

Animal Sourced Foods & Human Health

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~~Double~~ Health Burden of Malnutrition. **Triple**



1.9 billion are
Overweight or Obese



850 million are
Chronically Undernourished

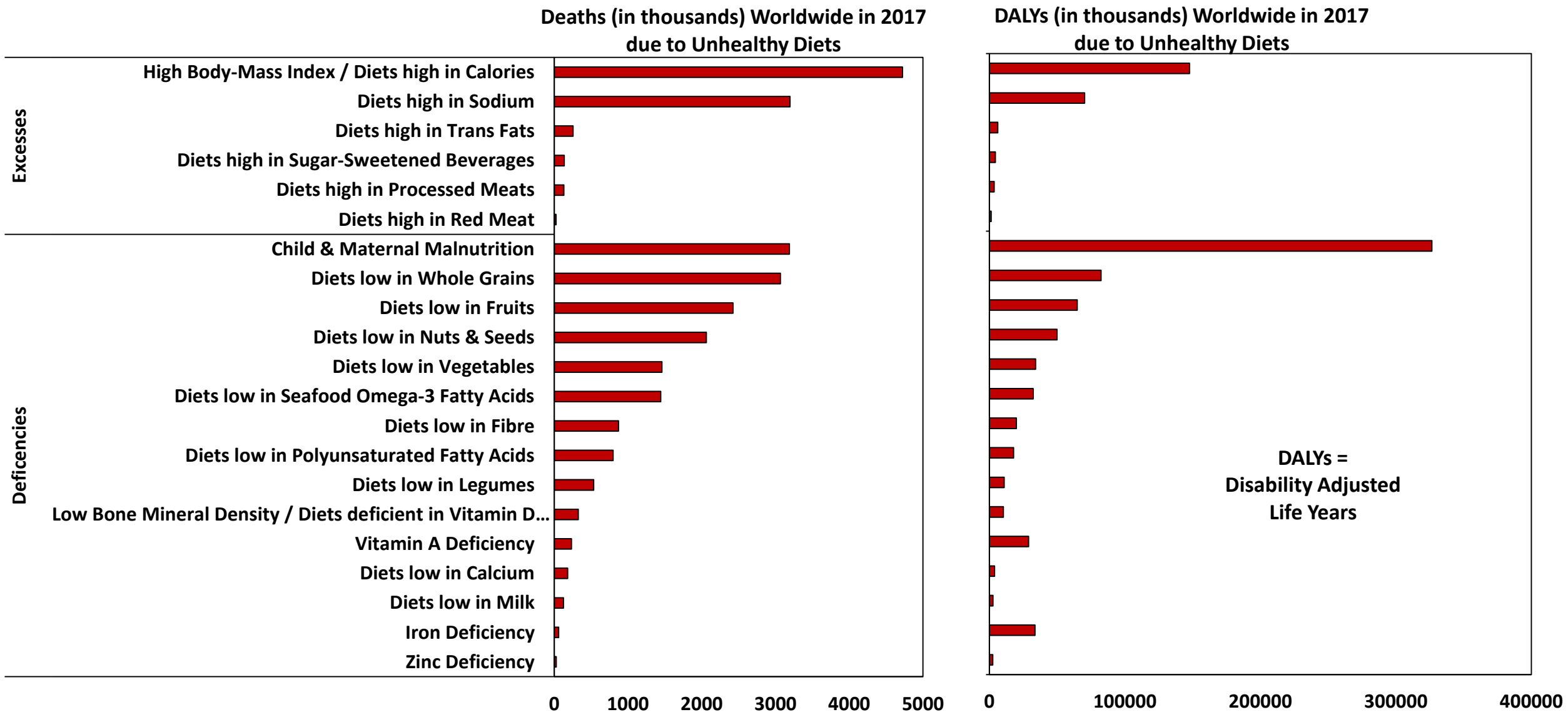


2 billion suffer from
Hidden Hunger

In 2017 Dietary Risks were Responsible for 22 Million Deaths & for 955 Million DALYs

Christopher JL Murray & GBD 2017 Diet Collaborators. *Health Effects of Dietary Risks in 195 Countries, 1990-2017: A Systematic Analysis for the Global Burden of Disease Study.* Lancet 2019

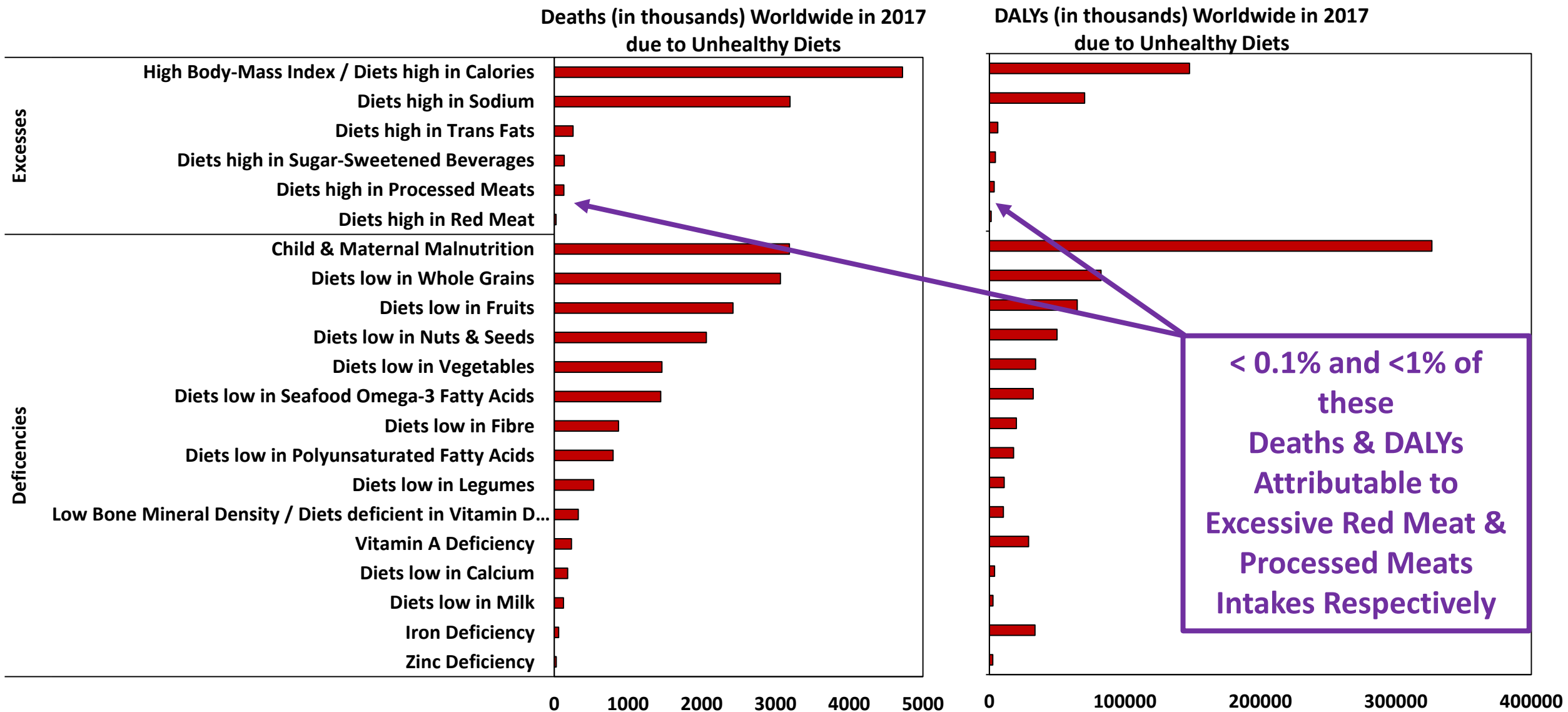
Institute for Health Metrics and Evaluation (2018) *GBD Compare.* Seattle, WA: IHME, University of Washington. <http://vizhub.healthdata.org/gbd-compare>. (accessed October 2020).



