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Are human beings anatomically more similar to natural carnivores or to natural herbivores? Let’s find out.… Intestinal tract length. Carnivorous animals have intestinal tracts that are 3-6x their body length, while herbivores have intestinal tracts 10-12x their body length. Human beings have the same intestinal tract ratio as herbivores. Stomach acidity. Carnivores’ stomachs are 20x more acidic than the stomachs of herbivores. Human stomach acidity matches that of herbivores. Saliva. The saliva of carnivores is acidic. The saliva of herbivores is alkaline, which helps pre-digest plant foods. Human saliva is alkaline. Shape of intestines. Carnivore bowels are smooth, shaped like a pipe, so meat passes through quickly — they don’t have bumps or pockets. Herbivore bowels are bumpy and pouch-like with lots of pockets, like a windy mountain road, so plant foods pass through slowly for optimal nutrient absorption. Human bowels have the same characteristics as those of herbivores. Fiber. Carnivores don’t require fiber to help move food through their short and smooth digestive tracts. Herbivores require dietary fiber to move food through their long and bumpy digestive tracts, to prevent the bowels from becoming clogged with rotting food. Humans have the same requirement as herbivores. Cholesterol. Cholesterol is not a problem for a carnivore’s digestive system. A carnivore such as a cat can handle a high-cholesterol diet without negative health consequences. A human cannot. Humans have zero dietary need for cholesterol because our bodies manufacture all we need. Cholesterol is only found in animal foods, never in plant foods. A plant-based diet is by definition cholesterol-free. Claws and teeth. Carnivores have claws, sharp front teeth capable of subduing prey, and no flat molars for chewing. Herbivores have no claws or sharp front teeth capable of subduing prey, but they have flat molars for chewing. Humans have the same characteristics as herbivores. But aren’t humans anatomically suited to be omnivores? Nope. We don’t anatomically match up with omnivorous animals anymore than we do with carnivorous ones. Omnivores are more similar to carnivores than they are to herbivores. The opportunistic feeder theory has been thoroughly debunked. This theory states that because humans can eat like omnivores, that we must therefore be omnivores. However, mere behavior doesn’t indicate suitability. There are plenty of things we can do as a species that would threaten our survival if we all considered them suitable default behavior, such as shooting each other, lobbing hand grenades, or sending spam. Receive Steve's new articles by email.Read related articles: Parts of the following article were originally written by Frank Dixon. Some of the content and information is based on his book Sustainable Food Production and Diet. It has been edited for consistency with CNS editorial guidelines. We are told by many people, including doctors and other apparent experts, that animal products are essential to a healthy diet. This advice reflects the majority view that humans are fundamentally omnivorous. Still, the debate over what is normal or natural for our species will not die. On the one side, you have people who believe we evolved to eat a diet with substantial proportions of meat, including paleo dieters and devoted carnivores, but also many individuals consuming a standard American diet who implicitly buy into the importance of meat; on the other hand, many vegans insist that humans are not even natural omnivores. What do our bodies indicate, and does it matter? The Anatomy of Carnivores versus Herbivores Many people oversimplify the herbivore-carnivore divide and incorrectly assume that all herbivores are unable to digest animal foods and vice versa. Although carnivores mostly and ideally subsist on animal foods and herbivores likewise on plant foods, countless examples illustrate that animals frequently cross the divide.[1] Relatively few animals are obligate carnivores incapable of extracting nutrients from plants.[2] Like nearly everything in nature, our diets exist on a spectrum; just because animals can and do occasionally eat something different does not mean that particular something is ideal. Anatomy can better help us identify natural preferences. When we look at the anatomy of carnivores, we see animals that have evolved to capture, kill, flay, dismember, and digest other animals. Omnivores, which evolve to also eat plants, must retain their ability to capture, kill, flay, dismember, and digest animals. Even hypocarnivore omnivores like bears, which meet at least 70 percent of their dietary needs from plants, must maintain anatomical features largely consistent with carnivores, plus a few key adaptations to allow for digesting plant foods. Carnivores tend to have wider mouth openings relative to head size and jaw joints on the same plane as their teeth. The lower jaw cannot move forward or backward and has limited side-to-side motion. This strong, stable jaw helps carnivores capture, kill, and dismember prey. Herbivores, on the other hand, have relatively small mouth openings and jaw joints above the plane of the teeth. This means the herbivore’s jaw is much weaker, but it provides for more front-to-back and side-to-side mobility needed to crush and grind fibrous plants. Carnivores tend to have short, sharply pointed front teeth for tearing flesh; herbivores have shovel-like front teeth that are long and flat, ideal for cutting plants. Carnivores tend to have long curved canines sharp enough for capturing, killing, and tearing prey; canines vary in herbivores. Some have no canine teeth at all. Others, such as hippos and some primates, have longer canines. Carnivores have triangular molars for cutting flesh; flat molars are more useful for crushing plants. Obligate carnivores produce no salivary amylase, which is required to digest starch.