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WILL IT BE THE END OF HUMANITY WHEN WE REACH THE WORLD'S FOOD SHORTAGE?

Fabiano de Abreu Rodrigues¹ & Natália Barth¹

¹ Centro de Pesquisas e Análises Heráclito., Francisco de Paula St 526, apt 402 bloco 1. Jacarepagua - Rio de Janeiro – RJ

Email : nataliabarth@gmail.com

ABSTRACT

Food and water are essential for human health and with advances in technology and agriculture, food production has grown around the world. Currently the world population is 7.8 billion and it is estimated that in 2030 the world will reach the mark of 8.5 billion inhabitants and in the year 2050 9.7 billion. Despite appearing to be a slow growth, this population increase can lead to a lack of food for the population. The aim of the present study is to identify whether the abundance of current food production can put humanity at risk when there is not enough food. A bibliographic search was carried out in the PubMed, Scielo and Cinahl databases. With the increase of population in the future, there is likely to be a shortage of food and, if the organism is not adapted to the storage of nutrients due to the excess of abundance and varieties in the present, it may be difficult to obtain the nutrients necessary for the maintenance of life.

Keywords: Food. Economics. Hunger.

Introduction

Feeding is a primordial factor in the daily routine of living beings, being necessary to perform several basic functions of our organism, as well as all its development in an appropriate way (Alammar, Albeesh & Khattab, 2020). Healthy eating directly implies the individual's quality of life. On the other hand, an inadequate diet is related as a risk factor for various pathologies (Chakrabarti, Guha & Majumder, 2018). For a healthy diet it is necessary, that the individual consume a diet rich in water, nutrients, minerals, carbohydrates, lipids, and proteins (Chakrabarti, et al., 2018)

Water plays a very important role in the body acting in the dissolution of reagents, metabolic reactions, degradation of substances, skin hydration, besides being the main component of blood plasma thus acting in the transport of oxygen and nutrients to the cells (Brumfield, 2020). Minerals such as iron, calcium, zinc, copper, magnesium, help in the activation of enzymes, production of hormones, bones, teeth, muscle contraction, among other important functions. Carbohydrates are responsible for the energy reserve for cellular metabolism and lipids act as energy reserve, and in the functionality of some hormones (Dahl, Mendoza & Lambert, 2020).

Proteins have three main functions such as: structural or plastic, catalysis of chemical reactions and defense, besides acting in the growth process of tissues, musculature, organs, and hormones (Dahl, et al., 2020).

Economy and food in abundance

Brazil is one of the major exporters of grains, in addition to meat, soybeans and corn. Demonstrating a 210% increase between 2000 and 2020 (Gandra, 2020). Advances in technology, agriculture and food production have grown worldwide, with the improvement of tractors capable of harvesting a plantation of 180 tons in just 8 hours, thus increasing food production and distribution (Souza, Santos, Andrade & Freitas, 2019).

In the last 50 years, several types of pesticides have been developed capable of controlling the proliferation of pests in plantations thus avoiding the loss of food and fertilizers to accelerate their production (Torquetti, Guimarães & Soto-Blanco, 2021).

Objective

Identify whether the current abundance in food production can lead to the end of humanity when there is not enough food.

Methods

Bibliographic review developed in pubmed and scielo and cinahl databases using the following terms in Portuguese: economy, food, hunger and in English: economic, food, hunger.

Results

Economy and food shortages

Despite the large food production worldwide, the population increase has been growing every year. According to the United Nations (UN), the world growth rate was 1.1% in 2020 (Tallavaara &

Jørgensen, 2021). Currently the world population is 7.8 billion. It is estimated that by 2030 the world reaches the mark of 8.5 billion inhabitants and by 2050 9.7 billion, although it seems a slow growth, may lead to a lack of food for the population (Tallavaara & Jørgensen, 2021).

Between 1845 and 1849 in Ireland there was a great period of famine, leading to a decrease of 20 to 25% of the country's population. This phase began due to a fungus, called *Hytrophthora infestans*, which largely contaminated potato production because a third of Ireland's entire population depended solely on this tuber to survive (Porter, 1998). Thus, dependence on few foods affects both the health and economy of a place.

