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Fortification,  
Benefit the People and the Nation

**April 2012**





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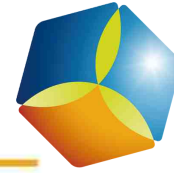
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# China National Nutrition and Health Status Report

12th Oct. 2004





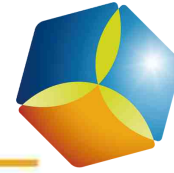
The nutrition and health issues can not be ignored.

(A) The dietary structure of urban residents is not rational. The meat category and fat consumption are excessive, while cereal food consumption is low.

(B) Some nutritional deficiency are still exist. Child malnutrition in rural areas is still serious.

Iron (Fe), Vitamin A and other micronutrient deficiencies are common problems of urban and rural residents. The average prevalence of anemia of Chinese resident is 15.2%; The prevalence of marginal vitamin A deficiency was 45.1%, among which in the urban areas it was 29.0% and in the rural areas the figure was 49.6%. Urban and rural calcium intake is only 391 milligrams which equivalent to 41% of the recommended intake.

(C) Chronic non-communicable diseases prevalence is rising rapidly



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# Micronutrient deficiencies exist in both urban and rural areas



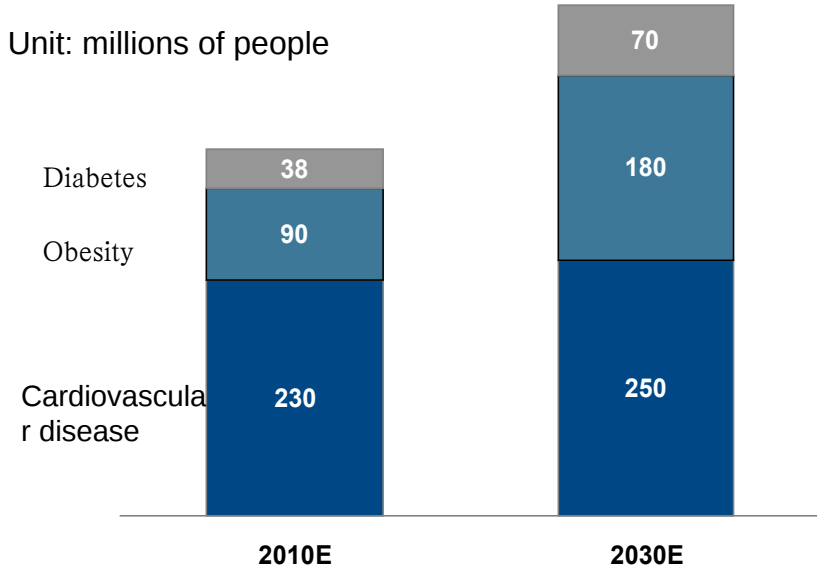
The 13-year-old urban and rural boys and girls height contrast (cm), 2002

The forecast number of Chinese residents who may suffering the nutrition-related diseases (2010-2030)

