

How Not To Die

Preface

- At that time, the medical profession didn't even think it was possible to reverse heart disease. Drugs were given to try to slow the progression, and surgery was performed to circumvent clogged arteries to try to relieve symptoms, but the disease was expected to get worse and worse until you died. Now, however, we know that as soon as we stop eating an artery-clogging diet, our bodies can start healing themselves, in many cases opening up arteries without drugs or surgery
- Using the latest high-tech advances - cardiac PET scans, quantitative coronary arteriography, and radionuclide ventriculography - Dr. Ornish and his colleagues showed that the lowest-tech approach - diet and lifestyle - can undeniably reverse heart disease, our leading killer
- I opened my eyes to the depressing fact that there are other forces at work in medicine besides science. The U.S. health care system runs a fee-for-service model in which doctors get paid for the pills and procedures they prescribe, rewarding quantity over quality. We don't get reimbursed for time spent counseling our patients about the benefits of healthy eating. If doctors were instead paid for performance, there would be a financial incentive to treat the lifestyle causes of disease. Until the model of reimbursement changes, I don't expect great changes in medical care or medical education
- There is a reason you hear about the latest drugs on television: Huge corporate budgets drive their promotion. The same reason you'll probably never see a commercial for sweet potatoes is the same reason breakthroughs on the power of foods to affect your health and longevity may never make it to the public: There's little profit motive

Introduction - Part 1

- While most of the public evidently considers doctors to be "very credible" sources of nutrition information, six out of seven graduating doctors surveyed felt physicians were inadequately trained to counsel patients about their diets
- But hey, this is the twenty-first century! Can't we eat whatever we want and simply take meds when we begin having health problems? For too many patients and even my physician colleagues, this seems to be prevailing mind-set
- Many people assume that our manner of death is preprogrammed into our genes. High blood pressure by fifty-five, heart attacks at sixty, maybe cancer at seventy, and so on... But for most of the leading causes of death, the science shows that our genes often account for only 10-20 percent of risk at most
- Are Americans are living longer now compared to about a generation ago? Yes, technically. But are those extra years necessarily healthy ones? No. And it's worse than that: We're actually living fewer healthy years now than we once did. In other words, we're living longer, but we're living sicker

- In 1900 in the United States, the top three killers were infectious diseases: pneumonia, tuberculosis, and diarrheal disease. Now, the killers are largely lifestyle diseases: heart disease, cancer, and chronic lung disease. Is this simply because antibiotics have enabled us to live long enough to suffer from degenerative diseases? No. The live long enough to suffer from degenerative disease was accompanied by dramatic shifts in dietary patterns. This is best exemplified by what's been happening to disease rates among people in the developing world over the last few decades as they've rapidly Westernized their diets
- The pandemic of chronic disease has been ascribed in part to the near-universal shift toward a diet dominated by animal-sourced and processed foods - in other words, more meat, dairy, eggs, oils, fizzy drinks, sugar and refined grains
- According to estimates from the U.S. Department of Agriculture, 32% of our calories comes from animal foods, 57% comes from processed plant foods, and only 11% comes from whole grains, beans, fruits, vegetables and nuts
- There is only one unifying diet that may help prevent, arrest, or even reverse each of these killers. Unlike with medications, there isn't one kind of diet for optimal liver function and a different diet to improve our kidneys. A heart-healthy diet is a brain-healthy diet is a lung-healthy diet. The same diet that helps prevent cancer just so happens to be the same diet that may help prevent type 2 diabetes and every other cause of death on the top-fifteen list
- As physicians, my colleagues and I were trained not to treat the root cause but rather the consequences by giving a lifetime's worth of medications to treat risk factors like high blood pressure, blood sugar and cholesterol. This approach has been compared to mopping up the floor around an overflowing sink instead of simply turning off the faucet
- Treating the cause is not only safer and cheaper but it can work better. So why don't more of my medical colleagues do it? Not only were they not trained how, doctors don't get paid for it. No one profits from lifestyle medicine (other than the patient!), so it's not a major part of medical training or practice. That's just how the current system works

How Not to Die from Heart Disease

- For the majority of Americans who die suddenly from heart disease, the very first symptom may be their last. It's called "sudden cardiac death." This is when death occurs within an hour of symptom onset. In other words, you may not even realize you're at risk until it's too late. You could be feeling perfectly fine one moment, and then an hour later, you're gone forever. That's why it's critical to prevent heart disease in the first place, before you even necessarily know you have it
- Atherosclerotic changes appear in the coronary arteries years and decades before the age at which coronary heart disease (CHD) becomes a clinically recognized problem

- According to William C. Roberts, the editor in chief of the American Journal of Cardiology, the only critical risk factor for atherosclerotic plaque buildup is cholesterol, specially elevated LDL cholesterol in your blood. Indeed, LDL is called “bad” cholesterol, because it’s the vehicle by which cholesterol is deposited into your arteries. Autopsies of thousands of young accident victims correlated with the amount of atherosclerosis in their arteries. To drastically reduce LDL cholesterol levels, you need to drastically reduce your intake of three things: trans fat, which comes from processed foods and naturally from meat and dairy; saturated fat, found mainly in animal products and junk foods; and to a lesser extent dietary cholesterol, found exclusively in animal-derived foods, especially eggs
- The optimal LDL cholesterol is probably 50 or 70 mg/dL, and apparently, the lower, the better. That’s where you start out at birth, that’s the level seen in populations largely free of heart disease, and that’s the level at which the progression of atherosclerosis appears to stop in cholesterol-lowering trials
- An LDL around 70 mg/dL corresponds to a total cholesterol reading of about 150, the level below which no deaths from coronary heart disease were reported in the famous Framingham Heart Study, a generations-long project to identify risk factors for heart disease
- The average cholesterol for people living in the United States is much higher than 150 mg/dL; it hovers around 200 mg/dL. If your blood test results came back with a total cholesterol of 200 mg/dL, your physician might reassure you that your cholesterol is normal. But in a society where it’s normal to die of heart disease, having a “normal” cholesterol level is probably not a good thing
- Let me share with you what has been called the “best kept secret in medicine”: Given the right conditions, the body heals itself. If you whack your shin really hard on a coffee table, it can get red, swollen and painful. But your shin will heal naturally if you just stand back and let your body work its magic. But what if you kept whacking it in the same place three times a day - say, at breakfast, lunch and dinner? It would never heal. You could go to your doctor and complain that your shin hurts. “No problem,” he or she might say, whipping out a pad to write you a prescription for painkillers. You’d go back home, still whacking your shin three times a day, but the pain pills would make it feel so much better. Thank heavens for modern medicine! That’s what happens when people take nitroglycerin for chest pain. Medicine can offer tremendous relief, but it’s not doing anything to treat the underlying cause
- One of the most amazing things I learned in medical school was that within about fifteen years of stopping smoking, your lung-cancer risk approaches that of a lifelong nonsmoker. Your lungs can clear out all that tar buildup and, eventually, it’s almost as if you never smoked at all
- It’s bad enough that most medical schools don’t even require a single course on nutrition, but it’s even worse when mainstream medical organizations actively lobby against increased nutrition education for physicians
- Foods to avoid heart disease => Brazil Nuts, Fibre

How Not to Die from Lung Diseases

- Lung cancer is our number-one cancer killer. Most of the 160,000 lung cancer deaths every year are the direct result of smoking. However, a healthy diet may help mitigate the DNA-damaging effects of tobacco smoke, as well as perhaps help prevent lung cancer from spreading
- The anticancer effects of curcumin extend beyond its ability to potentially prevent DNA mutations. It also appears to help regulate programmed cell death. Your cells are preprogrammed to die naturally to make way for fresh cells through a process known as apoptosis. In a sense, your body is rebuilding itself every few months with the building materials you provide it through your diet. By somehow disabling their own suicide mechanism, they don't die when they're supposed to. Because they continue to thrive and divide, cancer cells can eventually form tumors and potentially spread throughout the body. So how does curcumin affect this process? It appears to have the ability to reprogram the self-destruct mechanism back into cancer cells. All cells contain so-called death receptors that trigger the self-destruction sequence, but cancer cells can disable their own death receptors. Curcumin, however, appears able to reactivate them. Curcumin can also kill cancer cells directly by activating "execution enzymes" called caspases inside cancer cells that destroy them from within by chopping up their proteins. Unlike most chemotherapy drugs, against which cancer cells can develop resistance over time, curcumin affects several mechanisms of cell death simultaneously making it potentially harder for cancer cells to avoid destruction
- Curcumin has been found to be effective against a variety of other cancer cells in vitro, including those of the breast, brain, blood, colon, kidney, liver, lungs and skin. For reasons not fully understood, curcumin seems to leave noncancerous cells alone
- When fat is heated to frying temperatures, whether it be animal fat, such as lard, or plant fat, such as vegetable oil, toxic volatile chemicals with mutagenic properties (those able to cause generic mutations) are released into the air. This happens even before the "smoke point" temperature is reached. If you do fry at home, good ventilation in the kitchen may reduce lung cancer risk
- Cancer risk may also depend on what's being fried. A study of women in China found that smokers who stir-fried meat every day had nearly three times the odds of lung cancer compared to smokers who stir-fried foods other than meat on a daily basis. This is thought to be because of a group of carcinogens called heterocyclic amines that are formed when muscle tissue is subjected to high temperatures
- Even just living next to a restaurant may pose a health hazard. Scientists estimated the lifetime cancer risk among those residing near the exhaust out-lets at Chinese restaurants, American restaurants, and barbecue joints
- Foods to avoid lung diseases => Broccoli, Kale, Turmeric

How Not to Die from Brain Diseases

- Most strokes can be thought of as “brain attacks” - like heart attacks, but the rupturing plaques in your arteries cut off blood flow to parts of the brain rather than to parts of the heart
- Alzheimer’s disease is one of the most physically and emotionally burdensome diseases, for both sufferers and caregivers. Unlike stroke, which can kill instantly and without any warning, Alzheimer’s involves a slower, more subtle decline over months or years. Instead of cholesterol-filled plaques in your arteries, plaques made of a substance called amyloid develop in the brain tissue itself, associated with the loss of memory and eventually, loss of life
- In about 90% of strokes, blood flow to part of the brain gets cut off, deprived it of oxygen and killing off the part fed by the clogged artery. That’s called an ischemic stroke. A small minority of strokes are hemorrhagic strokes, which caused by bleeding into the brain when a blood vessel bursts
- How does fibre protect the brain? We’re not exactly sure. We do know that fibre helps control your cholesterol and blood sugar levels, which can help reduce the amount of artery-clogging plaque in your brain’s blood vessels. High-fibre diets may also lower blood pressure, which reduces the risk of brain bleeds
- Every cell in your body requires potassium to function, and you need to get it from your diet. For much of human history, we ate so many plants that we got upward of 10,000 mg of potassium every day. Nowadays, less than 2 percent of Americans even reach the recommended daily intake of 4,700 mg. The major reason is simple: We don’t eat enough unprocessed plant foods
- The key may lie with a citrus phytonutrient called hesperidin, which appears to increase blood flow throughout the body, including the brain. Using a machine known as doppler fluximeter, scientists can measure blood flow through the skin using a laser beam. If we hook people up to the machine and give them a solution containing the amount of hesperidin found in two cups of orange juice, blood pressure decreases and overall blood flow increases. When subjects drank straight orange juice instead of the hesperidin solution, their blood flow was even better
- Compared with people who slept an average of seven hours per night, subjects who got four hours of sleep or less, or ten hours, or more, had roughly a 50% greater likelihood of dying from a stroke
- Plants get their energy from the sun. You take a plant and place it in the sun, and through a process called photosynthesis, the chlorophyll in the leaves harnesses the sun’s energy and transfers it to tiny building blocks of matter called electrons. The plant starts out with low-energy electrons and, using the energy of the sun, charges them up into high-energy electrons. In this way, plants store the sun’s energy. When you then eat the plant, these electrons are delivered to all your cells. Then your mitochondria take the plant’s power-packed electrons and use them as an energy source - that is, as fuel - and slowly release their energy. Mind you, this process has to occur in a precise, tightly controlled manner, because these electrons are packed with energy and are therefore volatile, like petrol. In

fact, petrol, petroleum, oil and charcoal aren't called fossil fuels for nothing. The tanks of our SUVs are filled with mostly pre-historic plant matter that stored the energy of the sun that shone millions of years ago as high-energy electrons. As just as it would be dangerous to toss a match into a can of petrol and release all its energy at once, your body has to be cautious. That's why your cells take these same high-energy electrons from the plants you eat and release their energy in a controlled manner, like a gas cooker - just a little time at a time until the energy is used up. Your body then passes these used-up electrons to an all-important molecule you may have heard of: oxygen. In fact, the way poisons like cyanide kill you is by preventing your body from giving up these spent electrons to oxygen

