

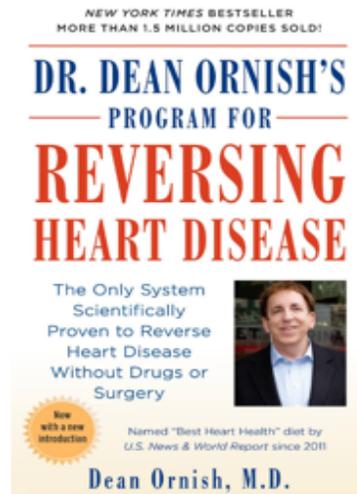
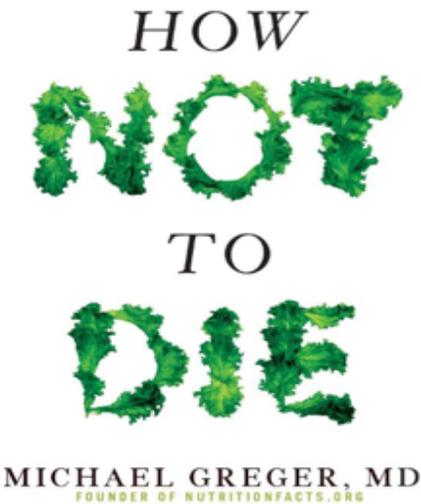
AAC
SINGAPORE
2019

Diet and Chronic Disease



Mark O'Reilly
Senior Advisor
Deloitte China, Hong Kong

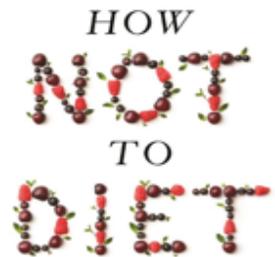
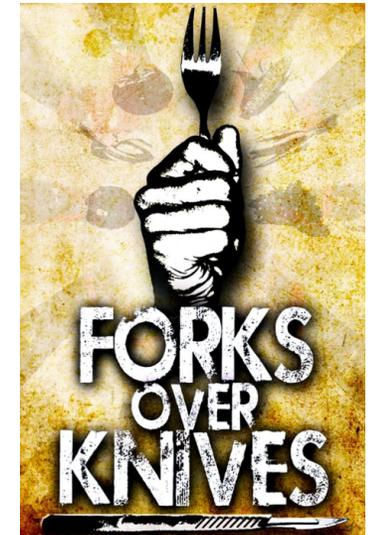
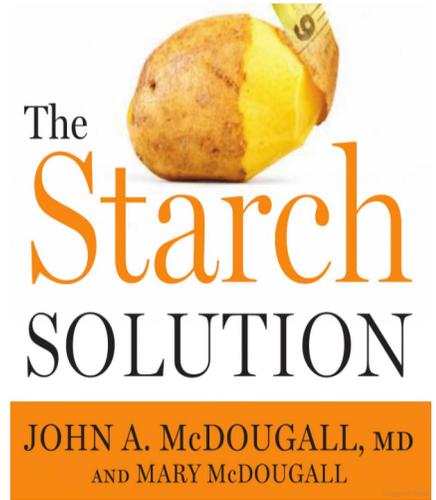
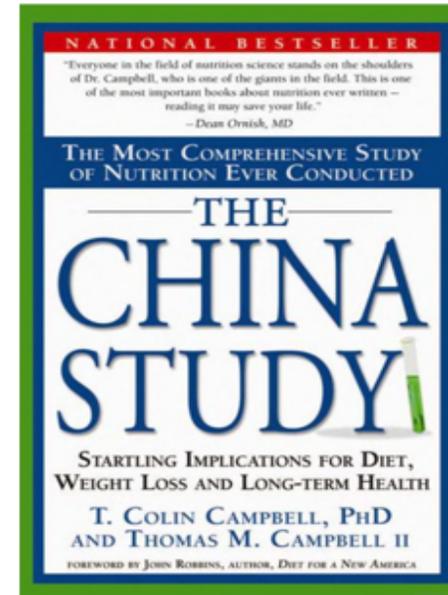
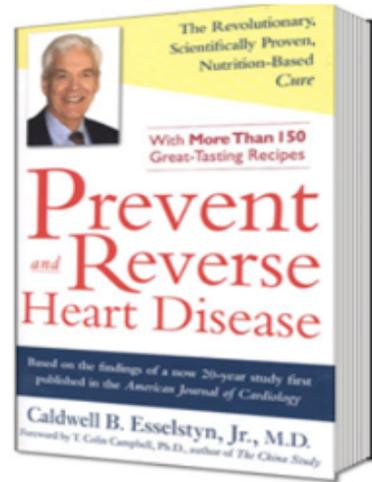
The Literature which you need to read alone...



