

## Foreword

## Multifaceted Interventions for Enhancing Nutritional Status Among Chinese Children and Adolescents

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Childhood and adolescence represent crucial periods for growth and development, as well as the establishment of healthy behaviors. Maintaining a balanced diet and engaging in sufficient physical activity can contribute to optimizing physical fitness and promoting healthy growth. In recent years, the Chinese government has initiated a series of monitoring and evaluation efforts focused on the nutritional and health status of children and adolescents. Consequently, comprehensive policies, regulations, and initiatives have been implemented to support the healthy growth of children.

### Nutrition and Health Status

A comprehensive evaluation of children and adolescents' nutrition and health status can provide scientific evidence for formulating related national policies. As such, children and adolescents have been an essential focus in the six national nutrition and health surveys conducted in China in 1959, 1982, 1992, 2002, 2010, and 2015. Analyzing a series of data reveals that since the reform and opening up more than 40 years ago, the nutritional status of children has significantly improved in both urban and rural areas in China. This improvement is evidenced by the gradual increase in the average height and weight levels of boys and girls across various age groups (1–2). For example, the average height of 9-year-old boys increased from 122.0 cm in 1982 (1) to 138.2 cm in 2017 (2), reflecting an increase of 16.2 cm. Concurrently, children in China also face a growing prevalence of overweight and obesity. According to the China Nutrition and Health System Survey and Application for Children Aged 0–18 Years conducted from 2019 to 2021, the prevalence of overweight and obesity among Chinese children aged 6–17 years was 26.5% (3), representing a considerable increase from the rates in 2017 (19.0%) (2) and 2012 (16.0%) (4). Consequently, Chinese children and adolescents continue to confront multiple health challenges, including malnutrition, overweight and obesity, and micronutrient deficiencies.

### Nutrition Policies and Regulations

In recent years, the Chinese government has implemented numerous policies, regulations, and standard guidelines to promote the healthy development of children and adolescents. In 2016, the State Council introduced the Healthy China 2030 Blueprint, which emphasized the importance of providing guidance on nutrition and health programs in primary and secondary schools (5). In 2019, a total of 15 Healthy China Initiatives (2019–2030) were launched to strengthen multi-departmental efforts aimed at improving health promotion, balanced diet, and physical activity in schools (6). Additionally, the Basic Medical and Health Promotion Law of the People's Republic of China, enacted in 2019, legally mandated nutritional improvement initiatives for juveniles, promoting healthy eating behaviors, and minimizing the risk of diseases associated with unhealthy diets (7).

Subsequently, various policies and standards have been established to address the issues of undernutrition and obesity among children and adolescents in China. These include the National Nutrition Plan (2017–2030) in 2017 (8), the Implementation Plan for Obesity Prevention and Control in Children and Adolescents in 2020 (9), the School Food Safety and Nutrition Health Management Regulations in 2019 (10), the Opinions on Comprehensively Strengthening and Improving School Hygiene and Health Education in the New Era in 2021 (11), and the Health Industry Standard Nutrition Guidelines for Student Meal (WS/T 554-2017) (12). These policies and guidelines aim to provide work goals and specific actions in areas such as reasonable food supply, nutrition education, health monitoring, and social environment to improve the overall health of Chinese children and adolescents.

## Student Nutrition Improvement Plan

In an effort to combat malnutrition among children and adolescents in primary and secondary schools located in economically disadvantaged rural areas, the Chinese government initiated the Nutrition Improvement Program for Rural Compulsory Education Students (hereafter referred to as the “Program”) in 2011 (13). This program, funded by the Chinese central finance, offers nutritional meal subsidies to rural compulsory education students (aged 6–15 years) in national pilot counties situated in the central and western regions of the country. Initially, each student received a subsidy of 3 Chinese Yuan (CNY) per school day (200 days annually), which was increased to 4 CNY in 2014 and further raised to 5 CNY in 2021.

As of 2021, the Program encompassed over 36 million students across more than 120,000 schools in 727 national pilot counties and 1,010 local pilot counties within 28 provincial-level administrative divisions. The Chinese central finance allocated approximately 26 billion CNY toward nutritional meal subsidy funds in 2021 (14).

According to the results from the nutrition and health monitoring and evaluation conducted by the Chinese Center for Disease Control and Prevention, there has been a steady increase in the average height and weight of children aged 6–15 years in economically underdeveloped rural areas within central and western regions of China since the implementation of the Program. Furthermore, the prevalence of anemia in this demographic has decreased from 16.7% in 2012 to 12.0% in 2021 (15). The improvement in nutrition for children and adolescents promoting growth potential, enhancing disease resistance, and improving physical fitness and learning ability. This also affirms the positive social benefits associated with the adoption of national strategies for nutrition improvement. However, the prevalence of overweight and obesity has silently increased in recent years. Concurrently, public health awareness has been heightened. The dietary structure of children and adolescents attending primary and secondary schools is becoming more reasonable, with an increase in their time dedicated to physical activity and sleep.

## Suggestions

Considering the present nutritional and health status of Chinese children, it is essential to reinforce the implementation of policies and regulations concerning childhood obesity prevention and control. Additionally, evaluating the cost-effectiveness of the nutrition improvement plan for rural students is crucial, as is conducting more in-depth scientific researches to identify critical aspects of policies or actions that enhance children’s health. Systematic nutrition and health education should be progressively incorporated into daily teachings and school activities for children and adolescents. This education should focus on promoting knowledge and skills related to balanced meals, healthy eating habits, and sufficient physical activity, ultimately fostering their healthy development.

