

Indian Academy of Pediatrics (IAP)



GUIDELINES FOR PARENTS

Overweight and Obesity: Detection, Prevention, and Management

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10 FAQs on OVERWEIGHT AND OBESITY: DETECTION, PREVENTION, AND MANAGEMENT

1. My son is 8-year-old. His height is 135 cm and weight is 35 kg. My daughter is 3-year-old, her height is 97 cm and weight is 16 kg. How can I calculate their body mass index (BMI)? How do I interpret the value?
2. We, our parents and our children all look alike, hence we think fatness is genetic. Do we need tests to confirm this? We are lucky to have our great grandparents 90 and 84 years in our family who are slim and still much more active than us? Why did we not inherit their genes? Kindly explain.
3. When I went for vaccination for my 5-year-old son, my doctor told me that he is obese. We always thought he is normal, as he looks like us. We are now worried about his future. We are also planning for a second child. Please let us know precautionary steps to prevent obesity in our next baby.
4. Our 5-year-old son spends all his free time watching TV and playing video games. He has been advised physical activity. Please guide us what exercises he can do at home.
5. We both are working parents and hardly get time for ourselves, so we give money to our son to buy food from school canteen. Now, his favorite foods are banned in the school, please guide us how to manage.
6. What will you recommend to us as a family to develop healthy eating habits in our children?
7. I have two sons, 6- and 11-year olds. Both resemble us and weigh 29 kg and 48 kg, respectively. Can you recommend some practical exercises for weight loss which can be done in my small apartment?
8. My 12-year-old daughter weighs 61 kg. What should we do about her obesity? Please guide us. Should we enroll her for a weight loss package offered by a cosmetic chain?
9. My 13-year-old child weighs 88 kg. She was 75 kg a year ago. She tried dieting and going to the gym. It did not work; rather she developed pain in her knees. Are there any pills or medicines to reduce her weight?
10. She also has irregular periods and headache very often. Will she need bariatric surgery ultimately.

Under the Auspices of the IAP Action Plan 2020–2021

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Overweight and Obesity: Detection, Prevention, and Management

Q1

My son is 8-year-old. His height is 135 cm and weight is 35 kg. My daughter is 3-year-old, her height is 97 cm and weight is 16 kg. How can I calculate their body mass index (BMI)? How do I interpret the value?

BMI is a measure of weight in relation to height and is an indirect indicator of body fat. It can be calculated by dividing weight (in kilograms) by the square of height (in meters).

$$\text{BMI} = \text{Weight (kg)} / (\text{Height in m})^2$$

So, your son's BMI will be

$$35 / (1.35 \times 1.35) = 35 / 1.82 = 19.2 \text{ kg/m}^2$$

To determine the nutritional status of your child, you need to plot child's BMI on BMI charts specific to their age and gender: pink charts are for girls and blue charts are for boys. These are provided at the end of this Chapter. As you can see in **Figure 1**, your son's BMI falls above red line (adult 27e), hence he is obese.

Overweight

If BMI of the child is on the middle/orange line (23 adult equivalent lines) or between the middle orange line and uppermost red line (27 adult equivalent lines) on the BMI chart, it means the child is overweight.

Obese

If BMI of the child is on or above the uppermost red line (27 adult equivalent lines) on the BMI chart, it means the child is obese.

