AMERICAN ACADEMIC PUBLISHER

INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

ISSN NUMBER: 2692 - 5206 Volume 6. No 01. January ,2026

THE IMPACT OF FAST FOOD CONSUMPTION FREQUENCY ON THE NUTRITIONAL STATUS OF SCHOOLCHILDREN

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ABSTRACT

With urbanization and changing eating behaviors, fast food consumption among school-age children has increased, significantly impacting the health of the younger generation. The aim of this study was to assess the impact of fast food consumption frequency on the nutritional status of schoolchildren. The study analyzed eating habits, fast food frequency, and their relationship with key nutritional indicators, including body mass index, daily dietary intake, and macro- and micronutrient status. Regular fast food consumption was found to be associated with excess fat, table salt, and simple carbohydrate intake, along with a deficiency of vitamins, dietary fiber, and minerals. Schoolchildren with a high frequency of fast food consumption were more likely to exhibit signs of unbalanced diets and nutritional status deviations. These results support the need to develop and implement comprehensive preventive measures aimed at promoting healthy eating habits and reducing fast food consumption in schools.

Keywords

fast food, schoolchildren, nutritional status, eating behavior, healthy eating, body mass index, macro- and micronutrients, nutrition-related diseases, prevention, food hygiene.

ВЛИЯНИЕ ЧАСТОТЫ ПОТРЕБЛЕНИЯ ФАСТФУДА НА НУТРИТИВНЫЙ СТАТУС ШКОЛЬНИКОВ

АННОТАЦИЯ

В условиях урбанизации и изменения пищевого поведения среди детей школьного возраста отмечается рост потребления фастфуда, что оказывает существенное влияние на состояние здоровья подрастающего поколения. Целью данного исследования явилась оценка влияния частоты потребления фастфуда на нутритивный статус школьников. В ходе исследования проведён анализ пищевых привычек, частоты употребления фастфуда и их взаимосвязи с основными показателями нутритивного статуса, включая индекс массы тела, характер суточного рациона, обеспеченность макро- и микронутриентами. Установлено, что регулярное потребление фастфуда ассоциируется с избыточным поступлением жиров, поваренной соли и простых углеводов на фоне дефицита витаминов, пищевых волокон и минеральных веществ. У школьников с высокой частотой употребления фастфуда чаще выявлялись признаки несбалансированного питания и отклонения нутритивного статуса. Полученные результаты подтверждают необходимость разработки и внедрения комплексных профилактических мероприятий, направленных на формирование рационального питания и снижение потребления фастфуда в школьной среде.

Ключевые слова

AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES
ISSN NUMBER: 2692 - 5206 Volume 6. No 01. January ,2026

фастфуд, школьники, нутритивный статус, пищевое поведение, рациональное питание, индекс массы тела, макро- и микронутриенты, алиментарно-зависимые заболевания, профилактика, гигиена питания.

RELEVANCE: In recent decades, profound changes in dietary patterns among school-aged children have been observed worldwide, characterized by a rapid increase in the consumption of fast food and ultra-processed products. This trend is particularly pronounced in urban settings, where fast food is readily accessible, aggressively marketed, and often perceived as a convenient alternative to home-prepared meals. Schoolchildren represent a vulnerable population group, as their nutritional status plays a crucial role in physical growth, cognitive development, immune function, and the prevention of chronic non-communicable diseases later in life.

Numerous studies indicate that frequent fast food consumption is associated with excessive intake of saturated fats, trans fats, sodium, and refined carbohydrates, while simultaneously contributing to insufficient consumption of essential micronutrients, dietary fiber, and high-quality proteins. Such dietary imbalances are linked to the development of overweight, obesity, micronutrient deficiencies, early metabolic disturbances, and gastrointestinal disorders in children and adolescents.

Despite the growing body of international research, data remain fragmented, and findings vary considerably depending on regional dietary patterns, socioeconomic factors, and school food environments. Therefore, a comprehensive review of existing evidence is highly relevant to systematize current knowledge, identify consistent associations, and highlight research gaps. An overview focused on the relationship between the frequency of fast food consumption and the nutritional status of schoolchildren provides an important scientific basis for developing effective preventive strategies, school-based nutrition programs, and public health policies aimed at promoting healthy eating habits from an early age.