Urban      Rural      Urban      Rural



Unit: millions of people



Source: WHO, the Chinese Ministry of Health, and interviews of experts

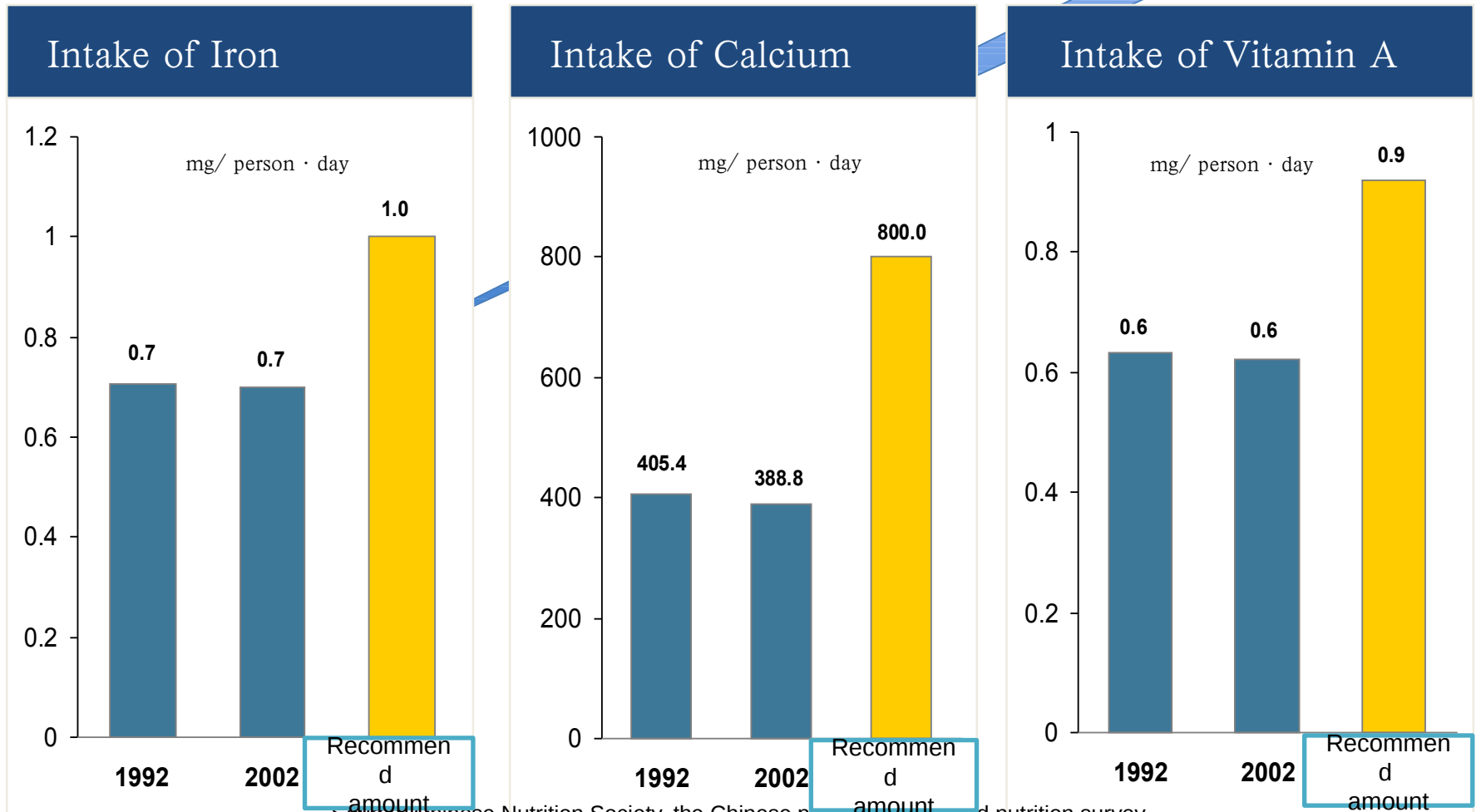
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The deficiency of iron, calcium and vitamin A intaking is a major factor that affecting the Chinese residents' health



The prevalence of marginal vitamin A deficiency was 45.1%.



Source: Chinese Nutrition Society, the Chinese people's health and nutrition survey