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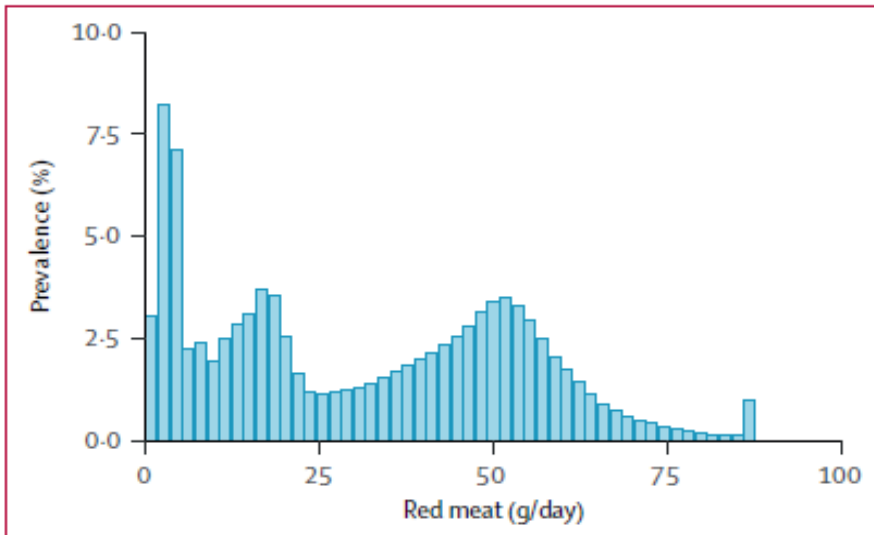
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Red Meat Consumption & its Relationship with Myocardial Infarction (Heart Attack)

GBD Estimation of Red Meat Consumption 2019



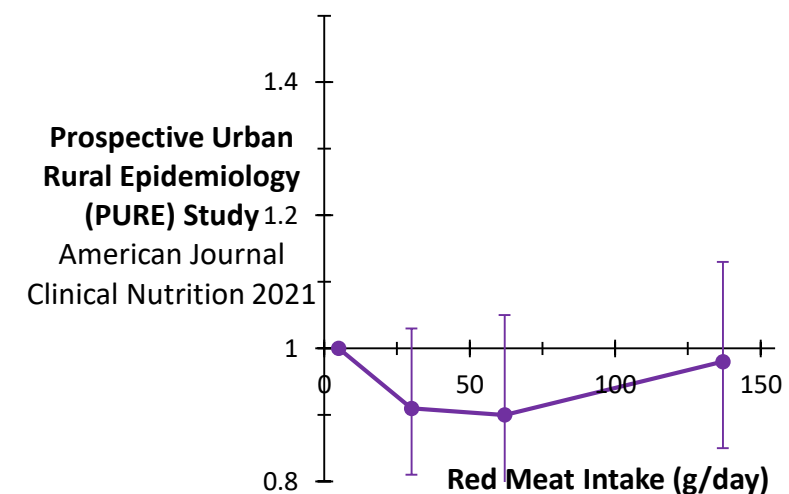
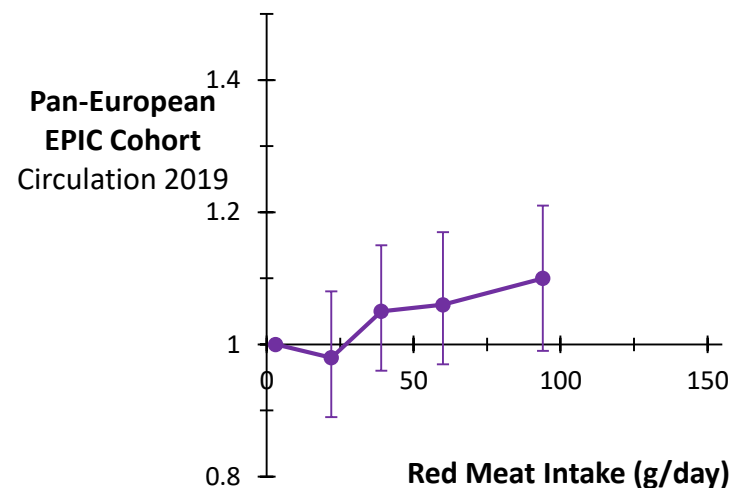
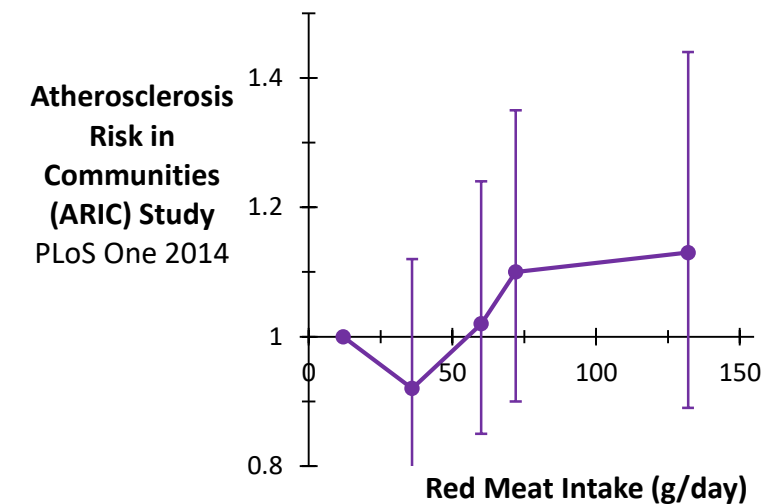
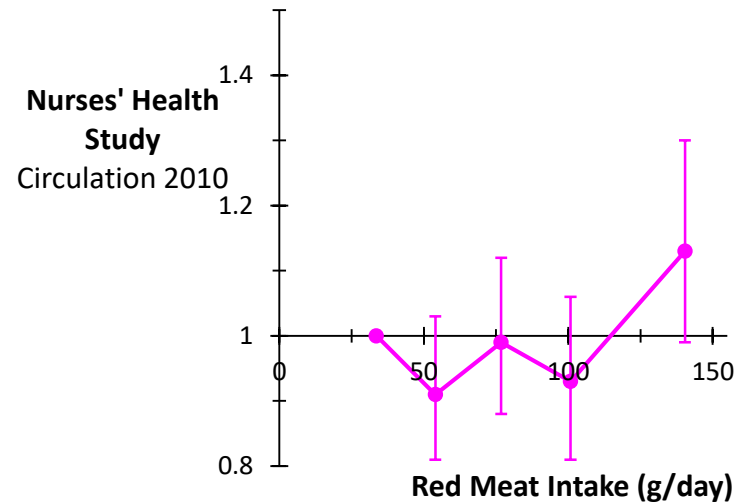
Key features

Huge Majority of World's Population Consume;