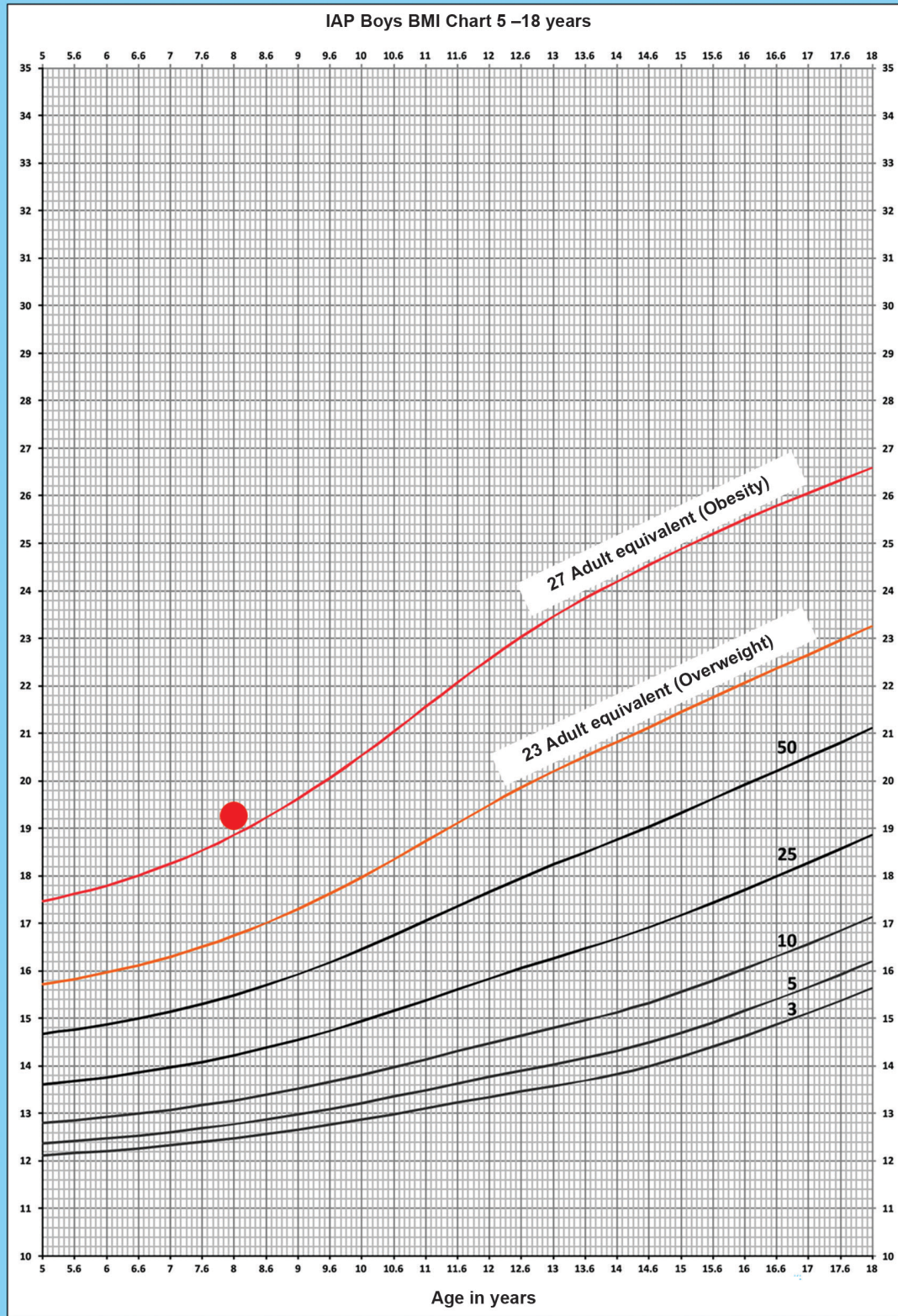
So you can see that his BMI falls between orange and red line on the chart, thus he is overweight.

How Often to Calculate BMI?

- During the first 3 years, it is recommended to monitor height and weight at every vaccination visit. After that, every 6 months till the age of 5 years.
- From age 5 to 18 years, BMI assessment is recommended at least once a year.

5 to 18 years: IAP Boys Body Mass Index Charts

Name _____
 DOB _____



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Fig. 1: Interpretation of BMI chart.

Source: Revised IAP growth charts for height, weight and body mass index for 5 to 18-year-old Indian children. V. Khadikar, et al. from Indian Academy of Pediatrics Growth Chart Committee Indian Pediatrics, Jan 2015, volume 52.

Q2

We, our parents and our children all look alike, hence we think fatness is genetic. Do we need tests to confirm this? We are lucky to have our great grandparents 90 and 84 years in our family who are slim and still much more active than us? Why did we not inherit their genes? Kindly explain.

Fig. 2: This is how today's children play even in playgrounds!!



