

THE BENEFITS OF SELF-RESTRAINT

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In developed countries, food has long ago ceased to be perceived solely through the prism of its biological function of providing nutrients, becoming in addition an element of culture and social identity. More often than not, it is seen as inherent in a person's ideology, philosophy of life, and identity. Consumers attach more and more importance to the origin of food products. They are interested not only in specific ingredients but also in the conditions in which the food was produced, for example what was used to fertilize crops or whether the livestock was kept in adequate conditions.

However, concern for food quality can all too easily turn into an absurd parody. Supporters of various diets fight fierce battles on the Internet, bandying around various pseudo-scientific theories to try to prove that their way of eating is the only proper solution and the only proper philosophy of life.

Not long ago, there was still much controversy surrounding vegetarianism. Although this way of eating (less radical than veganism) is slowly going mainstream, the controversies still continue. It is interesting to take a closer look at the arguments used in discussions on the issue, from the perspective of evolutionary biology. While supporters of a meat-free diet chiefly cite ethical motives, its opponents invoke rather unsophisticated biological arguments, for example by claiming that humans are inherently carnivorous or that meat is simply the best and most nutritious food.

One thing they are forgetting about, however, is the fact that the human digestive system is of a sort typical of all omnivores: starting from the teeth, capable of chewing meat yet not really adapted to ripping apart the muscles of other animals, to the long intestines, which allow for the digestion of plants. Just like other primates, the ancestors of present-day humans did not turn their noses up at meat, but such meat usually came in the form of carrion and small animals, which were easy to catch and eat. Being omnivorous is an evolutionary advantage that enabled the human species to inhabit new territories and survive on local food resources. Depending on the areas that they inhabited, the humans that lived centuries ago could therefore survive while eating nothing but meat or nothing but plants – as has been confirmed by tests of the species composition of the bacteria obtained from the teeth of early modern humans in Europe.