[3] Thanks to their wide esophagi, carnivores often swallow large chunks of meat without choking. Herbivores require much more extensive chewing and have digestive enzymes in their saliva better suited to breaking down plant matter. Herbivores also have narrower esophagi and risk choking if they attempt to swallow large chunks of meat. Carnivores often have larger stomach capacities, which allows them to load up on food from intermittent hunting.[4] Herbivores tend to have smaller stomach capacities but longer small intestines (10–12 times body length, compared to 3–6 times body length for carnivores) ideal for slowly digesting plant material. Because meat often has abundant pathogens, especially as it decays, carnivores and omnivores tend to have more acidic stomachs to kill those pathogens; apart from a few exceptions, herbivores tend to have less acidic stomachs.[5] Humans are the only animals that cook, an innovation that also helps kill pathogens in meat. Carnivores can eat as many foods high in animal protein and fat as they want without developing atherosclerosis; herbivores cannot.[6] What about Humans? Anatomically, we have far more in common with herbivores than carnivores. Our mouth openings are smaller and our jaws allow for side-to-side and front-to-back movements ideal for grinding. Our canines are short and blunt, and our front teeth are flat. Our flat molars, like the rest of our teeth and jaw structure, are ideal for eating plants, not tearing flesh. Our salivary amylase activity is high, reflecting an ability to digest starchy foods that many carnivores completely lack.[3] Our small intestines are longer than carnivores’ small intestines, and our stomach capacities are smaller than carnivores’ stomach capacities. Our closest primate relatives consume overwhelmingly herbivorous diets. Our empty stomachs are surprisingly acidic, but research has shown that the pH spikes (becoming less acidic) when we eat.[7] Some other herbivores also exhibit unexpectedly acidic stomachs, including beavers and rabbits.[5] “One explanation for such acidity [in the human],” write researchers, “may be that carrion feeding was more important in humans (and more generally hominin) evolution than currently considered to be the case [. . .] Alternatively, in light of the number of fecal-oral pathogens that infect and kill humans, selection may have favored high stomach acidity, independent of diet, because of its role in pathogen prevention.” As mentioned above, humans have effectively learned to kill the pathogens in meat by cooking. This final point illustrates something critical: it is our intellectual capacity, rather than our anatomy, that enables us to capture, cook, and eat meat. One might say the evolution of our intelligence is just as important of an indicator of what is natural as the evolution of our bodies, and that argument may be worth considering more closely; however, if we are going to follow that way of thinking to its logical conclusion, conferring special significance to our intelligence, the least we can do is also make sure to exercise that impressive intelligence by critically assessing whether our current food choices continue to serve our needs. Dietary Range Could Once Prevent Extinction; Not So Much Anymore We know that humans, like most animals, evolved with the capacity to eat all kinds of things, including many of the parts of animals. This makes us behavioral omnivores by definition, but it has little relevance to the question of what is optimal. Evolving to eat animal products might have been very useful for survival, but it is not necessarily optimal for longevity. Consider early humans migrating to colder climates where plants did not grow as readily. They would have likely perished without the energy from meat. Because the nutrient composition of animal foods generally includes more fat, animal foods are more calorie dense; in the face of short-term starvation, such foods could have been the difference between life and death. The same could be hypothesized about humans trying to outlast climate events that would have disrupted the supply of plant foods. Adaptability under such circumstances surely aided survivability. We no longer face those harsh conditions. Today, the drivers of meat consumption have nothing to do with human survival. They have much more to do with cultural pressure, preference for animal products, traditions, the influence of the animal foods industry, and even the lack of nutrition training that doctors receive. Considering how the threats to our species have shifted, now would be an especially great time to stop conflating survival and healthy longevity. Today, more than four times as many people worldwide are overweight or obese compared to those who are undernourished. Chronic diseases comprise the majority of deaths in the US and the majority of healthcare spending (about 70 percent and 75 percent, respectively), and a fourth of Americans have multiple chronic diseases.[8] Our ancestors during the Paleolithic era, when life expectancy was only 33 years, would have rightly seen it as a great victory to live long enough to die of Alzheimer’s disease.[9] We’ve moved so far beyond that world. The challenges are different. The same intelligence that allowed us to kill pathogens in meat by cooking has supported our continually evolving scientific understanding of the world. We now know from numerous studies that diets with little or no animal foods can substantially minimize our risk of dying from the deadliest chronic diseases while promoting health, longevity, and vitality. (Learn from the decades of research studies that show numerous associations between nutrition and better health outcomes.) Finally, we also face the current threat of environmental destruction caused by agriculture, which owes disproportionately to animal-based diets. Animal-based diets require more land (and therefore contribute to more deforestation and species loss), drain more finite resources, and have a substantially larger carbon footprint than even the least sustainable plant-based options.