ACTUARIES FOR SUSTAINABLE HEALTH CARE



T. COLIN CAMPBELL
Center for Nutrition Studies

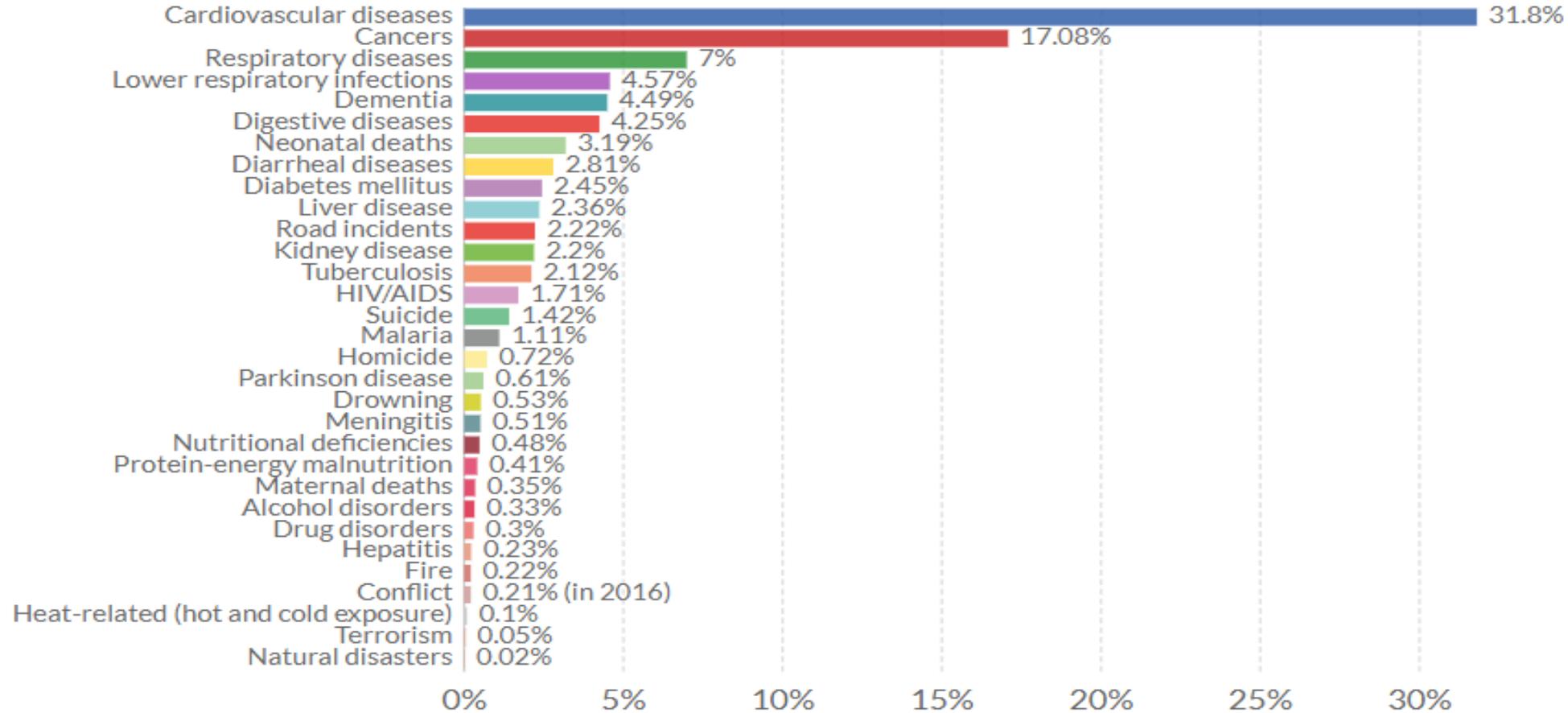


Is Diet the Magic Bullet? - article featured in The Actuary magazine in April 2019