- In scientific circles, the phenomenon by which oxygen molecules grab stray electrons and go crazy is called oxidant, or oxidative, stress. According to the theory, the resulting cellular damage is what essentially causes aging. Aging and disease have been thought of as the oxidation of the body. Those brown age spots on the back of your hands? They're just oxidized fat under the skin. Oxidant stress is thought to be why we all get wrinkles, why we lose some of our memory, why our organ systems break down as we get older. Basically, the theory goes, we're rusting
- Think about our two most popular fruits: apples and bananas. They turn brown quickly, which means there aren't a lot of antioxidants inside them (Most of the antioxidants in apples are in the peels). Cut open a mango and what happens? Nothing happens, because there are lots of antioxidants in there. How do you keep fruit salad from turning brown? By adding lemon juice, which contains the antioxidant vitamin C. Antioxidants can keep your food from oxidizing, and they do the same inside your body
- On average, plant foods contain sixty-four times more antioxidants than animal foods
- Antioxidant-rich diets appear to protect against stroke by preventing the circulation of oxidized fats in the bloodstream that can damage the sensitive walls of small blood vessels in the brain. They can also help decrease artery stiffness, prevent blood clots from forming, and lower blood pressure and inflammation. Free radicals can disfigure proteins in our bodies to the extent they become unrecognizable by our immune systems
- There is an emerging consensus that "what is good for our hearts is also good for our heads," because clogging of the arteries inside of the brain with atherosclerotic plaque is thought to play a pivotal role in the development of Alzheimer's disease
- We generally think of atherosclerosis as a condition of the heart, but it's been described as "an omnipresent pathology that involves virtually the entire human organism. You have blood vessels in every one of your organs, including your brain. The concept of "cardiogenic dementia," first proposed in the 1970s, suggested that because the aging brain is highly sensitive to a lack of oxygen, lack of adequate blood flow may lead to cognitive decline

- Starting in adulthood, people appear to naturally lose about half a percent of blood flow per year. By age sixty-five, this circulating capacity could be down by as much as 20%
- Under an electron microscope, we can see the clustering of amyloid fibres on and around tiny crystals of cholesterol. And indeed, advanced brain imaging techniques, such as PET scans, have shown a direct correlation between the amount of LDL (“bad”) cholesterol in the blood and amyloid buildup in the brain. Drug companies have hoped to capitalize on this connection to sell cholesterol-lowering statin drugs to prevent Alzheimer’s, but statins themselves can cause cognitive impairment, including short-term and long-term memory loss
- Surely, genetic factors play some part? They do. Back in the 1990s scientists discovered a gene variant called apolipoprotein E4, or ApoE4, that makes you susceptible to getting Alzheimer’s. Everyone has some form of ApoE, but about one in seven people have a copy of the E4 gene that is linked to the disease. It’s been shown that if you inherit one ApoE4, gene from your mother or father, your risk of getting Alzheimer’s may triple. If you get the ApoE4 gene from both parents - which about one in fifty people do - you might end up with nine times the risk
- Whole plant foods contain thousands of compounds with antioxidant properties, some of which can traverse the blood-brain barrier and may provide neuroprotective by defending against free radicals - that is, protecting against the “rusting” of the brain. Your brain is only about 2% of your body weight but may consume upto 50% of the oxygen you breathe, potentially releasing a firestorm of free radicals. Special antioxidant pigments in berries and dark-green leafies may make them the brain foods of the fruit and vegetable kindgom
- AGE is an appropriate acronym, as they are considered “gerontotoxins,” meaning aging toxins (from the Greek geros, meaning “old age,” as in “geriatric”). AGEs are thought to accelerate the aging process by cross-linking proteins together, causing tissue stiffness, oxidative stress, and inflammation. This process may play a role in cataract formation and macular degeneration in the eye, as well as damage to the bones, heart, kidneys and liver
- Where are these AGEs coming from? Some are produced and detoxified naturally in your body, but other than cigarette smoke, major sources are “meat and meat-derived products” exposed to dry-heat cooking methods. AGEs are formed primarily when fat and protein rich foods are exposed to high temperatures
- Meat averages about 20 times more AGEs than highly processed foods like breakfast cereals and about 150 times more than fresh fruits and vegetables. Poultry was the worst, containing about 20 percent more AGEs than beef. The researchers concluded that even a modest reduction in meat intake could realistically cut daily AGE intake in half
- Subsequent studies using MRI scans found that aerobic exercise can actually reverse age-related shrinkage in the memory centers of the brain. No such effect was found in the stretching and toning control groups or a nonaerobic strength-training group. Aerobic exercise can help improve cerebral blood flow, improve memory performance, and help preserve brain tissue

- Foods to avoid brain diseases => Fibre, Potassium, Citrus, Optimal Sleep, Berries, Dark-green Leafies, Saffron

How Not to Die from Digestive Cancers

- Colon cancer is among the most treatable if caught early enough. Pancreatic cancer, on the other hand, is virtually a death sentence. Few survive beyond a year after diagnosis, which means prevention is paramount. Oesophageal cancer affects the tube between your mouth and stomach, is also frequently fatal
- India's GDP is about eight times less than that of the United States, and about 20% of its population lives below the poverty line, yet cancer rates in India are much lower than in the United States
- The emergence of colorectal cancer can be broken up into three stages. The first sign may be what are called "aberrant crypt foci," or abnormal clusters of cells along the lining of the colon. Next come polyps that grow from that inner surface. The final stage is thought to occur when a benign polyp transforms into a cancerous one. The cancer can then eat through the wall of the colon and spread throughout the body
- The bigger and more frequent your bowel movements are, the healthier you may be. Based on a study of twenty-three populations across a dozen countries, the incidence of colon cancer appears to skyrocket as the average daily stool weight drops below about a half a pound. Populations dropping quarter pounders appear to have three times the rate of colon cancer
- The link between stool size and colon cancer may be related to "intestinal transit time," the number of hours it takes for food to travel from mouth to toilet. The larger the stool, the quicker the transit time, as it's easier for your intestines to move things along. People don't realize you can have daily bowel movements and still effectively be constipated; what you're flushing today you may have eaten last week
- You can measure your own oral-anal transit time by eating some beetroot and noting when your stools turn pink. If that takes less than twenty-four to thirty-six hours, you're probably meeting the healthy half-pound target
- Constipation is the most common gastrointestinal complaint in the United States, leading to millions of doctor visits each year. But beyond just the discomfort, the straining associated with trying to pass small, firm stools may role in a host of health problems, including hiatal hernia, varicose veins, hemorrhoids, and painful conditions with names like anal fissure. Constipation can be considered a nutrient-deficiency disease and that nutrient is fibre. Just as you can get scurvy if you don't get enough vitamin C, you can get constipation if you don't get enough fibre. Since fibre is found only in plant foods, it's no surprise that the more plants you eat, the less likely you are to be constipated. For example, a study comparing thousands of omnivores, vegetarians and vegans found that those eating strictly plant-based diets are three times more likely to have daily bowel movements. Looks like vegans are just regular people

- Phytates have been shown to detoxify excess iron in the body, which otherwise can generate a particularly harmful kind of free radical called hydroxyl radicals. The standard American diet may therefore be a double whammy when it comes to colorectal cancer: Meat contains the type of iron (heme) particularly associated with colorectal cancer but lacks, as do refined plant foods, the phytates to extinguish these iron-forged free radicals
- For many years, phytates were maligned as inhibitors of mineral absorption, which is why you might have heard advice to roast, sprout or soak your nuts to get rid of the phytates. In theory, this would allow you to absorb more minerals such as calcium. This belief stemmed from a series of laboratory experiments on puppies from 1949 that suggested that phytates had a bone-softening, anti-calcifying effect, as well as from subsequent studies with similar findings on rats. But more recently, in light of actual human data phytates' image has undergone a complete makeover. Those who eat more high-phytate foods actually tend to have a greater bone mineral density, less bone loss, and fewer hip fractures. Phytates appear to protect bone in a manner similar to that of antiosteoporosis drugs like Fosamax, but without the risk of osteonecrosis (bone rot) of the jaw, a rare, potentially disfiguring side effect associated with that class of drugs
- When you eat whole grains, beans, nuts, and seeds, phytates are rapidly absorbed into the bloodstream and readily taken up by tumor cells. Tumors concentrate these compounds so efficiently that phytate scans can be used to trace the spread of cancer within the body
- Phytates target cancer cells through a combination of antioxidant, anti-inflammatory, and immune-enhancing activities. Besides affecting the cancer cells directly, phytates have been found to boost the activity of natural killer cells, which are white blood cells that form your first line of defence by hunting down and disposing of cancer cells. Phytates can also play a role in your last line of defense, which involves starving tumors of their blood supply. There are many phytonutrients in plant foods that can help block the formation of new blood vessels that feed tumors, but phytates also appear able to disrupt existing tumor supply lines. Similarly, many plant compounds appear able to help slow down and even stop cancer cell growth, but phytates can sometimes cause cancer cells to apparently revert back to their normal state - in other words, to stop behaving like cancer. This cancer cell "rehabilitation" has been demonstrated in vitro in colon cancer cells, as well as in cancer cells in the breast, liver and prostate
- What does meat contain that may raise the risk of premature death? One of the possibilities is heme iron, the form of iron found predominantly in blood and muscle. Because iron can generate cancer-causing free radicals by acting as a pro-oxidant, iron can be considered a double-edged sword - too little of it and you risk anemia, too much and you may increase risk of cancer and heart disease
- The researchers found a 72% increased risk of pancreatic cancer for every fifty grams of chicken consumed daily. And that's not much meat, under two ounces - just about a quarter of a chicken breast. The researchers expressed surprise that it was the consumption of poultry - not red meat - that was more closely tied to

cancer. When a similar result was found for lymphomas and leukemias, the same EPIC research team acknowledged that while the growth promoting drugs fed to chickens and turkeys could be playing a role, it might also be cancer viruses found in poultry

- The primary risk for oesophageal cancer include smoking, heavy alcohol consumption, and gastro-oesophageal reflux (GERD, also called acid reflux) in which acid from the stomach gurgles up from the oesophagus, burning the inner layer and causing inflammation that can eventually lead to cancer
- Acid reflux is one of the most common disorders of the digestive tract. The usual symptoms include heartburn as well as the regurgitation of stomach contents back up towards the throat, which can leave a sour taste in the mouth
- While fat intake is associated with increased risk of reflux, fibre intake appears to decrease that risk. High fibre intake may reduce the incidence of oesophageal cancer by as much as one-third by helping to prevent the root cause of many cases of acid reflux: the herniation of part of the stomach up into the chest cavity
- Hiatal hernia, as this condition is known, occurs when part of the stomach is pushed up through the diaphragm into the chest. More than one in five Americans suffer from hiatal hernias. In contrast, hiatal hernias are almost unheard of among populations whose diets are plant based, with rates closer to one in a thousand. This is thought to be because they smoothly pass large, soft stools
- Our bodies were designed to expect an ever-flowing fibre stream, so it dumps such unwanted waste products as excess cholesterol and estrogen into the intestines, assuming they will be swept away. But if you aren't constantly filling your bowels with plant foods, the only natural source of fibre, unwanted waste products can get reabsorbed and undermine your body's attempts at detoxifying itself
- Foods to avoid digestive cancers => Phytates, Berries, Turmeric, Fibre, Strawberries