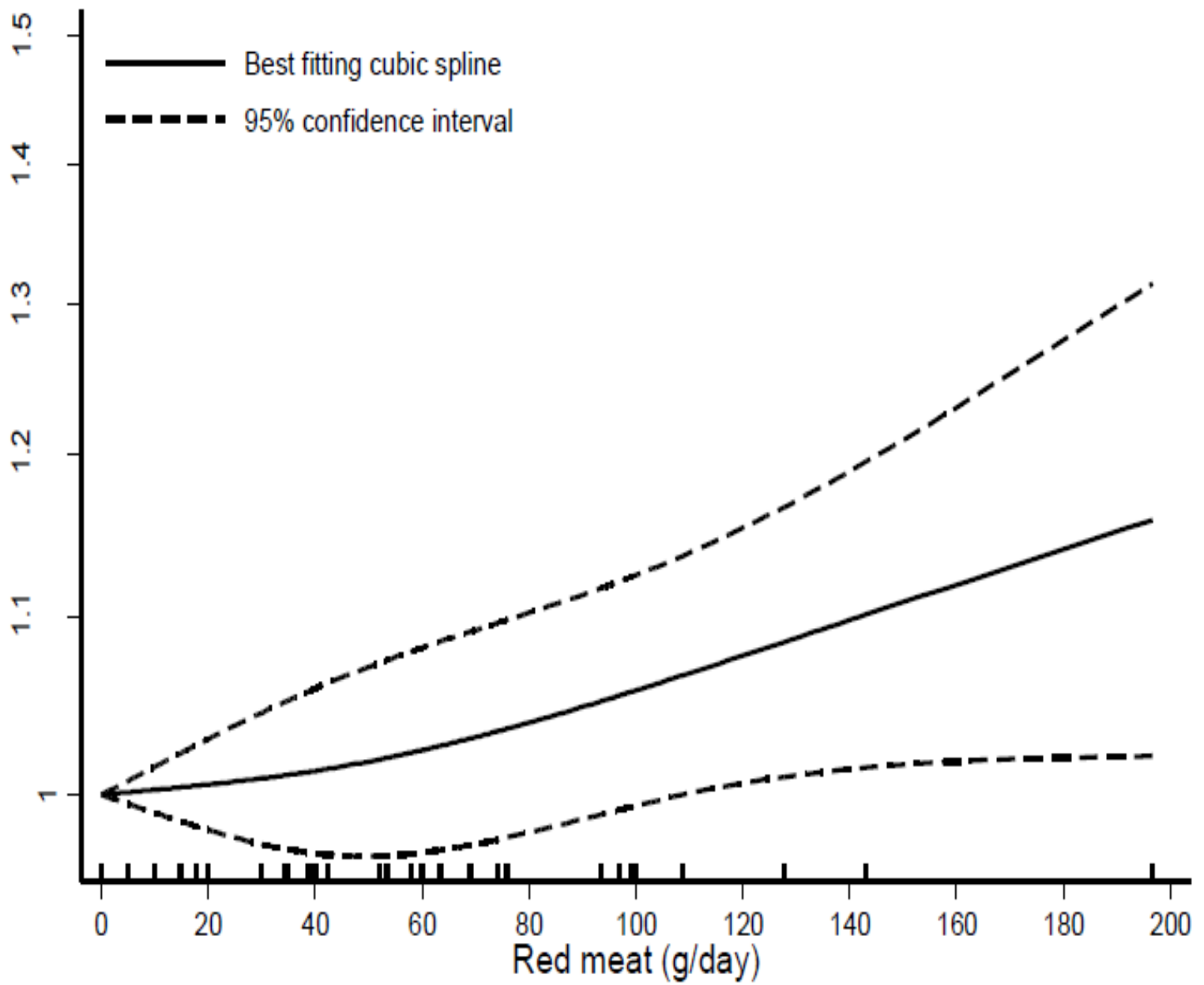
≤ 75g /day

≤ 500 g / week or

≤ 4 portions/week



Red Meat Consumption & its Relationship with Colorectal Cancer



World Cancer Research Fund/ American Institute for Cancer Research. Diet, Nutrition, Physical Activity & Cancer: a Global Perspective. Continuous Update Project Expert Report 2018.

Unprocessed Red Meat and Processed Meat Consumption: Dietary Guideline Recommendations From the NutriRECS Consortium

Johnson BC et al. Ann Intern Med October 2019

Table 1. Causal Inference Assessment Based on Summary of Evidence for Statistically Significant Effects for Red Meat, Processed Meat, and Dietary Patterns

Outcome	Unprocessed Red Meat		Processed Meat		Dietary Patterns	
	Risk Difference	Certainty of Evidence	Risk Difference	Certainty of Evidence	Risk Difference	Certainty of Evidence
Cardiovascular mortality*†	4 fewer per 1000 persons (from 5 fewer to 4 fewer) over 10.8 y	Very low	4 fewer per 1000 persons (from 7 fewer to 1 fewer) over 10.8 y	Very low	6 fewer per 1000 persons (from 9 fewer to 2 fewer) over 10.8 y	Very low
Type 2 diabetes*†	6 fewer per 1000 persons (from 7 fewer to 4 fewer) over 10.8 y	Low	12 fewer per 1000 persons (from 16 fewer to 9 fewer) over 10.8 y	Very low	14 fewer per 1000 persons (from 18 fewer to 8 fewer) over 10.8 y	Very low
Overall cancer mortality†‡	7 fewer per 1000 persons (from 9 fewer to 6 fewer) over lifetime	Low	8 fewer per 1000 persons (from 12 fewer to 6 fewer) over lifetime	Low	12 fewer per 1000 persons (from 18 fewer to 4 fewer) over lifetime	Very low

Conclusions

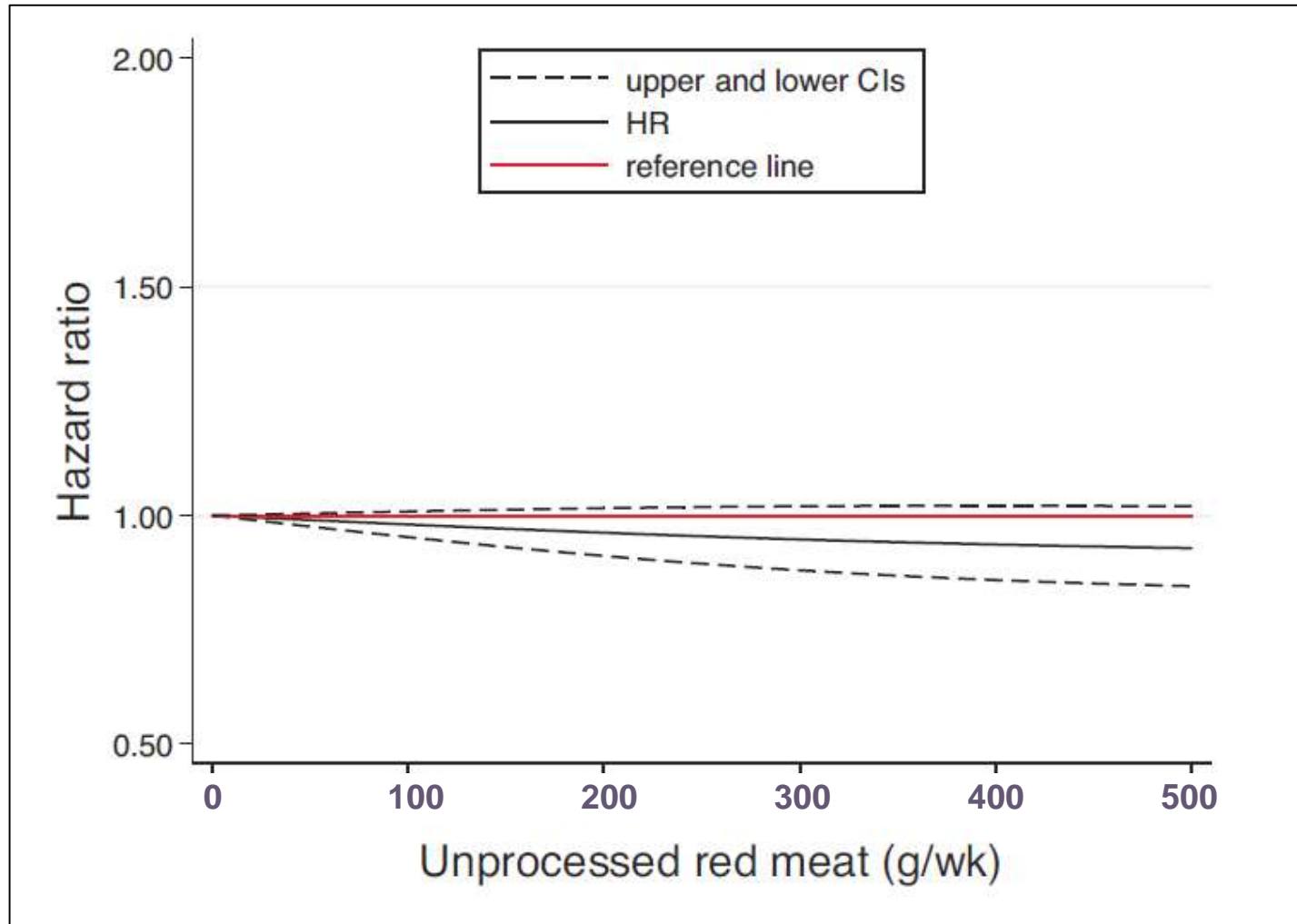
Considerable uncertainty surrounding the evidence linking red meat consumption to adverse outcomes