A Time of Revolution - article published by Actuaries for Sustainable Health Care, May 2019

Share of deaths by cause, World, 2017

Data refers to the specific cause of death, which is distinguished from risk factors for death, such as air pollution, diet and other lifestyle factors. This is shown by cause of death as the percentage of total deaths.



Source: IHME, Global Burden of Disease

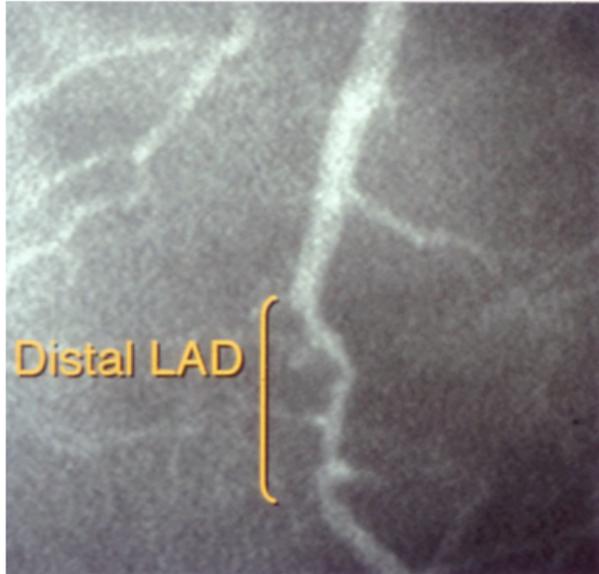
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<https://ourworldindata.org/causes-of-death>

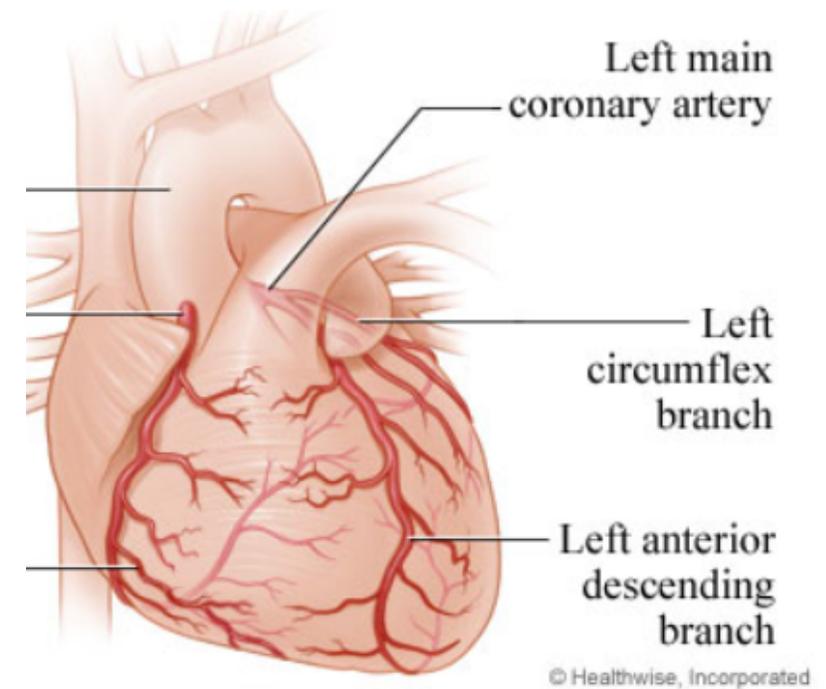
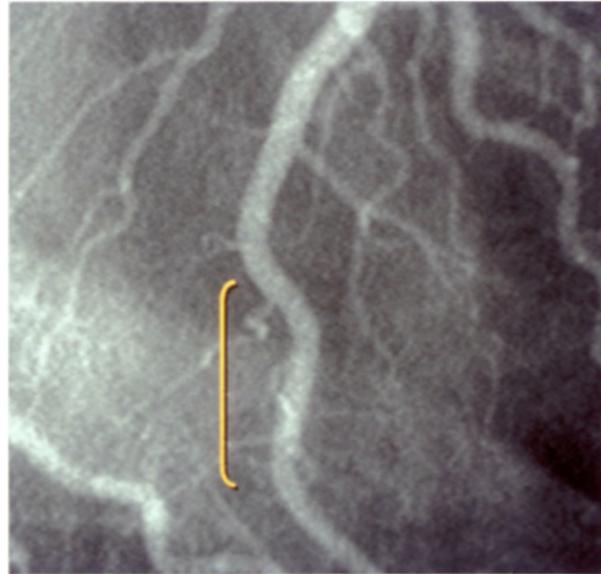
Reversal of Coronary Artery Disease