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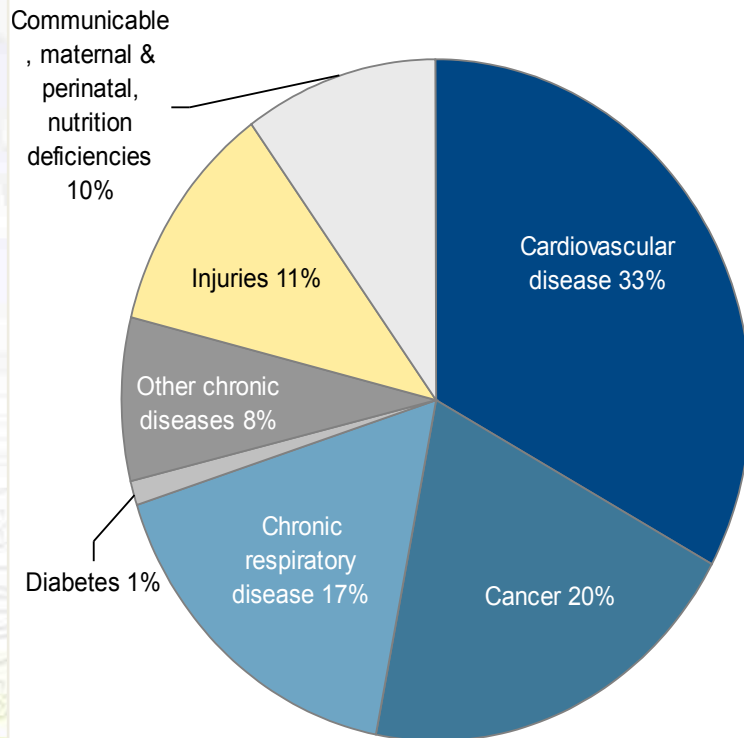
Note: The recommended amount released by the Chinese Nutrition Society

# Diet can play a key role in the control of chronic diseases



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The expect factors of death of all age groups in China  
(2005 Total = 7.5 million)



Chronic diseases are the leading cause of death (approximately 80% of total)

## Comments

- WHO has forecasted, in China during 2006-2015: More than 8000 million people will die from chronic diseases with the increase of 19%. Deaths from diabetes will increase by 50%.
- The growth of body mass index (overweight and obesity) is an important cause of chronic diseases. It was assumed that 34% of male are overweight in 2005; this figure will increase to 57% in 2015. It was assumed that 30% of male are obesity in 2005; this figure will increase to 46% in 2015.
- The facts above will have a significant economic impact. In 2005, the cost of treatments of heart attack, stroke and cancer in China up to \$ 18 billion. And, it would increase to \$ 558 billion over the next 10 years.
- However, we do have the solutions to face these challenges. At least 80% of the deaths caused by heart disease, stroke and type II diabetes and 40% of cancers could be avoided through healthy diet, regular exercise and smoking cessation alcohol limit.

Sources: WHO

# The lack of micronutrients lead to physical decline



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## Micronutrient functions

- ✓ Assisting the macro-nutrient to digestion, absorption, transport, metabolism
- ✓ Helping the body to produce enzymes, hormones and other active substances
- ✓ Participating in the body of a wide range of biochemical reactions

## The consequences of micronutrient deficiencies

- Reduce the quality of the population in terms of reducing intelligence, physical strength, endurance, and immunity, while increasing risk of illness.
- Affect the quality of life where the medical expenses increasing, the productivity reducing, mobility limited, the chronic disease rate increasing, the age of patients declining, and the happiness index fell.

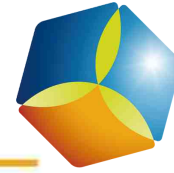
Conclusion: micronutrient deficiencies will directly affect the quality of the population of China!

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# To improve residents' nutrition is an important duty of the government



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## 1992 World Declaration on Nutrition Conference:

It is a major task of some governments and international organizations to improve residents' nutrition level. Some other countries saw nutrition improvement as a national policy.

"The improvement of residents' diet nutrition is the duty of the government."

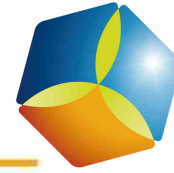
"We firmly promised that we will work together to provide reasonable nutrition for all of the peaceful and safe life on earth."

## 1996 Nutrition Action Plan

We, as the Heads of State and Heads of Government or our representatives, reaffirmed that everyone has rights to access safe and nutritious food.

We guarantee to have the political will to achieve food security for all and the ongoing effort to eradicate hunger in all countries. The short-term goal till 2015 is to reduce the number of undernourished to half the current number.

