

The Benefits and Burdens of Meat Consumption: A Historical Analysis

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INTRODUCTION

Human consumption of meat sits at the intersection of culture and health and has profound bioethical implications. Here, we discuss how meat is interwoven with human history and traditions. We review the varied negative impacts of widespread modern meat consumption on health and the environment. Finally, we address the role that the principle of justice plays in allocating this resource. We argue that reducing meat consumption has health and environmental benefits.

I. Historical Background

Throughout history, some cultures have integrated meat into their traditions, from hunting rituals to religious celebrations to summer barbecues. While intimately connected to the human experience, meat consumption is not without consequences, ranging from increased incidence of chronic illness to environmental degradation. The mass production of meat began in the late 17th century as the rise of globalization led to widespread trade of goods, including meat products. While the sale and distribution of meat grew rapidly throughout the 18th century, it was not until 1818 that Elisha Mills opened the first mass-production plant to process pork. The advances made during the Industrial Revolution led to substantial technological improvements and greater efficiencies in meat processing and packing. During the 19th century, meat-packing plants flooded the United States, and eventually, meat became a staple grocery item for many Americans. While consumers enjoyed plentiful access to meat, skeptics such as Upton Sinclair detailed the horrors of the meat-packing industry and the associated health threats to the consumer. This new awareness resulted in the institution of federal regulations and a new era of quality control. Although meat safety has improved over the years, both human health and the environment remain profoundly affected by the externalities associated with meat consumption.¹

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While mass production of meat is a relatively new phenomenon, regular yet limited meat consumption was an essential component of human evolution. Historians characterize the diets of hunter-gatherer tribes as varied and highly nutritious foods, including meat, fruits, vegetables, nuts, and whole grains. Anthropologists studying extant tribes have noticed significantly lower rates of heart disease, diabetes, and cancer, among other chronic illnesses when compared to populations with Western diets. In contrast, as agriculture has expanded and flourished, people have become increasingly dependent on the food and cattle produced by farmers. They were less inclined to eat the highly nutritious and varied meals their ancestors did. This shift in diet has led to periodontal disease, novel infections and parasites from cattle, iron deficiencies, and other health challenges. As communities adopt Western diets, rates of obesity, hypertension, and diabetes rise.²

II. A Global Health Crisis

A global human health crisis has resulted from excessive meat consumption and its health impacts. Recent research has found that the ten-year mortality risk for meat consumers increased by over a third and by almost 50 percent for those who consumed excessive quantities of red meat. Other analyses demonstrated the relationship between meat consumption and colorectal cancer. Oncologists have noticed an increased incidence of colorectal cancer and a shift in the age demographic most impacted by it. In one study, consumption of more than two ounces per day of processed meat correlated with an 18 percent increased risk of colorectal cancer.³ These adverse impacts on human health highlight the systemic complications that arise from meat consumption and the human cost.

III. Environmental Degradation

In addition to impacting human health, these dietary changes have contributed to environmental degradation. Humans conducted animal farming at a staggering scale: in 1961, the world had a standing population of 4.4 billion chickens, a number that increased to 37 billion chickens in 2020. Livestock far outnumbers humans, with a standing population of roughly 46 billion today.⁴ Deriving immense quantities of protein from animal sources consumes similarly large amounts of resources. In doing so, rearing animals for meat encroaches upon several planetary boundaries, defined as “boundaries within which we expect that humanity can operate safely,” and includes limits on global freshwater use, land-system change, and climate change.⁵ Producing just 1,000 calories of beef consumes an estimated 1,600 liters of water, requires the occupation of an estimated 147 square meters of land for an entire year, and releases 10 kilograms of CO₂ equivalent.⁶ Additionally, beef production consumes land that farmers could use to produce other protein sources, such as vegetables and grains. Such strains on planetary boundaries and excessive use of environmental resources to produce protein is not sustainable, especially as the global population continues to expand.