Caldwell B. Esselstyn Jr., M.D.

27 November 1996



22 July 1999



- ❑ CAD is generally viewed by doctors as “inevitable” in individuals with cholesterol levels substantially above 200
- ❑ Statins can lower cholesterol but can have major side-effects
- ❑ Doctors Esselstyn and Ornish have shown with the great majority of their patients that adherence to a specific diet can **reverse** CAD

Introducing the Whole-Food, Plant-Based (WFPB) Diet

...by comparing it with the other most famous "generic" diets

Nutrition Plans	Food Groups			
	Veg & Fruit	Refined Carbs	Unrefined Carbs	Fatty Nutrition*
WFPB	✓	✗	✓	✗
"My Plate"	✓	✗	✓	✓
"Low Carb"	✓	✗	✗	✓

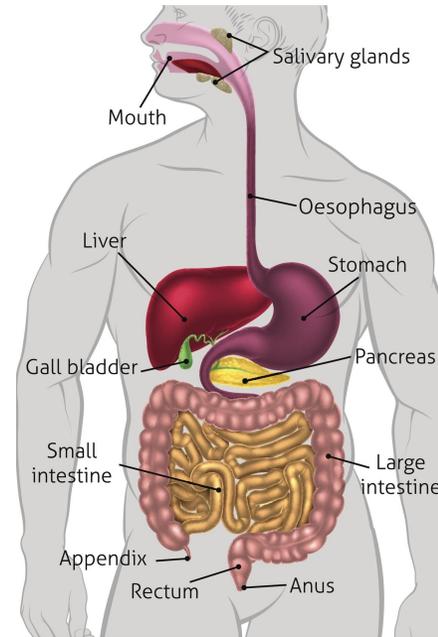
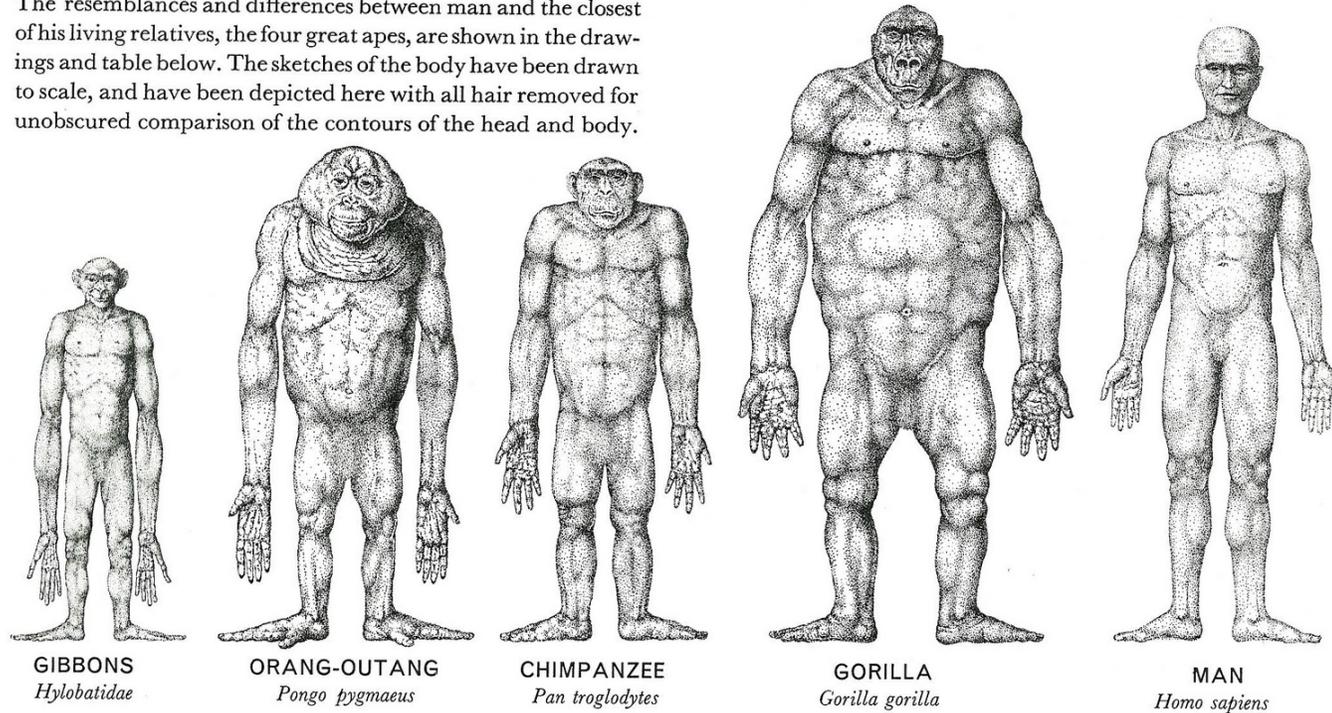