[10] They are at the heart of the Earth’s sixth mass extinction. This existential threat would have been inconceivable to humans thousands of years ago as they scraped by on whatever food they could find. Estimates for the global population in the year 10,000 BC range from one to ten million; the upper end of that range is about the same as present-day Los Angeles County.[11][12] (Learn more about the alternative: sustainable agriculture.) Although our capacity to eat animals might once have played a role in ensuring our survival, it now plays the opposite role, quickening our extinction. Our anatomy indicates a natural preference for plant-based diets, and our intelligence—if we want to go there—surely backs up that choice. References Landers J. Bambi ate thumper: why herbivores sometimes eat meat. Slate. November 16, 2012. Encyclopedic entry: Carnivore. National Geographic. Accessed June 10, 2024. Peyrot des Gachons C, Breslin PA. Salivary Amylase: Digestion and Metabolic Syndrome. Curr Diab Rep. 2016;16(10):102. doi:10.1007/s11892-016-0794-7 De Cuyper A, Clauss M, Carbone C, Codron D, Cools A, Hesta M, Janssens GPJ. 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Three Stages of Health Encounters Over 8000 Human Generations and How They Inform Future Public Health. Am J Public Health. 2018;108(1):60-62. doi:10.2105/AJPH.2017.304164 Ritchie H. Less meat is nearly always better than sustainable meat, to reduce your carbon footprint. OurWorldInData.org. February 4, 2020. United States Census Bureau. Historical estimates of world population. Accessed June 10, 2024. United States Census Bureau. QuickFacts: Los Angeles County, California. Accessed June 10, 2024. CA,US/POP645218 Herbivores, carnivores, and omnivores are three dietary groups of animals.The animal kingdom is diverse, with species adapted to a wide range of diets. These diets fall into three broad categories: herbivorous, carnivorous, and omnivorous. Herbivores are animals that primarily consume plant material. Carnivores are those that eat other animals. Omnivores have a diet that includes both plant and animal matter. Each category has distinct characteristics, advantages, and disadvantages.Herbivores are animals that feed exclusively on plant material. This group includes mammals like cows, deer, and elephants, as well as smaller creatures like butterfly caterpillars and certain species of fish.GiraffeElephantPandaHorseKoalaZebraRhinocerosKangarooDeerRabbitHerbivores have evolved various adaptations to process plant materials. For instance, many have broad, flat teeth for grinding leaves and grass. Ruminants like cows have a complex stomach designed to ferment plant matter and extract nutrients.The primary advantage of a herbivorous diet is the abundance of plant matter. However, the low calorie and protein content of plants mean herbivores must consume large quantities to meet their nutritional needs. Their diet also makes them dependent on the availability of vegetation, which fluctuates depending on seasonal changes and environmental factors.Carnivores are animals that primarily consume other animals. This group includes lions, wolves, and eagles. These animals often occupy the role of predators in their ecosystems.LionTigerCrocodileHawkWolfPolar BearGreat White SharkEagleCheetahLeopardAn obligate carnivore or true carnivore is an animal that must eat meat in order to thrive and survive. Unlike omnivores or facultative carnivores, which derive nutrition from both animal and plant sources, obligate carnivores depend on the nutrients found in animal flesh. For example, cats are obligate carnivores because they require the nutrient taurine, which only occurs in meat.Carnivores typically have sharp teeth and claws for capturing and killing prey. They also have shorter digestive tracts compared to herbivores, as meat is easier to digest than plant matter.A carnivorous diet is high in protein and chemical energy, allowing for smaller meal sizes compared to herbivores. However, this diet comes with the challenge of finding and capturing prey, which requires energy and skill. The availability of prey can vary greatly, leading to fluctuations in food availability.Omnivores are animals that consume both plant and animal matter. Examples include humans, bears, and pigs. These animals have a varied diet and can often switch between food sources based on availability.HumanBearRaccoonPigCrowSquirrelRatOpossumChickenDogNote that many members of the order Carnivora are omnivores rather than carnivores. Examples include dogs and bears.Omnivores typically have a combination of sharp front teeth for tearing meat and flat molars for grinding plant material. They also have a digestive system that handles both meat and plants, although not as efficiently as specialized herbivores or carnivores.The primary advantage of being an omnivore is dietary flexibility. This allows omnivores to survive in a variety of environments with varying food sources. However, omnivores may face competition from both herbivores and carnivores for food resources. Additionally, the jack-of-all-trades nature of their digestive system means they are not as efficient in processing food as specialized eaters.It’s interesting to note that while many animals are classified as herbivores or carnivores, some of them occasionally partake in foods outside their primary dietary classifications, making them more accurately omnivores.Examples:Bears: Although technically classified as carnivores, most bear species are actually omnivores. For instance, the grizzly bear’s diet includes fish, mammals, insects, and a significant amount of plant matter.Dogs: Like bears, domestic dogs are technically considered carnivores, but they are actually omnivores. Dogs eat a variety of foods, including vegetables and grains, in addition to meat.Pandas: Giant pandas are a unique case. They are classified as carnivores based on their digestive system and ancestral diet, but they almost exclusively eat bamboo, a plant, making