

Amino acid in junk food

Jiya Khan^{1*}

UG Student, Department of Biotechnology, GD Rungta College of Science and Technology, Bhilai,

Chhattisgarh

Corresponding author- jiyaahmed32@gmail.com

Introduction

The word amino acids come from German word Aminosäure. The amino acids made of acid are biological molecular that make up proteins. Proteins are macromolecules or large molecules that are essential for living things. Although more than 300 to 500 different structures of amino acids are present at nature but we basically only read 20 are common. The simplest amino acid is called glycine which is present in ice cream due to excess present of glycine can cause diabetes and low sugar levels. Junk food are rich in carbs and fats. Junk food are also deficient in amino acids such as tryptophan that play a major role in preventing depression. Many authors defined that abuse fast food as food stress and in people who often consume fast food stress become chronic. On analysing survey data of students of Orenburg university sure that frequent frequency of consumption of fast food and semi finished products average from 1.6 times a day to 3.4 times a week which is harmful for human body one of the popular snack instant noodles contains low amount of protein and does not contain some essential amino acids such as lysine, threonine and methionine on eating daily base of instant noodles can cause many changes in pattern of blood and increase in weight. So instead of eating junk food a person should choose a homemade food.

History

The first few amino acids were discovered in the early 1800s. In 1806 French chemists Louis-Nicolas Vauquelin and Pierre Jean Robiquet isolated a compound from asparagus which is first amino acid to be discovered. Later Emil Fischer and Franz Hofmeister found the proteins made from amino acids. The 20 common amino acids were discovered by William Cummings Rose at 1935 where first amino acid discovered is threonine. Cysteine was discovered at 1884. The first industrial production of amino acids is at 1908. The glycine isolated from protein gelatin about 1802 to 1950s.



Definition

Amino acids are organic compounds that serve as the fundamental building blocks of proteins in living organisms. These molecules contain both amino ($-NH_2$) and carboxyl ($-COOH$) functional groups, along with a side chain specific to each type of amino acid. Amino acids are essential for various biological processes, including the synthesis of proteins, enzymes, hormones, and neurotransmitters. They play a crucial role in supporting cell structure, function, and repair, as well as facilitating the transport and storage of nutrients. Amino acids are classified into three main types: essential, non-essential, and conditional, based on the body's ability to produce them. The balance and availability of these amino acids are critical for maintaining optimal health and functionality within the human body.

Types of amino acids

Amino acids play a crucial role in maintaining health, and their types can be broadly categorized into essential, non-essential, and conditional amino acids. Essential amino acids are those that the body cannot produce on its own and must be obtained through diet. There are nine essential amino acids,

including histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine. Non-essential amino acids, on the other hand, are synthesized within the body, and individuals do not need to rely on dietary sources for them. These include alanine, arginine, asparagine, aspartic acid, cysteine, glutamic acid, glutamine, glycine, proline, serine, and tyrosine. Conditional amino acids are typically non-essential but become essential in certain situations, such as illness or stress. These include arginine, cysteine, glutamine, tyrosine, ornithine, proline, and serine. Understanding the different types of amino acids is vital for maintaining a balanced and healthy diet, as they serve as the building blocks of proteins and play essential roles in various physiological processes in the body.

Amount of amino acid present in junk food

<i>Parameters</i>	Meat pie	Doughnut	Moye drink	Cake	Cv %
Lysine	24.1	35.8	22.6	29.7	21.4
Histidine	16.2	24.1	11.7	22.4	30.7
Arginine	43.2	39.7	8.2	41.5	8.5
Methionine	7.5	12.8	7.7	11.0	26.4
Threonine	17.4	20.4	17.1	23.0	14.3
Isoleucine	25.7	26.7	26.3	31.6	10.0
Valine	26.0	33.2	35.6	26.5	15.9
Leucine	32 .6	44.3	43.0	41.2	13.1
Phenylalanime	26.2	25.9	42.6	30.5	25.0
X ² C	-	-	-	38.5	-
X ² T	-	-	-	36.4	-

Causes of disease due to junk food

Consuming junk food has been linked to various health issues, and the causes of diseases associated with its intake are multifaceted. One primary factor is the high levels of saturated and trans fats, as well as excessive amounts of sugar and salt found in most junk food. Regular consumption of these elements can contribute to conditions such as obesity, cardiovascular diseases, and hypertension. Additionally, junk food often lacks essential nutrients, vitamins, and minerals necessary for overall well-being, leading to nutritional deficiencies and weakened immune systems.

Another noteworthy aspect is the impact of amino acids in junk food. While amino acids are essential building blocks for proteins, the source and balance of these compounds matter significantly. Junk food typically contains imbalanced amino acid profiles, with an excess of

certain types and a deficiency of others. This imbalance can disrupt the body's protein synthesis and regulation processes, potentially contributing to muscle weakness, impaired organ function, and compromised metabolic activities. Furthermore, the excessive intake of certain amino acids, such as glutamate, commonly found in processed foods, has been associated with adverse effects on neurological health, including headaches and potential links to neurodegenerative diseases. In summary, the causes of diseases related to junk food are closely tied to its nutritional content, including imbalances in amino acids, which can have profound implications for overall health.