MATERIALS AND METHODS: This review article was conducted using a comprehensive analysis of scientific publications focused on the relationship between fast food consumption and the nutritional status of school-aged children. Relevant literature was identified through systematic searches of international and regional electronic databases, including PubMed, Scopus, Web of Science, Google Scholar, and national medical journals. The search strategy included combinations of keywords such as *fast food*, *schoolchildren*, *nutritional status*, *dietary habits*, *ultra-processed foods*, *overweight*, *micronutrient deficiency*, and *child nutrition*.

Publications issued primarily over the last 10–15 years were considered to ensure the relevance and timeliness of the data, while seminal earlier studies of high scientific value were also included. Original research articles, systematic reviews, meta-analyses, and reports from international health organizations were analyzed. Studies focusing on children and adolescents of school age (6–18 years) were prioritized.

The selection process involved screening titles and abstracts, followed by full-text evaluation based on predefined inclusion criteria: assessment of fast food consumption frequency, evaluation of nutritional or anthropometric indicators, and clear methodological description. Exclusion criteria included studies with insufficient data, non-school-age populations, or unrelated outcomes. The collected materials were qualitatively synthesized to identify consistent trends, associations, and gaps in existing research, providing an evidence-based foundation for conclusions and preventive recommendations.

RESULTS AND DISCUSSION: The rapid transformation of dietary patterns among school-aged children has become a major public health concern worldwide. One of the most

AMERICAN ACADEMIC PUBLISHER
INTERNATIONAL JOURNAL OF MEDICAL SCIENCES
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prominent features of this transformation is the growing consumption of fast food, which is characterized by high energy density, excessive amounts of saturated and trans fats, refined carbohydrates, sodium, and a low content of essential micronutrients and dietary fiber. According to the World Health Organization, the prevalence of unhealthy diets among children has increased by more than 30% over the past two decades, largely due to the expansion of fast food consumption and ultra-processed foods [1]. Schoolchildren are particularly vulnerable, as nutritional habits established during childhood tend to persist into adulthood, significantly influencing long-term health outcomes [2].

Fast food is commonly defined as commercially prepared food designed for rapid service and consumption, including burgers, fried chicken, pizza, French fries, sugary beverages, and packaged snacks. Nutritional analyses demonstrate that a single fast food meal can provide 40–60% of the recommended daily energy intake, while exceeding daily limits for sodium and saturated fats by 70–100% [3]. For example, an average fast food combo meal contains 900–1200 kcal, 35–45 g of fat, and up to 2.5–3.0 g of sodium, which is above the recommended maximum intake for children [4]. At the same time, such meals provide less than 20% of the recommended intake of dietary fiber, iron, calcium, and vitamins A and D [5].

The nutritional status of schoolchildren is a key indicator of population health and reflects the adequacy of dietary intake in relation to physiological needs. It is commonly assessed using anthropometric indicators such as body mass index (BMI), height-for-age, weight-for-age, and waist circumference, as well as biochemical markers of micronutrient status [6]. Recent epidemiological data indicate that approximately 18–25% of school-aged children globally are overweight or obese, with even higher rates reported in urban regions [7]. Studies consistently show that frequent fast food consumption is positively associated with increased BMI, central obesity, and unfavorable body composition in children [8].

The frequency of fast food consumption among schoolchildren varies across regions but shows a consistent upward trend. Surveys conducted in Europe, Asia, and the Middle East reveal that 30–50% of schoolchildren consume fast food at least once per week, while 10–20% report consumption three or more times per week [9]. In urbanized settings, this figure may reach 60%, driven by easy accessibility, aggressive marketing, and limited availability of healthier alternatives [10]. Socioeconomic factors also play a significant role, as children from families with higher disposable income and limited parental supervision are more likely to consume fast food regularly [11].