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## REFERENCES

1. Wang LL. Analysis on the changes of diet and nutritional status among school-age children between 1982 and 2012, in China. Beijing: Chinese Center for Disease Control and Prevention, 2020:84. (In Chinese).
2. National Health Commission of the People’s Republic of China. Report on Chinese residents’ chronic diseases and nutrition (2020). Beijing: People’s Medical Publishing House. 2021. (In Chinese).
3. Zhang Q, Yang ZY, Li RL, Xu T, Zhai Y, Wang YY, et al. National nutrition and health systematic survey for 0-18 years old children in China: study protocol for 6-18 years old children. *J Hyg Res* 2022;51(5):703 – 6. <http://dx.doi.org/10.19813/j.cnki.weishengyanjiu.2022.05.005>. (In Chinese).
4. National Health Commission of the People’s Republic of China. Report on Chinese residents’ chronic diseases and nutrition (2015). Beijing: People’s Medical Publishing House. 2015. (In Chinese).
5. The Communist Party of China Central Committee the State Council. Healthy China 2030 blueprint. 2016. [http://www.gov.cn/xinwen/2016-10/25/content\\_5124174.htm](http://www.gov.cn/xinwen/2016-10/25/content_5124174.htm). [2020-12-23]. (In Chinese).
6. Healthy China Action Promotion Committee. Healthy China initiative (2019–2030). 2019. [http://www.gov.cn/xinwen/2019-07/15/content\\_5409694.htm](http://www.gov.cn/xinwen/2019-07/15/content_5409694.htm). [2020-12-23]. (In Chinese).
7. Basic Medical and Health Promotion Law of the People’s Republic of China. 2019. <https://baike.so.com/doc/28520186-29962745.html>. [2021-4-15]. (In Chinese).

8. General Office of the State Council of the People's Republic of China. Notice of the general office of the state council on issuing the national nutrition plan (2017-2030). 2017. [http://www.gov.cn/zhengce/content/2017-07/13/content\\_5210134.htm](http://www.gov.cn/zhengce/content/2017-07/13/content_5210134.htm). [2017-7-13]. (In Chinese).
9. National Health Commission of the People's Republic of China, Ministry of Education of the People's Republic of China, State Administration for Market Regulation, General Administration of Sport of China, Chinese Communist Youth League, All-China Women's Federation. Implementation plan for obesity prevention and control in children and adolescents. 2020. [http://www.moe.gov.cn/jyb\\_xgk/moe\\_1777/moe\\_1779/202010/t20201026\\_496590.html](http://www.moe.gov.cn/jyb_xgk/moe_1777/moe_1779/202010/t20201026_496590.html). [2020-10-16]. (In Chinese).
10. Ministry of Education of the People's Republic of China, State Administration for Market Regulation, National Health Commission of the People's Republic of China. Provisions on the Administration of school food safety and nutrition and health. 2019. [https://www.gov.cn/zhengce/2021-06/28/content\\_5723604.htm](https://www.gov.cn/zhengce/2021-06/28/content_5723604.htm). [2021-6-28]. (In Chinese).
11. Ministry of Education of the People's Republic of China, National Development and Reform Commission, Ministry of Finance of the People's Republic of China, National Health Commission of the People's Republic of China, State Administration for Market Regulation. Opinions of the Ministry of Education and other five departments on comprehensively strengthening and improving school hygiene and health education in the new era. 2021. [http://www.moe.gov.cn/srcsite/A17/moe\\_943/moe\\_946/202108/t20210824\\_553917.html](http://www.moe.gov.cn/srcsite/A17/moe_943/moe_946/202108/t20210824_553917.html). [2021-8-24]. (In Chinese).
12. National Health and Family Planning Commission of the People's Republic of China. WS/T 554-2017 Nutrition guidelines of school meals. Beijing: Standards Press of China, 2017. (In Chinese).
13. Ministry of Education of the People's Republic of China. Nutrition improvement program for rural compulsory education students. 2012. [http://www.moe.gov.cn/jyb\\_xwfb/moe\\_2082/s6236/s6811/201209/t20120903\\_141502.html](http://www.moe.gov.cn/jyb_xwfb/moe_2082/s6236/s6811/201209/t20120903_141502.html). [2012-9-3]. (In Chinese).
14. Ministry of Finance of the People's Republic of China. The Ministry of Finance allocating 26.034 billion CNY to support the improvement of the nutritional status of rural students. 2021. [https://www.gov.cn/xinwen/2021-09/30/content\\_5640573.htm](https://www.gov.cn/xinwen/2021-09/30/content_5640573.htm). [2021-9-30]. (In Chinese).
15. Wu Y. The nutrition improvement program has benefited 350 million rural students (forging ahead on a new journey and making contributions in a new era · extraordinary decade). People's Daily. 2022 Oct 9;01. [http://paper.people.com.cn/rmrb/html/2022-10/09/nw.D110000renmrb\\_20221009\\_2-01.htm](http://paper.people.com.cn/rmrb/html/2022-10/09/nw.D110000renmrb_20221009_2-01.htm). (In Chinese).