How Not to Die from Infections

- With every breath you take, you inhale thousands of bacteria, and with every bite you eat, you can ingest millions more. Most of these tiny germs are completely harmless, but some can cause serious infectious diseases, occasionally making headlines with sinister sounding names like SARS or Ebola. Although many of these exotic pathogens receive a lot of press coverage, more lives are most to some of our most common infections. For example, such respiratory infections such as influenza and pneumonia kill nearly fifty-seven thousand Americans each year
- Composed of various organs, white blood cells, and proteins called antibodies that form alliances against trespassing pathogens threatening the body, the immune system, apart from the nervous system, is the most complex organ system humans possess

- Your first layer of protection against intruders are physical barriers like your skin. Beneath that are white blood cells, such as neutrophils that attack and engulf pathogens directly, and natural killer cells that put your cells out of their misery if they become cancerous or infected with a virus
- How do natural killer cells recognize pathogens and infected cells? They are often marked for destruction by antibodies, which are special proteins made by another type of white blood cell, known as B cells, that home in like smart bombs and stick to invaders. Each B cell makes one type of antibody that's specific for one foreign molecular signature. You don't have one B cell that covers grass pollen and another that covers bacteria; instead, you have a B cell whose only job is to make antibodies against the pollen of purple Siberian onion grass and another whose only job is to make antibodies against the tail proteins of bacteria that live in the thermal vents at the bottom of the ocean. If each of your B cells produces only one type of antibody, then you'd need to have a billion different types of B cells given the incredible variety of potential pathogens in our planet. And you do!
- Let's suppose one day you're walking along and suddenly get attacked by a platypus. For your whole life up until that point, the B cell in your body that produces antibodies against duck-billed platypus venom was just hanging around, twiddling its thumbs, until that very moment. As soon as the venom is detected, this specific B cell begins dividing like crazy, and soon you have a whole swarm of clones each producing millions of antibodies against platypus poison. You fend off the toxin and live happily ever after. That is how the immune works - aren't our bodies spectacular?
- Ever noticed that your urine turns a bit pink after you eat beet-root? Though the color looks a little unnatural, it's completely harmless and temporary condition called beeturia. It's a vivid reminder of an important fact: When you eat plant foods, many of the pigment phytonutrients that act as antioxidants in your body (such as lycopene and beta-carotene) are absorbed into the bloodstream and bathe your organs, tissues and cells
- They may sound sinister, but natural killer cells are a type of white blood cells that's a vital member of the immune system's rapid response team against virus-infected and cancerous cells. They're called natural killers because they don't require prior exposure to a disease to be activated, unlike some other parts of the immune system that can only respond effectively after a history of exposure as in the case of, say, chicken pox. After all, you don't want to wait until your second tumor appears before your immune system starts fighting
- Unless you've suffered a major disruption in gut flora due to a course of antibiotics or an intestinal infection, it may be best to focus on feeding the good bacteria already living in your gut. What do your friendly flora eat? Fibre and a certain type of starch concentrated in beans. These substances are called prebiotics. Probiotics are the good bacteria themselves, whereas prebiotics are what your good bacteria eat. So the best way to keep your good bacteria happy and well fed is to eat lots of whole plant foods
- While regular physical activity improves immune function and lowers respiratory infection risk, sustained and intense exertion may have the opposite effect. As

you go from inactive to active, infection risk declines, but at a certain point, overtraining and excessive stress can increase the risk of infection by impairing immune function

- The single greatest public health burden in the United States in terms of food poisoning is Salmonella. It's the leading cause of food poisoning-related hospitalizations, as well as the number-one cause of food poisoning-related death
- Researchers determined that Salmonella can survive in cooked omelets and French toast. Salmonella may even survive in eggs boiled up to eight minutes
- Between the time the fresh or frozen bird is picked up from the store and when it's slid into the oven, the germs on the chicken can contaminate hands, utensils and kitchen surfaces. Studies have shown that up to 80% of the time, placing fresh chicken on a cutting board for a few minutes can transfer disease-causing bacteria. Then, if you put cooked chicken back on the same cutting board, there's about a 30% chance that the meat will become recontaminated
- Foster Farms' tone-deaf response to the outbreak may actually prove the most foresighted: "It is not unusual for raw poultry from any producer to have Salmonella bacteria," they quoted in a press release. "Consumers must use proper preparation, handling and cooking practices." In other words, it should be considered normal for chicken to be contaminated with Salmonella. Eat at your own risk
- Doesn't cooking wipe out most bugs? Well, C. Diff isn't like most bugs. For most meat, 71 degrees Celsius is the recommended internal cooking temperature. But C. Diff can survive two hours of cooking at that temperature. In other words, you could grill chicken at the recommended cooking thermometer temperature for two hours straight and still not kill the bug
- You've probably seen advertisements for those alcohol-based hand sanitizers that advertise they kill 99.99% of all germs. Well, C. Diff falls into that 0.01%. They don't call it a superbug for nothing. Residual pores of the pathogen have been shown to be readily transmitted with a handshake even after using hand sanitizer
- Dr. Margaret Chan, Director-General of the World Health Organization, recently warned that we may be facing a future in which many of our miracle drugs no longer work. She stated, "A post-antibiotic era means, in effect, an end to modern medicine as we know it. Things as common as strep throat or a child's scratched knee could once again kill." We may soon be past the age of miracles
- The FDA estimates that 80 percent of the antimicrobial drugs sold in the United States every year now go to the meat industry. Antibiotic residues can then end up in the meat you eat. Studies have revealed that traces of such antibiotics as Bactrim, Cipro, and Enrofloxacin have been found in the urine of people eating meat - even though none of them was taking those drugs
- Nearly every major medical and public health institution has come out against the dangerous practice of feeding antibiotics to farm animals by the ton just to fatten them faster. Yet the combined political might of agribusiness and the pharmaceutical industries that profit from the sales of these drugs has effectively

thwarted any effective legislative or regulatory action, all to save the industry less than a penny per pound of meat

- Foods to avoid infections => Kale, Broccoli, Fibre, Beans, Exercise, Mushrooms

How Not to Die from Diabetes

- Type 2 diabetes has been called the “Black Death of the twenty first century” in terms of its exponential spread around the world and its devastating health impacts
- Your digestive system breaks down the carbohydrates you eat into a simple sugar called glucose, which is the primary fuel powering all the cells in your body. To get from the bloodstream into your cells, glucose requires insulin. Think of insulin as the key that unlocks the doors to your cells to allow glucose to enter. Every time you eat a meal, insulin is released by your pancreas to help shuttle the glucose into your cells. Without insulin, your cells can't accept glucose, and, as a result, the glucose builds up in your blood. Over time, this extra sugar can damage the blood vessels throughout the body. That's why diabetes can lead to blindness, kidney failure, heart attacks and stroke. High blood sugar can also damage your nerves, creating a condition known as neuropathy that can cause numbness, tingling and pain. Because of the damage to their blood vessels and nerves, diabetics may also suffer from poor circulation and lack of feeling in the legs and feet, which can lead to poorly healing injuries that can, in turn, end as amputations
- Type 1 diabetes, previously called juvenile-onset diabetes, represents approximately 5% of all diagnosed diabetes cases. In most people with type 1 diabetes, the immune system mistakenly destroys the insulin-producing beta cells in the pancreas. Without insulin, blood sugar rises to unsafe levels. Type 1 diabetes is therefore treated with injections of insulin, a type of hormone-replacement therapy, to make up for the lack of production. The exact cause of type 1 diabetes is unknown, though a genetic predisposition combined with such exposure to such environmental triggers as viral infection and / or cow's milk play a role
- Type 2 diabetes, previously known as adult-onset diabetes, accounts for 90-95% of diabetes cases. In type 2 diabetes, the pancreas can make insulin, but it doesn't work as well. The accumulation of fat inside the cells of your muscles and liver interferes with the action of insulin. If insulin is the key that unlocks the door to your cells, saturated fat is what appears to gum up the locks. With glucose denied entry into your muscles, the primary consumer of such fuel, sugar levels can rise to damaging levels in your blood. The fat inside these muscle cells can come from the fat you eat or the fat you wear (i.e. your body fat). The prevention, treatment and reversal of type 2 diabetes therefore depends on diet and lifestyle
- We can now even visualize the amount of fat in the muscles using MRI technology
- Prediabetes is defined by elevating blood sugar levels that are not yet high enough to reach the official diabetes threshold. Commonly found among those who are overweight and obese, in the past, pre-diabetes was regarded as a high-

risk state that presaged diabetes, but it was not thought to be a disease in itself. However, we now know that prediabetic individuals may already be experiencing organ damage

- Not all fats affect our muscle cells in the same way. For example, palmitate, the kind of saturated fat found mostly in meat, dairy, and eggs cause insulin resistance. On the other hand, oleate, the monounsaturated fat found mostly in nuts, olives, and avocados, may actually protect against the detrimental effects of the saturated fat. Saturated fats can wreak all sorts of havoc in muscle cells and may result in the accumulation of more toxic breakdown products (such as ceramide and diacylglycerol) and free radicals and can cause inflammation and even mitochondrial dysfunction - that is, interference with the little power plants (mitochondria) within our cells. This phenomenon is known as lipotoxicity
- Reducing belly fat may be the best way to prevent prediabetes from turning into full-blown diabetes. Though calorie cutting has been the cornerstone of most weight-loss strategies, evidence suggests that the majority of individuals who lose weight by portion control eventually regain it. Starving ourselves almost never works long term. So wouldn't it be great if instead we could find a way to eat more food to get the same weight-loss benefit?
- The advantage of whole-food, plant-based approach to weight loss is that there may be no need for portion control, skipping meals, or counting calories, because most plant foods are naturally nutrient dense and low in calories
- Fruits and vegetables, on average, contain about 80-90% water. Just as fibre can bulk up the volume of foods without adding calories, so can water. Experiments have shown that people tend to eat the same amount of food at a meal, regardless of calorie count - probably because stretch receptors in the stomach send signals to the brain after a certain volume of food has been ingested. When much of that volume is a zero-calorie component like fibre or water, that means you can eat more food but gain less weight
- Apparently, most people who switch to a plant-based diet are happy they did. One of the reasons there's been such great compliance with plant-based dietary interventions is that people not only tend to get measurably better, they also tend to feel much better
- If you had two people eating the same number of calories, it appears the person eating more meat would, on average, gain significantly more weight
- Insulin treatments themselves may accelerate aging, worsen diabetic vision loss and promote cancer, obesity, and atherosclerosis. Insulin can promote inflammation in the arteries, which may help explain the increased death rate in the intensively treated group. So rather than trying to overcome insulin resistance by brute force - just pumping in more and more insulin - isn't it better to treat the disease itself by eliminating the unhealthy diet that caused it?
- According to the U.S. Department of Agriculture, about one hundred years ago, a single serving of chicken may have contained only sixteen fat calories. Nowadays, one serving of chicken may have more than two hundred calories of fat. The fat

content in poultry has ballooned from less than two grams per serving a century ago to upto twenty-three grams today. That's ten times more fat

- Fortunately, there may be an even better tool than BMI that we can use to gauge the health risks of body fat. It's called Waist-to-Height Ratio, or WHtR. Instead of a scale, grab a simple measuring tape. Stand up straight and take a deep breath, exhale and let it all hang out. The circumference of your belly (halfway between the top of your hip bones and the bottom of your rib cage) should be half your height - ideally, less. If that measurement is more than half your height, it's time to start eating healthier and exercising more regardless of your weight