Inadequate feeding and body changes

The absence of food in a long period for humans generates lack of energy to perform vital activities of the organism, malaise, weakness, and feelings of pain (Davis, 2018). The lack of adequate nutrition generates malnutrition of the body, affecting the immune system, generating a low immunity, which facilitates the individual to become susceptible to diseases (Corish & Bardon, 2019). In addition, hunger can also generate muscle, capillary and fat loss, growth difficulties, anemia, among many other pathologies, causing physical and mental changes that may even lead to death (Corish & Bardon, 2019).

In the past, humans stored essential nutrients for a longer period to suppress moments of lack, something similar to what bears do to stay for a long time without feeding (Zhong, 2019). Over the years, humans have decreased this

capacity, and feeding is currently recommended every 3 hours. Such a change may be due to the body adapting with such abundance of food, nutrient supplementation, and the follow-up of specialized food professionals. Thus, it can be said that the human organism is adapting to this reality of not having storage capacity (Zhong, 2019).

Final considerations

With the evolution of technology and increased availability of food, the human being has lost the instinct of storage, however, the growth of the unbridled world population will cause, in the future, the food is no longer available with such "ease". When it comes to individuals who have conditions and access to food, their bodies have become "hostages" to a balanced diet with small intervals, a fact that leads to an important reflection on a possible food shortage in the future. Are these same individuals able to get the nutrients needed for their body with a more restricted diet at the time of food shortages?

References

Alammar, W. A., Albeesh, F. H., & Khattab, R. Y. (2020). Food and Mood: the Corresponsive Effect. *Current Nutrition Reports*, 1-13.

BRUMFIELD, K.D., Hasan, N.A., Leddy, M.B., Cotruvo, J.A., Rashed, S.M., Colwell, K. D., Hasan, N. A., Leddy, M. B., Cotruvo, J. A., Rashed, S. M., Colwell, R. R., & Huq, A. (2020). A comparative analysis of drinking water employing metagenomics. *Plos one*, 15(4), e0231210.

Chakrabarti, S., Guha, S., & Majumder, K.

(2018). Food-derived bioactive peptides in human health: Challenges and opportunities. *Nutrients*, 10(11), 1738.

Corish, C. A., & Bardon, L. A. (2019). Malnutrition in older adults: Screening and determinants. *Proceedings of the Nutrition Society*, 78(3), 372-379.

Dahl, W. J., Mendoza, D. R., & Lambert, J. M. (2020). Diet, nutrients and the microbiome. *Progress in Molecular Biology and Translational Science*, 171, 237-263.

Davis, J. (2018). Hunger, ghrelin and the gut. *Brain research*, 1693, 154-158.

Gandra, A. (2020). Brazil increases in food exports. Agência Brasil.

Porter, S. (1998). Confronting famine: the case of the Irish Great Hunger. *Nursing inquiry*, 5(2), 112-116.

Souza, T. A. F., Santos, D., de Andrade, L. A., & Freitas, H. (2019). Plant-soil feedback of two legume species in semi-arid Brazil. *Brazilian Journal of Microbiology*, 50(4), 1011-1020.

Tallavaara, M., & Jørgensen, E. K. (2021). Why are population growth rate estimates of past and present hunter-gatherers so different?. *Philosophical Transactions of the Royal Society B*, 376(1816), 20190708.

Torquetti, C. G., Guimarães, A. T. B., & Soto-Blanco, B. (2020). Exposure to pesticides in bats. *Science of the Total Environment*, 142509.

ZHONG, L.X., Li, X.N., Yang, G.Y., Zhang,

X., Li, W.X., Zhang, Q.Q., Pan, H.X., Zhang, H.H., Zhou, M.Y., Wang, Y.D., Zhang, W.W., Hu, Q.S., Zhu, W., Zhang, B. Zhong, L. X., Li, X. N., Yang, G. Y., Zhang, X., Li, W. X., Zhang, Q. Q., ... & Zhang, B. (2019). Circadian misalignment alters insulin sensitivity during the light phase and shifts glucose tolerance rhythms in female mice. *PloS one*, 14(12), e0225813.