

Indian Academy of Pediatrics (IAP)



## GUIDELINES FOR PARENTS

# Nutrition of Adolescents (10–19 Years)

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### 10 FAQs on NUTRITION OF ADOLESCENTS (10–19 YEARS)

1. I am worried about the nutrition of my 12-year-old daughter as I read somewhere that nutrition in teenagers is very important. Can you explain why?
2. As my son is growing older, he has become picky eater. How to change his eating behavior?
3. My daughter takes the meal we provide at home and looks healthy too. How will I know whether she is getting adequate nutrition or not. Should I monitor her calorie intake?
4. I have heard lot about balanced diet. Please tell me, what is a balanced diet and how to give balanced diet to my adolescent children?
5. My son who is a teenager is very fond of snacks/package food or beverages, and when he is with his friend he eats outside. Even at home, he demands outside food increasingly and he does not listen, and we often have fought over this. Please help me to tackle this and please suggest some healthy snacks.
6. My daughter who is 16 years old, off-late is skipping her dinner regularly. She says she is becoming fat and is into some form of dieting. She says, she is looking for dieting program on the net which will help her to lose some weight and look smarter. Is it OK, if she continues with this?
7. My son is in class XII and is preparing for medical entrance. He is overburdened with studies (school, coaching, tuition, etc.). He is either with books or on screen. Off-late, he seems to be gaining weight. I want him to spend some time outside for physical activities but he will not listen. How to go about it?
8. My son (16 years old) is very lean and thin, has a close friend, who is a good sportsman, goes to gym regularly. His friend has recommended him to buy some protein powders from the market to gain some weight. What should I do?
9. Doctor, can you give me few practical tips so that I can ensure good nutrition in my growing teenaged children?
10. As a parent when should I consult an expert for the nutritional issues related to my adolescent children?

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## Nutrition of Adolescents (10–19 Years)

### Q1

**I am worried about the nutrition of my 12-year-old daughter as I read somewhere that nutrition in teenagers is very important. Can you explain why?**

Adolescence (10–19 years) is a period of rapid physical and mental growth. During this period, adolescents gain the final 20% of their adult height; achieve 50% of their adult body weight and accumulate up to 40% of their adult skeletal mass. Due to the high velocity of growth, their energy, protein, and micronutrient requirements are much more than any other age group. Inadequate nutrition can delay sexual maturation, slow or stop linear growth, compromise peak bone mass, and make them susceptible to micronutrient deficiencies (particularly iron, calcium, zinc, and vitamin D); and eventually they cannot attain their growth potential. Nutrition of adolescent girl needs extra attention as she is the future mother. Her optimal nutrition and growth will have positive impact on birthweight and health of her baby. Malnutrition (under- and overnutrition) is common in teenagers. Recently, a pan Indian survey has documented that >50% adolescents are either wasted, stunted, overweight or obese and over 80% are suffering from deficiency of one or more micronutrients such as iron, folic acid, zinc, vitamin B<sub>12</sub>, and vitamin D.

Adolescence is the last opportunity for catch-up growth in life. So, inculcating healthy eating behaviors and regular physical activity can help teenagers to maintain normal body weight, prevent micronutrient deficiencies, and reducing the risk of noncommunicable diseases in adult life (e.g., cardiovascular disease, type 2 diabetes mellitus, hypertension, and cancers).

## Q2

**As my son is growing older, he has become picky eater. How to change his eating behavior?**

The adolescent period is characterized by dramatic cognitive, social, and emotional changes in addition to the physical changes. Apart from these changes, their eating behaviors is influenced by their search for identity, growing independence, concern with appearance, need for peer acceptance, and active lifestyle. In addition, lack of adequate knowledge, lack of time due to scholastic pressures, other activities, and spending more screen time, food fads, advertisements, and fast food culture can all affect their eating habits.

This is happening in every family, so there is no need to panic. Involve them in buying, planning menu, and in cooking. Try to lessen the stressors, involve them in physical activities and with time, they will come back to their desired eating habits soon.

## Q3

**My daughter takes the meal we provide at home and looks healthy too. How will I know whether she is getting adequate nutrition or not. Should I monitor her calorie intake?**

We have simple measures to monitor adequate nutrition, which are as follows:

- She is not looking pale, is active, not irritable/cranky, and sleeps well.
- Adolescent girl eating slightly more than the mother and boy eating equal to father is a good measure for calorie intake.
- Most importantly, if they are gaining height and weight. So, do regular measurement of their weight and height, at least at 6 monthly intervals by a trained health worker/doctor. We have growth charts for Indian adolescents available from [www.iapindia.org/growthcharts](http://www.iapindia.org/growthcharts). Plot it serially.