The United States has one of the highest rates of meat consumption, with the average American consuming over 250 pounds of meat per year.⁷ If the global population consumed meat at this rate, there would be a devastating impact on both global health and planetary boundaries. Protein sources should be viewed as a health resource, as proper protein intake is vital to human health. If over-consuming communities such as the US decreased their intake of meat, the health of both over-consumers and those with limited access to dietary protein and meat would greatly benefit.⁸

IV. Ethical Analysis

Since food is a limited resource, ethicists and physicians should approach conversations regarding meat through the lens of justice. The principle of distributive justice demands that “the benefits and burdens” of meat be “fair, equitable, and appropriate.”⁹ Currently, marginalized communities bear the environmental burdens of meat-heavy diets, while not always having access to the benefits. Encroachments upon planetary boundaries caused by meat production and poor health outcomes due to excessive consumption disproportionately impact the most disadvantaged communities. If we, as ethicists, are to encourage equitable distribution of resources around the world, we must also limit the distribution of harm. Though we do not always abide by or apply utilitarian perspectives, in crisis we often adopt a harm reducing principle and work to maximize good and pleasure. When balancing the benefits and burdens of meat consumption, it is vital that we choose a path forward that produces the greatest good or pleasure for the greatest number of people. Utilitarian philosopher Peter Singer, an advocate for animal rights and vegan diets, argues that decreasing meat consumption is “a means toward reducing both human and animal suffering, and leaving a more habitable planet for future generations.”¹⁰ By drastically decreasing the number of cattle, fish, and birds killed and consumed every year, we limit greenhouse gas emissions and create a more sustainable environment—a benefit not only for ourselves, but also for subsequent generations. As we limit human intake of meat and improve the environment, we decrease the acute and chronic disease burden among the population. It is essential to approach discussions regarding meat consumption with an appreciation of both the benefits and burdens to create equitable and health-conscious meat policy that maximizes benefits for the greatest number of people.

CONCLUSION

Meat consumption is causing a crisis in human health and hurting the environment. While meat is often attached to cultural celebrations and daily traditions, decreasing meat consumption and directing land use to more efficient, healthy food production would help both human health and the environment. Excessive consumption of animal protein negatively impacts public health both directly and indirectly through climate change, environmental degradation, and pollution. Current innovations, such as cultured agriculture and plant-based meats, provide promising alternatives, yet these novel technologies face numerous hurdles in widespread global implementation. An ethical and holistic approach to medicine demands that we advocate for the health of humanity through a balanced and climate-conscious approach to diet.

¹ Lisa, Andrew. *History of America's Meat-Processing Industry*. 18 Aug. 2020, <https://stacker.com/stories/4402/history-americas-meat-processing-industry>.

² Gibbons, Ann, and Matthieu Paley. “The Evolution of Diet.” *National Geographic*, <https://www.nationalgeographic.com/foodfeatures/evolution-of-diet/>.

³ Battaglia Richi E, Baumer B, Conrad B, Darioli R, Schmid A, Keller U. Health Risks Associated with Meat Consumption: A Review of Epidemiological Studies. *Int J Vitam Nutr Res*. 2015;85(1-2):70-8. doi: 10.1024/0300-9831/a000224. PMID: 26780279.

⁴ Chure, Griffin, et al. “Anthroponumbers.org: A Quantitative Database of Human Impacts on Planet Earth.” 2022, <https://doi.org/10.1101/2022.03.04.483053>.

⁵ Rockström, J., Steffen, W., Noone, K. et al. A safe operating space for humanity. *Nature* **461**, 472–475 (2009). <https://doi.org/10.1038/461472a>

⁶ Chure, Griffin, et al. “Anthroponumbers.org: A Quantitative Database of Human Impacts on Planet Earth.” 2022, <https://doi.org/10.1101/2022.03.04.483053>.

⁷ Kuck, G. and G. Schnitkey. "An Overview of Meat Consumption in the United States." *farmdoc daily* (11):76, Department of Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign, May 12, 2021.

⁸ Watts, Nick, et al. "The 2020 Report of The Lancet Countdown on Health and Climate Change: Responding to Converging Crises." *The Lancet*, vol. 397, no. 10269, 2021, doi:10.1016/s0140-6736(20)32290-x.

⁹ Beauchamp, Tom L., and James F. Childress. *Principles of Biomedical Ethics*. Oxford University Press, 2009.

¹⁰ Singer, Peter. *Ethics in the Real World*. Princeton University Press, 2016.