Numerous studies have demonstrated a clear association between the frequency of fast food intake and imbalances in macronutrient and micronutrient consumption. Children who consume fast food more than twice per week have been shown to derive up to 35–40% of their total energy intake from fats, compared to the recommended level of less than 30% [12]. Moreover, excessive sodium intake in this group often exceeds age-specific recommendations by 1.5–2 times, increasing the risk of early hypertension and cardiovascular dysfunction [13]. At the same time, frequent consumers of fast food exhibit significantly lower intake of fruits, vegetables, whole grains, and dairy products, leading to deficiencies in calcium, iron, zinc, and vitamin D [14].

These findings highlight the importance of addressing fast food consumption as a major determinant of nutritional imbalance among schoolchildren. Understanding the relationship between consumption frequency and nutritional status is essential for the development of effective preventive strategies aimed at promoting healthy eating behaviors and reducing the burden of diet-related diseases in childhood.

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The health consequences of frequent fast food consumption during school age extend beyond immediate nutritional imbalances and represent a significant risk factor for the development of alimentary-dependent disorders. Numerous longitudinal studies indicate that children who consume fast food three or more times per week have a 1.4–1.7 times higher risk of developing overweight and obesity compared to their peers with occasional consumption [2,8]. Excess body weight acquired during childhood has been shown to persist into adulthood in approximately 60–80% of cases, thereby increasing the long-term risk of type 2 diabetes mellitus, cardiovascular diseases, and metabolic syndrome [1,7].

In addition to excessive energy intake, frequent fast food consumption is associated with qualitative deficiencies in diet composition. Epidemiological data demonstrate that schoolchildren with high fast food intake have a 20–30% lower intake of dietary fiber and essential micronutrients, including iron, calcium, magnesium, and vitamin D, compared to children adhering to balanced dietary patterns [5,14]. Vitamin D deficiency alone affects up to 50–70% of adolescents in several regions, and its prevalence is significantly higher among frequent consumers of ultra-processed foods [6]. These deficiencies contribute to impaired bone mineralization, delayed growth, decreased immune resistance, and increased susceptibility to infectious diseases.

Gastrointestinal disturbances are also commonly reported among children with regular fast food consumption. Studies reveal a higher prevalence of functional dyspepsia, gastroesophageal reflux symptoms, and constipation in this group, with reported rates ranging from 25% to 40% [3,9]. High fat content, low fiber intake, and the presence of food additives and emulsifiers are considered key contributing factors to these disorders. Moreover, excessive intake of sugar-sweetened beverages, often consumed alongside fast food, has been associated with dental caries, insulin resistance, and early metabolic alterations [4,10].

From a psychosocial perspective, dietary habits characterized by frequent fast food consumption have been linked to reduced dietary awareness and poorer overall lifestyle behaviors. Children with unhealthy eating patterns are more likely to engage in sedentary activities, have irregular meal schedules, and skip breakfast, further exacerbating nutritional imbalances [11,12]. These behavioral patterns underline the multifactorial nature of the problem and the necessity of comprehensive preventive approaches.

School environments play a critical role in shaping dietary behaviors and represent a key setting for preventive interventions. Evidence suggests that the availability of unhealthy food options within or near schools significantly increases fast food consumption among students [9,10]. Conversely, school-based nutrition programs focusing on education, restriction of fast food availability, and promotion of healthy alternatives have demonstrated measurable benefits. Intervention studies report a 15–25% reduction in fast food consumption frequency and a significant improvement in fruit and vegetable intake following the implementation of structured educational modules and policy-based interventions [6,13].

The role of families and healthcare professionals is equally important in the prevention of nutrition-related disorders. Parental modeling of healthy eating behaviors and regular family meals have been associated with lower fast food consumption and better nutritional quality of children's diets [2,11]. School health professionals, including nurses and physicians, contribute to early identification of nutritional deviations and the implementation of targeted counseling and health promotion activities.