In the form of legislation, many countries mandatory food fortification in order to ensure the basic nutrition of people

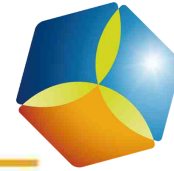


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States	Cereals	Dairy	Oil	Sugar
<b>US, Canada, Mexico</b>	√	√	√	
<b>The Philippines, Guatemala</b>	√	√	√	√
<b>Chile, Colombia, South Africa, Australia, United Kingdom</b>	√		√	
<b>Venezuela</b>	√	√		
<b>Sweden, Denmark, the Netherlands</b>			√	
<b>Saudi Arabia, Argentina</b>	√			
<b>Thailand</b>		√		
<b>Honduras, Costa Rica, Malawi, Nigeria</b>				√
<b>Singapore</b>			√	

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Financial subsidy policy: Since the 1930s, one policy after another to implement the nutrition improvement policies

1, food subsidy policy: subsidies for school lunches

2, the food stamp policy: issuing food coupons to the residents below the poverty line

3, special population groups subsidies: poor children, pregnant women, the women on lactation

Laws and regulations:

National Student Lunch Act: 1946

Public Health Law: 1960

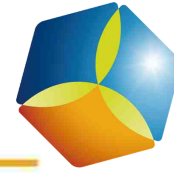
Child Nutrition Act: 1966

National Nutrition Monitoring and Research Methods: 1990

"Women, infants and young children special nutritional supplement plan "," Children's summer food supply planning" and other regulations.

"Dietary Guidelines", former President Bill Clinton personally signed

The government should be the most active advocates and promoters to improve the residents' nutrition



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Government is the largest and the ultimate beneficiaries of the national nutrition improvement:

- The improvement of residents' physical quality can enhance the image of the country, reduce medical expenditures, increase the national labor productivity and improved competitiveness.
- National nutrition improvement has a strong positive externalities are public goods, the Government should be the provision of public goods

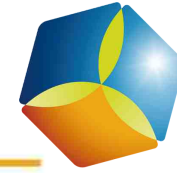
Government's duty:

- To develop the relevant laws and regulations: The completion of the fortification program, and promotion strategies
- To provide the policy support: Submit proposal, government procurement, poverty alleviation etc.
- To provide tax or financial support: welfare vouchers, subsidies to producers and disable groups subsidies
- Compulsory in the key groups: Students, the military, kindergartens
- Global experience: government intervention is the method with better effect but the lower the cost.

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# Three methods to improve residents' nutrition level



Methods	Advantages	Disadvantages
<p><b>Nutritional supplements</b> e.g., multi-vitamin capsules, ferrous fumarate</p>	<ul style="list-style-type: none"> <li>· Works in short period</li> <li>· The effect is significant</li> </ul>	<ul style="list-style-type: none"> <li>• High cost</li> <li>• Difficult to do in long-term</li> <li>• The cover groups are small</li> <li>• Has risk of excess supplementation</li> </ul>
<p><b>Improve the diet</b> Keep food diversity; eating more fruits, vegetables and crude fiber foods; eating more foods which have less processing of foods (brown rice, whole wheat flour)</p>	<ul style="list-style-type: none"> <li>· Low cost, good effect, no side effects</li> <li>· Accordance with modern science and philosophy of life</li> </ul>	<ul style="list-style-type: none"> <li>• Be limited by follow factors: income, geography, climate, eating habits, food culture and eating the traditional constraints</li> </ul>
<p><b>Fortification foods</b> Artificially added the essential nutrients in the basic foods e.g., salt iodization</p>	<ul style="list-style-type: none"> <li>· The most economical, safest, effective method</li> <li>· Wide audience base, easy to accept, sustainability and good</li> </ul>	<ul style="list-style-type: none"> <li>• Has to increase investment</li> <li>• Difficult on marketing at beginning</li> <li>• Low consumer awareness</li> </ul>



## Choice the Carrier

- ^ High population coverage
- ^ Regular consumption with stable frequency
- ^ Small differences between individual consumers
- ^ Small differences between regions
- ^ The additional supplement only takes 25% of the total amount that a person need each day
- ^ No risk of excessive intake
- ^ No need to vary the diet habits
- ^ No changing of tastes