*
Fatty Nutrition
(my own term)

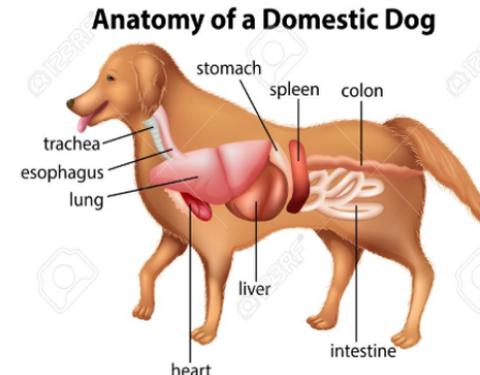
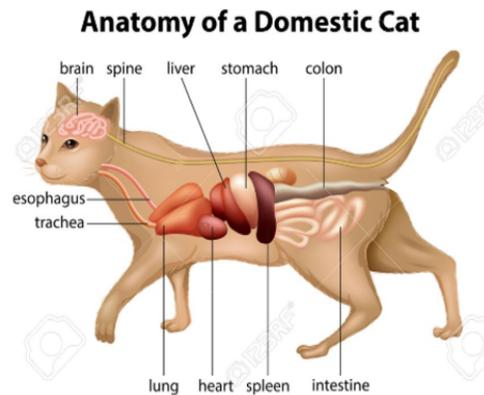
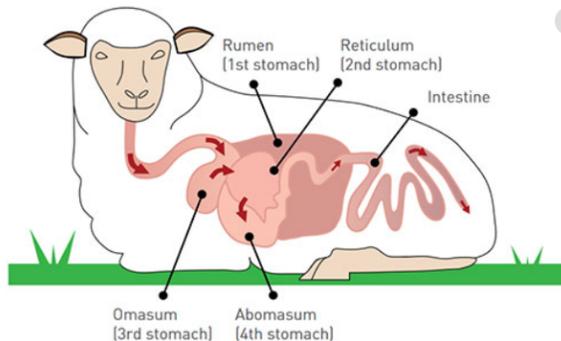


Physiology: Did we evolve to consume animal produce?

The resemblances and differences between man and the closest of his living relatives, the four great apes, are shown in the drawings and table below. The sketches of the body have been drawn to scale, and have been depicted here with all hair removed for unobscured comparison of the contours of the head and body.