Recommendations

Adults should continue current red meat eating habits

Red Meat & All-Cause Mortality

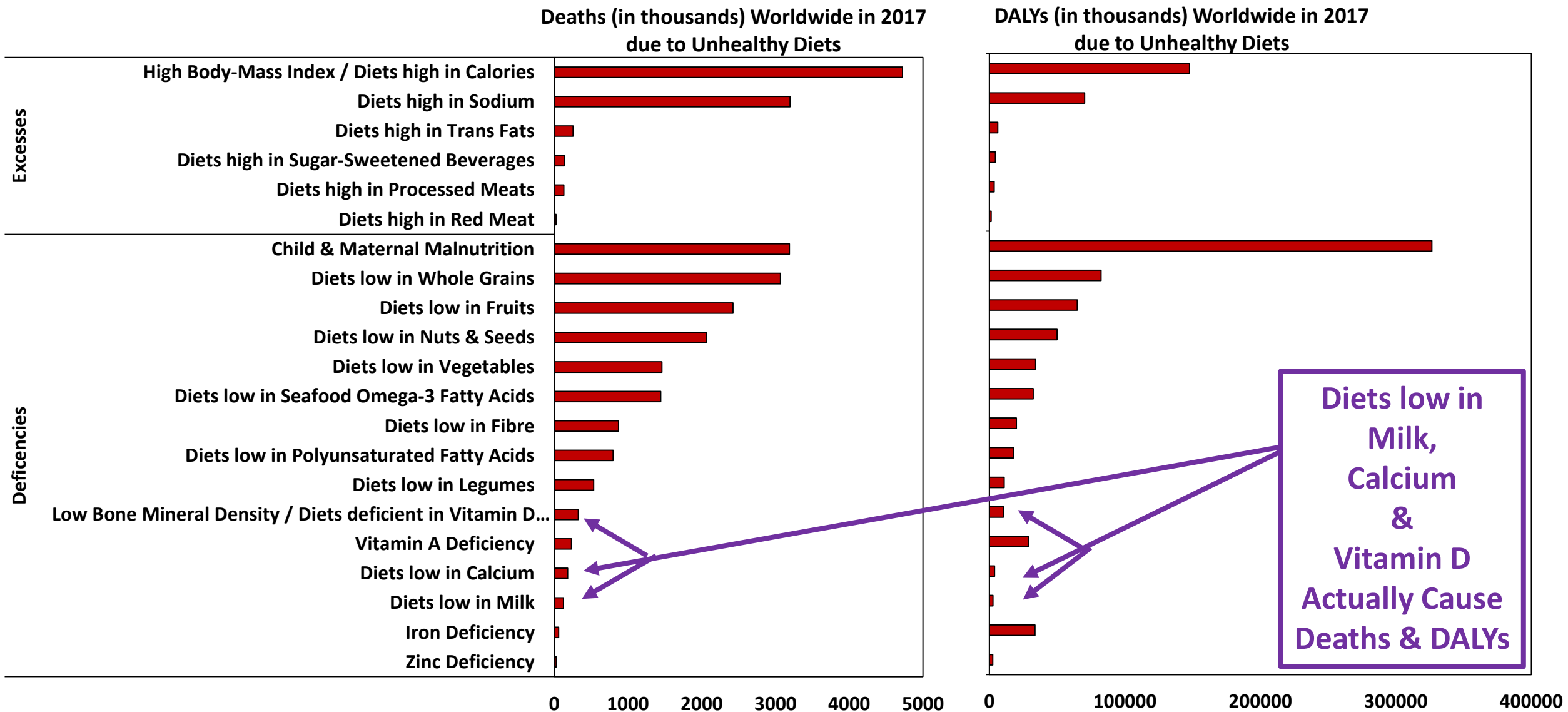
Prospective Urban Rural Epidemiology (PURE) Study
American Journal Clinical Nutrition 2021



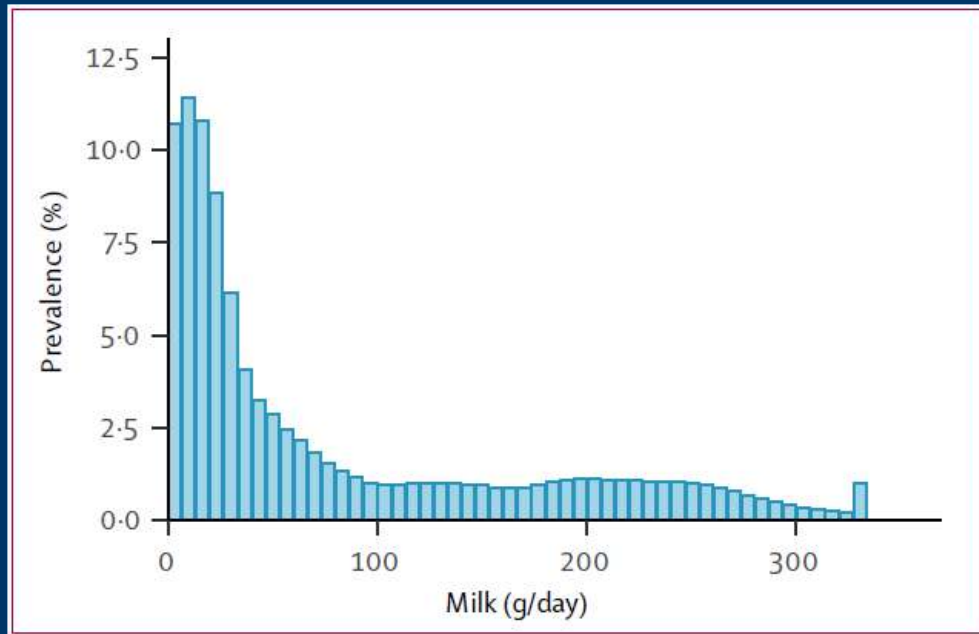
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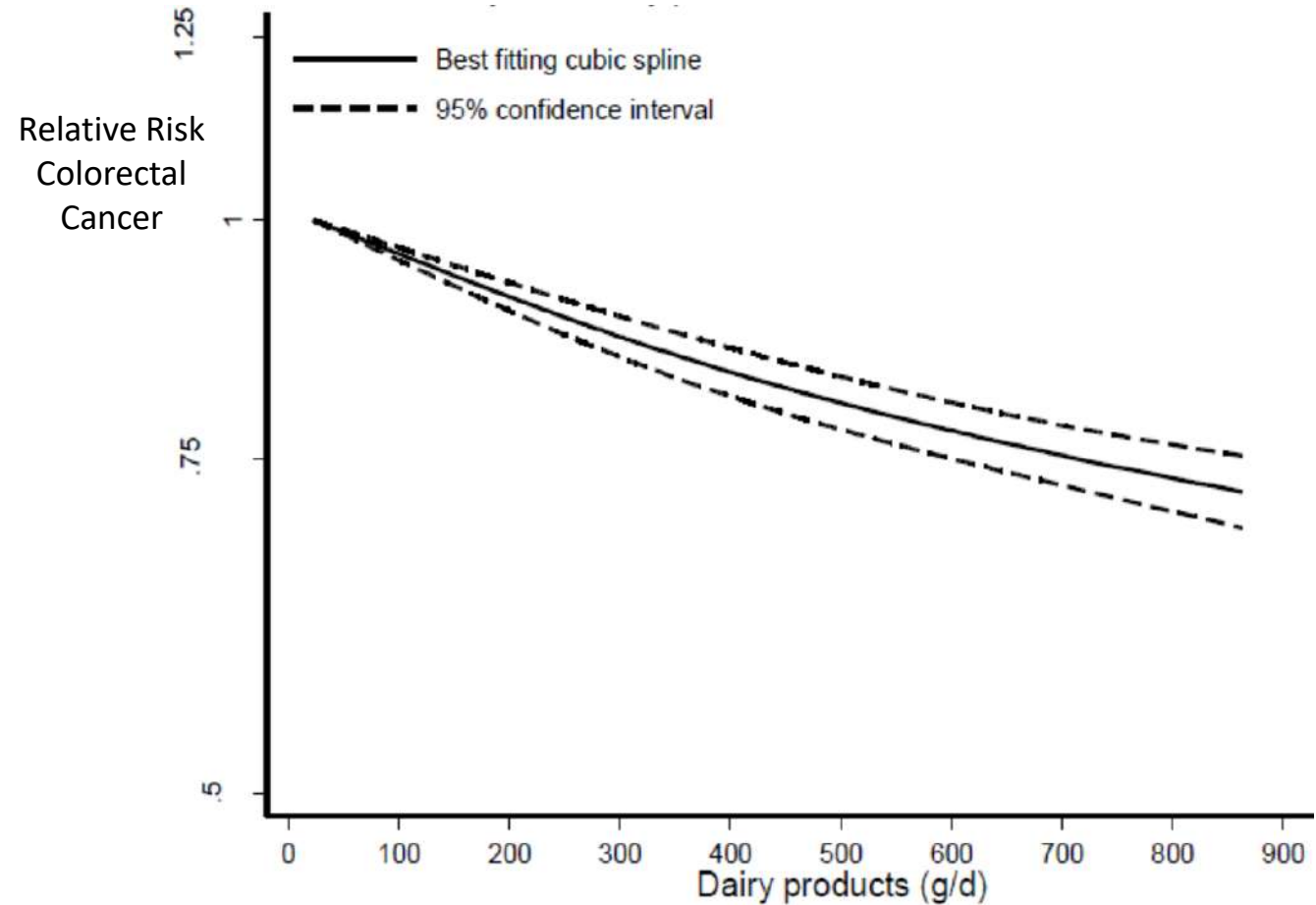
Institute for Health Metrics and Evaluation (2018) GBD Compare. Seattle, WA: IHME, University of Washington. <http://vizhub.healthdata.org/gbd-compare>. (accessed October 2020).



