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Conceptual Paper

# Meat: Nutritional Facts and Human Health

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Meat has exerted a crucial role in human evolution and is an important component of a healthy and well balanced diet due to its nutritional richness. Meat and meat products represent a substantial source of energy, protein, and crucial micronutrients. Globally, 795 million people suffer from hunger; 2 billion people suffer from micronutrient deficiencies. According to OECD-FAO Agricultural Outlook 2023-2032, it is expected that global average per capita demand for meat will increase by 2%, from the 2020-2022 base period to 2032. This rise in demand will largely be driven by middle-income countries. Fresh and processed meats provide high biological value proteins and important micronutrients. However, it's worth noting that the current high levels of meat consumption in many nations have faced criticism due to their potential links to health issues like cancer and hypertension, as well as due to their contribution in climate change and other environmental challenges. We can say that the benefits and risks associated with red and processed meat consumption should not necessarily cause dilemmas, if these meats are consumed in moderate amounts as part of balanced diets.

The Food and Agriculture Organization (FAO) of the United Nations (UN) forecasted that the average meat consumption per person per day in 2022 was 118.6 grams. The FAO also forecasted that global meat consumption would increase by 14% by 2030. The consumption of meat varies widely between countries. The top meat-eating countries are US, Australia, Argentina, New Zealand, and Spain. Whereas, compared to developed countries, developing countries consume lesser meat. The average consumption of meat in Africa is around 20 kilograms per person per year. In 2021, around 132.3 million tons of poultry meat were consumed worldwide, making it the most consumed type of meat globally. Pork was the second most consumed meat worldwide, followed by beef and veal. WHO has proposed a Recommended Dietary Allowance (RDA) of protein as 0.8g per kg body weight or 0.36 g per pound. This recommended intake of protein can be met sufficiently by a balance of both animal-based as well as plant-based protein. Animal sourced foods such as meat, egg, sea food contain higher as well as more balanced quantities of amino acids than plant source. The 2030 Agenda for Sustainable Development, adopted by all United Nations Member States in 2015, have 17 goals out of which the main targets at ending hunger, achieve food, nutrition and health security, and promote sustainable and environment friendly animal agriculture.

Regardless of the future trends in meat consumption, it is crucial to understand the factors that determine the nutritional value of meat and its impact on human health and disease. Meat has played a vital role in human evolution and remains an essential component of a healthy and well-balanced diet due to its nutritional richness. Meat and its various products offer substantial quantities of essential nutrients in higher concentrations compared to many other foods. Meat serves as a valuable source of high-quality protein, iron, vitamin B12, along with other B complex vitamins, zinc, selenium, and phosphorus. The fat content and fatty acid composition of meat depend greatly on factors such as the animal species, feeding habits, and the specific cut of meat.

The significance of poultry meat in human nutrition has been recognized by the Food and Agriculture Organization (FAO), particularly in developing countries where it can help address nutritional deficiencies. Poultry meat is characterized by its variable but moderate energy content, highly digestible proteins with low collagen levels, good nutritional quality, unsaturated lipids, B-group vitamins (such as thiamin, vitamin B6, and pantothenic acid), and essential minerals like iron, zinc, and copper, making it a valuable dietary choice.

Fish meat is also considered a nutritionally valuable part of the human diet, and it is recommended to consume it at least twice a week, primarily due to its high content of long-chain polyunsaturated n-3 fatty acids (Ecosapentanoic acids and decosahexanoic acids). These fatty acids are essential for human nutrition and play various roles in metabolic functions. They exhibit anti-inflammatory effects, reduce platelet aggregation, and are essential components of cell membranes in the cardiovascular system, brain, and nervous tissue, among other functions. Additionally, fish is rich in certain vitamins and minerals like Vitamin D, selenium, phosphorus, and calcium.

The rise in food-related illnesses like cardiovascular disease, diabetes, cancer, and obesity has prompted consumers to seek food products that not only offer nutritional value but also provide functional and health advantages. Peptides derived from meat and fish have demonstrated in vivo antihypertensive effects, as well as antioxidant properties and various other bioactivities such as antimicrobial and antiproliferative effects in vitro. Peptides derived from meat proteins present a promising strategy for preventing, managing, and potentially treating lifestyle-related diseases through controlled dietary choices.

Increasing meat consumption, particularly in developing nations, can contribute to enhancing food security because meat serves as a concentrated source of essential nutrients. Meat consumption is under transition, which may affect its contribution to the supply of some micronutrients and its effect on human health and disease. Understanding the factors that determine the contents of micronutrients in meat and the impact of meat consumption on health and disease is therefore important. Given the pivotal role of meat in the human diet and the projected growth in consumption in the coming years, there should be a concerted effort to improve the availability of meat to the general population while further enhancing its nutritional quality.