

## Factors that influence the choice and consumption of raw foods

### Fatores que influenciam na escolha e no consumo de alimentos crus

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**Abstract:** Eating is a basic activity to obtain energy and nutrition necessary for life. When chewing, food is broken by the teeth and dissolved by saliva. Foodborne illnesses have increased in recent years, greater impact on the health and economy of developing countries than in developed countries. During chewing, you will taste, taste and texture and will help to add a feeling of food. Uncooked foods are an integral component of human nutrition and are a necessary precondition for an intact immune system. Databases such as MEDLINE/Pubmed, Scielo and Google Scholar were consulted. The objective of this work is to expose the advantages and the necessary precautions for the consumption of raw foods by humans. The dangers of consuming raw foods are recognized, since food poisoning is the greatest risk factor for health. Therefore, the present study reveals the factors and safety for the consumption of a raw food.

**Keywords:** raw food, health, microbiology.

**Resumo:** Comer é uma atividade básica para obter energia e nutrição necessárias para a vida. Ao mastigar, o alimento é quebrado pelos dentes e dissolvido pela saliva. As doenças transmitidas por alimentos aumentaram nos últimos anos, com maior impacto na saúde e na economia dos países em desenvolvimento do que nos países desenvolvidos. Durante a mastigação, você terá sabor, sabor e textura e ajudará a adicionar uma sensação de comida. Alimentos não cozidos são um componente integral da nutrição humana e são uma condição prévia necessária para um sistema imunológico intacto. Bancos de dados como MEDLINE / Pubmed, Scielo e Google Scholar foram consultados. O objetivo deste trabalho é expor as vantagens e as precauções necessárias para o consumo de alimentos crus pelos seres humanos. Os perigos do consumo de alimentos crus são reconhecidos, pois a intoxicação alimentar é o maior fator de risco para a saúde, portanto, o presente estudo revela os fatores e a segurança para o consumo de alimentos crus.

**Palavras-chave:** alimentos crus, microbiologia, saúde.

### Introduction

Faced with the scenario of social isolation, imposed on Brazilians during the COVID-19 pandemic, it is necessary to take care more of health and immunity. The production of healthy foods requires the adoption of several procedures that guarantee the quality nutritional and hygienic-sanitary products, preventing the transmission of diseases, many of them lethal to the consumer when not diagnosed and treated in time.

A healthy diet is one that meets all the requirements of the body. Beyond being the source of nutrients, food involves different aspects, such as values cultural, social, affective and sensory. It must be varied, balanced, sufficient, accessible, colorful and safe, being a source of pleasure and cultural and family identity, being able to prevent the appearance of diseases, being essential to promote and maintain health (Dutra & Carvalho, 2013).

Thus, with the worldwide spread of a new pathogen, the Coronavirus SARS-CoV-2, which causes COVID-19 disease (Corona Virus Disease), which besides being representing a major threat to global health, has also been disrupting daily activities of the population, due to the need for social distance advised by the World Health Organization (WHO) in order to slow the spread of the disease (Oliveira et. al., 2020).

This being a factor that has been affecting society in all aspects of life, it is essential in this pandemic period that the reflection on food, with a view to maintaining health, strengthening immune system, in addition to the need to apply hygiene measures to prevent contamination (Brasil, 2020).

One of the biggest problems of the world population today is the deficiency of nutrients. Known as hidden hunger, the nutrient deficiency reaches over 2 billion of people or one in three in the world, thus exceeding both the number of people who only (FAO, 2015).

Currently, raw foods have represented one of the trends latest products for the food market. There are several definitions, however, simplest of them, according to Goldberg, Knoop, and Strook (2000), a food or ingredients foods that can provide a health benefit in addition to the traditional ones nutrients already contained.

The demand for this type of food may be related to the great concern that revolves around the world food scene today, proposed by through public policies on healthier eating, and wanting to seek that aspect of “healthiness” (Camargo Junior, 2007).

Raw food emerged in 1980 in Japan, when the local government launched a program to reduce costs with health insurance and medicines, mainly aimed at the population that was aging prematurely, thus encouraging any methodology that improves life expectancy in these individuals (Berry, 2002).

Population aging, scientific discoveries that show the relationship between diets and diseases, income and the routine of large cities, are trends related to healthy living and well-being. Raw foods gained strength in the face of consumer concerns about good habits and according to Brasil Food Trends 2020 these products formed several niches within the market (FIESP, 2010).

Epidemiological data from the World Health Organization (WHO, 2018), reveal an increase in the number of cases of chronic non-communicable diseases, which are responsible for 72% of deaths in Brazil, affecting the population of all social classes. Consequently, a greater concern with food has been prioritized by the population, leading to adherence to standards that benefit health improvement (Duran, 2004).