How Not to Die from High Blood Pressure

- The first number (systolic) represents the pressure in your arteries as your blood pumps from the heart; the second number (diastolic) is the pressure in your arteries while the heart is resting between beats. The American Heart Association defines "normal" blood pressure as a systolic pressure under 120 and a diastolic pressure under 80 - or 120/80. Anything above 140/90 is considered hypertensive. Values in between are considered prehypertensive
- Salt is a compound made up of about 40 percent sodium and 60 percent chloride. Sodium is an essential nutrient, but vegetables and other natural foods provide the small amounts of sodium you need in your diet. If you consume too much, it can cause water retention, and your body may respond by raising your blood pressure to push the excess fluid and salt out of your system
- The salt industry has its own PR and lobbying firms to play tobacco-industry-style tactics to downplay the dangers of its product. But the real villains aren't necessarily the salt-mine barons - it's the processed food industry. The trillion-dollar processed food industry uses dirt-cheap added salt and sugar to sell us their junk. That's why it's not easy avoiding sodium on the typical American diet, since three-quarters of salt comes from processed foods rather than a saltshaker. By hooking you on hypersweet and hypersalty foods, your taste buds get so dampened that natural foods can taste like cardboard. Indeed, the ripest fruit may not be as sweet as a high-sugar cereal snack such as Froot Loops
- But there are two other major reasons the food industry adds salt to foods. If you add salt to meat, it draws in water. This way, a company can increase the weight of its product by nearly 20%. Since meat is sold by the pound, that's 20% percent more profits or very little added cost. Second, as everyone knows, eating salt makes us thirsty. There's a reason bars put out free baskets of salted nuts and pretzels, and it's the same reason fizzy drink conglomerates own snack-food companies. A cold drink and a salty snack go hand in hand. It may be no coincidence that Pepsi and Frito-Lay, a crisp manufacturer, are part of the same corporation
- Pop quiz! Which has been reported to contain the most sodium: a serving of beef, a serving of baked all-natural chicken, a large McDonald's French fries, a or a serving of salted pretzels? The answer? Chicken. The poultry industry commonly injects chicken carcasses with salt water to artificially inflate their weight, yet they

can still be labelled “100% natural.” Consumer Reports found that some supermarket chickens were pumped so full of salt that they registered a whopping 840 mg of sodium per serving - that could mean more than a full day’s worth of sodium in just one chicken breast

- How can you overcome your built-in craving for salt, sugar and fat? Just give it a few weeks, and your taste buds will start to change. When researchers put people on a low-salt diet, over time, the research subjects increasingly enjoyed the taste of salt-free soup and became turned off by the salt-heavy soup they had previously craved. As the study progressed, when the participants were allowed to salt their own soup to taste, they preferred less and less salt as their taste buds became acclimated to healthier levels
- There are three things you can do to shake the salt habit. First, don’t add salt at the table. Second, stop adding salt when cooking. The food may taste bland at first, but within two to four weeks, the salt-taste receptors in your mouth become more sensitive, and food tastes better. Believe it or not, after two weeks, you may actually prefer the taste of food with less salt. Try any combination of such fantastic flavorings such as pepper, onions, garlic, tomatoes, sweet peppers, basil, parsley, thyme, celery, lime, Chili powder, rosemary, smoked paprika, curry, coriander and lemon instead. Also, it’s probably a good idea to avoid eating out as much as possible. Even non-fast-food restaurants tend to pile on the salt. Finally, do what you can to avoid processed foods
- Apparently, eating standard American fare even when running two thousand miles a year may not bring down your blood pressure as low as a being a couch-potato vegan
- In a comparison of the antioxidant content of 280 common beverages, hibiscus ranked number-one, beating out other heavyweights, including the oft-lauded green tea. No side effects were reported for hibiscus tea, though it isn’t called sour tea for nothing. If you drink it, make sure to rinse your mouth with water afterward to keep the natural acids in the tea from softening the enamel on your teeth. And given the extraordinary manganese content in hibiscus tea, to be on the safe side, I wouldn’t recommend drinking more than a litre of it a day
- There’s a link between vegetable consumption and improved sexual function, as well as improved blood flow to the most important organ of the body, the brain. And the only side effect of beeting your brains out may be a little extra color in your life - namely, red stools and urine that is pretty in pee-nk
- One little shot of beetroot juice has been found to allow free divers to hold their breath for half a minute longer than usual. After sipping beetroot juice, cyclists were able to perform at the same level of intensity while consuming 19% less oxygen than the placebo group. Then, when they ramped up their bike resistance for an intense bout of what they called “severe cycling,” the time to exhaustion was extended from 9:43 minutes to 11:15 minutes. The beetroot-juice-drinking group exhibited greater endurance while using less oxygen. In short, the beetroot juice made the bikers’ bodies’ energy production significantly more efficient. No drug, steroid, supplement, or intervention had ever before been shown to do what beetroot juice could do

- Foods to avoid hypertension => Flaxseeds, Hibiscus tea, Nitrates, Beetroots

How Not to Die from Liver Diseases

- What exactly does the liver do? Upto five hundred different functions have been attributed to this vital organ. First and foremost, it plays the role of bouncer, keeping unwanted guests out of your bloodstream. Whatever you absorb through your digestive tract isn't immediately circulated throughout your body. The blood from your intestines first goes straight to the liver, where nutrients are metabolized and toxins are neutralized. It's no surprise, then, that what you eat can and does play a critical role in liver health and disease
- Heavy alcohol consumption can cause a fatty liver in less than three weeks, but it usually resolves within four to six weeks after stopping drinking. But in 5-15 percent of cases, the disease continues to progress, and the liver starts to scar despite alcohol cessation
- There actually appears to be a beneficial effect on overall mortality by drinking some alcohol - but only, it seems for those who are not taking good care of themselves already. One to two drinks a day did lower the risk of heart disease for the "couch potatoes," those living unhealthy lifestyles. But people who practiced even the bare minimum of healthy behaviors showed no benefit from alcohol. The lesson: Grapes, barley and potatoes are best eaten in their nondistilled form, and Johnnie Walker is no substitute for actual walking
- The most common cause of a fatty liver is not alcohol but non-alcoholic fatty liver disease (NAFLD). Like alcoholic fatty liver, NAFLD starts with a buildup of fat deposits in the liver that cause no symptoms. In rare cases, this can progress to inflammation, and, over years, end up scarring the liver into a state of cirrhosis, resulting in liver cancer, liver failure, and even death
- To explore the relationship between diet and serious liver disease, about nine thousand American adults were studied for thirteen years. The researchers noted that their most important finding may be that cholesterol consumption was a strong predictor of cirrhosis and liver cancer. Those consuming the amount of cholesterol found in two Egg McMuffins or more each day appeared to double their risk of hospitalization or death
- Unfortunately, there is currently no vaccine for the hepatitis C virus, the most dreaded of liver viruses. Exposure can lead to a chronic infection that, over decades, can lead to cirrhosis and liver failure. Hepatitis C is now the leading cause of liver transplants
- Hepatitis C is transmitted via blood, usually through sharing needles rather than via blood transfusions, now that the blood supply is screened for the virus. However, sharing personal-care items that can be contaminated with trace amounts of blood, such as toothbrushes and razors, may also present a risk
- Aren't viruses deactivated by cooking? Usually, but there's always the problem of cross-contaminating your hands or kitchen surfaces while handling raw meat. Once meat is in the oven, most foodborne pathogens can be destroyed by

cooking the meat to proper internal cooking temperatures, with an emphasis on proper

- Foods to avoid liver diseases => Oatmeal, Cranberries, Coffee

How Not to Die from Blood Cancers

- Childhood leukemia is one of the few success stories in our war on cancer, with ten-year survival rates as high as 90%. Yet it still affects more children than any other cancer and is ten times more likely to be diagnosed in adults, among whom current treatments are much less effective
- What can we do to help prevent blood cancers in the first place? Blood cancers are sometimes referred to as liquid tumors, since the cancer cells often circulate throughout the body rather than get concentrated in a solid mass. These cancers typically begin undetected in the bone marrow, that spongy tissue in the interior of our bones where red blood cells, white blood cells, and platelets are born. When healthy, your red blood cells deliver oxygen throughout your body, your white blood cells fight off infections, and your platelet help your blood to clot. Most blood cancers involve mutations of the white cells
- Blood cancers can be categorized into three types: Leukemia, lymphoma, and myeloma. Leukemia is a disease in which the bone marrow feverishly produces abnormal white blood cells. Unlike normal ones, these imposters aren't able to fight infection. They also impair the ability of your bone marrow to produce normal red and white cells by crowding out healthy ones, creating a diminished healthy blood cell count that can lead to anemia, infection, and eventually, death
- Lymphoma is a blood cancer of lymphocytes, which are specialized types of white blood cells. Lymphoma cells multiply quickly and can collect in your lymph nodes, small immune organs that are spread throughout the body, including the armpits, neck and groin. Lymph nodes help to filter your blood. Like leukemia, lymphoma can crowd out healthy cells and impair our ability to fight infections. You may have heard of non-Hodgkin's lymphoma. Hodgkin's lymphoma can strike young adults, but it's a rare and usually treatable form of lymphoma. As its name suggests, non-Hodgkin's lymphoma (NHL) includes all the other dozens of types of lymphoma. They're more common and can be harder to treat, and their risk increases with age
- Myeloma is a cancer of plasma cells, which are white blood cells that produce antibodies, the proteins that stick to invaders and infected cells to neutralize or tag them for destruction. Cancerous plasma cells can displace healthy cells from your bone marrow and make abnormal antibodies that can clog the kidneys. About 90% of myeloma sufferers are discovered with masses of cancer cells growing in multiple bones of their bodies, hence the common term for this condition, multiple myeloma. Each year, twenty-four thousand people are diagnosed with multiple myeloma, and eleven thousand die
- The key to cancer prevention and treatment is to keep tumor cells from multiplying out of control while allowing healthy cells to grow normally.

Chemotherapy and radiation can do a great job of wiping out cancer cells, but healthy cells can get caught in the crossfire

- As noted, multiple myeloma is one of the most dreaded cancers. It is practically incurable even with aggressive medical treatment. As myeloma cells take over the bone marrow, healthy white blood cells continue to decline in number, which increases your susceptibility to infection. Reduced levels of red blood cells can lead to anemia, and reduced platelet counts can lead to serious bleeding. Once diagnosed, most people survive fewer than five years
- Multiple myeloma does not occur out of the blue. It appears to be nearly always preceded by a precancerous condition known as monoclonal gammopathy of undetermined significance, or MGUS. When scientists first discovered MGUS, it was aptly named because, at that time, the significance of finding elevated levels of abnormal antibodies in someone's body was unclear. We now know it's a precursor to multiple myeloma and about 3% of Caucasians over age fifty have it, while the rate among African Americans may be double
- MGUS causes no symptoms. You won't even know you have it unless your doctor finds it incidentally during routine blood work. The chance of MGUS progressing into myeloma is about 1% per year, which means many MGUS-stricken people may die of other causes before they develop myeloma. However, since multiple myeloma is basically a death sentence, scientists have been desperate to find ways to stop MGUS in its tracks
- Cancer-causing poultry viruses - including the avian herpesvirus that causes Marek's disease, several retroviruses like reticuloendotheliosis virus, the avian leukosis virus found in chickens, and the lymphoproliferative disease virus found in turkeys - may explain the higher rates of blood cancers among farmers, slaughterhouse workers, and butchers. Viruses can cause cancer by directly inserting a cancer-causing gene into a host's DNA
- Thankfully, pet companionship is associated with lower rates of lymphoma, which is a personal relief given how many animals I've shared my life with. And the longer people have had cats or dogs in their lives, the lower their risk. In one study, lowest risk of lymphoma was found in people who had pets for twenty years or longer. The researchers suspect the reason is connected to the fact that having pets may have beneficial effects on the immune system
- Foods to avoid blood cancers => Greens, Acai Berries, Turmeric

How Not to Die from Kidney Disease

- It's easy to take your kidneys for granted, but they work around the clock, like a high-tech, nonstop water filter for your blood. They process up to 150 litres of blood every twenty-four hours just to make the 1-2 litres of urine you pee out each day
- If your kidneys do not function properly, metabolic waste products can accumulate in the blood and eventually lead to such symptoms as weakness, shortness of breath, confusion, and abnormal heart rhythms. Most people with

deteriorating kidney function, however, don't experience any symptoms at all. If your kidneys fail completely, you will either need a new one (i.e. need a kidney transplant) or have to go on dialysis, a process by which a machine artificially filters the blood. But kidney donors are in short supply, and the average life expectancy of a person on dialysis is less than three years