Life without junk food

Embracing a life without junk food can bring about profound positive changes in both physical health and overall well-being. One notable benefit is the improvement in nutritional intake. Instead of relying on processed and nutritionally deficient options, individuals can focus on consuming whole, nutrient-dense foods such as fruits, vegetables, whole grains, and lean proteins. This shift provides a rich array of vitamins, minerals, antioxidants, and essential nutrients, promoting better immune function, increased energy levels, and enhanced cognitive performance.

Moreover, a life without junk food often translates into better weight management and a reduced risk of chronic diseases. By eliminating the excess calories, unhealthy fats, and refined sugars commonly found in junk food, individuals can maintain a healthier weight and mitigate the risk of conditions like obesity, diabetes, and cardiovascular diseases. This lifestyle change can also positively impact mental health, as nutrient-rich foods support the production of neurotransmitters and hormones that contribute to mood regulation and mental clarity. Overall, a junk food-free existence offers a pathway to sustained health, vitality, and a decreased likelihood of developing preventable health issues.

Conclusion

In conclusion, opting for a life without junk food is a transformative choice with far-reaching benefits for physical and mental well-being. By prioritizing nutrient-dense foods over processed and unhealthy options, individuals can fortify their bodies with essential vitamins and minerals, fostering improved immune function and sustained energy levels. Furthermore, steering clear of the pitfalls associated with excessive calories, unhealthy fats, and sugars often found in junk food can contribute to better weight management and a reduced risk of chronic diseases. This lifestyle change not only enhances physical health but also positively influences mental well-being, creating a harmonious balance that promotes overall vitality. While the temptation of convenient but nutritionally lacking options may persist, the long-term advantages of embracing a junk food-free existence underscore the importance of investing in one's health for a fuller and more vibrant life.

Reference

- 1.Hou Y, Yin Y, Wu G. Dietary essentiality of “nutritionally non-essential amino acids” for animals and humans. *Exp Biol Med* (Maywood). 2015 Aug;240(8):997-1007. [PMC free article] [PubMed]

- 2.Hou Y, Wu G. Nutritionally Essential Amino Acids. *Adv Nutr.* 2018 Nov 01;9(6):849-851. [PMC free article] [PubMed]
- 3.Reeds PJ. Dispensable and indispensable amino acids for humans. *J Nutr.* 2000 Jul;130(7):1835S-40S. [PubMed]
- 4.Le DT, Chu HD, Le NQ. Improving Nutritional Quality of Plant Proteins Through Genetic Engineering. *Curr Genomics.* 2016 Jun;17(3):220-9. [PMC free article] [PubMed]
- 5.Hoffman JR, Falvo MJ. Protein – Which is Best? *J Sports Sci Med.* 2004 Sep;3(3):118-30. [PMC free article] [PubMed]
- 6.Jood S, Kapoor AC, Singh R. Amino acid composition and chemical evaluation of protein quality of cereals as affected by insect infestation. *Plant Foods Hum Nutr.* 1995 Sep;48(2):159-67. [PubMed]
- 7.LaPelusa A, Kaushik R. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Nov 14, 2022. Physiology, Proteins. [PubMed]
- 8.Wu G. Amino acids: metabolism, functions, and nutrition. *Amino Acids.* 2009 May;37(1):1-17. [PubMed]
- 9.De Koning TJ. Amino acid synthesis deficiencies. *Handb Clin Neurol.* 2013;113:1775-83. [PubMed]
- 10.Guedes RL, Prosdocimi F, Fernandes GR, Moura LK, Ribeiro HA, Ortega JM. Amino acids biosynthesis and nitrogen assimilation pathways: a great genomic deletion during eukaryotes evolution. *BMC Genomics.* 2011 Dec 22;12 Suppl 4(Suppl 4):S2. [PMC free article] [PubMed]
- 11.D'Souza G, Waschina S, Pande S, Bohl K, Kaleta C, Kost C. Less is more: selective advantages can explain the prevalent loss of biosynthetic genes in bacteria. *Evolution.* 2014 Sep;68(9):2559-70. [PubMed]
- 12.Shigenobu S, Watanabe H, Hattori M, Sakaki Y, Ishikawa H. Genome sequence of the endocellular bacterial symbiont of aphids *Buchnera* sp. *APS. Nature.* 2000 Sep 07;407(6800):81-6. [PubMed]

13.ROSE WC. The amino acid requirements of adult man. Nutr Abstr Rev. 1957 Jul;27(3):631-47.
[PubMed]

14.Benjamin O, Lappin SL. StatPearls [Internet]. StatPearls Publishing; Treasure Island (FL): Jul 17, 2023. Kwashiorko

Its better to avoid butter than regretting later.....