## Choice the enhancer

- ^ Suits National Conditions
- ^ High Bioavailability
- ^ No effect on the carrier's texture, color and flavor
- ^ Acceptable cost
- ^ Legitimate food-grade nutrients supply
- ^ Colour, solubility and physical compliance requirements
- ^ Good that can be added

## Processing, storage and sales

- ^ **produced** centralized and in mass scale
- ^ Low cost of production technology
- ^ Enhancer and carrier should not be separated
- ^ Nutrient composition stable during the shelf life
- ^ No adverse reactions between the nutrients
- ^ Market factors including appropriate packaging, detailed identity, and high degree of commercialization

# The fortification system in China has been established



Degree	Level	Carrier	Enhancer	Target Group
Weak	National	Salt	Iodine	All the people
		Rice, Flour	Vitamin B1, Vitamin B2, Niacin, Folic acid, Iron, Zinc, Calcium	All the people
	Commercially	Cooking Oil	Vitamin A	All the people
		Soy	Iron	All the people
		Milk powder, Nutrition package	Folic acid, vitamins A, D, B, family, iron, calcium and	Pregnant women, infants, the elderly, etc.
Milk, Cookie, Beverage	Calcium, Zinc, DHA, Selenium, Vitamin C, Vitamin E	Children, the elderly, athletes, etc.		

Legal guarantee has been completed

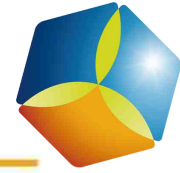
National standards of fortification product has been introduced (GBT)

1) The enhancer amount and carriers have been included in regulations

2) A national fortification program has been completed and achieved good results in many places

3) Channel Management: labels, labeling, detection methods, and oversight mechanisms continue to be improved

# To improve residents'



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ons: nutrition – Act now!

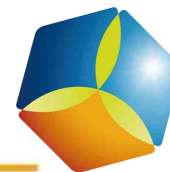
together with the government, to improve the quality of life and promote the scientific concept of healthy living and eating habits to improve their nutrition.

training the scientific concept of healthy living and eating habits to improve their nutrition.

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# Catalogue



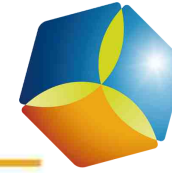
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Residents – The social responsibility that an effective way to improve the level of development with people

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# Home and Canteen are the main places to improve the residents' nutrition and promote the fortified foods



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## Home

### Advantages :

- Most frequently place of having meals
- Sustainability
- Strong motivation and care about the healthy

### Disadvantages :

- Limited by economic and education level of the people who charges cooking
- High costs of publicize the nutrition knowledge

## Public Canteen

### Advantages :

- The people are concentrate in canteen and sources of people are stable
- Low costs of improving nutrition and the results can be observed easily
- The cost of new diet can be accepted base the current economic level
- The publicize the nutrition knowledge is effectiveness

### Disadvantages :

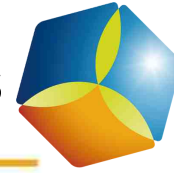
- Limited by economic and education level of the people who charges cooking
- Lack of guide by professional exports
- Have to vary the original supply chain of canteen

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# To improve the nutrition level, 1st Method: Promoting fortified products in public canteens



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## Reasons:

- Food security: the fortified product quality assurance;
- A good role model: education and the impact of family and surrounding;
- Beneficiary population: to achieve sustainable nutrition improvement;
- Ability to pay: an acceptable cost;
- Improve the effect can be observed.

## Mature market conditions:

- Available - the production enterprises producing the fortification food products in big cities or surrounding areas;
- Purchasable – Customers can purchase them from the market;
- Acceptable - the taste, flavor, color, cooking methods and packaging, almost no change;
- Affordable - the cost increase only about 1-5%.

