

## Sport Nutrition For Young Athletes

As a young athlete, you need to pay special attention to your diet. Two goals need to be met:

1. Adequate energy and nutrient requirements for your daily activity.
2. Adequate energy and nutrient requirements for growth.

## Nutritional Needs For Young Athletes

### Energy

- Adequate energy intake for daily activities and training.
- Extra energy needs to support growth.
- Long-term inadequate energy consumption can result in short stature, delayed puberty, poor bone health and increased risk of injury and developing eating disorders.

### Carbohydrate

- Primary source of fuel for muscle glycogen to supply energy during exercise.
- Providing 55-60% of total energy.

### Protein

- Higher protein requirement to support growth and muscle regeneration.
- Protein containing foods include beef, pork, poultry, egg, tofu, dried beans and milk products.
- Providing 12-15% of total energy.

### Fat

- Fat is a source of energy for endurance exercise.
- High fat diet may compromise carbohydrate intake and affect body composition.
- Overweight athlete should reduce high fat foods intake.
- Providing 25-30% of total energy.

### Iron

- Young athletes are at risk of iron deficiency due to increased iron requirement.
- Female young athletes are prone to low iron store.
- Iron deficiency may result in fatigue and can negatively affect sports performance.
- Please refer to the Sport Nutrition Education Series III "Learn More About Anemia".

### Calcium

- Adequate calcium intake may prevent osteoporosis and stress fracture.
- Female athletes especially those with amenorrhea have decreased bone mineral content and are at higher risk of developing osteoporosis in later life.
- Peak bone mass is reached at the age of 30s.
- Young athletes can reach a higher peak bone mass than sedentary adolescents.

For 11-18 years old adolescents, nutrient requirements are as follows:

Nutrient	Male	Female
Vitamin A	700 – 800 µg	700 µg
Vitamin D	5 µg	5 µg
Vitamin E	10 – 14 mg	10 – 14 mg
Vitamin C	90 – 100 mg	90 – 100 mg
Thiamin	1.2 – 1.5 mg	1.2 – 1.3 mg
Riboflavin	1.2 – 1.5 mg	1.2 mg
Niacin	12 – 15 mg	12 – 13 mg
Vitamin B6	0.9 – 1.2 mg	0.9 – 1.2 mg
Folate	300 – 400 µg	300 – 400 µg
Vitamin B12	1.8 – 2.4 µg	1.8 – 2.4 µg
Calcium	800 – 1000 mg	800 – 1000 mg
Phosphorus	700 – 1000 mg	700 – 1000 mg
Magnesium	350 mg	350 mg
Iron	15 – 20 mg	18 – 25 mg
Zinc	15 – 19 mg	11.5 – 15.5 mg

Reference: Chinese Dietary Reference Intakes (2000)

## Healthy Eating Guidelines For Young Athletes

### 1. Eat a wholesome breakfast. Mix and match with the following:

- a. Carbohydrate foods: whole wheat bread, breakfast cereals, rice noodle or macaroni in soup, plain bread.
- b. Dairy foods: low fat cheese, low fat / skim milk, calcium fortified soy milk, yogurt.
- c. Fruits: orange, apple, banana, pear.
- d. Meats: eat ham, egg occasionally (cook with little or no oil), lean pork, chicken (without skin).
- e. Vegetables: add some vegetables in noodles or sandwiches.

### 2. Eat healthful snacks at school.

- a. Apple or some crackers or some bread.
- b. Soy milk, water, fruit juice, low fat / skim milk.

### 3. Lunch recommendation:

- a. Make carbohydrate the focus of your meal: eat more rice, pasta, noodle, do not just have a big piece of steak or chicken with French fries.
- b. Eat vegetables whenever possible: order green leafy vegetables in Chinese restaurants and mixed vegetables in Western restaurants.

- c. Order foods which are lower in fat. (e.g. grilled pork chop, roast beef, sliced beef or pork, steamed chicken are usually lower in fat); choose tomato-based sauce or soup; choose foods which are not fried; choose fruits as dessert.

### 4. Dinner recommendation:

- a. If not enough fruits and vegetables have been eaten during the day, try to make up at dinner.
- b. Make carbohydrate your focus.
- c. If the meat requirement is met during the day, eat less meat at dinner.
- d. Cook with less oil.