Milk & Dairy Consumption & the Relationship with Colorectal Cancer

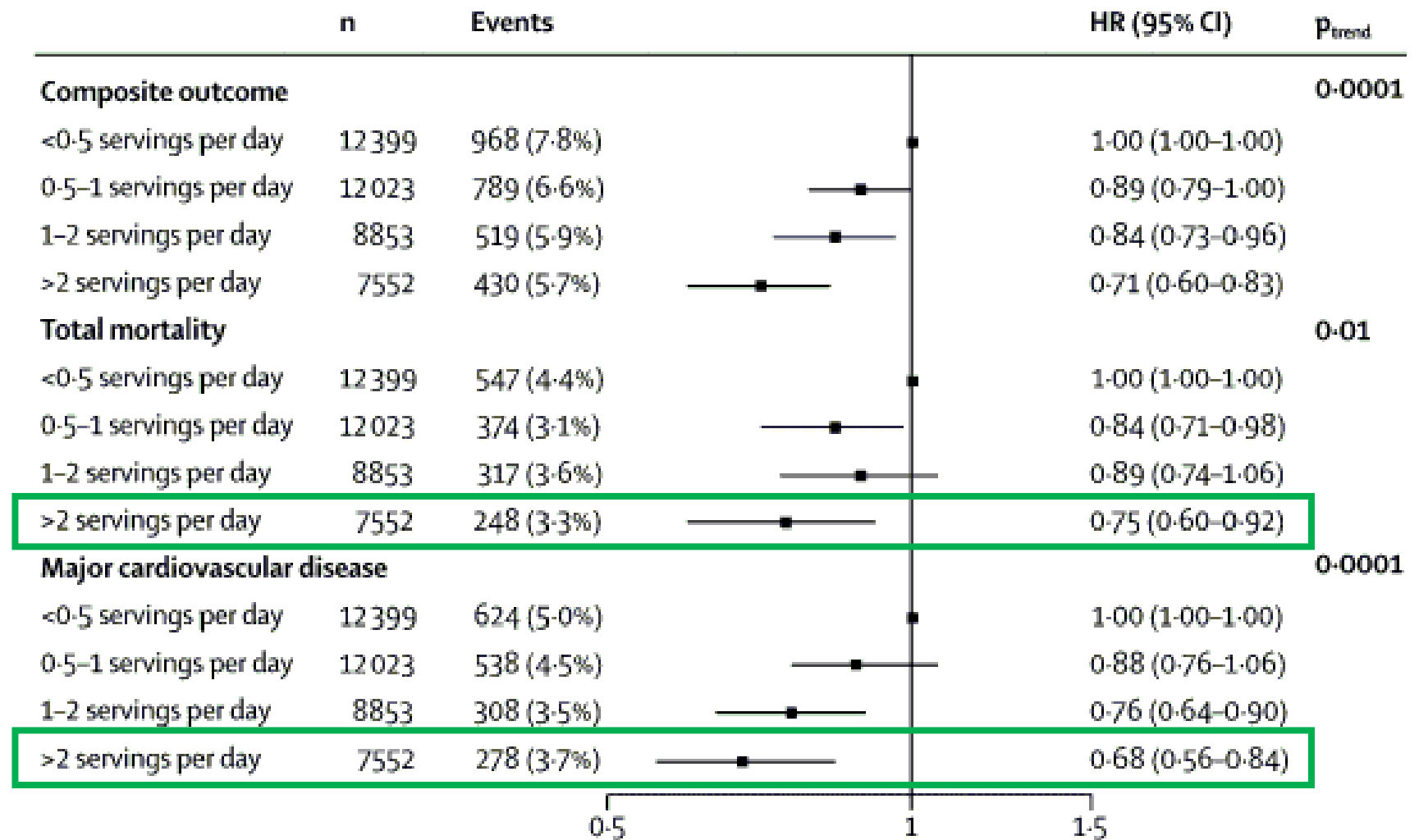


GBD Estimation of Milk Consumption 2019



*World Cancer Research Fund/
American Institute for Cancer Research.
Diet, Nutrition, Physical Activity & Cancer: a Global Perspective.
Continuous Update Project Expert Report 2018.*