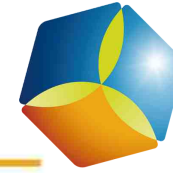
## Consequences:

- Ensuring micronutrient intake of the people dining in canteen: strengthen the capacity of 25-35% of the daily requirements for each;
- Six months later, enable the employees physique improved, e.g. the reduce the rate of anemia, incidence of chronic diseases and age of onset.

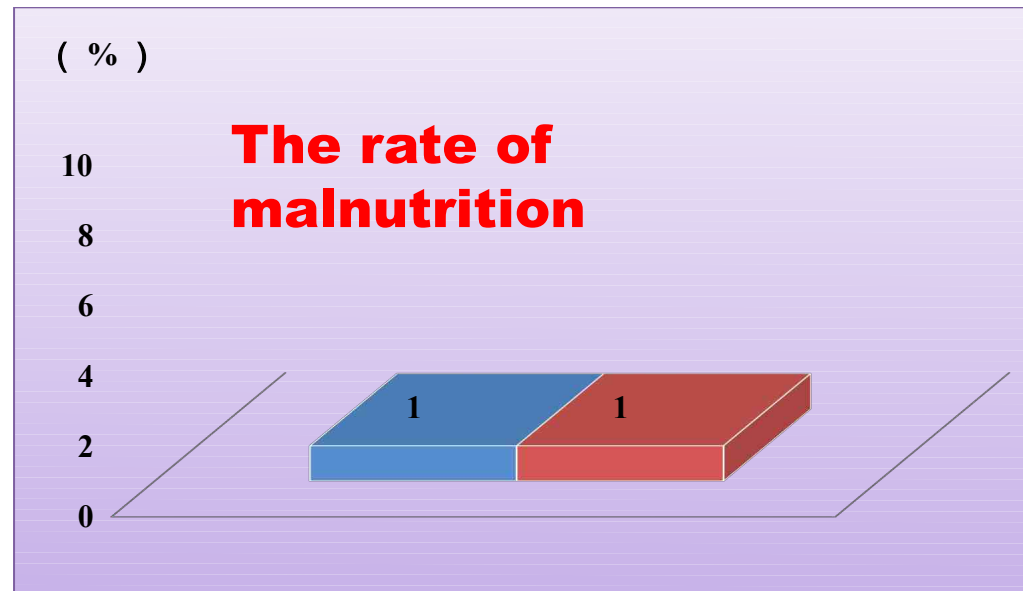
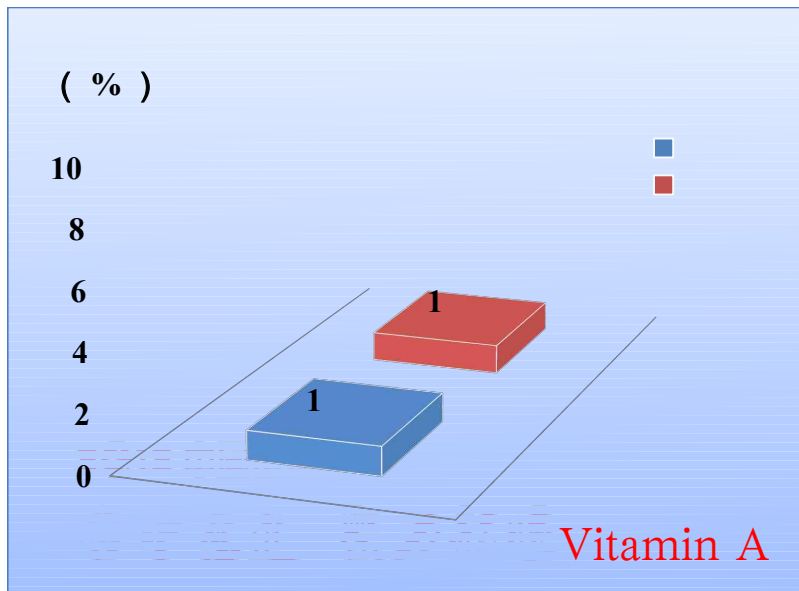
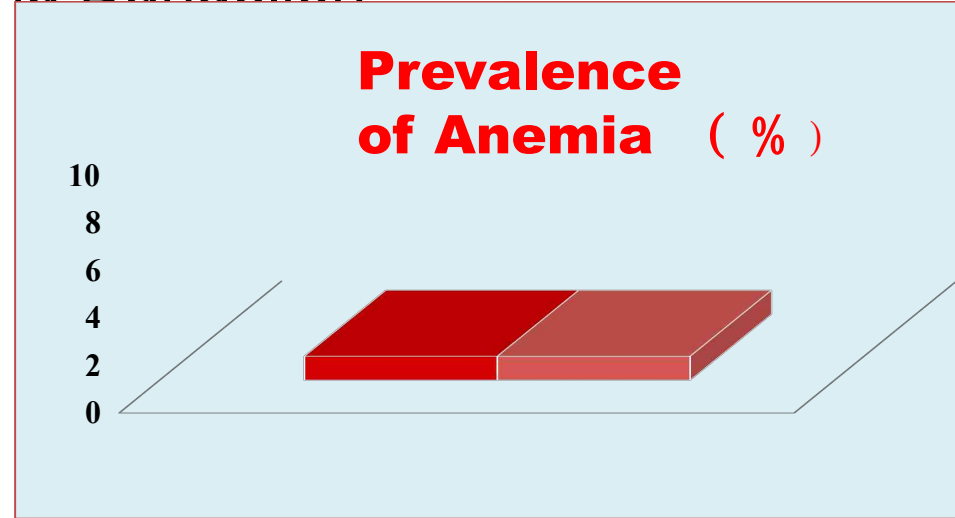
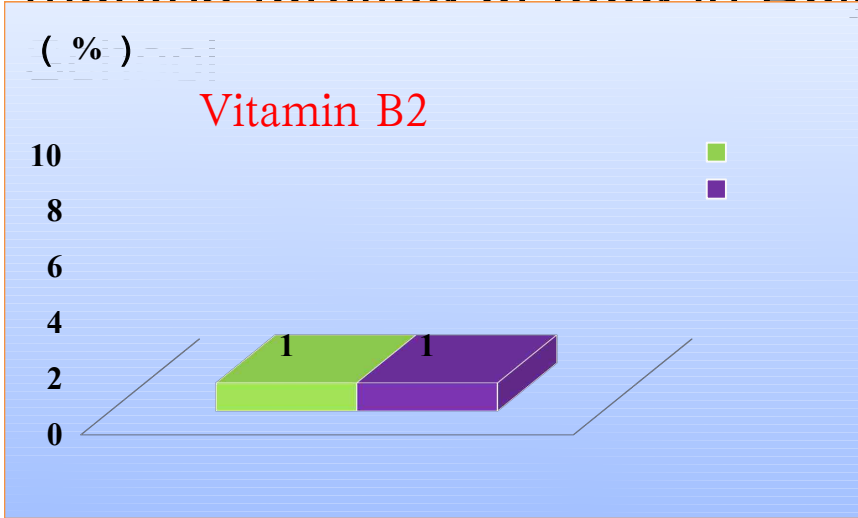
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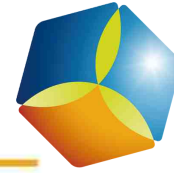
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# Case Study: The effect was significant after 8 months fortified of food in Beijing Dandelion