### 5. Timing of meals:

- a. Large meal – finish 4 hours before exercise.
- b. Medium meal – finish 3 hours before exercise.
- c. Small meal – finish 2 hours before exercise.
- d. Light snack – finish 1 hour before exercise.

### 6. Choice of beverage:

- a. Drinking too much soft drink is a common concern among young adolescents. Although soft drinks are not banned from a healthful diet, young athletes should avoid drinking it regularly. Other more nutritious choices are available to replace soft drink, e.g. low fat milk, soy milk, yogurt drinks, pure fruit juice, water etc.

### 7. Choice of snacks:

- a. Snacks which adolescents like to eat are usually high in fat, sodium and sugar, e.g. potato chips, chocolate, ice cream, sweets, chicken wings, sausages etc. Choose more nutritious snacks like small packets of breakfast cereals, bread, fruits, yogurt, steamed corn, low fat biscuits etc.

### 8. Please refer to the Sport Nutrition Education Series II "Guidelines to a Healthful Diet".

## Nutrition Guidelines For Exercise

### Before training or competition:

- a. Eat a small snack if time permits. E.g. sports drink and bread or crackers or a piece of fruit.
- b. Pre-exercise food choice:
  - i. High carbohydrate
  - ii. Low fat
  - iii. Moderate protein
  - iv. Adequate fluid
  - v. Appropriate portions
  - vi. Familiar foods
  - vii. Hygienic

## 年青運動員的健康飲食建議

### 1. 吃一份豐富的早餐。自由搭配下列食物:

- a. 碳水化合物食物：全麥麵包、早餐麥片、湯米粉或湯通粉、白麵包。
- b. 奶類：低脂芝士、低脂/脫脂奶、加鈣豆漿、乳酪。
- c. 水果：橙、蘋果、香蕉、雪梨。
- d. 肉類：間中進食火腿、蛋（煮食時用少量或不加油）、瘦肉、雞肉（去皮）。
- e. 蔬菜：在粉麵或三文治中加些蔬菜。

### 2. 在學校時吃健康的小食:

- a. 水果或餅乾或麵包。
- b. 豆漿、水、果汁、低脂/脫脂奶。

### 3. 午餐建議:

- a. 以碳水化合物食物為主：多吃飯、粉、麵，不要只吃牛扒或雞配薯條。
- b. 盡可能吃蔬菜：在中式食肆選綠葉菜，在西式食肆選雜菜。
- c. 選較低脂肪的食物（如：烤豬扒、燒牛肉、肉片、蒸雞通常較低脂肪）；選蕃茄汁或湯；不選炸的食物；選水果作甜品。

### 4. 晚餐建議:

- a. 如日間吃不足蔬果，在晚餐便需多吃。
- b. 以碳水化合物食物為主。
- c. 若肉類在日間已吃得足夠，在晚餐宜少吃。
- d. 以少油煮食。

### 5. 飯餐與運動的時間配合:

- a. 大量食物 – 運動前四小時完成。
- b. 中量食物 – 運動前三小時完成。
- c. 少量食物 – 運動前兩小時完成。
- d. 小點 – 運動前一小時完成。

## Before a competition, one may choose any of the following meals:

### Example one:

Spaghetti in meat sauce, Borscht, bread, orange juice.

### Example two:

Tuna sandwich, soymilk, banana.

### Example three:

Rice with vegetable and beef, honey lemon water, orange.

### During training or competition:

- a. Follow fluid replenishment guidelines. Please refer to the Sport Nutrition Education Series IV "Water – the fountain of life".
- a. Replenish with 1.5 grams carbohydrates per kg of body weight within two hours after exercise to refill glycogen storage in the body.
- b. If appetite is poor after exercise, one may replenish with beverages.
- c. Replenish with at least 750 ml of fluid for every 0.5 kg of weight loss during exercise.

Adequate nutrition can promote growth and enhance immunity. Therefore, developing good diet habit with training is important.

## Young Athlete's Point of View

"I am a table tennis player. Nutrition is very important to me because I need healthy bones, good physical strength, vitality and excellent skills such as power and speed. Most importantly is to achieve outstanding result in international games."

Hung Wah Tak (Junior Table Tennis Athlete)

The above information is provided by the Sport Nutrition Unit of the Athlete and Scientific Services Division. All information is for reference only. Reproduction of material is welcome with prior permission. Acknowledgements are required. For enquiry, please contact: Sports Science Department, Tel: 2681 6277.

