

# AMINO ACID IN JUNK FOOD

## Abstract

This study investigates the presence and impact of amino acids in junk food, focusing on their nutritional composition and health implications. Amino acids are essential building blocks of proteins, yet their abundance and quality in junk food may vary significantly. Analyzing popular junk food items reveals diverse amino acid profiles, often characterized by imbalances and deficiencies. Moreover, excessive consumption of junk food high in certain amino acids, such as glutamate and aspartate, may contribute to adverse health effects, including metabolic disorders and neurodegenerative diseases. Strategies for mitigating amino acid-related health risks associated with junk food consumption are discussed, highlighting the importance of dietary awareness and balanced nutrition.

**Keywords:** Amino acids, Junk food, Nutrition, Health, Protein, Glutamate, Aspartate, Metabolic disorders, Neurodegenerative diseases, Dietary awareness

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## I. INTRODUCTION

In other words, it's crucial to be mindful of our dietary choices, especially when it comes to consuming junk food. Amino acids, the building blocks of proteins, are essential for our health, and while there are hundreds of different types in nature, our bodies primarily rely on 20 common ones. Neglecting these essential nutrients, as often occurs in diets high in junk food, can have serious consequences for our well-being. For instance, junk food tends to be lacking in important amino acids like tryptophan, which plays a role in mood regulation and can help prevent depression. Additionally, the overconsumption of certain ingredients found in junk food, such as glycine, can contribute to health issues like diabetes and fluctuating sugar levels. Research, like the survey conducted at Orenburg University, highlights the alarming frequency with which people indulge in fast food and processed snacks, which can lead to chronic stress and negative health outcomes. Instant noodles, a popular convenience food, are particularly concerning due to their low protein content and lack of essential amino acids like lysine, threonine, and methionine. Regular consumption of such products can disrupt blood patterns and lead to weight gain. Therefore, instead of relying on junk food, it's advisable to prioritize homemade meals that provide a balanced mix of nutrients, including essential amino acids. By making healthier dietary choices, we can better support our overall well-being and mitigate the risks associated with excessive consumption of processed foods.

## II. HISTORY

While Louis-Nicolas Vauquelin and Pierre Jean Robiquet were indeed French chemists who made significant contributions to the field of chemistry, they did not isolate amino acids from asparagus in 1806. The isolation of the first amino acid from asparagus didn't occur until much later. The first amino acid to be discovered was asparagine, which was isolated from asparagus juice by the French chemist, Louis-Nicolas Vauquelin, and his assistant, Pierre Jean Robiquet, in 1806. Asparagine was named after asparagus because it was first identified in this vegetable. It's important to note that while asparagine was the first amino acid to be discovered, the full understanding of amino acids and their role in proteins and biochemistry developed gradually over the 19th and 20th centuries through the work of many scientists. which is first amino acids to discovered. Later Emil Fischer and Franz Hofmeister found the proteins made from amino acids. The 20 common amino acids discovered by William Cummings Rose at 1935 where Frist amino acid discovered is therionie. Cystine discovered at 1884. The Frist industrial production of amino acids is at 1908.

### 1. Definition

Amino acids are organic compounds that serve as the building blocks of proteins. They contain both amino ( $-NH_2$ ) and carboxyl ( $-COOH$ ) functional groups, along with a side chain specific to each amino acid. There are 20 standard amino acids that are commonly found in proteins, each differing in their side chain structure, size, and chemical properties. These amino acids link together through peptide bonds to form polypeptide chains, which then fold into specific three-dimensional structures to create functional proteins. Amino acids play vital roles in various biological processes, including enzyme catalysis, cell signaling, and structural support within cells and tissues. Additionally, some amino acids are considered essential, meaning they cannot be synthesized by the body and must be obtained from dietary sources.

## 2. Types of Amino Acids

Amino acids are fundamental to maintaining overall health, as they serve as the building blocks of proteins and participate in numerous physiological processes in the body. They can be broadly classified into three categories: essential, non-essential, and conditional amino acids.

Essential amino acids are those that the body cannot synthesize on its own and must be obtained from dietary sources. There are nine essential amino acids: histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine. These amino acids play critical roles in protein synthesis, metabolism, and various other bodily functions. Non-essential amino acids are synthesized by the body, so dietary intake is not necessary. However, they are still crucial for maintaining health and supporting physiological processes. Examples of non-essential amino acids include alanine, arginine, asparagine, aspartic acid, cysteine, glutamic acid, glutamine, glycine, proline, serine, and tyrosine. Conditional amino acids are typically non-essential but may become essential in specific situations, such as illness, stress, or during periods of rapid growth. These amino acids include arginine, cysteine, glutamine, tyrosine, ornithine, proline, and serine. In these circumstances, the body's demand for these amino acids may exceed its ability to produce them, necessitating dietary intake or supplementation. Understanding the roles and sources of different types of amino acids is crucial for maintaining a balanced and healthy diet, supporting optimal bodily functions, and promoting overall well-being.

## 3. Amount of Amino Acid Present in Junk Food

<i>Parameters</i>	Meat pie	Doughnut	Moyedrink	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
Phenylalanine	26.2	25.9	42.6	30.5	25.0
X <sup>2</sup> C	-	-	-	38.5	-
X <sup>2</sup> T	-	-	-	36.4	-

## 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.

## **5. 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.

## **III. 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.

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