- Healthy kidneys work hard to retain protein and other vital nutrients, preferably filtering toxic or useless wastes out of the bloodstream via our urine. If the kidneys are leaking protein into urine, it's a sign that they may be starting to fail
- High animal protein intake can have a profound influence on normal human kidney function by inducing a state called hyper-filtration, a dramatic increase in the workload of the kidney. Hyper-filtration isn't harmful if it occurs only occasionally. We all have built-in reserve kidney function - so much so that people can live with only one kidney. The human body is thought to have evolved the capacity to handle intermittent large doses of protein from our remote hunting and scavenging days. But now many of us are ingesting large doses of animal protein day after day, forcing our kidneys to call on their reserves continuously
- Within hours of consuming meat, your kidneys rev up into hyper-filtration mode. This is true of a variety of animal proteins - beef, chicken and fish appear to have similar effects. But an equivalent amount of plant protein causes virtually no noticeable stress on the kidneys. Eat some tuna, and within three hours, your kidney filtration rate can shoot up 36%. But eating the same amount of protein in the form of tofu doesn't appear to place any additional strain on the kidneys
- Animal proteins are generally more acid forming. This is because animal protein tends to have higher levels of sulfur-containing amino acids, such as methionine, which produce sulfuric acid when metabolized in the body. Fruits and vegetables, on the other hand, are generally base forming, which helps neutralize acids in our kidneys
- To buffer the excess acid formed by your diet, kidneys produce ammonia, which is a base and can neutralize some of that acid. Counteracting the acid is beneficial in the short term, but over the long run, all the extra ammonia in the kidneys may have a toxic effect. The decline in kidney function over time may be a consequence of a lifetime of ammonia overproduction. Kidneys may start to deteriorate in your twenties, and by the time you reach your eighties, you may be down to half capacity
- Eating a plant-based diet to alkalinize your urine may also help prevent and treat kidney stones - those hard mineral deposits that can form in your kidneys when the concentration of certain stone-forming substances in your urine becomes so high they start to crystallize. Eventually, these crystals can grow into pebble-sized rocks that block the flow of urine, causing severe pain that tends to radiate from one side of the lower back towards the groin. Kidney stones can pass naturally (and often painfully), but some become so large that they have to be removed surgically
- Guess who makes the "generally recognized as safe" determination? It's not the government or a scientific body. It's the manufacturer. You read that right. The food maker gets to determine whether or not its own product is safe for the

public, a process the FDA refers to as “GRAS self-determination.” What’s more, these manufacturers can legally add things to our food supply without informing the FDA. An estimated one thousand food-additive safety decisions have never been reported to the FDA or the public

- Of all the GRAS safety determinations that were voluntarily submitted to the FDA between 1997 and 2012, 22.4% were made by someone directly employed by the manufacturer itself, 13.3% were made by someone directly by a firm handpicked by the manufacturer, and 64.3% were made by a panel either handpicked by the manufacturer or chosen by a firm hired by the manufacturer. Are you doing the maths? Yes, zero food safety decisions were made independently
- The risks of tobacco smoke do not end when a cigarette is extinguished, as residual smoke can stick to walls and other surfaces. Around 80% of nitrosamines from cigarette smoke can remain in a room, even with normal ventilation, so always try to choose smoke-free hotel rooms. Nitrosamines are one of the reasons you can’t smoke indoors without endangering others, even if you smoke without anyone present
- So why are vegetable nitrates and nitrites okay but the same compounds from meat are linked to cancer? Because nitrites themselves are not carcinogenic; they turn into carcinogens. Nitrites only become harmful when they turn into nitrosamines and nitrosamides. For them to do that, amines and amides must be present, and amines and amides are found in abundance in animal products. This transformation can happen in the meat itself or in your stomach after you eat it. In the case of plant foods, the vitamin C and other antioxidants that are found naturally in them block the formation of these carcinogens in your body. This process would explain why intake of both nitrates and nitrites from processed meat has been linked to kidney cancer, but no increased risk was found for nitrate or nitrite intake from plant sources

How Not to Die from Breast Cancer

- The scary reality is that what doctors call “early detection” is actually late detection. Modern imaging simply isn’t good enough to detect cancer at its earliest stages, so it can spread long before it’s even spotted. A woman is considered “healthy” until she shows signs or symptoms of breast cancer. But if she has been harboring a malignancy for two decades, can she truly be considered healthy?
- Every year around the world, nearly five thousand breast cancer deaths may be attributable to light drinking. The carcinogen isn’t alcohol itself. The culprit is actually the toxic breakdown product of alcohol called acetaldehyde, which can form in your mouth almost immediately after you take a sip. Experiments show that even holding a single teaspoon of spirits in your mouth for five seconds before spitting it out results in the production of potentially carcinogenic levels of acetaldehyde that lingers for more than ten minutes

- In philosophy, there's a flawed argument called the appeal-to-nature fallacy, in which someone proposes that something is good merely because it's natural. In biology, however, this may hold some truth
- Right in the middle of your brain sits the pineal gland, your so-called third eye. It's connected to your actual eyes and has just one function: to produce a hormone called melatonin. During the day, the pineal gland is inactive. But once the sky darkens, it activates and begins pumping melatonin into your bloodstream. You start getting tired, feel less alert, and start thinking about sleep. Melatonin secretion may peak between 2 am and 5 am and then shuts off at daybreak, which is your cue to wake up. The level of melatonin in your bloodstream is one of the ways your internal organs know what time it is. It functions as one hand on your circadian clock
- Women who interrupt their melatonin production by working night shifts appear to be increased risk for breast cancer. Even living on a particularly brightly lit street may affect the risk. Studies comparing night time satellite photos against breast cancer rates have found that people living in brighter neighborhoods tend to have a higher breast cancer risk. Therefore, it's probably best to sleep without any lights on and with the blinds down, though the evidence to support these strategies is limited
- A researcher described how he could induce breast cancers in mice by painting their heads with extracts of roasted horse muscle. These "cancer-producing substances" have since been identified as heterocyclic amines (HCAs), described by the National Cancer Institute as "chemicals formed when muscle meat, including beef, pork, fish, and poultry, is cooked using high-temperature methods." These cooking methods include roasting, pan frying, grilling, and broiling. Eating boiled meat is probably the safest. People who eat meat that never goes above 100 degrees Celsius produce urine and feces that are significantly less DNA-damaging compared to those eating meat dry-cooked at higher temperatures. This means they have fewer mutagenic substances flowing through their bloodstreams and coming in contact with their colons. On the other hand, baking chicken for as few as fifteen minutes at about 175 degrees Celsius leads to HCA production. These carcinogens are formed in a high-temperature chemical reaction between some of the components of muscle tissue. The longer meat is cooked, the more HCAs form. This process may explain why eating well-done meat is associated with associated risk of cancers of the breast, colon, oesophagus, lung, pancreas, prostate, and stomach. The situation creates what the Harvard Health Letter called a meat preparation "paradox": Cooking meat thoroughly reduces the risk of contracting foodborne infections, but cooking meat too thoroughly may increase the risk of foodborne carcinogens
- Cancer develops in three major stages: 1) initiation, the irreversible DNA damage that starts the process; 2) promotion, the growth and division of the initiated cell into a tumor; and 3) progression, which can involve the invasion of the tumor into surrounding tissue and metastasis to other areas of the body
- Apple antioxidants are concentrated in the peel, which makes sense: The skin is the fruit's first line of defense against the outside world. Expose the inner flesh, and it starts to brown (oxidize) within moments. The anti-oxidant power of the

peel may be between two times (Golden Delicious) to six times (Idared) greater than the pulp

- Researchers found something in the peels of organic apples that appears to reactivate a tumor-suppressor gene called maspin. Maspin is one of the tools your body appears to use to keep breast cancer at bay. Breast cancer cells find a way to turn off this gene, but apple peels appear to be able to turn it back on
- Over the past decade, scientists have been developing a new theory of cancer biology based on the role of stem cells. Stem cells are essentially the body's raw materials - the "parents" from which all other cells with specialized functions are generated. As a result, stem cells are a critical component of the body's repair system, including regrowing skin, bone, and muscle. Breast tissue naturally has many stem cells in reserve, which are used during pregnancy to create new milk glands. However, as miraculous as stem cells are, their immortality can also work against us. Instead of rebuilding organs, if they turn cancerous, they can build tumors
- Cancerous stem cells may be why breast cancer can return, even upto twenty-five years after being fought off successfully the first time. When people are told that they are cancer-free, it may mean their tumors are gone, but if their stem cells are cancerous, the tumors still might reappear many years later. Sadly, someone who has been cancer-free for ten years might consider herself cured but actually may just be in remission. Smoldering cancerous stem cells may be just waiting to reignite
- The current battery of sophisticated chemo drugs and radiation regimens is based on animal models. Success of a given treatment is often measured by its ability to shrink tumors in rodents - but rats in laboratories only live for about two or three years in any case. Doctors may be shrinking tumors, but mutated stem cells may still be lurking, able to slowly rebuild new tumors over the ensuing years
- Foods to avoid breast cancer => Fibre, Apples, Broccoli, Brussel sprouts, Flaxseeds, Soya

How Not to Die from Suicidal Depression

- In general, people who feel satisfied appear to smoke less, exercise more, and eat healthier
- How can you prevent death by suicide? For those unfamiliar with the ravages of mental illness, the flippant answer is: Just don't do it
- Growing evidence indicates that positive psychological well-being is associated with reduced risk of psychological illness
- Inflammation isn't always bad, of course. When the area around a splinter gets all red, hot, and swollen, it's a sign that the body is using arachidonic acid to mount an inflammatory response to help fight off infection. But your body already makes all the arachidonic acid you need, so you don't need to take in any more via your diet. In this way, arachidonic acid resembles cholesterol, another essential

component that the body makes all on its own: When you add excess amounts through diet, it may upset your system's internal balance. In this particular case, the researchers suspected arachidonic acid intake might impair the body's emotional state. There is data suggesting that people with higher levels of arachidonic acid in their blood may end up at significantly higher risk of suicide and episodes of major depression

- The traditional explanation of how depression works, known as monoamine theory, proposes that the condition arises out of a chemical imbalance in the brain. The billions of nerves in your brain communicate with each other using chemicals called neurotransmitters. Your nerve cells don't physically touch one another. Instead, they manufacture and deploy neurotransmitters to bridge the gap between them. The levels of an important class of neurotransmitters called monoamines, which includes serotonin and dopamine, are controlled by an enzyme called monoamine oxidase (known as MAO) that breaks down by excess monoamines. People who are depressed appear to have elevated levels of this enzyme in their brains. Thus, the theory goes, depression is caused by abnormally low levels of monoamine neurotransmitters due to elevated levels of the neurotransmitter-munching enzyme
- Saffron may be one of those rare cases in which the natural remedy is more expensive than the drug. Saffron is the world's most expensive spice. It is harvested from crocus flowers, specifically the dried stigmas (the threadlike tips inside the flower), which are ground up to make the spice. You need more than fifty thousand crocuses - enough to cover a football field - to produce just a single pound of saffron
- We've known for decades that even a single workout can elevate mood and that physical activity is associated with decreased symptoms of depression
- Improvements in mood may be a result of the patient's belief in the power of the drug - not the drug itself
- Foods to avoid Suicidal Depression => Seeds, Saffron, Coffee, Exercise

How Not to Die from Prostate Cancer

- Sex steroid hormones naturally found even in organic cow's milk may play a role in the various associations identified between milk and other dairy products and hormone-related conditions, including acne, diminished male reproductive potential, and premature puberty. The hormone content in milk may explain why women who drink it appear to have five times the rate of twin births compared with women who do not drink milk. When it comes to cancer though, the greater concern may have to do with growth hormones
- Leading Harvard University nutrition experts have expressed concern that the hormones in dairy products and other growth factors could stimulate the growth of hormone-sensitive tumors. Experimental evidence suggests that dairy could also promote the conversion of precancerous lesions or mutated cells into invasive cancers