- Having larger amounts in a go, i.e., big portion sizes, especially of the foods available from market
 - Intake of sugar sweetened drinks
 - Higher intake of fats, especially saturated fats and trans fats
 - Lesser consumption of home-made foods
 - Missing breakfast
 - Lesser consumption of fresh fruits and vegetables, which are a rich source of fiber and various micronutrients. They also help us to control our cholesterol levels besides preventing weight gain.
- Further, we are generally less active now as compared to a few decades ago, as we are more often glued to our mobiles, laptops, TVs, etc. **(Fig. 2).**

Decreased physical activity and prolonged sedentary time in front of screen play a major role in an increased risk of overweight and obesity.

Increased sedentary time is more of screen time that includes time spent on any of the above-mentioned devices. It has especially increased during the coronavirus disease-2019 (COVID-19) pandemic times when school teaching is also online.

- Children are just not as active as they used to be, e.g., video games have replaced outdoor play and group sports **(Fig. 3).**

Children are at increased risk for obesity if their parents are obese. Children with one parent being obese are three to four times more likely to be obese and when both parents are obese, their children are 10–12 times more likely to be obese.

Genetic causes of obesity are considered in babies who are obese in their first year of life. These babies need further detailed evaluation and tests to confirm the diagnosis.

Commonly occurring obesity is an interplay of influence of genes and environment. We cannot change our genes but can modify our environment by adopting a healthy lifestyle which includes our eating and activity behaviors, which are mostly established during childhood. Now you will understand that though you have inherited your great grandparents' good genes, yet those genes could not express themselves in you because of your own environmental, lifestyle, and behavioral factors.

A child learns his lifestyle behaviors from the three environments around him: (1) Home; (2) School; and (3) the Community.

Unhealthy eating behaviors which commonly lead to obesity include:

- Increased intake of fast foods which contain only calories and no nutrients



Fig. 3: This is how our children should play in playgrounds.

Q3

When I went for vaccination for my 5-year-old son, my doctor told me that he is obese. We always thought he is normal, as he looks like us. We are now worried about his future. We are also planning for a second child. Please let us know precautionary steps to prevent obesity in our next baby.

First get your BMI checked. If your BMI indicates overweight/obesity, then chance of the newborn being born overweight increases as discussed above.

It is so good that now you are aware of health hazards of obesity and want to prevent obesity in the second unborn child.

Your next pregnancy should be well planned, to be started before conception and continued during pregnancy and afterwards. Ideally mothers' BMI should be within the normal range before conception, and she should be well convinced to exclusively breastfeed her baby from the first hour of birth.

Lifestyle

Parents need to adopt certain grass root lifestyle modifications:

- They should be physically more active.
- They should avoid prolonged sitting. More importantly, they should not be spending more than 2 hours with screens.
- Mother should practice moderate physical activity of at least 30 minutes duration per day for at least 5 days a week. The easiest way is to go for brisk walking. In the nonpregnant state, she can go for vigorous activity sessions, e.g., running, jogging, cycling, etc. Activity and its intensity should be continued during pregnancy too, though under medical supervision.
- She should neither consume alcohol, nor smoke. Rather no one around the baby in the family should smoke.

Diet

- Parents should stop taking sugary beverages. They should have regular home-made meals.
- She needs to completely stop taking sugary beverages.
- Have regular homemade meals. A balanced diet constituting of whole grain cereals, plenty vegetables, fruits, low fat milk and milk products, low in saturated fats and without trans fats.
- If mother has any associated conditions such as *diabetes* or *high blood pressure*, they should be properly monitored and managed.

After the delivery, she should breastfeed baby exclusively for the first 6 months, and thereafter, continue breastfeeding, with added homemade complementary foods. Breastfeeding mothers lose excessive body fat faster, so this practice promotes good health for mother and baby, free of cost.