their diet herbivorous.Pigs: Wild pigs and boars, though often thought of as omnivores, can lean heavily towards being herbivorous or carnivorous based on their habitat and food availability.Squirrels: Typically considered herbivores, squirrels are actually omnivores. They occasionally eat small birds, insects, and eggs, in addition to their usual diet of nuts and seeds.Cats: While cats are obligate carnivores, they benefit from nibbling on a bit of grass or other plants.This dietary flexibility shows that the line between herbivores, carnivores, and omnivores is often blurred, reflecting the adaptability of many species in response to their environments and available resources.The ecological relationship between herbivores, carnivores, and omnivores is a fundamental aspect of food webs and ecosystems. Their interactions with each other and their environment are crucial for ecosystem health, biodiversity, and the functioning of natural systems.Herbivores and Plants: Herbivores consume plants, playing a critical role in controlling plant populations and influencing the structure of vegetation. Their grazing and browsing shapes the landscape, affecting which plant species thrive. This interaction also leads to coevolution, where plants develop defenses like thorns, and herbivores evolve ways of overcoming these defenses.Carnivores and Herbivores: Carnivores primarily feed on herbivores, regulating their populations. This predatory pressure maintains ecological balance. For instance, without predators, herbivore populations grow unchecked, leading to overgrazing and ecosystem degradation. Carnivores also influence the behavior of herbivores, affecting where they feed and how they use their habitat.Omnivores: Omnivores, consuming both plant and animal matter, link different parts of the food web. They help control both herbivore and plant populations. Their dietary flexibility helps them to adapt to changes in food availability, making them important for resilience in ecosystems.Trophic Cascades: Changes in the population of one group has cascading effects through the ecosystem. For example, fewer carnivores leads to an increase in herbivores, resulting in more intense grazing pressure on plants.Nutrient Cycling: All these groups contribute to nutrient cycling. Herbivores process plant materials and return nutrients to the soil through waste. Carnivores and omnivores, by consuming other animals, help in breaking down and redistributing nutrients.Peschiutta, María Laura; Scholz, Fabián Gustavo; Goldstein, Guillermo; Bucci, Sandra Janet (2018). “Herbivory alters plant carbon assimilation, patterns of biomass allocation and nitrogen use efficiency”. Acta Oecologica. 86: 9–16. doi:10.1016/j.actao.2017.11.007Pond, G.; Ullrey, D.E.; Baer, C.K. (2018). Encyclopedia of Animal Science (Two-Volume Set). McGraw-Hill. ISBN 978-0072956207.Sahney, S.; Benton, M.J.; Falcon-Lang, H.J. (2010). “Rainforest collapse triggered Pennsylvanian tetrapod diversification in Euramerica”. 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Yet when we carefully consider what our bodies are designed to eat, and what energy source allows us to function optimally, the evidence points to one conclusion: Humans are indeed carnivores.What is a Carnivore?When you think about the word carnivore, what comes to mind? Most people envision a pride of lions hunting zebras in the Serengeti, isolating the weakest member of the herd and savagely ripping its throat with razor-sharp teeth before a bloody feast. In truth, there’s a carnivore a little nearer and dearer to all of us. You only need to look in the mirror to catch a glimpse. Humans are carnivores. A carnivore is an organism (mostly animals) that derives its food and energy requirements exclusively (or nearly so) from the tissue and meat of other animals. “Carnivore” quite literally translates into meat-eater from the Latin “caro” and “vorarare”. But there is more than one type of carnivore.Different Types of CarnivoresAs one might expect, carnivores can be categorized by the importance meat plays in their overall diet:A Hypercarnivore or Obligate Carnivore is an animal that derives more than 70% of its calorie intake from animal foods. A Mesocarnivore derives about 50% of essential nutrients from animal foods in order to survive. Animals whose diet is only about 30% meat are called Hypocarnivores. Finally, Facultative Carnivores, the category in which humans belong, prioritize the consumption of animal foods but can survive (but not thrive . . . more on this later) on vegetables. Wolves and dogs are also facultative carnivores.At this point, many of you are probably asking, “But I thought humans were omnivores?” While humans do eat just about anything, that doesn’t mean we should. It also doesn’t mean that our bodies function optimally while we’re eating whatever and whenever we want. If the current health crisis of overweight, diabetic, diseased, and inflamed Americans is any indication, we most definitely should not be eating everything and anything. In the words of the late, great Barry Groves, a true health crusader, “Civilized man is the only animal clever enough to manufacture its own food, and the only animal stupid enough to eat it.”Essential Nutrients – Evidence that Humans are CarnivoresWhy is meat a necessity? Our bodies can manufacture a lot of different biomolecules, but not all of them. The ones we can’t produce are called essential nutrients, which means we must obtain them through diet or, to be blunt, we die. Fatty acids like Omega 3 and Omega 6 are essential. Many amino acids (protein) are essential. And there are a handful of essential vitamins and minerals like vitamins A, B, C, E, and K, potassium, and sodium, along with several others. However, there are no essential carbs. You can choose to eat zero carbs and continue to live a normal, healthy (and likely an even healthier) life. Not surprisingly, all essential nutrients can be found in animal source foods. Not all essential nutrients can be