- You may be wondering, if you don't drink milk, what will happen to your bones? Doesn't milk help prevent osteoporosis? It turns out that the promised benefit may be just another empty marketing ploy. A meta-analysis of cow's milk intake and hip fracture studies shows no significant protection. Even if you were to start drinking milk during adolescence in an attempt to bolster peak bone mass, it probably wouldn't reduce your chances of fracture later in life. One recent set of studies involving one hundred thousand men and women followed for up to two decades even suggested milk may increase bone and hip fracture rates
- Benign prostatic hyperplasia (BPH) is a condition characterized by enlargement of the prostate gland. In the United States, BPH affects millions of men - as many as half of men by their fifties and 80% of men by their eighties. Because the male prostate surrounds the outlet from the bladder, it can obstruct the normal flow of urine if it grows too large. This obstruction can cause a weak or hesitant stream and inadequate emptying of the bladder, requiring frequent trips to the bathroom. The stagnant urine retained in the bladder can also become a breeding ground for infection
- Why do people who live to be one hundred or older seem to escape cancer? As you age, your risk of developing and dying from cancer grows every year - until you hit eighty-five or ninety, when, interestingly, your cancer risk begins to drop. Indeed, if you don't get cancer by a certain age, you may never get it. What accounts for this relative resistance to cancer among centenarians? It may have to do with a cancer-promoting growth hormone called insulin-like growth factor 1 (IGF-1)
- Each year, you are reborn. You create and destroy nearly your entire body weight in new cells every year. Every day, about fifty billion of your cells die and about fifty billion new cells are born to keep you in balance. Of course, sometimes you need to grow, as when you're a baby or during puberty. Your cells don't become larger when you grow up; they simply become more numerous. An adult may have around forty trillion cells in his or her body, four times more than a child
- Once you've gotten through puberty, you no longer need to produce many more cells than you retire. You still need your cells to grow and divide, of course - out with the old, in with the new. You just don't want to make more cells than you're putting out to pasture. In adults, extra cell growth can mean the development of tumors. How does your body keep itself in balance? By sending chemical signals called hormones to all the cells. A key signal is a growth hormone called IGF-1. It sounds like a droid from Star Wars, but IGF-1 is actually a crucial factor in regulating cell growth. Levels go up when you're a kid in order to power your development, but when you reach adulthood, IGF-1 levels diminish. It's your body's cue to stop producing more cells than it kills off
- Should your levels of IGF-1 remain too high when you reach adulthood, however, your cells will constantly receive a message to grow, divide, and keep going and growing. Not surprisingly, the more IGF-1 you have in the bloodstream, the higher your risk for developing cancers, such as prostate cancer

- There is a rare form of dwarfism called Laron syndrome that is caused by the body's inability to produce IGF-1. Affected individuals grow to be only a few feet tall, but they also almost never get cancer
- Foods to avoid Prostate Cancer => Almond milk, Flaxseed, Garlic, Onions

How Not to Die from Parkinson's Disease

- Parkinson's is the second most neurodegenerative disease after Alzheimer's. Parkinson's is a disabling disorder affecting the speed, quality, and ease of movement. Its hallmark symptoms, which worsen as the disease progresses, include hand tremors, limb stiffness, impaired balance and difficulty walking. It can also affect mood, thinking and sleep. Parkinson's is not currently curable
- In addition to increasing your risk of developing many cancers, industrial pollutants may also play a role in the onset of such brain-deteriorating (neurodegenerative) diseases as Parkinson's. And those toxins are residing in most peoples' bodies
- Women who breast-fed had about the same level of certain toxicants in their bodies as men, but the longer they breast-fed their children, the lower their levels fell, suggesting that they were detoxing themselves by passing the pollution down to their children. This could explain why birth order was found to be a significant predictor of pollutant levels in young people. Basically, firstborn kids get first dibs on mum's store of toxic waste, leaving less for their baby siblings
- Where in the food supply are these pollutants found? Today, most DDT comes from meat, particularly fish. The oceans are essentially humanity's sewer; everything eventually flows into the sea. The same is true when it comes to dietary exposure to PCBs - another set of banned chemicals, once widely used as insulating fluid in electrical equipment. A study of more than twelve thousand food and feed samples across eighteen countries found that the highest PCB contamination was found in fish and fish oil, followed by eggs, dairy, and then other meats. The lowest contamination was found at the bottom of the food chain, in plants
- The best way to minimize your exposure to industrial toxins may be to eat as low as possible on the food chain, a plant-based diet
- Milk consumption lowers blood levels of uric acid, an important brain antioxidant shown to protect nerve cells against the oxidative stress caused by pesticides. Uric acid may slow the progression of Huntington's and Parkinson's, and most importantly, may lower the risk of getting Parkinson's in the first place. Too much uric acid, however, can crystallize in your joints and cause a painful disease called gout, so uric acid can be thought of as a double-edged sword. Too much uric acid is also associated with heart disease and kidney disease; too little, with Alzheimer's, Huntington's, Parkinson's, multiple sclerosis, and stroke. Those on dairy-free, plant-based diets appear to hit the sweet spot in terms of most optimal uric acid levels for longevity

- Parkinson's disease is caused by the die-off of specialized nerve cells in a region of the brain that controls movement. By the time the first symptoms arise, 70% of these critical cells may already be dead. Pesticides are so good at killing neurons that scientists often use pesticides in the laboratory to try to recreate Parkinson's in animals to test new treatments
- In modern agribusiness, there are essentially no more herbivores. Millions of tons of slaughterhouse by-products continue to be fed to farm animals in the United States every year. Not only have we turned these animals into meat eaters but virtual cannibals as well. When we feed farm animal millions of tons of meat and bonemeal, we're also feeding them any pollutants this feed may contain. Then, after those animals are slaughtered, their trimmings go to feed the next generation of farm animals, potentially concentrating the pollutant levels higher and higher. So we can end up like polar bears or eagles at the top of the food chain and suffer the biomagnified pollutant consequences. When we eat these farmed animals, it's almost as if we're also eating every animal they ate
- Foods to avoid Parkinson's Disease => Berries, Coffee

How Not to Die from Iatrogenic Causes

- Doctors excel at treating acute conditions, such as mending broken bones and curing infections, but for chronic diseases, which are the leading causes of death and disability, conventional medicine doesn't have much to offer and in fact, can sometimes do more harm than good
- We've known since the 1840s that hand washing is the best way to prevent hospital-acquired infections, yet compliance among health care workers rarely exceeds 50%. And doctors are the worst offenders. One study found that even in a medical intensive care unit, slapping up a "contact precautions" sign leads less than a quarter of doctors to properly wash their hands or use a hand sanitizer when treating patients. That's right. Not even one doctor out of four washed his or her hands before laying them on the ill. Many physicians are concerned that should it become widely known how many people doctors inadvertently kill every year, it could "undermine public trust"
- Did you know that getting a chest CT scan is estimated to inflict the same cancer risk as smoking seven hundred cigarettes?
- Many people expressed concern about the radiation exposure from the full-body scanners at airports using backscatter x-rays, but those machines have since been phased out. The airplane itself, however, is a different story. Because you're exposed to more cosmic rays from outers pace at higher altitudes, just one round trip, cross-country flight may subject you to about the same level of radiation as a chest x-ray
- "There are too many probabilities and uncertainties for patients to consider and too little time for clinicians to discuss them with patients. So doctors tend to just make up patients' minds for them. What do they choose? A National Cancer Institute-funded survey of more than one thousand physicians found that nearly all doctors (94.8%) recommended a colonoscopy

Introduction - Part 2

- What do I mean by processed? The classic example is the milling of grains from whole wheat to white flour. Isn't it ironic that these are called "refined" grains, a word meaning improved or made more elegant? The elegance was not felt by the millions who died in the nineteenth century from beriberi, a vitamin B-deficiency disease that resulted from polishing rice from brown to white. A Nobel Prize was awarded for the discovery of the cause of beriberi and its cure - rice bran, the brown part of rice that was removed. Beriberi can cause damage to the heart muscle, resulting in death from heart failure. Surely such a thing could never happen in modern times - an epidemic of heart disease that could be prevented and cured with a change in diet? Come on
- Sometimes, however, processing can make foods healthier. For example, tomato juice appears to be the one common juice that may actually be healthier than the whole fruit. The processing of tomato products boosts the availability of the antioxidant red pigment lycopene by as much as fivefold. Similarly the removal of fat from cocoa beans to make cocoa powder improves the nutritional profile, because cocoa butter is one of the rare saturated plant fats that can raise your cholesterol
- The limited role I see for yellow-light foods in a healthy diet is to promote the consumption of green-light foods. For instance, if the only way I can get patients to eat oatmeal in the morning is if they make it creamy with almond milk, then I tell them to go right ahead. The same could be said for red-light foods. Without hot sauce, my intake of dark-green, leafy vegetables would plummet. Yes, I know there are all sorts of sodium-free, exotically flavored vinegars out there that I could use, and maybe one day I'll wean myself off Tabasco. But given my current tastes, the green ends justify the red means. If the only way you're going to eat a big salad is to sprinkle Bac-Os on top, then sprinkle away
- The problem with all-or-nothing thinking is that it keeps people from even taking the first steps. The thought of never having pepperoni pizza again somehow turns into an excuse to keep ordering it every week. Why not scale down to once a month or reserve it for special occasions? We cannot let the "perfect" be the enemy of the good
- From a nutrition standpoint, the reason I don't like the terms vegetarian and vegan is that they are only defined by what you don't eat. When I used to speak on college campuses, I would meet vegans who appeared to be living off French fries and beer. Vegan, technically, but not exactly health promoting. That's why I prefer the term whole-food, plant-based nutrition
- There's a concept in psychology called "decision fatigue" that marketers use to exploit consumers. It appears humans have a limited capacity to make many decisions in one short stretch of time, and the quality of our decisions will deteriorate to the extent that we eventually begin making downright irrational choices. Ever wonder why supermarkets stack the junk food at the checkout counter? After wading through the forty thousand items in the average supermarket, we end up with less willpower to resist impulse purchases

- Ironically, many people following healthy diets report eating an even greater variety of foods than when they ate their former “unrestricted” diet
- Good places to look for whole-foods recipes are ForksOverKnives.com; StraightUpFood.com; HappyHealthyLongLife.com
- As you eat healthier, your palate actually changes. It’s an amazing phenomenon. Your taste buds are constantly adapting - minute to minute, in fact. If you drank some orange juice right now, it would taste sweet. But if you first ate some sweets and then drank the same orange juice, it could taste unpleasantly bitter. Over the long term, the more you eat healthfully, the better healthy foods taste
- Green smoothies are something you have to build up to. Everyone loves fruit smoothies. A frozen banana, strawberries - yum! And surprisingly, you can throw a handful of baby spinach in there and you may hardly even taste it. Give it a try! You’ll be surprised. Okay, so if one handful is good, how about two? Slowly, your taste buds can adapt to increasing quantities of greens. This happens with all your senses. Walk into a dark room, and your eyes will slowly adapt. Stick your foot into a hot bath, and though at first it may be too hot, your body equilibrates to a new normal. Likewise, in just a couple of weeks, you can be drinking and enjoying concoctions you’d now consider absolutely wretched

Dr. Greger’s Daily Dozen

- Beans (3); Berries (1); Other Fruits (3); Cruciferous Vegetables (1); Greens (2); Other Vegetables (2); Flaxseeds (1); Nuts (1); Spices (1); Whole Grains (3); Beverages (5); Exercise (1)

Beans

- Tinned beans are convenient, but are they as nutritious as home cooked? A recent study discovered that indeed tinned beans are as healthy as boiled beans - with one exception: sodium. Salt is often added to tinned beans, resulting in sodium levels up to one hundred times more than if you cooked them without any salt. Draining and rinsing your tinned beans can remove about half the added salt but then you’d also be rinsing away some of the nutrition. I recommend purchasing the no-salt-added varieties and cooking with the bean liquid in whatever dish you’re whipping up
- Intestinal gas is normal and healthy. No less an expert than Hippocrates himself was attributed as saying, “Passing gas is necessary to well-being”

Berries

- Americans eat a lot of pale and beige foods: white bread, white pasta, white potatoes, white rice. Colorful foods are often healthier because they contain antioxidant pigments, whether it’s the beta-carotene that makes carrots and sweet potatoes orange, the lycopene antioxidant pigment that makes tomatoes red, or the anthocyanin pigments that make blueberries blue

- How could the fructose in sugar be bad but the same fructose in fruit be harmless? In nature, fructose comes prepackaged with the fibre, antioxidants, and phytonutrients that appear to nullify adverse fructose effects