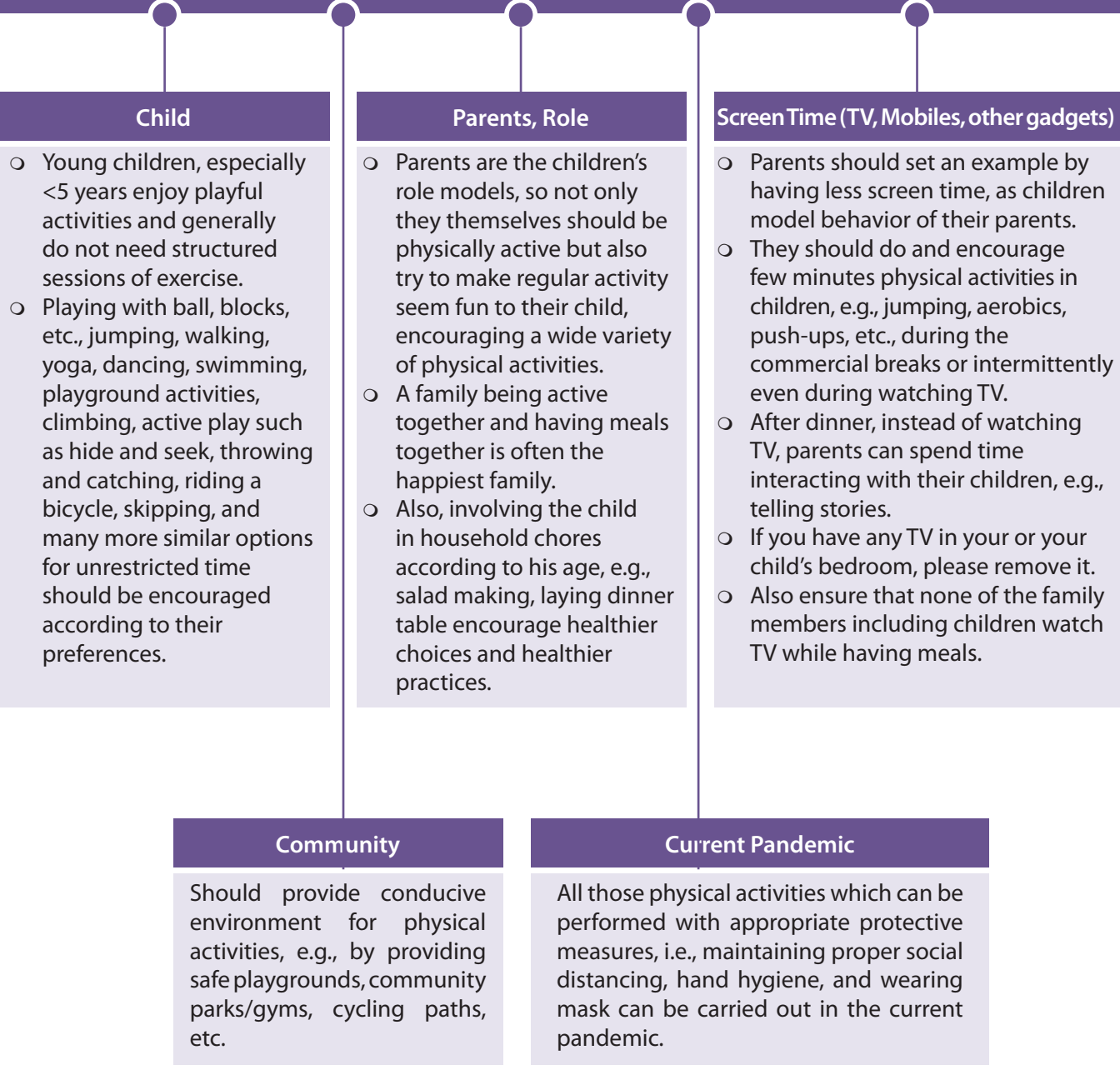
These lifestyle modifications should be continued as a habit even after pregnancy. During lactation, the mother needs a healthy diet, regular exercise and enough rest and sleep.



Q4

Our 5-year-old son spends all his free time watching TV and playing video games. He has been advised physical activity. Please guide us what exercises he can do at home.

Children up to 5 years of age needs to be active throughout the day, they should not be inactive for long periods of awake time. Watching TV or being strapped into a buggy for long periods are not good for their health and development.



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Q5

We both are working parents and hardly get time for ourselves, so we give money to our son to buy food from school canteen. Now, his favorite foods are banned in the school, please guide us how to manage.