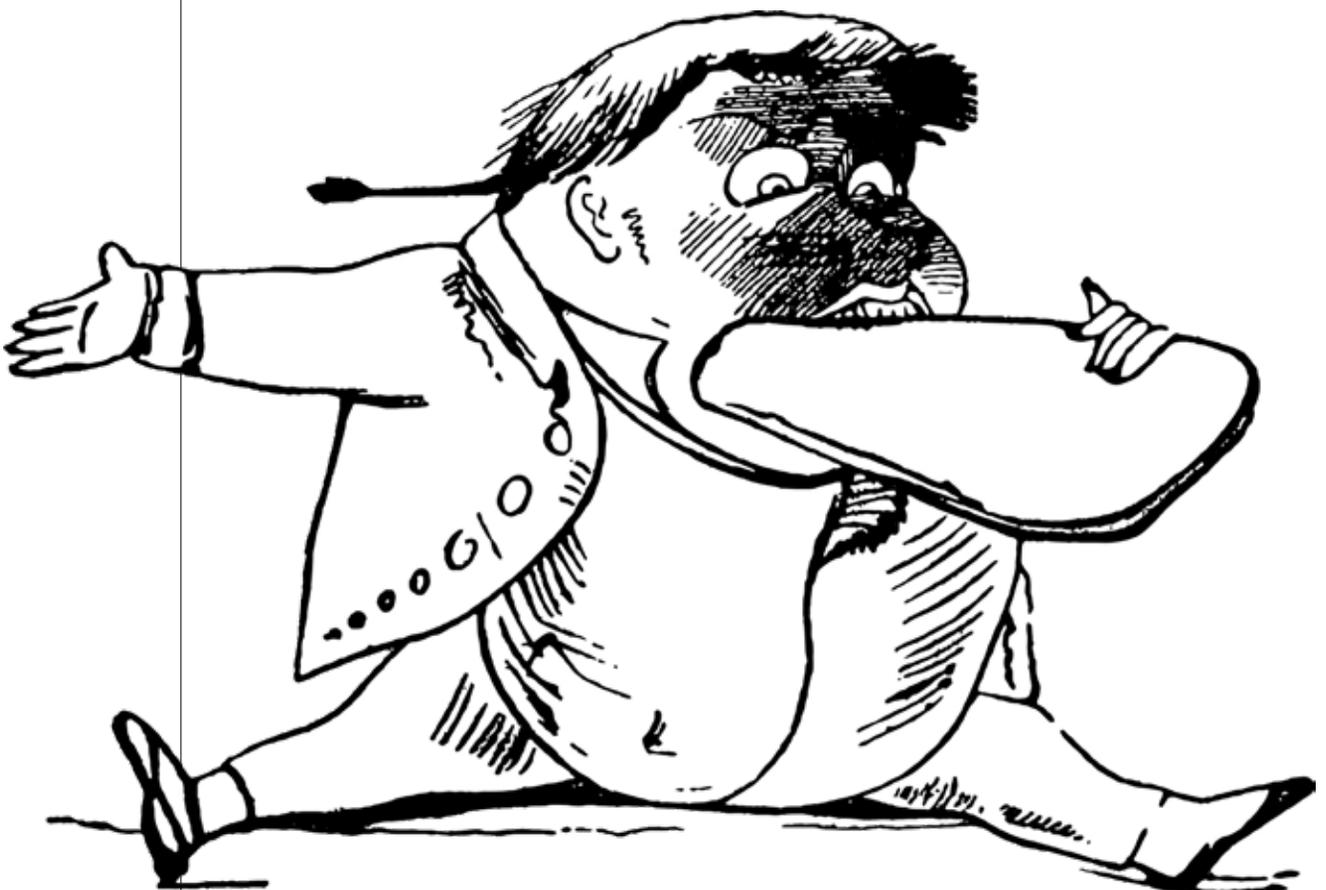
Another example of poor knowledge of how evolution has influenced human biology is offered by the popularity of the “paleo diet,” based on a belief that the human digestive tract is best suited to digest food similar to what was eaten back in the Paleolithic era. In line with its premises, humans should therefore eat chiefly raw fruit, nuts, and meat and avoid anything that appeared in later periods, namely processed food, dairy products, and grains. Criticism of those tenets was presented in the journal *Nutrition Review* by the anthropologists Bethany L. Turner of Georgia State University and Amanda Thompson of the University of North Carolina. They stress that human history reached a turning point

with the arrival of the Agricultural Revolution in the Neolithic period, in other words some 12,500 years ago. The domestication of plants and animals precipitated a fundamental shift in the quality and types of available food, which led to the abandonment of the lifestyle of hunting and gathering. Claiming that humans remain biologically programmed for an older, Paleolithic lifestyle is therefore tantamount to saying that the human species has not evolved at all in the interim.

Meanwhile, enough time has passed since the Neolithic Revolution to have allowed relevant changes to have taken place in the human body in the context of adjusting to a new diet. Examples include the secretion of amylase, an enzyme that is present in the saliva and facilitates the digestion of starch. Communities whose diet was dominated by starch-rich foods experienced a mutation that yielded multiple copies of the gene that coded for that enzyme, so its secretion became more effective. Such changes, however, are not observed among peoples that still rely on hunting and gathering (without starch-rich plants).

Another example of the changes that took place in response to access to specific types of food is the ability to digest lactose. It is made possible by the enzyme called lactase, which is found in baby mammals, but its production gets switched off at a certain age. However, in communities in which milk became an important part of the diet following the domestication of cattle, goats, and sheep, there was evolutionary pressure in favor of maintaining this ability in adults. The consequences of this process are quite evident: lactose-intolerant individuals represent as little as 10% of populations in the north of Europe, as compared to up to 90% in certain regions of Africa and Asia.