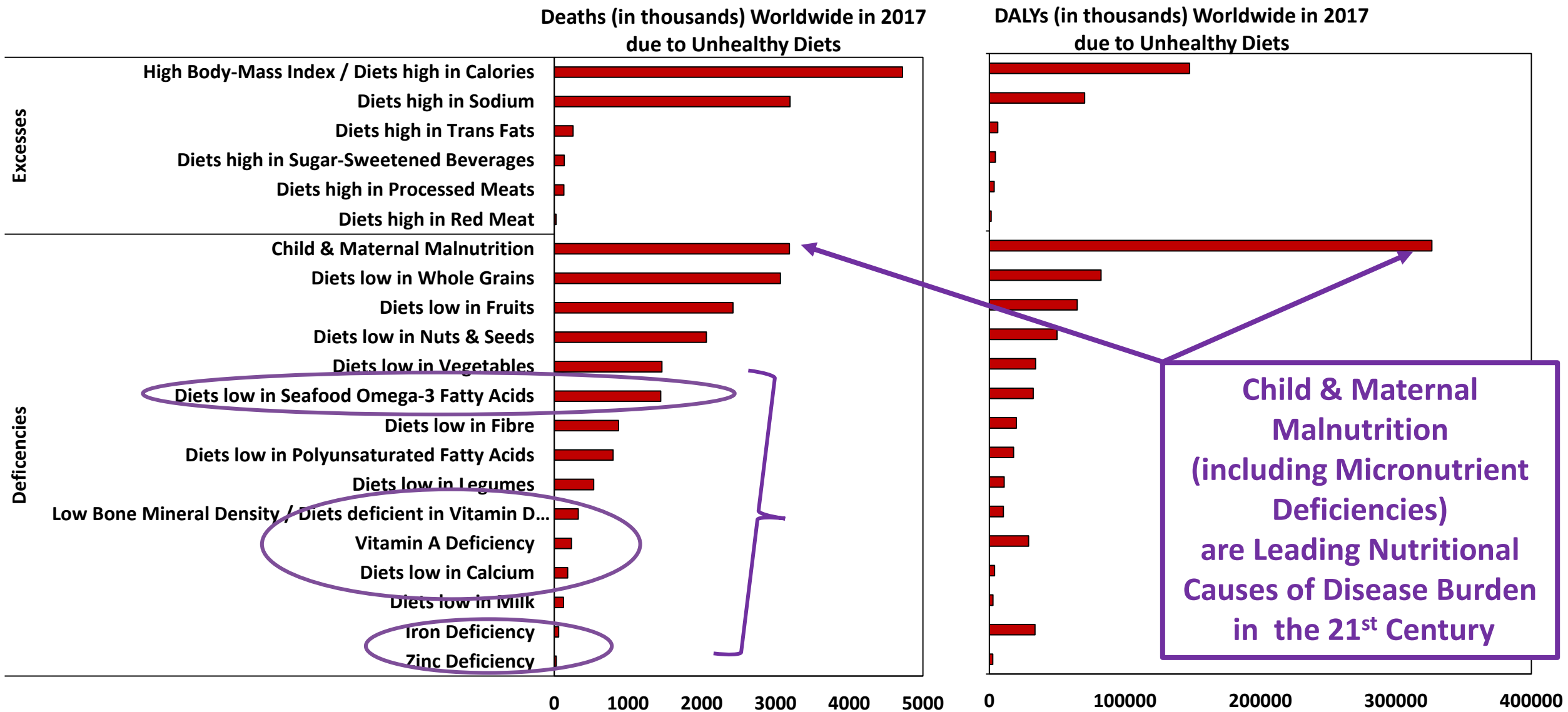
Daily Eating of ≥ 2 Full-Fat Dairy Servings Associated with 32% Less Cardiovascular Events & 25% Less Mortality in the PURE Study (n=136,384)



In 2017 Dietary Risks were Responsible for 22 Million Deaths & for 955 Million DALYs

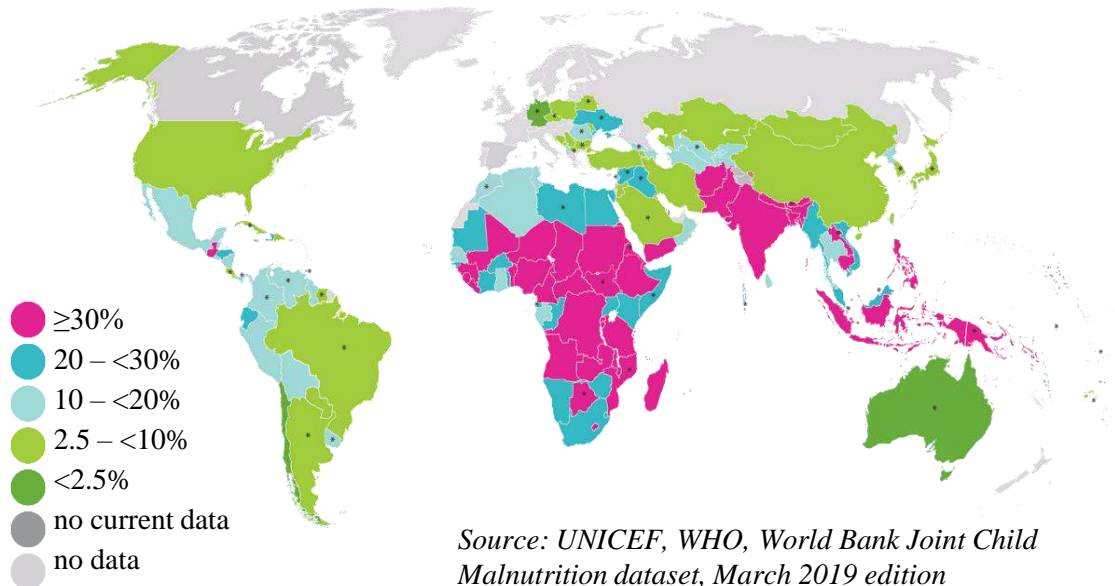
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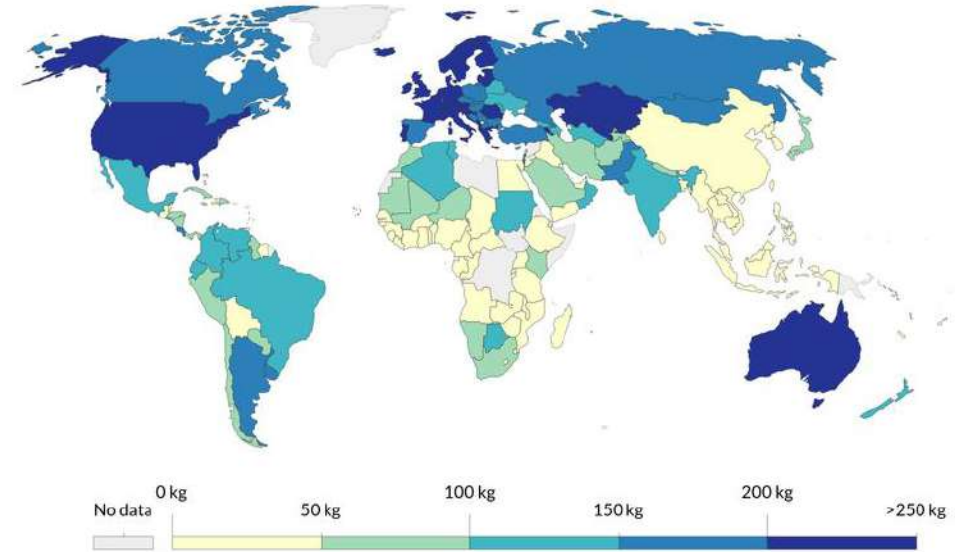
Inverse Relationships between Childhood Stunting & Annual Meat & Milk Consumption

Percentage of children under 5 who are stunted (%), by country



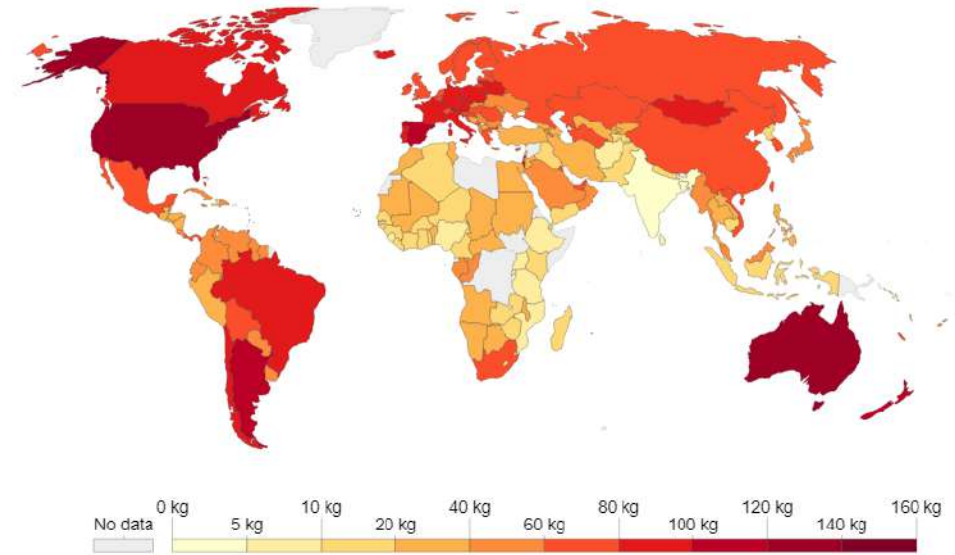
Per capita milk consumption, 2017

Average per capita milk consumption, measured in kilograms per person per year. This includes the milk equivalents of dairy products made from milk ingredients, but excludes butter.