found in plants.The foods we eat provide the energy necessary for living in the form of calories. We get calories from three main sources: carbohydrates, protein, and fat. Examples of Essential NutrientsDHADocosahexaenoic acid (or DHA) is critical for brain function and makes up 20% of the fat in our brains. It allows for neural connectivity and protects our nerves. Only animal source foods provide DHA in sufficient quantities.In addition to fatty acids, the brain requires various vitamins and minerals to extract energy and perform other bodily functions.Vitamin AVitamin A regulates 500+ genes and stem cell differentiation and is found abundantly in beef liver and eggs. Beta Carotene is a Vitamin A precursor found in plant foods, but the bioavailability is pitiful compared to preformed Vitamin A. B VitaminsB Vitamins help convert fuel to energy and create the red blood cells that transport oxygen to our brains. B vitamins can also affect moods. Most people are deficient in vitamin B, which has been linked to depression. Again, beef liver is an abundant source of vitamin B. Vitamin B12 is almost exclusively found in animal products. Vitamin K2Vitamin K2 helps to regulate calcium in our bones and brains. It can help prevent heart disease and deficits in vitamin K2 have been linked to Alzheimer’s disease. CholineCholine helps maintain the structure of cell membranes, which is responsible for memory and mental clarity. Deficits in choline can lead to cognitive impairments and problems with concentration and memory. Our bodies make a small amount of choline, but most must come from food. IronIron helps our cells generate energy, fight harmful pathogens, and circulate oxygen throughout the body. CopperCopper regulates energy production, brain function, and iron metabolism. ZincZinc aids in serotonin synthesis and dopamine transport. IodineIodine is necessary for synthesizing thyroid hormones, which are critical for brain growth and development. Fish, salmon roe, and eggs are all good dietary sources of iodine.It can’t go without mention that for so many of these essential vitamins, beef liver is the most abundant food source available. Take a look at how beef and beef liver stack up to some tried and true “superfoods.” Similarly, take a look at how a standard carnivore’s day of eating easily surpasses just about all recommended daily values. Given that 9/10 people eating a standard American diet are missing key nutrients, seems like just about everyone should be shifting to a carnivore diet that clearly provides adequate nutrition. While plants can provide some essential nutrients, most are far more bioavailable in animal meat than in vegetables or supplements. Just because you consume various nutrients doesn’t mean that 100 percent of them find their way into your bloodstream and cells. The body can only utilize a portion of the nutrients it takes in—a principle called bioavailability. How much of a given nutrient your body ultimately absorbs is influenced by many factors, the most important of which is the source. Take spinach, for example, which like beef liver, is seemingly an excellent source of iron; however, spinach also contains oxalates, as do many green leafy vegetables, that bind to minerals and interfere with the body’s ability to absorb them.Even the most diligent vegetarians can’t fulfill nutritional requirements from plant sources alone. The chart below shows that the energy yield from animal products far exceeds what is provided by plants. There is no nutrient in plant foods that cannot be found in animals. But there are a few crucial nutrients that are impossible or very difficult to get insufficient amounts from commonly consumed plant foods. These include:Vitamin AVitamin B12CreatineCarnosineVitamin D3 (Cholecalciferol)Vitamin K2Docosahexaenoic acid (DHA)Heme IronTaurineOther Evidence that Shows Humans are CarnivoresThough we have evolved from grass, shrub, and fruit eaters, the human body in its current form is designed to eat and run on meat. And if we take a look back at human evolution, it’s easy to see how and why we have developed into carnivores. A groundbreaking 2021 study by Israeli researchers found that humans spent 2 million years as “hyper-carnivorous” apex predators that ate mostly the meat of large animals.The study took into account a broad range of evidence, like genetic coding for a fat-rich diet, isotopes in bones of pre-historic humans showing the consumption of high-fat diets, likely from large animals, and the late appearance of tools for processing plant foods.Researcher Miki Ben-Dor concludes that, “archeological evidence…supports the centrality of large animals in the human diet, throughout most of human history.” Development of the human brain in relation to food sources and hunting practices. Source: Times of IsraelHumans Have Small Fat Cells Like All CarnivoresCarnivores are shown to have a higher number of smaller fat cells, while omnivores have a smaller number of larger fat cells. Humans have many small fat cells like all carnivores. After comparing the fat cells in various types of animals, researchers found humans to be at the top of the carnivorous pattern, which suggests that the humans’ energy metabolism is adapted to a diet in which lipids and proteins contribute most of the energy supply, rather than carbohydrates.Humans Have a Stomach Acidity That is Unique to CarnivoresHumans have a high stomach acidity level (a pH of 1.5) that puts us somewhere between obligate and facultative scavengers. Herbivorous primates have a stomach pH of around 4 to 6. Most omnivores are between 2 and 4. Maintaining this level of acidity requires a lot of energy, as does retaining the stomach walls to contain that acidity. Presumably, humans would only evolve to this point if the bacteria levels in our diet were high enough to warrant the adaptation.Humans Have a Smaller Gut Than Other Primates Compared to our similarly-sized chimpanzee ancestors, humans have a large intestine (where fiber is processed) that