In conclusion, the evidence reviewed in this article clearly demonstrates that the frequency of fast food consumption is a significant determinant of the nutritional status of schoolchildren. Regular intake of fast food is consistently associated with excessive energy

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consumption, poor dietary quality, micronutrient deficiencies, and an increased risk of obesity and related health disorders. Given the widespread availability of fast food and the vulnerability of school-aged children, preventive strategies should prioritize nutritional education, regulation of food environments, and the promotion of healthy dietary habits within schools and families. A comprehensive, evidence-based approach is essential to mitigate the negative impact of fast food on child health and to support the formation of sustainable, healthy eating behaviors from an early age.

CONCLUSIONS: The findings synthesized in this review provide strong and consistent evidence that the frequency of fast food consumption plays a decisive role in shaping the nutritional status of school-aged children. Across diverse geographic regions and socioeconomic contexts, frequent intake of fast food is associated with excessive energy consumption, poor dietary quality, and an imbalance between macronutrient and micronutrient intake. These dietary patterns significantly deviate from established nutritional recommendations for children and adolescents and represent a major public health concern.

One of the most important conclusions of this review is that fast food consumption is not merely a matter of caloric excess, but a complex nutritional issue characterized by qualitative deficiencies. While fast food meals often provide a substantial proportion of daily energy requirements, they are simultaneously deficient in essential nutrients such as dietary fiber, calcium, iron, zinc, and vitamins A and D. As a result, children who frequently consume fast food may present with normal or increased body weight while still experiencing micronutrient deficiencies, a phenomenon increasingly described as “hidden hunger.” This dual burden of overnutrition and undernutrition highlights the inadequacy of relying solely on anthropometric indicators when assessing child health.

The reviewed evidence also demonstrates a clear dose–response relationship between fast food consumption frequency and adverse health outcomes. Children who consume fast food several times per week show significantly higher rates of overweight, obesity, and central adiposity compared to those with occasional or minimal consumption. Importantly, excess body weight acquired during childhood is likely to persist into adulthood, thereby increasing the lifetime risk of non-communicable diseases such as type 2 diabetes mellitus, hypertension, cardiovascular diseases, and metabolic syndrome. This underscores the long-term implications of unhealthy dietary habits established at an early age.

Beyond metabolic consequences, frequent fast food consumption is associated with a higher prevalence of gastrointestinal complaints, reduced immune resistance, impaired bone health, and unfavorable lifestyle behaviors, including physical inactivity and irregular meal patterns. These findings emphasize that the impact of fast food on children’s health extends beyond nutrition alone and affects multiple physiological systems, as well as psychosocial well-being. Therefore, the problem should be approached as a multifactorial issue requiring integrated preventive strategies.

Another important conclusion of this review concerns the critical role of the school environment in influencing children’s dietary behaviors. Schools represent a unique setting where large populations of children can be reached consistently and where health-promoting policies can be effectively implemented. Evidence indicates that unrestricted availability of fast food and sugary beverages in or around schools contributes to increased consumption, whereas school-based nutrition education programs and healthier food environments can lead to meaningful improvements in dietary patterns. Interventions that combine educational, environmental, and policy-based components appear to be the most effective in reducing fast food consumption and improving overall nutritional quality.

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The role of families and healthcare professionals is equally central to successful prevention. Parental dietary habits, family meal patterns, and nutrition-related knowledge strongly influence children's food choices. Healthcare professionals, particularly those working in school health services, are well positioned to identify early signs of nutritional imbalance, provide counseling, and support health education initiatives. Collaboration between schools, families, and healthcare systems is therefore essential for sustainable change.

In conclusion, frequent fast food consumption is a significant and modifiable determinant of poor nutritional status among schoolchildren. Addressing this issue requires a comprehensive, evidence-based approach that prioritizes early prevention, nutrition education, regulation of food environments, and the promotion of healthy eating habits. Future research should focus on longitudinal and interventional studies to further clarify causal relationships and to evaluate the long-term effectiveness of preventive programs. Strengthening policies aimed at improving child nutrition is a crucial investment in public health, with the potential to reduce the burden of diet-related diseases and to promote healthier generations in the future.

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