Meat supply per person, 2017

Average total meat supply per person measured in kilograms per year.

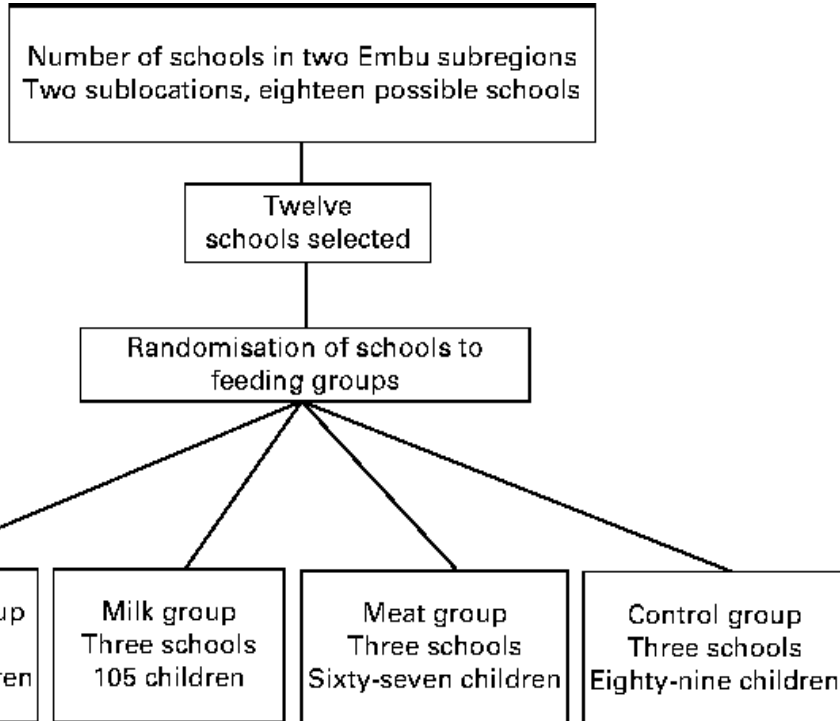


Source: UN Food and Agriculture Organization (FAO)

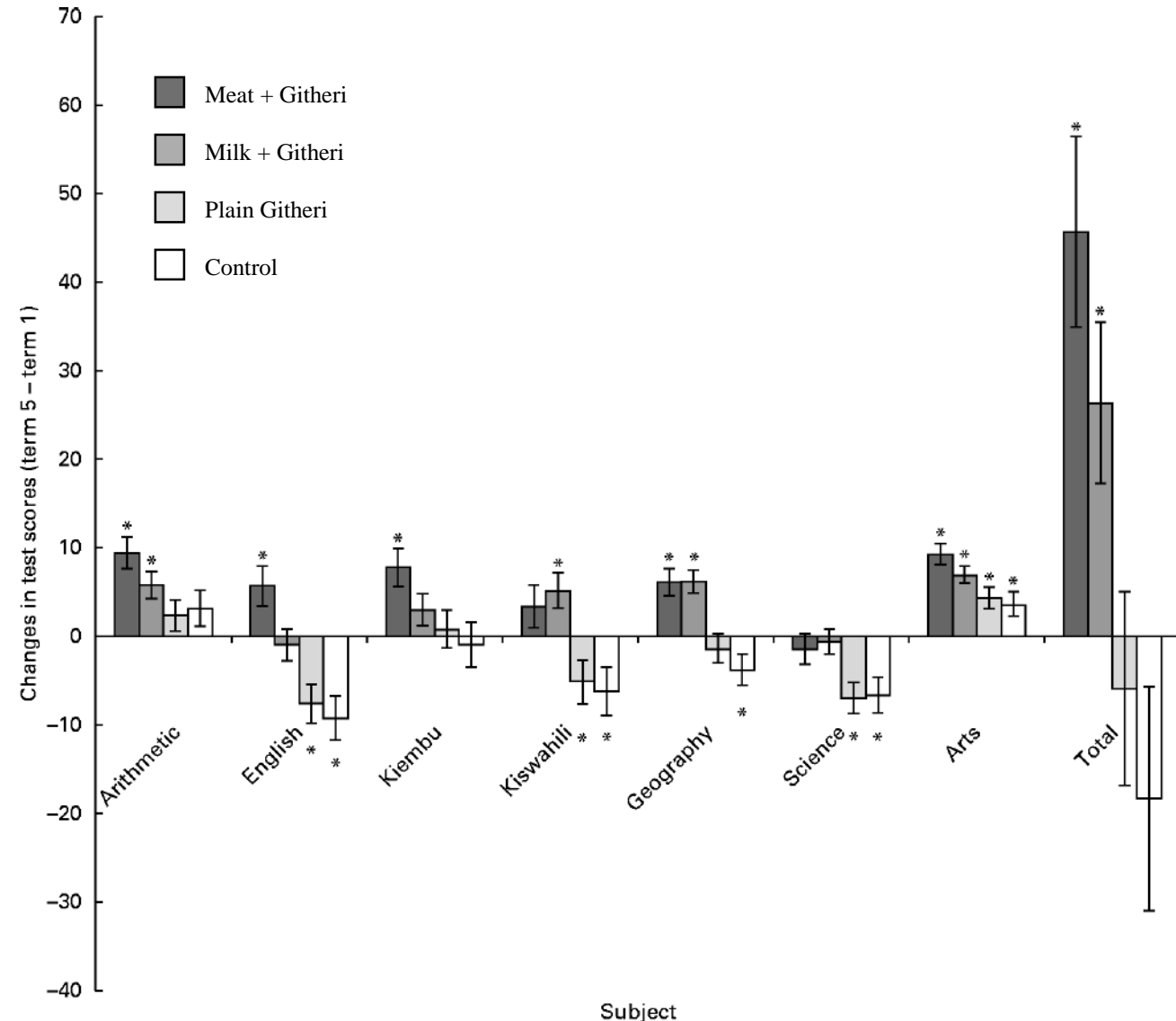
Note: Data excludes fish and other seafood sources. figures do not correct for waste at the household/consumption level so may not directly reflect the quantity of food finally consumed by a given individual.