is about 77% smaller by volume. This significantly reduces our ability to extract energy from plants. On the flip side, our small intestine (where macronutrients are absorbed) is about 62% larger than chimpanzees. This gut morphology is an adaptation that favors meat consumption over plants. As humans evolved, we gave up our ability to ferment fiber into fat and developed smaller colons as a trade-off for increasing our brain size.Humans Have Adapted to Throwing Rather Than Climbing Humans are the most dangerous animal with an unrivaled hunting prowess. Unlike our primate ancestors who continue to have shoulders adapted for climbing and swinging from trees, humans are the only species that can throw objects with incredible speed and accuracy–an evolutionary change that Human Evolutionary Biologist Neil Thomas Roach believes was an adaptation to carnivory. He proposes that “this ability to produce powerful throws was crucial to the intensification of hunting that we see in the archaeological record at this time. Success at hunting allowed our ancestors to become part-time carnivores, eating more calorie-rich meat and fat and dramatically improving the quality of their diet.” You don’t need to spend hours throwing rocks at an apple in a tree when you can simply climb up and grab it.These dietary changes subsequently led to humans growing larger bodies, larger brains, and the ability to have more children.Humans Have Much Higher Fat Reserves Than Chimps Carrying a higher amount of fat consumes energy and impairs our ability to chase or flee, but it also provides an insurance policy for survival during periods of food scarcity. If we only lived in the tropics and were constantly eating plants–like other primates, we wouldn’t have adapted this way.Our Jaws and Teeth Have Become Smaller, Forgoing Chewing Capabilities While most carnivores boast large fangs or teeth, the invention of tools meant we didn’t need to tear raw flesh from a carcass with our bare teeth. We know early humans crafted tools to help process meat. It takes 39% to 46% less force to chew and swallow processed meat than processed root foods. Evolution chose to forgo the ability to properly chew certain plant-based foods to allow for more room in the skull for our growing brains. Our Growing Brains Depended on Animal ProductsOur brains are energy hogs and require lots of energy to function. The fatty acids found in animals (AA, DTA, DHA, EPA) compose 90% of our brains and are not available in plants. As a result of all of these adaptations, it is clear that humans have been moving further from herbivory/omnivory and closer to carnivory. And we didn’t just evolve to eat meat; we evolved because we ate meat.In fact, since our prehistoric beginnings, our brains quadrupled in size. And now since the agricultural revolution and the development of processed foods, our brains have begun to shrink.Humans Need Animal Meat for Energy RequirementsAs our bodies evolved and our energy needs increased to support higher brain function, plants (aka carbs) no longer fulfilled these requirements. The most readily available source of energy was large animals, aka megafauna. The meat and fat of these animals easily fulfilled our energy needs without the need for plants. It’s interesting to note that even today, the most diligent vegetarians can’t get all the nutrients their bodies need from vegetable sources alone.Not surprisingly, our ancestors have long appreciated the value of fatty meat. Researchers studying aboriginal tribes in the late 1800s to early 1900s noted that tribesmen would not eat vegetables when animal sources were available, and children were always offered the fattiest meat first. Many modern aboriginals eat solely (or almost exclusively) meat.Source . The paradoxical nature of hunter-gatherer diets: Meat-based, yet non-atherogenic, April 2002, European Journal of Clinical Nutrition 56 Suppl 1(Suppl 1):S42-52All Animals Need Fat: A Look at the Herbivore’s DietFor those who point to gorillas as close relatives who indeed survive and thrive on a plant-based diet and think we should be able to as well, it’s important to note that all animals need fat. They don’t necessarily need to consume fat, but their bodies need to be able to convert their diet to fat. Gorillas do just this. Gorillas eat a ton of fiber that is mostly protein and carbs. But the interesting thing is that their digestive system, which is composed of a large cecum and colon, contains bacteria that ferments this fiber into short-chain fatty acids. When you look at what ultimately gets absorbed into a gorilla’s body and converted into energy, the short-chain fatty acids provide 60-70% of the gorillas’ energy. The digestive systems of cows accomplishes a similar feat. Some might even say that, from a pure absorption perspective, herbivores are actually carnivores. Weaning TimeIn comparison to our ape ancestors, humans wean their young at a much younger age. In fact, early weaning is one of the main differences between the genus Homo and the great apes. In modern societies where infants rely on their mother’s milk and not bottle feeding, babies nurse for two to three years. By contrast, great ape mothers nurse their young for four to six years. In Psouni et al’s study Impact of Carnivory on Human Development and Evolution Revealed by a New Unifying Model of Weaning in Mammals,their analysis showed that carnivores systematically wean earlier than omnivores and herbivores and that carnivory may be a fundamental determinant of the early human weaning. The meat-based diet of our early human ancestors changed the weaning behavior of man and the course of evolution. 