Other Fruits

- If you like drinking your fruit, blending is better than juicing to preserve nutrition. Juicing removes more than just fibre. Most of the polyphenol phytonutrients in fruits and vegetables appear to be bound to the fibre and are only liberated for absorption by the friendly flora out on the fibre and all the nutrition that was attached to it. Even just cloudy apple juice, which retains a bit of the fruit fibre, appears to have nearly triple the phenolics compared to clear apple juice
- You should be able to smell the mango at arm's length
- Seedless or not, watermelon contains a compound called citrulline that can boost the activity of the enzyme responsible for dilating the blood vessels in the penis that result in erections. A group of Italian researchers found that citrulline supplementation at the level of five servings of red watermelon a day improved erection hardness in men with mild erectile dysfunction, allowing for a 68% increase in monthly intercourse frequency

Cruciferous Vegetables

- The formation of sulforaphane in cruciferous vegetables is like a chemical flare reaction. It requires the mixing of a precursor compound with an enzyme called myrosinase, which is inactivated by cooking (though microwaved broccoli appears to retain some cancer-fighting capacity). This may explain why we see dramatic suppression of test-tube cancer-cell growth by raw broccoli, cauliflower, and Brussels sprouts, but hardly any reaction when they're cooked
- If you chop the broccoli (or brussels sprouts, kale, collards, cauliflower, or any other cruciferous vegetable) and then wait forty minutes, you can cook it as much as you want. At that point, the sulforaphane has already been made, so the enzyme is no longer needed to achieve maximum benefit. It's already done its job
- Boiling broccoli prevents the formation of any significant levels of sulforaphane due to inactivation of the enzyme. However, the addition of powdered mustard seeds to cooked broccoli significantly increases sulforaphane formation. Then it's almost as good as eating it raw! So, if you don't have forty minutes to spare between chopping and cooking, or if you're using frozen green just sprinkle the crucifers with some mustard powder before you eat them, and you'll be all set

Greens

- There's a phenomenon called flavor-flavor conditioning in which you can change your palate by linking a less pleasant flavor (for instance, sour or bitter) with a more pleasant one (say, sweet). For example, when researchers tried adding sugar to sour grapefruit juice, people liked it better. No surprise. But within a few

days, the study subjects began to like even unsweetened grapefruit juice more than they did before the experiment started. In fact, this reconditioning of the palate lasted for at least weeks after the sugar was removed

- The sweetness trick is why green smoothies can be so delicious. Smoothies can be a great way to introduce greens into children's diets. The basic triad is a liquid, ripe fruit, and fresh greens. I'd start with a two-to-one ratio of fruits to greens to start with before tipping heavier toward greens on the scale
- Another way to remove bitterness from greens is to blanch or boil them, but unfortunately this works by leaching some of the healthy compounds into the cooking water. If you're making soup, that's not a problem, because the nutrients aren't destroyed as much as they are displaced. If the cooking liquid is poured off, however you could be losing some nutrition. But even if 50 percent of these healthy compounds go down the drain, if the decreased bitterness motivates you to eat twice as many greens, problem solved! Whenever I'm boiling pasta, for example, I'll add a bunch of fresh greens to the pot a few minutes before I'm ready to drain the pasta. I know I'll be losing some nutrients when I pour off the cooking water, but it's worth it to me for the convenience of throwing everything into one pot and getting my family to eat even more greens
- Although greens are the healthiest of foods, there's one green I caution against eating: alfalfa sprouts. Over a dozen years, twenty-eight outbreaks of Salmonella food poisoning linked to sprouts have been documented in the United States, affecting 1275 people

Other Vegetables

- People are more likely to eat bananas and cucumbers than blueberries and kale. But variety is important too. Half the fruit servings in the United States are taken up by the just five fruits - apples and apple juice, bananas, grapes, orange juice, and watermelon - and most vegetable servings are from tinned tomatoes, potatoes, and iceberg lettuce
- In one of the few studies that looked specifically at the diversity of fruit and vegetable consumption, the variety of intake was an even better predictor of decreased inflammation in the bodies of middle-aged adults than the absolute quantity of consumption. Even after removing the effects of quantity, the addition of two different types of fruits and vegetables per week has been associated with an 8% reduction in the incidence of type 2 diabetes
- We've all heard of the proverbial golden glow that's often equated with health, vitality, and youth. But instead of using a sunbed to achieve a more golden hue, you can do it with a bed of greens
- By eating the yellow and red pigments in fruits and vegetables, like beta-carotene in sweet potatoes and lycopene in tomatoes, men and women may be able to naturally acquire more of a golden and rosy glow. Researchers decided to put it to the test

- It's best not to eat mushrooms raw; there's a toxin in edible mushrooms called agaritine to which you should minimize your exposure. Thankfully, the toxin is destroyed by cooking. Just thirty seconds in the microwave wipes out most agaritine in mushrooms
- Published strategies for getting kids (of all ages) to eat their vegetables include cutting them into slices, sticks or stars - the most popular shape. Supposedly, putting an Elmo sticker on veggies swayed 50% of children to choose broccoli over a chocolate bar. If they're still not biting, though, you can apply the same trick I use to get our dog to take her pills: Dip the veggies in peanut butter. A study found that pairing vegetables with peanut butter successfully increases intake "even in vegetable-resistant children." Offering a salad dressing dip has also been found to help
- Even just calling vegetables by different names can help. Elementary schools were able to double vegetable consumption simply by coming up with names that better appealed to the kids. Students ate twice the number of carrots if they were called "X-Ray Vision Carrots," compared to when they were just carrots or generally called the "Food of the Day." Are adults as gullible? Apparently so. For example, grown-ups reported "Traditional Cajun Red Beans and Rice" tasted better than just "Red Beans with Rice"... even though they were the exact same dish
- One of the most important predictors of children's fruit and vegetable consumption has been found to be parents' consumption, so if you want your kids to eat healthfully, it helps to be a healthy role model
- The fact is that being organic doesn't mean a food is healthy. The organic food industry didn't become so lucrative by selling carrots. For instance, you can now buy pesticide-free crisps and organic jelly beans. There are even organic Oreo cookies. Junk food is still junk food, even if it was produced organically. The organic label cannot turn red lights green
- People not only tend to overestimate the nutritional benefit of organic food, they also overestimate the risks of pesticides. For example, surveys have found that many consumers erroneously believe that just as many people die from pesticides residues on conventional food as they do from car accidents, or that eating nonorganic produce is almost as bad as smoking, a daily pack of cigarettes. This kind of thinking is dangerous, as it could lead to a decrease in overall fruit and vegetable consumption

Flaxseeds

- When shopping for energy bars, it's imperative that you read their labels, as many brands have added sugars. Or you can just save yourself some money and choose good old-fashioned trail mix

Nuts and Seeds

- The first law of thermodynamics states that energy can neither be created nor destroyed. If calories, which are units of energy, can't just disappear, then where are they all going? In one trial, for instance, participants who ate up to 120 pistachios as an afternoon snack every day for three months didn't appear to gain a pound. How could thirty thousand calories vanish into thin air? One theory offered was dubbed the Pistachio Principle: Maybe nuts just take a lot of work to eat. Pistachios are typically bought in their shells, which slows consumption time, allowing your brain to better regulate your appetite. Sounds plausible, but what about shelled nuts like almonds and cashews? A study out of Japan did suggest that increasing "dietary hardness" is associated with a slimmer waist. Perhaps all that chewing simply tires you out? Then there's fecal-excretion theory. Many of the cell walls of chewed almonds, for example, remain intact in the gastrointestinal tract. In other words, it's possible a lot of the calories in nuts just never get digested and wind up in your waste because you didn't chew well enough
- It looks as if 70% of nut calories are lost through dietary compensation and 10% are flushed as fat in your feces. But what about the last 20%? Unless all the calories are accounted for, you would still expect some weight gain. The answer appears to lie in the ability of nuts to boost metabolism. When you eat nuts, you burn more of your own fat. Researchers have found that while control-diet subjects were burning about twenty grams of fat within an eight-hour period, a group eating the same number of calories and fat, but with walnuts included in their diet, burned off more - about thirty-one grams of fat. If a pill could do that, drug companies would be raking it in!
- Erectile dysfunction and our number-one killer, coronary artery disease, are actually two manifestations of the same disease - inflamed, clogged, and crippled arteries - regardless of which organs are affected
- For two-thirds of men showing up at emergency rooms with crushing chest pain, their penises had been trying to warn them for years that something was wrong with their circulation. Why does atherosclerosis tend to hit the penis first? The arteries in the penis are half the size of the "widow-maker" coronary artery in the heart. Therefore, the amount of plaque you wouldn't even feel in the heart could clog half the penile artery, causing symptomatic restriction in blood flow. This is why erectile dysfunction has been called "penile angina." In fact, by measuring blood flow in a man's penis with ultrasound, doctors can predict the results of his cardiac stress test with an accuracy of 80%. Male sexual function is like a penile stress test, a "window into the hearts of men"
- We used to think of erectile dysfunction in younger men (those under age forty) as "psychogenic" - meaning it's all in their heads. But now we're realizing that ED is more likely an early sign of vascular disease. Some experts believe that a man with erectile dysfunction - even if he doesn't have cardiac symptoms - should be considered a cardiac... patient until proved otherwise
- Women with higher cholesterol levels report significantly lower arousal, orgasm, lubrication, and sexual satisfaction. Atherosclerosis of the pelvic arteries can lead

to decreased vaginal engorgement and “clitoral erectile insufficiency syndrome,” defined as “failure to achieve clitoral tumescence [engorgement]”

Herbs and Spices

- There is a good biological reason you should be so attracted to the vibrant colors found in the produce aisle: In many cases, the colors are the antioxidants. You can figure out which of two tomatoes has more antioxidants just by looking at which has a deeper red color
- Cooked turmeric appears to offer better DNA protection, while raw turmeric may have greater anti-inflammatory effects. I enjoy it both ways. I use a grater to add my daily quarter inch into whatever I may be cooking (or right onto a cooked sweet potato), or I throw a raw slice into a smoothie
- If you suffer from gallstones, turmeric may trigger pain. Turmeric is a cholecystokinetic agent, meaning it facilitates the pumping action of the gallbladder to keep bile from stagnating. Ultrasound studies show that quarter of a teaspoon of turmeric causes the gallbladder to contract, squeezing out half of its contents. In this way, it may help prevent gallstones from forming in the first place. But what if you already have a stone obstructing your bile duct? That turmeric induced squeeze could be painful. For everyone else, though, the effect of turmeric would be expected to reduce the risk of gallstone formation and ultimately even reduce the risk of gallbladder cancer
- Too much turmeric, however, may increase the risk of certain kidney stones. Turmeric is high in soluble oxalates, which can bind to calcium and develop into the most common form of kidney stone - insoluble calcium oxalate, which is responsible for about 75% of all cases. Those who have a tendency to form those stones should probably restrict consumption of total dietary oxalate to no more than 50 mg per day. This would mean no more than a teaspoon of turmeric daily at most
- There's a rare headache syndrome called cluster headache, which has been described as one of the worst pains humans can experience. Few, if any, medical disorders are more painful. It's nicknamed the “suicide headache” because patients have taken their lives because of it. Cluster headaches are thought to be caused by pressure on the trigeminal nerve in the face. Treatments involve everything from nerve blocks to Botox to surgery. But that same nerve goes down to the nose. What if you cause the whole nerve to dump all its substance P? Researchers tried the daily capsaicin experiment with cluster headache sufferers. Unlike the wimpy medical students who rated the nose burning as an eight or nine on the ten-point pain scale, those who used to the violence of cluster headache attacks rated the pain caused by capsaicin at only a three or four. By day five, they became too desensitized to the pain of the capsaicin in the nostril on the side of the head where the headaches occurred to cut the average number of attacks in half. In fact, half the patients were apparently cured - their cluster headaches were gone completely. All in all, 80% responded, which is at least equal to, if not better than, all the current available therapies