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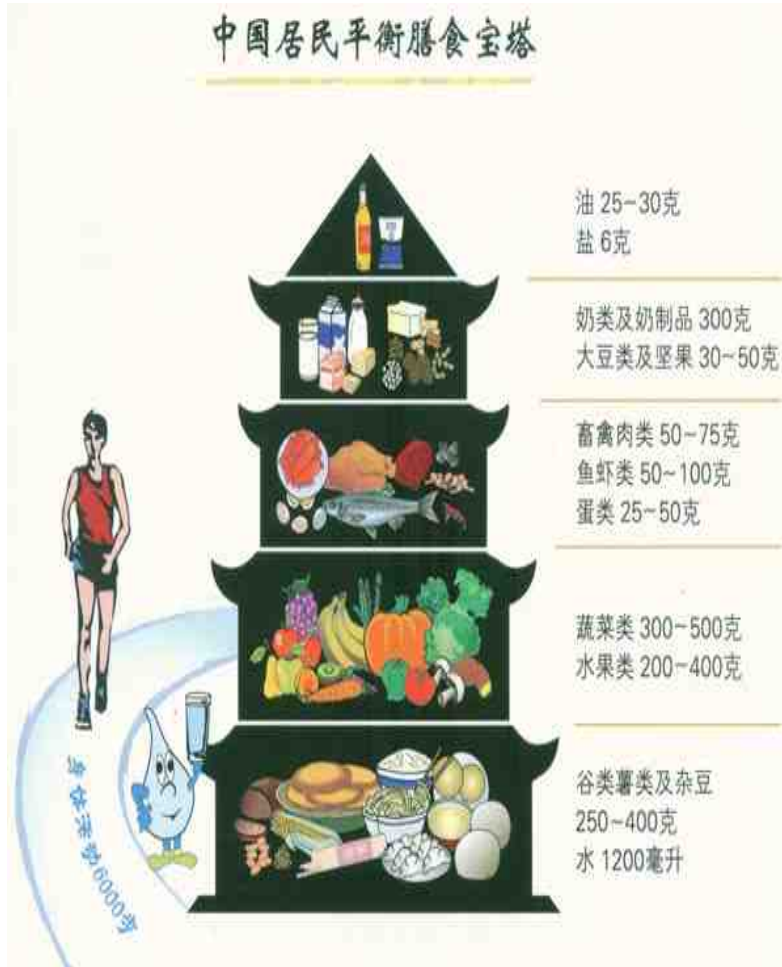
To improve the nutrition level, 2nd Method: Developing the integrated nutrition improvement in public canteen