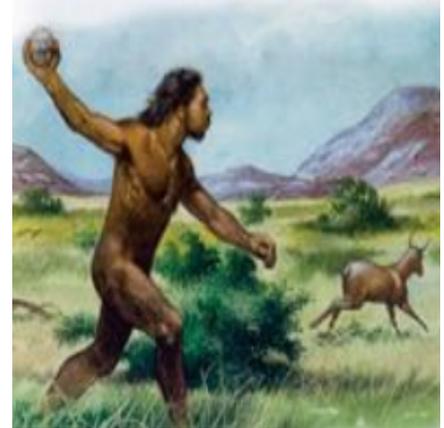


SPECIES	LIFE EXP (years)	VEGAN or CARN
Turtle	123	V
Elephant	70	V
Chimpanzee	50	V
Donkey	50	V
Buffalo	45	V
Rhinoceros	40	V
Mule	37	V
Horse	35	V
Lion	35	C
Bear (Grizzly)	34	C
Cat (Domestic)	30	C
Zebra	30	V
Giraffe	28	V
Deer	25	V
Dog (Domestic)	20	C
Sheep (Wild)	19	V
Mountain Lion	18	C
Wolf	16	C
Antelope	15	V
Fox	14	C



A narrative to explain why animal produce is a double-edged sword

- ❑ Hundreds of millions of years of evolution created a symbiosis between plants, which evolve to be eaten, and animals
- ❑ “Evolutionary stress” created upright apes using sticks as weapons, firstly as meat scavengers then as active hunters (*Homo Ergaster*)
- ❑ Animal protein perhaps enabled an evolutionary explosion in brainpower, and thus our success as a species
- ❑ But it never mattered to early humans that there could be long-term health consequences for the consumption of animal produce
- ❑ Moreover, the advent of agriculture meant that perhaps 98% of humanity ate a near-WFPB diet until the 20th Century
- ❑ Those fed well on that diet for military service were strong – examples are the Roman Legionary and the English longbowman



The theory behind the link between animal produce and cancer

- ❑ Animal protein provides a signal to the body (through the liver) for rapid cell growth, because it is the fuel for growth
- ❑ Such a signal may well have been the source of spectacular hominid brain development millions of years ago
- ❑ However, modern adults do not require such cell growth, and anyway enough protein is now abundant in plants for our needs
- ❑ The growth boost caused by “high quality” animal protein appears to accelerate the growth of cancer cells and thus malignancies. Plant protein has no such effect
- ❑ In fact, plant-based diets have been shown to increase defenses against malignancies, even reversing cancer progression
- ❑ The degree of impact? It appears that a high-animal-protein diet has a mortality risk-factor comparable to SMOKING



Why no hard evidence that vegans live longer than omnivores?

- ❑ Veganism has been a relative rare diet among developed nations since modern statistical techniques were first used
- ❑ Studies in Japan, rural China etc. give strong pointers, but it's impossible to eliminate all potential confounders
- ❑ Many vegans have nutrient-poor diets, having chosen them for ethical rather than health reasons. ('Beer and chips' is vegan)
- ❑ The critical supplemental nutrients needed for vegans (B12, Vit D, EPA/DHA, iodine, selenium) have only recently been identified
- ❑ Following a WFPB diet is hard for many, and self-reporting is not always reliable
- ❑ Animal produce and diet industries have financial incentives to emphasize what appears to be conflicting data



Why do we know so little about the facts?

- ❑ Like the sources of greenhouse gases, nutrition is a multi-billion dollar industry which can sponsor its own research and promotion
- ❑ Like climate change, we cannot measure long-term effects under laboratory conditions. Population studies can always be dismissed as “inconclusive”
- ❑ Unlike global warming:
 - There are obvious advantages of animal produce for nutrition, and scientists can be paid by industry to focus on them (e.g. eggs, dairy, supplements, low carb)
 - There are no dramatic pictures of melting ice-sheets, floods and droughts
- ❑ Unlike smoking and carbon dioxide, it’s hard for people to accept that their favorite meals might be slowly killing them – there is a strong demand for scientists to say “keep enjoying yourself” and “your parents knew best.”
- ❑ Maybe we deeply want to believe that Paleolithic life was the “golden age” of human freedom and self-sufficiency





ACTUARIES FOR SUSTAINABLE HEALTH CARE

<https://www.actuariesforsustainablehealthcare.org/>