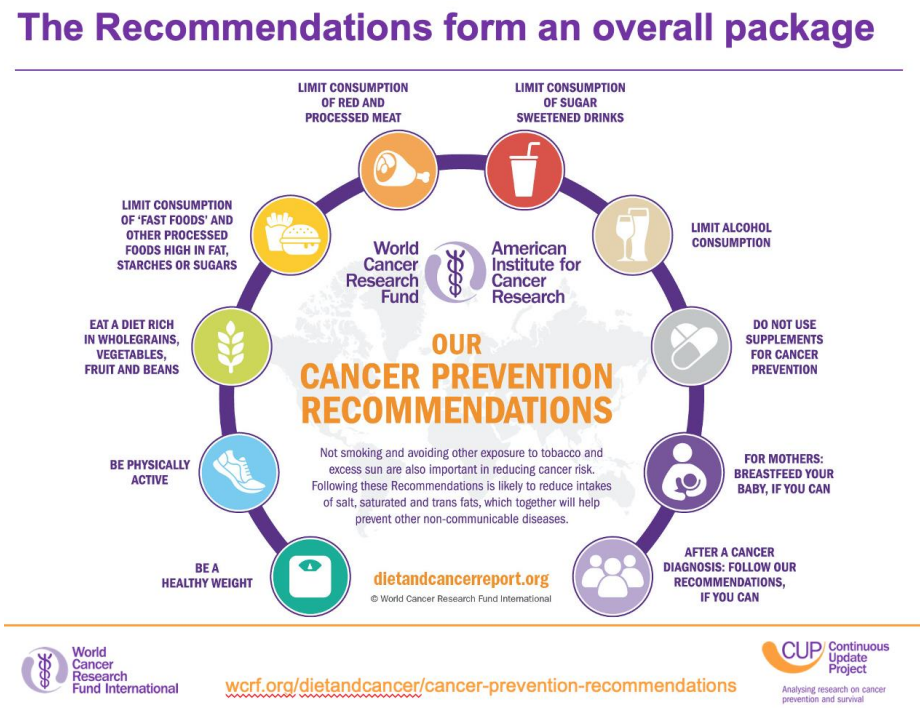


CALGB 89803: Dietary Pattern and Disease-Free Survival (n=1009)



The Good

- Maintain healthy weight
- Eat plenty of fruits and vegetables
- Remain physically active
- Limit animal products



The Bad

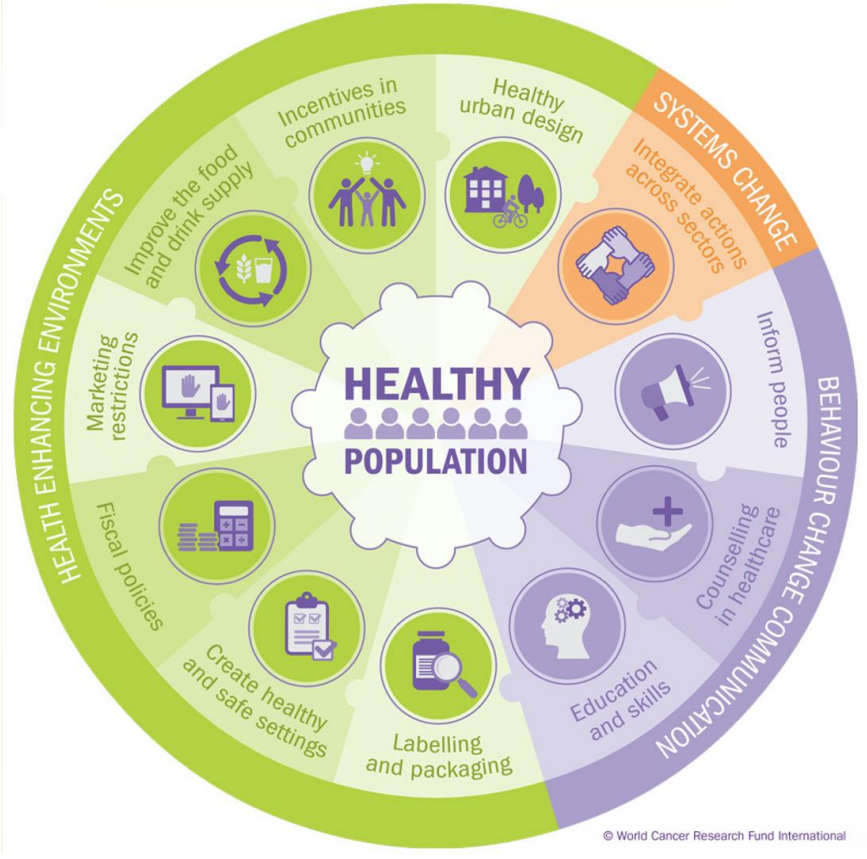
- Processed meats
- Red meats
- Excessive alcohol
- Smoking
- Obesity
- Sedentary lifestyle

The Ugly

- Most studies have been inconclusive
- Dose response varies
- Data is largely subjective
- Study duration and sample sizes
- While risk may decrease in some cases, it may increase risk in others

Challenges

- Majority of studies conducted in high-income countries
- Limited or no data from some countries, especially low- and middle-income countries
- Most evidence has been based on studies conducted in populations of European ancestry and some in Asian populations
- Patterns of cancer incidence and prevalence vary according to geographical region
- Some strong evidence for particular exposures and cancers is relevant to specific geographic regions, such as the relationship between liver cancer and exposure to aflatoxins in parts of Africa and Asia
- Limitations on accurate and precise dietary measurements


HEALTHY
POPULATION
HEALTH ENHANCING ENVIRONMENTS
Incentives in communities
Healthy urban design
Improve the food and drink supply
Marketing restrictions
Fiscal policies
Create healthy and safe settings
Labelling and packaging
SYSTEMS CHANGE
Integrate actions across sectors
BEHAVIOUR CHANGE COMMUNICATION
Inform people
Counselling in healthcare
Education and skills
© World Cancer Research Fund International

Opportunities

- Inform people about food and nutrition through public awareness
- Nutrition advice and counseling in health care settings
- Give nutrition education and skills
- Potentially modifiable risk factors
- Prevention strategies
- There is need for research comparing associations by ethnicity and by genetic ancestry

Impact of concerted action

Conclusion

- Although the incidence of some GI cancer types has decreased, this group of malignancies continues to pose major challenges to public health.
- Primary and secondary prevention measures are important for controlling these malignancies.
- Reducing consumption of alcohol, obesity control, and screening when appropriate.

- “Let food be thy medicine and medicine be thy food.” *Hippocrates*
- “Do not make your stomach, the graveyard of animals.” *Imam Ali*


MARCH
TO STOP COLON CANCER