Ribeiro (2009), in his article, shows that the use of these food offers an innovation and less demanding form of reward for through the correct choice of food. Consumers who make choice of consuming “raw foods” have the perspective that they can have total autonomy of their own health, in addition to providing an impression positive and modern of themselves.

## **Material and methods**

Databases such as MEDLINE/Pubmed, Scielo, and Google Scholar were consulted.

## **Results and discussion**

According to the National Environmental Health Association (2020), there is no evidence of that food represents a public health risk in relation to COVID-19, for its part main mode of transmission to be considered from person to person. In addition to it, European Food Safety Authority (EFSA) emphasized that, so far, there is no evidence of any type of contamination through the consumption of cooked food or raw (EFESA, 2020).

However, the deficiency or inadequacy of nutritional status is associated with impaired immune function, contributing to increased morbidity and mortality from infections, as well as its good performance favors defenses in prevention or recovery from infections (Larbi, Cexus, & Bosco, 2018).

Another important factor is that the establishment of social isolation can influence the purchasing behavior and food consumption. In an attempt to protect itself against possible shortages, the population tends to buy more processed foods and / or ultra-processed, which are less perishable, practical, more accessible, and sometimes less expensive than fresh food. However, access to a balanced diet is essential to cope with the disease. Food security must therefore be one of the issues immediate health and hygiene (Oliveira, Abranches, & Lana, 2020).

### **Immunological Aspects**

Strengthening the immune system to help combat infection, and is a necessary measure for recovery after contagion is more efficient and causes less possible damage to health. For this, it is important to use nutrition and good life habits as allies. So, to combat this Coronavirus pandemic that is plaguing our society, it is necessary or reinforcement of immunity through a diet healthy.

### **Microbiological hazards**

The World Health Organization (WHO) has encouraged campaigns to encourage the consumption of vegetables and fruits. These foods are important for the composition of a healthy diet, a low energy density and rich in micronutrients, fibers and other fundamental elements to the organism (Fernandes et al., 2002).

Mesophilic bacteria have broad growth, with a range of temperature from 20 ° C to 50 ° C, with optimum in the range of 25 ° C to 40 ° C (Silva et al., 2010). These bacteria are used as bioindicators of health quality, useful for assessing the conditions of the raw material, the efficiency of the technological procedures, hygienic conditions during processing, the sanitary conditions of the equipment and utensils, in addition to the storage and distribution (FAO, 2009). Brazilian legislation does not establish limits for these bacteria in foods. However, the literature reports that counts above 10<sup>7</sup>CFU/g are indicative of hygienic-sanitary failures (Paula et al., 2003).

Approximately half of the cases recorded in outbreaks of gastroenteritis from eating raw vegetables. The foods most often involved are lettuce, tomatoes, melons and fresh green sprouts (Hoffman, 2001). In Brazil, Salmonella was found in samples from several vegetables such as lettuce, endive, arugula and watercress (Santarém, Giuffrida, & Chesine, 2012).

### Hygiene and raw food preservation

The scarcity of studies in Brazil with standardized methodology that investigate food handling practices in households is still a obstacle in the planning of public health actions aimed at health education of the community (Leite et al., 2009). The relationship between reported hygiene practices and observed can bring knowledge about hygienic-sanitary conditions handling food at home, in order to contribute to the development of planning educational actions for the population.

According to Fischer and Guimarães (2002), the perception of risk influences the individual's behavior and the degree of precaution in situations that may cause damage. In this way, in order to modify behavior and incorporate actions that provide security, it is necessary to that the individual has an adequate perception of the risk (Germano, 2003).

### Conclusion

Our literature review showed that raw foods can be used as a food alternative as well as being a good source of quality proteins, vitamins, minerals and antioxidants, and for therapeutic options for the low-income population in countries. However, for this use to be safe, further studies are needed necessary to show microbiological safety and proper handling making them safe for human consumption.