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They had low levels of serum cholesterol and were very healthy with little to no heart disease despite consuming 600mg – 2000mg of cholesterol a day — twice the daily health recommendation.Inuit EskimosSurvived on caribou, fish, seal, polar bear, rabbits, birds, eggs, and very little in the way of fruits and vegetables, with the exception of the occasional berry. Researchers back in the 1950s concluded that this meat-centric diet caused Eskimos just a fraction of the heart disease seen in America at the time. MongolsBecause the Mongolian steppe has one of the most extreme climates in the world, it’s not favorable to agriculture whatsoever. Meat was the only consistent energy source. The Mongols enjoyed lots of animal fat and ate the entire animal from end to end. There was no waste. Vegetables were considered goat food and not desirable. Despite their harsh climate, they were able to thrive, survive, and conquer many other civilizations.Plains Indians Buffalo was a diet mainstay for the Sioux, Mandans, Comanche tribes. Researchers found them to be remarkably healthy. They were tall, had good dental health, and considered to be in superior health to their white counterparts. For most of these tribes, this good health was not a genetic mutation but rather a result of a meat-dense diet. In future generations, as western ways of eating crept into these societies, they experienced the same ill effects as westerners. For example, as the Inuits began to alter their diet in the 20th century to include store-bought, processed foods, this led to new health problems. Surviving, Not ThrivingAs mentioned previously, humans can undoubtedly eat just about every food group, including processed, man-made concoctions, but that doesn’t mean we thrive on this type of diet. While humans as a species do live longer than ever before, we now suffer from certain illnesses to a degree never before seen in the past — including rates of diabetes and obesity and, surprisingly, ailments such as hay fever that continue to climb. When populations around the globe started converting to agriculture around 10,000 years ago, regardless of their locations and what they were growing, a similar trend occurred: The height and health of the people declined. On the advice of medical experts, we’ve eliminated most of the healthiest food in our diets, such as fatty red meat, pork, eggs, bacon, and supplemented the fats with grass, grains, fruits, fibers, vegetables, and plant oils. Despite following nutritional recommendations from the experts, we haven’t become healthier. The number of people suffering from Crohn’s Disease, Irritable Bowel, and other autoimmune diseases has skyrocketed. Today, the NIH estimates that over 23 million Americans suffer from an autoimmune disease. We may be living longer, but we sure aren’t living healthier.Diseases of Human CivilizationThere is significant scientific evidence positively correlates Western diet to acne, obesity, diabetes, heart disease, stroke, metabolic syndrome, and cancer, Alzheimer’s, and the so-called “diseases of civilization”. The consumption of processed foods has been a major driver of chronic disease, spurred by vegetable/seed oils, refined wheat flour, trans fats, and sugar consumption, the core components in processed foods. Nearly three-quarters of our diet is made up of nutrient deficient, toxic processed foods.The Final VerdictHumans have evolved to eat meat because it was the source of fuel we required to become the brainier, more skilled apex predators that we are. We can survive on meat alone. We don’t require the fiber, sugar, carbs, phytochemicals, and toxins that come from fruits and vegetables. We eat non-meat foods not because they’re essential, but because they are readily available and we’ve been brainwashed to consider them necessary components of a healthy diet.Like the lion and lioness in the jungle, meat is the only food humans need to thrive and survive. Evolution has ensured we have the ideal digestive system for processing a carnivorous diet. Now it’s up to us to accept this fact and eat what we’re designed for. We include products in articles we think are useful for our readers. If you buy products or services through links on our website, we may earn a small commission. Are humans carnivores? You probably think you already know the answer; humans are omnivores. Right?Your elementary school science teacher drilled the classifications into your head. You studied teeth structure, eye location, and the presence of claws or talons in various mammals to decide who ate what. But what if things aren’t quite that simple? There’s a big difference between “can” and “should” when it comes to eating meat. Modern society has provided endless options when it comes to mealtime. Yet when we carefully consider what our bodies are designed to eat, and what energy source allows us to function optimally, the evidence points to one conclusion: Humans are indeed carnivores.What is a Carnivore?When you think about the word carnivore, what comes to mind? Most people envision a pride of lions hunting zebras in the Serengeti, isolating the weakest member of the herd and savagely ripping its throat with razor-sharp teeth before a bloody feast. In truth, there’s a carnivore a little nearer and dearer to all of us. You only need to look in the mirror to catch a glimpse. Humans are carnivores. A carnivore is an organism (mostly animals) that derives its food and energy requirements exclusively (or nearly so) from the tissue and meat of other animals. “Carnivore” quite literally translates into meat-eater from the Latin “caro” and “vorarare”. But there is more than one type of carnivore.Different Types of CarnivoresAs one might expect, carnivores can be categorized by the importance meat plays in their overall diet:A Hypercarnivore or Obligate Carnivore is an animal that derives more than 70% of its calorie intake from animal foods. A Mesocarnivore derives about 50% of essential nutrients from animal foods in order to survive. Animals whose diet is only about 30% meat are called Hypocarnivores. Finally, Facultative Carnivores, the category in which humans belong, prioritize the consumption of animal foods but can survive (but not thrive . . . more on this later) on vegetables. Wolves and dogs are also facultative carnivores.At this