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## 運動營養教育系列手冊 SPORT NUTRITION EDUCATION SERIES VII

## 年青運動員的營養學 Sport Nutrition For Young Athletes



HONG KONG  
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## 年青運動員的營養學

年青運動員需特別注意飲食。他們在營養方面有兩大目標：

1. 足夠的能量與營養素來滿足活動的需要。
2. 足夠的能量與營養素來促進成長。

## 年青運動員的營養需求

### 熱量

- 足夠的熱量來滿足每天的活動和訓練。
- 額外的熱量用於生長發育。
- 長期攝取不足夠的熱量會致身材矮小、發育遲緩、影響骨骼健康及增加受傷或患上飲食失調症的風險。

### 碳水化合物

- 提供運動所需的能量，是肌糖主要來源。
- 碳水化合物應提供總能量的55-60%。

### 蛋白質

- 蛋白質需求較高以幫助成長和肌肉恢復。
- 食物來源包括牛肉、豬肉、家禽、雞蛋、豆腐、乾豆及奶類食品等。
- 蛋白質應提供總能量的12-15%。

### 脂肪

- 脂肪在耐力運動中，可提供能量。
- 高脂肪飲食會影響碳水化合物攝取及身體組織。
- 過重的年青運動員應減少進食高脂肪食物。
- 脂肪應提供總能量的25-30%。

### 鐵質

- 年輕運動員較容易患上鐵質缺乏症因為鐵質需求量較高。
- 女性年青運動員較容易鐵質儲備低。
- 缺乏鐵質能引致疲勞及影響運動的表現。
- 請參考運動營養教育系列之三《貧血知多點》。

### 鈣質

- 足夠的鈣質能預防骨質疏鬆症及壓力性骨折。
- 部份女性年青運動員由於月經失調以致骨質密度降低，較容易日後患上骨質疏鬆症。
- 大部份人會在三十幾歲時達到顛峰骨質量。
- 年青運動員通常比不活躍的青年人達到更高的顛峰骨質量。

一個11-18歲的青少年的營養素需要如下：

營養素	男	女
維他命 A	700 – 800 µg	700 µg
維他命 D	5 µg	5 µg
維他命 E	10 – 14 mg	10 – 14 mg
維他命 C	90 – 100 mg	90 – 100 mg
維他命 B1	1.2 – 1.5 mg	1.2 – 1.3 mg
維他命 B2	1.2 – 1.5 mg	1.2 mg
維他命 B3	12 – 15 mg	12 – 13 mg
維他命 B6	0.9 – 1.2 mg	0.9 – 1.2 mg
葉酸	300 – 400 µg	300 – 400 µg
維他命 B12	1.8 – 2.4 µg	1.8 – 2.4 µg
鈣	800 – 1000 mg	800 – 1000 mg
磷	700 – 1000 mg	700 – 1000 mg
鎂	350 mg	350 mg
鐵	15 – 20 mg	18 – 25 mg
鋅	15 – 19 mg	11.5 – 15.5 mg

引自：中國居民膳食營養素參考攝入量 (2000)

### 訓練或比賽中：

- a. 跟隨水分補充指引。請參考運動營養教育系列之四《水－生命之泉》。

### 訓練或比賽後：

- a. 在運動後兩小時內，每公斤體重補充1.5克碳水化合物來補充身體的糖份。
- b. 運動後若沒有胃口進食，可選飲品來補充水分及營養。
- c. 運動後每失去0.5公斤體重，補充最少750毫升水分。

飲食營養足夠有助促進成長，增強抵抗力，所以培養良好的飲食習慣與訓練同樣重要。

## 年輕運動員對營養的看法

"我是一位乒乓球運動員，營養對我來說非常重要，因為我需要健康骨骼，良好體能，精神面孔，技術提升，如：力量及速度。最重要是爭取國際好成績。"

孔錦德（青少年乒乓球運動員）

以上資料由運動員及科研事務科轄下的運動營養部提供，只供參考。歡迎轉載以上資料，惟事先須得本院許可；轉載時亦須鳴謝本院。

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## 比賽前的正餐可從下列挑選：

- 示例一：  
肉醬意粉，羅宋湯，麵包，橙汁。

- 示例二：  
吞拿魚三文治，豆漿，香蕉。

- 示例三：  
菜牛肉飯，椰蜜，橙。



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