## Q4

### I have heard lot about balanced diet. Please tell me, what is a balanced diet and how to give balanced diet to my adolescent children?

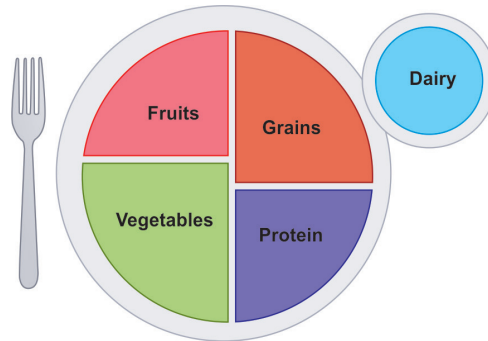
A balanced diet includes all food groups (cereals, pulses, vegetables, fruits, and dairy/meat) everyday. Carbohydrates should make up 50–65% of energy intake; protein 10–30%; and fat 25–35%. They should eat three meals (breakfast, lunch, dinner, and 2–3 snacks/day). Variety within each food group is recommended. Ensure having a healthy breakfast daily. Avoid skipping meals.

- An adolescent boy should eat equal to his father (2,400–2,800 cal), and girl a little more than her mother (2,100–2,400 cal) depending on activity ranging from sedentary to athletic/competitive sports.
- One should choose from following categories of food:
  - *Go foods (Energy giving foods):*
    - *Cereals:* 8–15 servings of 30 g each. Whole wheat, rice, maize, jowar, corn, bajra, buckwheat, and *Amaranth*.
    - *Fats and oils:* 7–10 servings of 5 g each (35–50 g). Use a mix of: (a) Desi ghee/butter, palm oil; (b) Mustard/sesame/groundnut/olive/coconut oil; (c) Sunflower/safflower, soyabean and canola, approximately one-third of each group.
    - *Sugars:* 4–6 servings of 5 g each (20–30 g).
  - *Grow foods (Growth promoting):*
    - *Pulses:* 2–3 servings of 30 g each about 2 cooked katori of variety of dal, beans, lentils, etc. For non-vegetarians, one serving of pulses may be replaced by one serving (50 g) of eggs/meat/fish/chicken, etc.
    - *Milk and milk products:* 5 servings of 100 mL each. It includes low fat milk, butter milk, curd, cottage cheese, and vegetable milk such as soya, almond and tofu, etc.
  - *Glow foods (Protective foods):*
    - *Fruits:* Two servings of 80 g each. One medium-sized apple/banana/orange/mango or two small kiwi/plums/apricots or 250 mL of fresh fruit juice.  
*Note:* Whole fruits are to be preferred over fruit juices.
    - *Green leafy and other vegetables:* One serving of 80 g of green leafy vegetable about 1 cup of green vegetables. One serving of other colored vegetables [red, yellow, violet (brinjal, capsicum, pumpkin, tomato, and peas), etc. about 1 katori. One serving of tubers, radish, cucumber, etc.

#### Others

- 30 g of nuts (handful of walnut, peanut, groundnut, almonds or cashews)
- *Fibers:* 15–25 g from fruits, vegetables, whole grain-like whole wheat bread, etc. Important for bulk, satiety, and prevention of constipation.
- *Water:* 1.5–2 L/day.

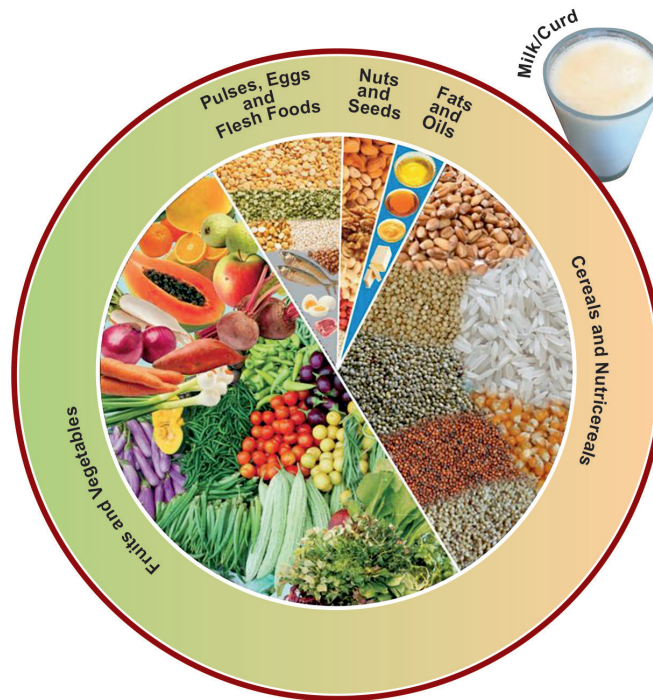
For easy understanding and standardized diet, US Food and Nutrition Department has developed concept of “Choose My Plate”. National Institute of Nutrition (India) has given the concept of “thali”. It is recommended that half-plate should be filled by fruits and vegetables, remaining half should have proteins (pulses/nonveg foods), and in one-third parts cereals (whole wheat/rice/maize/bajra, etc.). It should be accompanied by a low-fat milk (200–250 mL) or buttermilk/fresh juice/fresh lime/kanji, etc. Please visit [www.ChooseMyPlate.gov](http://www.ChooseMyPlate.gov) (USA site) and [www.nin.res.in](http://www.nin.res.in) (Indian site).