point, many of you are probably asking, “But I thought humans were omnivores?” While humans do eat just about anything, that doesn’t mean we should. It also doesn’t mean that our bodies function optimally while we’re eating whatever and whenever we want. If the current health crisis of overweight, diabetic, diseased, and inflamed Americans is any indication, we most definitely should not be eating everything and anything. In the words of the late, great Barry Groves, a true health crusader, “Civilized man is the only animal clever enough to manufacture its own food, and the only animal stupid enough to eat it.”Essential Nutrients – Evidence that Humans are CarnivoresWhy is meat a necessity? Our bodies can manufacture a lot of different biomolecules, but not all of them. The ones we can’t produce are called essential nutrients, which means we must obtain them through diet or, to be blunt, we die. Fatty acids like Omega 3 and Omega 6 are essential. Many amino acids (protein) are essential. And there are a handful of essential vitamins and minerals like vitamins A, B, C, E, and K, potassium, and sodium, along with several others. However, there are no essential carbs. You can choose to eat zero carbs and continue to live a normal, healthy (and likely an even healthier) life. Not surprisingly, all essential nutrients can be found in animal source foods. Not all essential nutrients can be found in plants.The foods we eat provide the energy necessary for living in the form of calories. We get calories from three main sources: carbohydrates, protein, and fat. Examples of Essential NutrientsDHADocosahexaenoic acid (or DHA) is critical for brain function and makes up 20% of the fat in our brains. It allows for neural connectivity and protects our nerves. Only animal source foods provide DHA in sufficient quantities.In addition to fatty acids, the brain requires various vitamins and minerals to extract energy and perform other bodily functions. Vitamin AVitamin A regulates 500+ genes and stem cell differentiation and is found abundantly in beef liver and eggs. Beta Carotene is a Vitamin A precursor found in plant foods, but the bioavailability is pitiful compared to preformed Vitamin A. B VitaminsB Vitamins help convert fuel to energy and create the red blood cells that transport oxygen to our brains. B vitamins can also affect moods. Most people are deficient in vitamin B, which has been linked to depression. Again, beef liver is an abundant source of vitamin B. Vitamin B12 is almost exclusively found in animal products. Vitamin K2Vitamin K2

developed smaller colons as a trade-off for increasing our brain size.Humans Have Adapted to Throwing Rather Than Climbing Humans are the most dangerous animal with an unrivaled hunting prowess. Unlike our primate ancestors who continue to have shoulders adapted for climbing and swinging from trees, humans are the only species that can throw objects with incredible speed and accuracy–an evolutionary change that Human Evolutionary Biologist Neil Thomas Roach believes was an adaptation to carnivory. He proposes that “this ability to produce powerful throws was crucial to the intensification of hunting that we see in the archaeological record at this time. Success at hunting allowed our ancestors to become part-time carnivores, eating more calorie-rich meat and fat and dramatically improving the quality of their diet.” You don’t need to spend hours throwing rocks at an apple in a tree when you can simply climb up and grab it.These dietary changes subsequently led to humans growing larger bodies, larger brains, and the ability to have more children.Humans Have Much Higher Fat Reserves Than Chimps Carrying a higher amount of fat consumes energy and impairs our ability to chase or flee, but it also provides an insurance policy for survival during periods of food scarcity. If we only lived in the tropics and were constantly eating plants–like other primates, we wouldn’t have adapted this way.Our Jaws and Teeth Have Become Smaller, Forgoing Chewing Capabilities While most carnivores boast large fangs or teeth, the invention of tools meant we didn’t need to tear raw flesh from a carcass with our bare teeth. We know early humans crafted tools to help process meat. It takes 39% to 46% less force to chew and swallow processed meat than processed root foods. Evolution chose to forgo the ability to properly chew certain plant-based foods to allow for more room in the skull for our growing brains. Our Growing Brains Depended on Animal ProductsOur brains are energy hogs and require lots of energy to function. The fatty acids found in animals (AA, DTA, DHA, EPA) compose 90% of our brains and are not available in plants. As a result of all of these adaptations, it is clear that humans have been moving further from herbivory/omnivory and closer to carnivory. And we didn’t just evolve to eat meat; we evolved because we ate meat.In fact, since our prehistoric beginnings, our brains quadrupled in size. And now since the agricultural revolution and the development of processed foods, our brains have begun to shrink.Humans Need Animal Meat for Energy RequirementsAs our bodies evolved and our energy needs increased to support higher brain function, plants (aka carbs) no longer fulfilled these requirements. The most readily available source of energy was large animals, aka megafauna. The meat and fat of these animals easily fulfilled our energy needs without the need for plants. It’s interesting to note that even today, the most diligent vegetarians can’t get all the nutrients their bodies need from vegetable sources alone.Not surprisingly, our ancestors have long appreciated the value of fatty meat. Researchers studying aboriginal tribes in the late 1800s to early 1900s noted that tribesmen would not eat vegetables when animal sources were available, and children were always offered the fattiest meat first. Many modern aboriginals eat solely (or almost exclusively) meat.Source . 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