7 Year Old Kenyan Schoolchildren Receiving Meat and Milk Meals Showed Significantly Greater Improvements in Test Scores (+45/350 and +26/350) than those Receiving Plant-Based Meals (-5/350) or no Additional School Meals (-20/350)

Hulett et al. Animal Source Foods & Primary School Test Scores of Kenyan Schoolchildren Brit J Nutrition 2014



Serving size	Githeri + meat 225 g (includes 85 g meat)	Githeri + milk 100 g + 250 ml milk	Plain githeri 230 g + 3.8 g oil
Energy (kJ)	1310	1310	1310
Energy (kcal)	313	313	313
Total protein (g)	21.7	15.2	8.4
Total Fe (mg)	2.94	1.57	3.93
Available Fe (mg)	0.48	0.10	0.20
Total Zn (mg)	2.89	1.66	1.68
Available Zn (mg)	0.44	0.38	0.23
Vitamin B ₁₂ (µg)	1.17	1.04	0.00
Ca (mg)	21.3	306.0	33.8

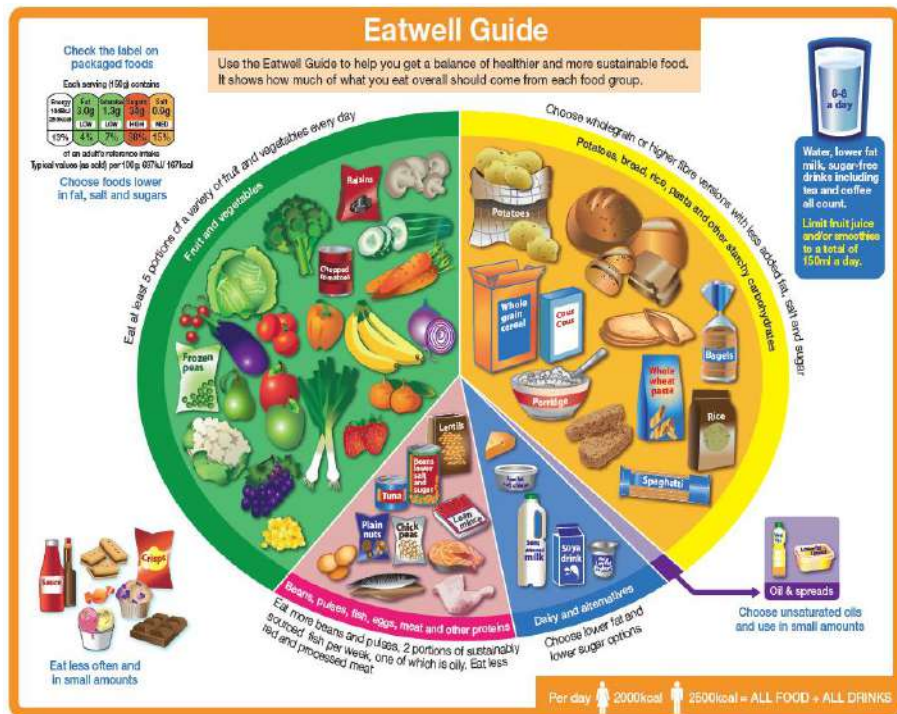


Diets low in Meat & Dairy, Vegetarian & Vegan Diets Adversely Impact on Bone, Brain & Blood Health

- Iron Deficiency Anaemia
- Osteoporosis
- Hip Fractures
- Elderly Sarcopenia & Fragility

The EAT-Lancet Commission Reference Diet

Doubling of Intake of Fruits, Vegetables, Legumes, Nuts & Seeds, Halving of Meat and Dairy Intakes, and 90% Reduction in Red Meat Consumption



2019 Headlines



Willett W et al. *Food in the Anthropocene: the EAT-Lancet Commission on healthy diets from sustainable food systems.* Lancet January 2019.

A Farm to Fork Strategy for a Fair, Healthy and Environmentally-Friendly Food System

2.4. Promoting sustainable food consumption and facilitating the shift to healthy, sustainable diets

Current **food consumption** patterns are unsustainable from both health and environmental points of view. While in the EU, **average intakes of energy, red meat, sugars, salt and fats** continue to exceed recommendations, consumption of whole-grain cereals, fruit and vegetables, legumes and nuts is insufficient.

Reversing the rise in overweight and obesity rates across the EU by 2030 is critical. Moving to a **more plant-based diet with less red and processed meat and with more fruits and vegetables will reduce not only risks of life-threatening diseases**, but also the environmental impact of the food system. **It is estimated that in the EU in 2017 over 950,000 deaths (one out of five) and over 16 million lost healthy life years were attributable to unhealthy diets, mainly cardiovascular diseases and cancers.** The EU's 'beating cancer' plan includes the promotion of healthy diets as part of the actions for cancer prevention.

**But
Less than 2% of those
deaths are POSSIBLY
due to excess
red meat & processed
meats consumption**

Europe's Beating Cancer Plan

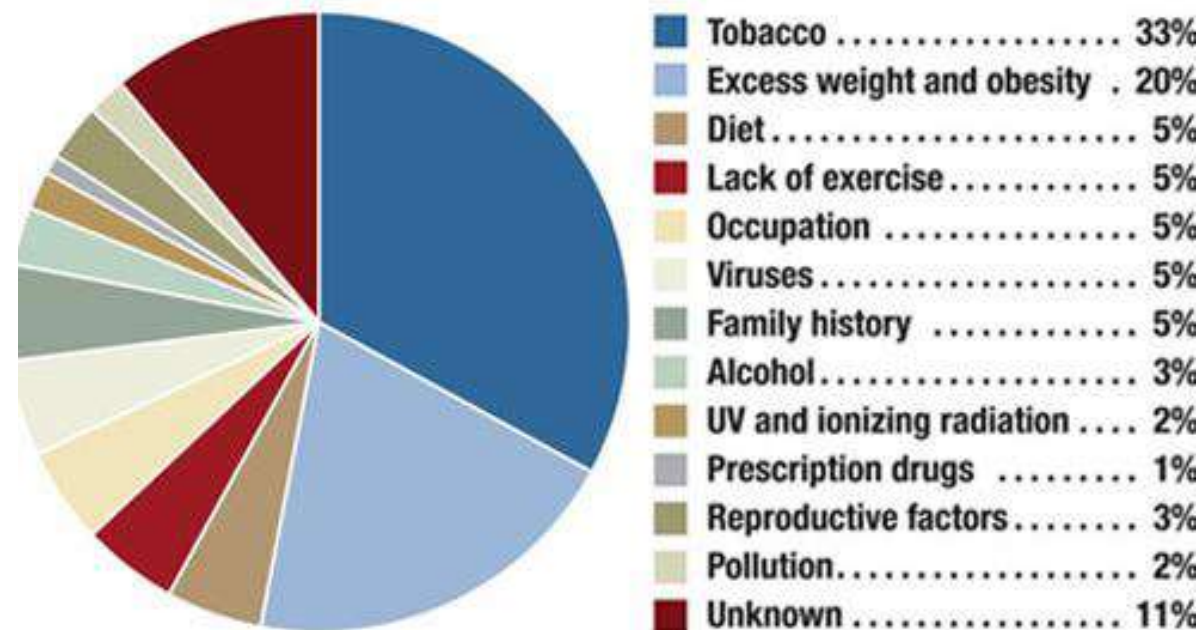
3.4.

Improving health promotion through access to healthy diets and physical activity

The Commission is undertaking a review of the promotion policy for agricultural products, with a view to enhancing its contribution to sustainable production and consumption, and in line with the shift to a more plant-based diet, with less red and processed meat and other foods linked to cancer risks and more fruit and vegetables.

Estimated % of Cancer Cases Caused by Identifiable and Potentially Preventable Factors

American Association for Cancer Research Cancer Progress Report 2012



But excess red and processed meat are linked to less than 2% of all cancers

Key Take-Home Messages

- Red meat and dairy are nutrient-rich foods.
- The relationship between red meat and disease burden is mirror-image J-shaped
 - Excess red meat consumption (>500g/day) may be associated with 5-15% increments in colon cancer and cardiovascular events
 - Insufficient red meat consumption (<2 portions/week) (without replacement by protein, vitamin and mineral rich foods) is associated with 2-10 fold increments in iron and B12 deficiency anaemia, stunted childhood growth and cognition, osteoporosis and sarcopenia.
- Milk/dairy intake up to 750mls/day protects against nutritional deficiencies, cancer and cardiovascular diseases.
- If red meat and dairy are considerably reduced or excluded from the human diet, considerably greater disease burdens will result in Europe and globally.
- Women, children, the elderly and those of low income will be particularly adversely impacted