The choice of fortification is limited by the knowledge, individuals benefits and prices of canteen managers.

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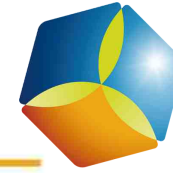
# To improve the nutrition level, 3rd Method: Changing the diet habits



## Chinese dietary guidelines (2007):

- 1, Food variety, mainly cereals
- 2, Eating more fruits and vegetables
- 3, the dairy and soy or their products daily
- 4, eat the right amount of fish, poultry, eggs and lean meat
- 5, reducing the amount of oil and salt
- 6, Doing exercise daily
- 7, Meals allocation must be reasonable
- 8, Drinking sufficient quantities of water
- 9, Things like alcohol should be limited
- 10, Eating fresh and healthy food

Both the opportunities and challenges are exist on the way of implement food fortification



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### Opportunities:

- We have economic bases
- Government has the attention of improve the nutrition
- Citizens has the attention of their own health
- International experience
- Enterprise support

### Challenges:

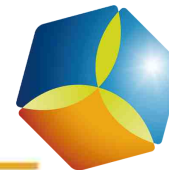
- No strong support by government
- There are a few people do not understand the fortification
- Consumer awareness is low
  - The producers are not enthusiastic about fortification
- Business environment is not mature for fortification foods
- High cost of the initial promotion

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To improve the nutrition of residents  
---- Act now!



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Due to the malnutrition, the physical quality has decline which will lead to the increase of chronic disease rates, medical expenditures, and burden of the national economy. And, the labor productivity will reduce and ultimately lead to national competitiveness decline.

Therefore, to improve the residents' micronutrient level is the responsibilities and obligations of the government, the community and every citizen.

Actions !

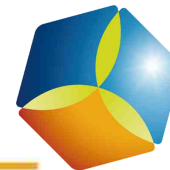
Starting from the young kids!

Starting from the areas where the conditions are ready!

Starting now!

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Thank  
you !

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