### References

- Berry, C. 2002. Functional foods. *QJM: An International Journal of Medicine*, 95(9), 639-640.
- Brasil. 2020. Associação Brasileira de Nutrição (ASBRAN). *Guia para uma alimentação saudável em tempos de Covid-19*. 2020. Disponível em: <https://www.asbran.org.br/storage/downloads/files/2020/03/guia-alimentar-covid-19.pdf>. Acesso em: 19. jul. 2020.
- Camargo Junior, K. R. D. (2007). As armadilhas da "concepção positiva de saúde". *PHYSIS: Revista de Saúde Coletiva*, 17, 63-76.
- Duran, E. C. M. 2004. Capacidade para o trabalho entre alho entre trabalhadores de enfermagem do pronto-socorro de um hospital universitário. *Revista Latino-americana de Enfermagem*, 12(1), 43-49.
- Dutra, S. E., & Carvalho, B. M. K. 2013. *Alimentação saudável e sustentável*. Cuiabá, MT: Universidade Federal de Mato Grosso.
- European Food Safety Authority [EFESA]. 2020. *Coronavirus: no evidence that food is a source or transmission route*. 2020. Disponível em: <https://www.efsa.europa.eu/en/news/coronavirus-no-evidence-food-source-ortransmission-route>. Acesso: 19. Jul. 2020
- Federação das Indústrias do Estado de São Paulo [FIESP]. 2010. *Departamento de Agronegócio. O peso dos tributos sobre os alimentos no Brasil*. São Paulo, SP: FIESP.
- Fernandes, A. A., Martinez, H. E. P., Pereira, P. R. G., & Fonseca, M. C. M. 2002. Produtividade, acúmulo de nitrato e estado nutricional de cultivares de alface, em hidropônia, em função de fontes de nutrientes. *Revista Horticultura Brasileira, Brasília*, 20(2), 195-200.
- Fischer, D., Guimarães, L., & Schaeffer, C. 2002. Percepção de Risco e Perigo: Um Estudo Qualitativo no Setor de Energia Elétrica. In: *Encontro Nacional de Engenharia da Produção (ENEGEP)*, 22, 2002, Curitiba, PR.

- Food and Agriculture Organization [FAO]. 2015. Ending malnutrition: from commitment to action. Rome. IT: FAO.
- Germano, M. I. S. 2003. Treinamento de Manipuladores de Alimentos: fator de segurança alimentar e promoção da saúde. São Paulo, SP: Livraria Varela.
- Goldberg, R. A., Knoop, C., Strook, L. M. 2000. Promise of Functional Foods. *Harvard Business School Cases*, 1-15.
- Hoffman, L. F. 2001. Fatores limitantes à proliferação de microorganismos em alimentos. *Revista Brasil Alimentos*, 3(9), 23-30.
- Larbi, A., Cexus, O., & Bosco, N. 2018. Nutrition as a tool to reverse immunosenescence? In: S. Chatterjee, W. Jungraithmayr, & D. Bagchi. *Immunity and Inflammation in Health and Disease*. Houston, TX: Academic Press.
- Leite, L. H. M., Machado, P. A. N., Vasconcellos, A. L. R., & Carvalho, I. M. 2009. Boas práticas de higiene e conservação de alimentos em cozinhas residenciais de usuários do Programa Saúde da Família - Lapa. *Revista de Ciências Médicas*, 18(2), 81-88, 2009.
- National Environmental Health Association [NEHA]. 2020. Disponível em: [neha.org](http://neha.org). Acesso: 19 jul. 2020.
- Oliveira, W. K., Duarte E., França, G. V. A., Garcia, L.P. 2020. Como o Brasil pode deter o COVID-19. *Epidemiologia e Serviços de Saúde*, 29(2), e2020044.
- Oliveira. C. T., Abranches, M. V., & Lana, R. M. 2020. Food (in)security in the context of the SARS-CoV-2 pandemic. *Cadernos de Saúde Pública*, 36(4), e00055220.
- Paula, R. P., Tortora, J. C. O., Uchoa, C. M. A., & Rarage, S. 2003. Contaminação microbiológica e parasitológica em alfaces (*Lactuca sativa*) de restaurante selfservice, de Niterói, RJ. *Revista da Sociedade Brasileira de Medicina Tropical*, Rio de Janeiro, 36(4), 535-537.
- Ribeiro, N. S., Werneck, L. C., Silva, S. C, Oliveira, C. G. 2009. Pesquisa de mercado no município de Muriaé (MG) sobre o conhecimento do consumidor a respeito de alimentos funcionais. *Revista Científica da Faminas*, 5(1), 77-84.
- Santarém, A. V., Giuffrida, R., & Chesine, F. A. P. 2012. Contaminação de hortaliças por endoparasitas e *Salmonella* spp. em Presidente Prudente, São Paulo, Brasil. *Revista Colloquium Agraria*, 8(1), 18- 25.
- Silva, M. A., Marvulo, M. F. V., Mota, R. A., & Silva, J. C.R. 2010. A importância da ordem Ciconiiformes na cadeia epidemiológica de *Salmonella* spp. para a saúde pública e a conservação da diversidade biológica. *Pesquisa Veterinária Brasileira*, 30(7), 573-580.

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