- Girls need extra greens and dairy for iron and calcium requirement to compensate for menstrual blood loss.

## My Plate for the Day

To Prevent Hidden Hunger and Protection from Diseases



**ICMR-NATIONAL INSTITUTE OF NUTRITION**  
 Department of Health Research, Min. of Health & Family Welfare  
 Govt. of India, Hyderabad, Telangana State, India

**Q5**

**My son who is a teenager is very fond of snacks/ packaged food or beverages, and when he is with his friend he eats outside. Even at home, he demands outside food increasingly and he does not listen, and we often have fought over this. Please help me to tackle this and please suggest some healthy snacks.**

As discussed earlier, the eating behavior and food choices of the teenagers depend on multiple factors including the prevailing practices in the family or school, peer pressure, pressure of studies, spending too much time on screen among others. So most of the teenagers avoid/ dislike regular meals and snack more often, especially on the move. Involve your adolescents in buying, storing, menu planning, helping in cooking or cooking for self and family. A certain amount of discipline is necessary. One meal should be a sit down meal for the entire family. It is the best time to interact, discuss, and catch-up with activities. There should be “NO” media (mobile, newspaper, radio, etc.) intrusion during eating. Healthy, wholesome, tasty, and variety of snacks may be kept at home so that teenager can take them when hungry. He can be offered from these kinds of snacks:

- Idli with coconut chutney and curd
- Poha, upma, dhokla, and vermicelli
- Moong dal, chilla with veggies, and paneer
- Fresh fruits, sprouts, and boiled vegetables
- Apple muffins, carrot, and sunflower seeds, muffins, and sugar-free cookies
- Butter milk, fresh lime with water, kanji, and coconut water
- Air-fried sweet potato/potato, sweet corn, roasted namkeens, almonds, cashews, peanuts, walnuts, and seeds
- Jaggery sesame/groundnut chikki
- And many more you and adolescent may improvise.

## Q6

**My daughter who is 16 years old, off-late is skipping her dinner regularly. She says she is becoming fat and is into some form of dieting. She says, she is looking for dieting program on the net which will help her to lose some weight and look smarter. Is it OK, if she continues with this?**

Your daughter has probably completed her growth spurt which is between 12 and 16 years in girls. We need to measure her height, weight, and calculate her BMI. As per Indian Academy of Pediatrics (IAP) percentile charts, BMI >23rd adult equivalent and 27th adult equivalent is classified as overweight and obesity, respectively. Charts are available at [www.iapindia.org/growth](http://www.iapindia.org/growth) charts.

- In this case, she is trying to look for some kind of crash diet plan to lose weight. Evidence has shown that most of these diet plans does not help to lose weight in the long run, on the contrary, one tends to gain weight once it is stopped. There is no short cut to lose weight. She needs to eat a balanced diet. Skipping meals leads to weakness, lack of concentration, slowing of protective reflexes, dullness, and episodic excessive eating (Fast-Feast Cycle).
- It should be combined with regular physical activities in the form (running, brisk walking, jumping, swimming, dancing, games, etc.) at least an hour almost on everyday of the week. Make physical activity a way of life in the family. A combination of balanced diet, regular physical activity, and adequate amount of sleep will help her to maintain optimal weight and look “smarter”.
- Sometimes, the fear of overweight is also related to body image issue, which is the way one feels about her body, and it is not related to actual appearance. Poor body image often leads to low self-esteem. Parents are the ideal role models for their teens so teach healthy body image by setting a good example. Take a balanced diet, avoid any crash diet plans, and avoid body shaming in front of your children. Do not put emphasis on people’s external physical appearance and engage in discussions with your teen about body image portrayed in media. Encourage your teen to accept his body and advise him to do exercise for energy, health, and strength rather than for outward appearance.
- If problem continues, consult a doctor or a counselor. Once this issue is ruled out and overweight/obesity is confirmed, we need to work out a diet and activity plan.