- Which herbs have the most antioxidants? The most antioxidant-packed herb is dried Norwegian bearberry leaf. (Good luck finding that!) The most antioxidant-packed common herb is peppermint. That's why I add mint to my favourite hibiscus cocktail recipe and why I try to add it to food whenever possible. Mint is a traditional ingredient in Middle Eastern salads like tabbouleh, Indian chutneys, and Vietnamese soups and fresh summer rolls. I like to put it into anything chocolaty as well
- Oregano is such an antioxidant-rich herb that researchers decided to test if it could reduce the DNA-damaging effects of radiation. Radioactive iodine is sometimes given to people with overactive thyroid glands or thyroid cancer to destroy part of the gland or mop up any remaining tumor cells after surgery. For days after the isotope injection, patients are so radioactive that they are advised not to kiss anyone or sleep close to anyone (including their pets), and to maximize the distance between themselves and children or pregnant women. The treatment can be very effective, but all that radiation exposure appears to increase the risk of developing new cancers later on. Hoping to prevent the DNA damage associated with this treatment, researchers tested the ability of oregano to protect chromosomes of human blood cells in vitro from exposure to radioactive iodine. At the highest dose, chromosome damage was reduced 70%
- The most antioxidant-packed common spice is the clove. It has an exceptionally strong flavor, so try adding just a teensy pinch to anything you'd normally put cinnamon or ginger on
- Using an argon laser, researchers can measure and track human carotenoid antioxidant levels in real time. The most important finding from this body of work is that antioxidant levels can plummet within two hours of an oxidatively stressful event. When you're stuck in traffic breathing diesel fumes, deprived of sleep, or suffering from a cold, for example, your body starts using up some of its antioxidant stores. What may only take two hours to lose can take up to three days to build back up
- Ayurveda herbal supplements are typically something you'd want to stay away from, as they have been found to be heavily contaminated with heavy metals, some of which are actually added intentionally

Whole Grains

- The medical profession has a history of dismissing diseases as existing "just in your head." Examples of these include post-traumatic stress disorder (PTSD), ulcerative colitis, migraines, ulcers, asthma, Parkinson's, Lyme disease and multiple sclerosis. Despite resistance from the prevailing medical community, each one of these conditions has subsequently been confirmed as a legitimate disorder. On the flip side, the Internet is rife with unsubstantiated claims about gluten-free diets that have spilled over into the popular press, making gluten the diet villain du jour. And, of course, the gluten-free processed food industry, today worth billions, has a financial interest in the public's confusion. Whenever that much money is at stake, it's hard to trust anyone, so as always, stick to the

science. And what sort of evidence is there for the existence of a condition presumed to be so widespread?

- As with vegetables, use color to make decisions at the supermarket. If you have a choice, pick red quinoa over white quinoa, blue sweetcorn over yellow, and yellow sweetcorn over white
- If you buy packaged grain products, anything labeled on the front with words like “multigrain,” “stone-ground,” “100% wheat,” “cracked wheat,” “seven-grain,” or “bran” is usually not a whole-grain product. They’re trying to distract you from the fact that they’re using refined grains. Here, color may not help. Ingredients like “raisin juice concentrate” are used to darken white bread to make it look healthier. Even if the first word in the ingredients list is “whole,” the rest of the ingredients could be junk
- I suggest using the Five-to-One Rule. When buying healthier, whole-grain products, look at the Nutrition Facts label on the package and see if the ratio of grams of carbohydrates to grams of dietary fibre is five or less. Apply the same Five-to-One Rule to breakfast cereals, another grocery category that can lull you into believing nearly everything is healthy
- When you eat grains intact, even if you chew your food thoroughly, pieces of whole seeds and grains transport starch and other goodies all the way down to your colon for your flora to feast on. But when grains are unnaturally processed into flour, almost all of the starch is digested in the small intestine, and you end up starving into microbial self. When that happens regularly, it can result in dysbiosis, an imbalance in which bad bacteria can take over and increase your susceptibility to inflammatory diseases or colon cancer. The moral of the story: Whole grains are great, but intact whole grains may be even better
- Oatmeal is my go-to breakfast when I travel. If there isn’t a nearby Starbucks where I can pick up some oatmeal, I prepare instant oat-meal with dried fruit in the coffeemaker in my hotel room. At home, if you want to spice up your oatmeal routine, Google “savory oat-meal” for all sorts of interesting dishes involving sauteed mushrooms, herbs, spinach, curry, roasted vegetables - you name it!

Beverages

- Whole milk was grouped with beer with a recommendation for zero ounces a day. Their justification included concerns about links between link and prostate cancer, as well as aggressive ovarian cancer, perhaps, “related to its well-documented effect on circulating concentrations of insulin-like growth factor 1”
- The eight-a-day recommendation can be traced back to a 1921 paper in which the author measured his own urine and sweat output and determined he lost about 3% of his body weight in water a day, which comes out to about eight glasses. Consequently, for the longest time, water requirement guidelines for humanity were based on just one person’s urine and sweat measurements
- Unless you have a condition like heart or kidney failure or your physician otherwise advises you to restrict your fluid intake, I recommend you drink five

glasses of tap water a day. I prefer tap not only because it's less economically and environmentally costly but because it may have less chemical and microbial contamination than bottled water

- Your brain is 75% water. When you become dehydrated, your brain actually shrinks
- How can you tell if you're dehydrated? Just ask your body if you chug some water and pee most of it out soon after, this would be your body's way of saying it was all topped off. But if you drink a bunch of water and your body keeps most of it, then your tank was running low
- A randomized trial of the effects of sparkling versus still water found that drinking carbonated water may improve symptoms of constipation and dyspepsia, including bloating and nausea
- Coffee is not for everyone. For example, be careful if you have gastro-oesophageal reflux disease (GERD). While a population study found no link between coffee consumption and subjective symptoms of GERD, such as heartburn and regurgitation, scientists who actually stuck tubes down people's throats to measure their pH found that coffee does seem to induce significant acid reflux, whereas tea does not. Caffeine does not appear to be the culprit, since caffeinated water doesn't cause a problem. However, the coffee decaffeination process seems to reduce the level of whichever compounds are responsible, since decaf coffee appeared to cause less reflux. The researchers advised that people who suffer from GERD should consider switching to decaf - or even better - drink tea instead
- Daily coffee consumption is also associated with a slightly increased risk of bone fractures among women, but, interestingly, a decreased fracture risk among men. However, no association was found between coffee and hip fracture risk. Conversely, tea may reduce hip fracture risk but appears to have no significant effect on fracture risk in general. This is an important distinction, because hip fractures are associated with a shortened life span more than other types of bone fractures
- Finally, it almost goes without saying that people who have trouble sleeping might not want to drink too much coffee. Just a single cup at night can cause a significant deterioration in sleep quality
- The invention of electroencephalogram (EEG) to measure brain-wave activity has been described as "one of the most surprising, remarkable, and momentous developments in the history of clinical neurology." Scientists discovered that humans have four main mental states - two while sleeping and two while awake. Delta waves, in which your brain is electrically pulsing slowly at about one wave per second, are typically only seen in deep sleep. Then there's theta-wave sleep. At about five cycles per second, this mental state occurs when you're dreaming. The two waking states are alpha and beta. The alpha state is relaxed, aware and attentive, such as when you close your eyes and meditate. Beta, meanwhile, is the stimulated, hustle-and-bustle state in which most of us live our lives

- Alpha, however, is where you want to be - fully alert and focused, yet calm. How do you get there? If you relax in a pleasant, peaceful place, after about ninety minutes, you can start to generate some significant alpha activity (though such practicing meditators as Buddhist monks can achieve this state much earlier and maintain it even with their eyes open). To acquire this talent, you could meditate every day for a few years - or you could just drink some tea. Within minutes of tea consumption, anyone may be able to attain that same relaxed but alert brain-wave pattern. That dramatic alteration in brain activity may explain why tea is the world's single most popular beverage after water
- Are there any caveats to tea consumption? The fluoride content of tea appears to be the limiting factor. The tea plant naturally concentrates fluoride from the soil, which is one of the reasons tea consumption may help fight cavities, but too much fluoride can be toxic
- The only two concentrated, green-light sweeteners may be blackstrap molasses and date sugar. Other natural caloric sweeteners, such as honey, less processed cane sugars, and maple, agave and brown rice syrups don't appear to have much to offer nutritionally. Date sugar is a whole food - just dried dates ground up into a powder - as are date and prune pastes, which can be homemade or purchased
- As with any sour food or beverage, make sure to rinse mouth with water after consumption to prevent natural acids from dissolving your enamel. Do not brush your teeth within an hour after eating or drinking something sour, as your enamel may be in a softened state and be further damaged by brushing
- Over the years, numerous large-scale studies have found a correlation between artificial-sweetener use and weight gain. The most common explanation for this counterintuitive finding is reverse causation: People aren't fat because they drink diet fizzy drinks; they drink diet fizzy drinks because they're fat
- Erythritol seems safe, but only if you don't use it as an excuse to eat more junk food. With great sweetness comes great responsibility

Exercise

- We may be in the process of raising the first generation of children in America with a shorter predicted life span than their parents
- Surveys suggest that most people believe controlling diet and getting enough exercise are equally important for weight control. It's a lot easier to eat, however, than to move. To walk off the calories found in a single pat of butter or margarine, you'd have to add about an extra half mile to your evening stroll. For every additional sardine on your Caesar salad, that's another quarter-mile jog. If you eat two chicken legs, you'll need to get up on your own two legs and run three miles just to make up for it - and that's stewed chicken, skin removed
- After tracking the health of more than one hundred thousand Americans for fourteen years, an American Cancer Society study found that men who sit for six hours or more per day have a 20% higher overall death rate compared to men who sit for three hours or less, while women who sit for more than six hours have

a 40% higher death rate. A meta-analysis of forty-three such studies found that excess sitting was associated with a shorter life span, and this may be “regardless of physical activity level.” In other words, people who religiously hit the gym after work may still have shortened life spans if they are otherwise sitting throughout the day. Sitting for six or more hours a day appears to increase mortality rates even among people who run or swim for an hour a day, every day, seven days a week

- I’m not saying we should all quit our desk jobs, but there are other options. For instance, try switching to a standing desk, which elevates the heart rate and may burn as many as fifty extra calories per hour. This may not seem like a lot, but simply standing for three hours a day at work equates to about thirty thousand extra calories burned per year - the equivalent of running ten marathons
- Whether you’re at the office, reading the newspaper at home, or yes, even watching TV, why not find a way to stand while doing it? In fact, most of this book was written while I was walking fifteen miles a day on a treadmill underneath my standing desk
- Preliminary evidence from observational as well as interventional studies suggests that regular interruptions in sitting time can be beneficial. And they don’t have to be long. Breaks could be as short as one minute and not necessarily entail strenuous exercise - just walking up and down stairs may be enough. Another option at a sedentary workplace is to opt for “walking meetings” rather than traditional sit-downs
- Eating 300 grams of watermelon prior to intense physical activity was also found to significantly reduce muscle soreness
- The current official physical activity guidelines recommend adults get at least 150 minutes a week of moderate aerobic exercise, which comes out to a little more than 20 minutes a day. That’s actually down from previous recommendations from the surgeon general, the CDC, and the American College of Sports Medicine, which recommend at least 30 minutes each day. The exercise authorities, recommending what they think may be achievable, rather than simply informing you what the science says and letting you make up your own mind. They already emphasize that any physical activity is better than none, so why not stop patronizing the public and just tell everyone the truth?

Conclusion

- The overconsumption of sugar-sweetened foods has often been compared to drug addiction. Until very recently, this parallel was based more on anecdotal evidence than on solid scientific grounds. But now we have PET scans, imaging technology that allows doctors to measure brain activity in real time. It all started with a study that showed decreased dopamine sensitivity in obese individuals. The more the individual being studied weighed, the less responsive to dopamine he or she appeared to be. We see the same reduction in sensitivity in cocaine addicts and alcoholics. The brain gets so over-stimulated that it ends up trying to turn down the volume

Saturday, 12 September 2020

- People who regularly eat ice cream (sugar and fat) have a deadened dopamine response in their brains when drinking a milkshake. It's comparable to the way drug abusers have to use more and more drugs to obtain the same high. A neuroimaging study found that frequent ice cream consumption "is related to a reduction in reward-region responsivity in humans, paralleling the tolerance observed in drug addiction." Once you've so diluted your dopamine response, you may subsequently overeat in an effort to achieve the degree of gratification experienced previously, contributing to unhealthy weight gain
- [NutritionFacts.org](https://www.nutritionfacts.org) is a 501(c)(3) nonprofit organization that thrives on the Wikipedia model of simply accepting donations from visitors who appreciate the content. I personally don't accept any compensation for my work on [NutritionFacts.org](https://www.nutritionfacts.org); I'm privileged to be able to donate my time as a labor of love