One of the most notable achievements of the Neolithic Revolution was the domestication of cereal crops, including wheat, which has since become a staple in many cultures. However, we are now observing the growing popularity of gluten-free diets, which exclude any products that contain gluten – a composite of proteins found in wheat and other grains



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such as rye, barley, and proso millet. What lies at the root of gluten intolerance? The main cause may be celiac disease, an autoimmune disease found in around 1% of the population. Allergy to wheat proteins (other than gluten) occurs equally frequently. Both disorders can be easily diagnosed by measuring the level of antibodies in the blood and they both have a lot of unpleasant signs and symptoms, chiefly in the digestive tract, that first manifest themselves in the first several years of life.

In some countries, however, the number of people who follow gluten-free diets far exceeds the prevalence of these two diseases – in the United States, for instance, its proponents account for some 30% of society, which means around 100 million people. In this case, however, we can speak of a fad of gluten intolerance. It was partially touched off by the book *Grain Brain*, published in 2013. Its author, neurobiologist David Perlmutter, essentially blames wheat for all evils, selecting and interpreting the facts quite arbitrarily. However, the book has been very popular, and the arguments it advances have been promoted by numerous celebrities.

However, studies conducted in Britain showed that only 20% of those who believe they are gluten-intolerant actually suffer from gluten intolerance. Others, without consulting a doctor or conducting any tests, simply came to their own conclusion that eating wheat was harmful for them. Why might avoiding gluten bring them clear benefits, then? First of all, traditional diets rich in flour products are also rich in easily absorbed carbohydrates. Such foods are of high caloric value and trigger a rapid release of insulin. Such diets may once have served farmers and physical laborers well, but they are no good for today's office workers, because they lead to obesity and may cause insulin resistance and consequently diabetes. Avoiding products that contain gluten automatically means eliminating meals rich in carbohydrates: bread, pastry products, and pasta. This necessitates a significant change of eating habits, which indeed brings favorable results. But it is not gluten that causes this. Gluten-opponents simply start composing their meals more carefully and analyzing the products they buy. They choose not to eat highly-processed foods and often cook for themselves, so they end up feeling better. Another thing is that psychosomatic factors may play a role among some of the opponents of gluten – a strong belief that a certain type of food is harmful may produce the same effects as an actual allergy.

Nevertheless, some clinicians are proposing that a certain new clinical classification needs to be recognized: non-celiac gluten sensitivity (NCGS). The course of this disease is reportedly similar to celiac disease and linked to systemic signs and symptoms, not only related to the digestive tract. For the time being, this proposal remains shrouded in controversy, because there is no test allowing for its detection, and nothing is known about its biochemical mechanism. However, doctors point out that the fad of gluten-free diets has impacted negatively on patients suffering from NCGS, who are often misunderstood by specialists and grapple with their condition for years.

Digestive-tract ailments usually have non-specific symptoms and are difficult to correctly diagnose and treat. Desperate patients who seek relief from their suffering can find eager help from amateur dieticians or experts in non-conventional medicine. That leads to the proliferation of pseudo-diseases, which can obviously be properly treated only by these very dieticians and experts. One of the best examples is "leaky gut syndrome," an alleged disease in which food literally leaks between the intestinal cells into the body cavity itself, thus causing strong inflammatory reactions. Although diseases linked to increased permeability of the lining of the intestine are known in medicine (for example, celiac disease itself involves this), the mechanism is a lot more complex than the leaky-gut proponents would have it. In any case, a miracle-diet is surely not enough to cure it.

So what should those of us who want to eat healthily do? First of all, show some self-restraint – quite literally. Although there are no studies demonstrating the absolute effectiveness of any particular diet, there is indeed plenty of evidence to confirm the salubrious effect of caloric restriction. Needless to say, this does mean starving oneself, but rather trying to curb one's caloric intake. From the perspective of evolution, eating too much and moving too little are new phenomena that human bodies have not had the time to adjust to and benefit from. In order to help our bodies, we really do not need to keep looking for new diets. We simply need to eat less. ■