**Q7**

**My son is in class XII and is preparing for medical entrance. He is overburdened with studies (school, coaching, tuition, etc.). He is either with books or on screen. Off-late, he seems to be gaining weight. I want him to spend some time outside for physical activities but he will not listen. How to go about it?**

It is a common problem in this group of adolescents, especially their scholastic pursuits, which continue beyond school hours in the form of tuition, coaching classes, and online classes. As a parent, we need to regulate their intake of salt, sugar, oils, carbonated/caffeinated and sweetened beverages. Encourage him to drink water frequently, so also fruits and vegetables. Also request him to limit his screen time. Here are few tips to encourage physical activity:

- Encourage him to take any outdoor physical activity of his choice for 60 minutes daily, whenever it is convenient for him. If required you can accompany him for brisk walk or jogging in the park.
- He may revise sometimes while strolling in his room.
- After every 30–40 minutes stand up and stretch.
- As they may not be able to do exercise at one go, let it be piecemeal. 15 minutes of yoga, pranayama, and meditation on waking up, 15 minutes of cycling/jumping/dancing in the day and 30 minutes of family walk in evening/night.
- Let him walk to the dining table for meals.
- One may think of more innovative ways.

**Q8**

**My son (16 years old) is very lean and thin, has a close friend, who is a good sportsman, goes to gym regularly. His friend has recommended him to buy some protein powders from the market to gain some weight. What should I do?**

- Proteins are essential for growth and muscle repair, and adolescents require 15–30% of protein from their daily diet depending on their activity levels, more for professional athletes. Protein does not equate with muscle mass or weight gain modality. Muscle growth is a complex process which depends on adequate intake of proteins and calories and interplay of certain hormones and physical activity.
- Some professional athletes or body builders may require extra protein (1.5–2 g/kg), but even for them protein powders are not advisable as they may harm the kidneys and liver and there is risk of dehydration and top of it there is risk of contamination with steroids and other harmful ingredients. Even in them, it is advisable to get required proteins by consuming dairy products, lentils, beans, eggs, and fish instead of protein powder supplements.
- As a parent, you should tell him that there is no short cut to gain weight or build muscles. He should undertake daily moderate-to-vigorous form of physical activities, take a balanced diet and keep himself well-hydrated. He can undertake strength training but it should be done under supervision of a trained personnel.

Q9

### Doctor, can you give me few practical tips so that I can ensure good nutrition in my growing teenaged children?

- As a parent, you have to realize that nutrition and physical activity go hand-in-hand, and are major determinants of adolescents' energy levels, body composition, and growth so exercise and physical activities to be included in any successful diet plan.
- To inculcate a good eating behavior and proper nutrition, the best outcome is achieved when the whole family adopts these healthy lifestyles (nutrition and physical activity). As a parent, try to be good role models.
- Take a balanced diet. Choose a variety of foods from Go, Grow, and Glow foods. Make your diet colorful like a rainbow.
- Boys should eat equal to their fathers and girls slightly more than their mothers.
- Involve them in preparation of a meal starting from buying, storing, planning menu, and cooking for self and family.
- Eat minimum three meals and 2–3 snacks/day. Do not skip meals, especially breakfast. Keep adequate supply of healthy snacks at home.
- Drink 1.5–2 L of safe water, low fat milk, butter milk, kanji, and fresh lime. Carbonated and sweetened beverages not more than once/week.
- *Discourage fad diets:* Fruits only, gluten-free, vegans (only vegetables, not even dairy products), etc.
- Though they should be advised to avoid fast foods or eating outside but, practically, it may not be always possible. Rather you can give certain tips on fast food: bring down the portion size, avoid extra toppings of cheese, mayonnaise or ketchup or any other sauce, take grilled sandwich, use green chutney instead of sauce, etc.
- They should undertake daily at least 1 hour of moderate-to-vigorous physical activities on daily basis.
- Must take adequate amount of sleep and reduce screen time for relaxation.
- Through parent association work with schools to provide nutritious food in canteen.

**Q10****As a parent when should I consult an expert for the nutritional issues related to my adolescent children?**

- Parents should visit a specialist in early adolescent period (10–12 years) for growth assessment and nutritional guidance. A scheduled 6 monthly visit is desirable.
- Adolescent is not gaining weight/height or both.
- He/she is gaining excessive weight.
- Obsessed by weight/height, appearance, and food. Binge eating or little/no eating.
- Develop food fads, vegan, fruitarian, gluten-free diet, and other celebrity diets.
- Tires easily, dull, sleepy, irritability, anger, aloof, etc.
- Bone pain, fractures, easy bruising, dental problems, falling/dry hair.
- Changes in bowel habits (constipation, diarrhea, etc.)
- Falling school grade, mood and mental health issues (sleep issues or jokes about suicide)
- Any sign of tobacco, alcohol, or drug use.