- By getting money, the child indulges in unhealthy food choices (**Fig. 4**) as his choices are mainly dictated by peers and mass media. It is not correct to give money to a young child for buying outside food. Howsoever busy the parents may be, they need to manage and plan their time, decide their priorities, and design their own methodology to provide homemade food for their children. Some planning and preparation the night before, done by both parents and the children themselves, is often effective.
- School lunch can be made at home with healthy ingredients, e.g. whole grains, daals, and seasonal vegetables, cooked without trans fats, and less saturated fats. Nutritious yet tasty examples include paneer or chicken

Fig. 4: Avoid unhealthy foods.



chapati wrap or sandwich with homemade bread, brown rice pulao with plenty of vegetables, rajma rice with salad, brown rice (or raagi)—whole daal dosas and idlis (**Fig. 5**).

- Best snacks are fruits, peanuts, other nuts and seeds. However, you can prepare a variety of snack food items, e.g., idli-sambhar, palak dosa, poha, upma, chickpea salad, etc.
- Instead of sugary beverages and juices, child may be provided with homemade fruit shakes or smoothies with skimmed milk or curd, lassi, rasam, jaljeera, or lime water.
- Fortunately, junk foods are now banned in school premises and these healthier options may become available in your child's school too in times of occasional need.

Fig. 5: Ensure home-made healthy foods... They are tasty too!!

Q6

What will you recommend to us as a family to develop healthy eating habits in our children?**Healthy Eating Behaviors**

- Eating together as a family inculcates better food habits than children eating alone in front of the TV. Mealtime should be enjoyable family time and without any conflicts.
- The satiety center located in the brain does not work while eating meals in front of the TV. It may lead to overeating and a high risk of obesity. Thus, no one, including children, should eat while watching TV/mobile.
- Feeding should not be forced removing junk food from home, and decoratively laid out healthy foods attract children. Scolding/ forcing/scaring/insisting for food or a specific food item should not be done.
- Food should never be used as bribe, reward, or punishment.
- Variety in food items with different colored fruits and vegetables should be offered.
- While eating, minimize intake of sensory-specific satiety (SSS) foods, i.e. consume less salt, sugar and saturated fats.
- More fruits and vegetables can be served during meals and snacks.
- Have regular meal and snack times, this creates a healthy routine. Breakfast should never be missed.
- Drinking water should be available as a substitute for sugary drinks and juices.
- The child mimics the parents, so parents should adopt a healthy eating habits and healthy lifestyle, especially during various festive celebrations.

Q7

I have two sons, 6- and 11-year olds. Both resemble us and weigh 29 kg and 48 kg, respectively. Can you recommend some practical exercises for weight loss which can be done in my small apartment?



Spread the activities throughout the day, especially holidays. Reduce lying down and sitting time at home. Jumping jacks, dancing, skipping, aerobic exercises, stretches, push-ups, sit-ups and Yoga, martial arts, using resistance bands to develop resistance, etc., can be done in house. These are moderate intensity exercises. Apart from this, brisk walking, cycling, climbing stairs instead of using the elevator, swimming, skate boarding, and badminton are vigorous exercises—if feasible, they can be done by the entire family. Gym is not recommended below 16 years.

Both your sons are obese. Considering everyone in your family is similar, it would be best to have 40-60 minutes of moderate intensity exercises at least 5 days a week for everyone.

Types of Exercises (Table 1)

- Aerobic exercises
- Exercise to develop core strength and muscles
- Cardio to reduce weight

TABLE 1: Types of exercises.

Aerobic Exercises	Muscle-strengthening Exercises	Bone-strengthening Exercises
60 minute each day	3 days per week	3 days per week
Moderate <ul style="list-style-type: none"> • Baseball, softball • Brisk walking • Bicycle riding • Dancing • Hiking uphill • Housework • Rollerblading • Running • Skateboarding • Yard work, sweeping, lawn mowing Vigorous <ul style="list-style-type: none"> • Basketball, volleyball • Bicycle riding • Jumping rope • Martial arts • Running • Sports, soccer 	<ul style="list-style-type: none"> • Gymnastics • Lifting weights • Monkey bars • Playground equipment • Pushups • Pull-ups • Sit-ups • Rope and tree climbing • Using resistance bands • Tug of war 	<ul style="list-style-type: none"> • Cheerleading • Football • Hop-scotch • Jump rope • Jumping jacks • Martial arts • Tennis • Track and Field • Skipping • Swimming

Q8

My 12-year-old daughter weighs 61 kg. What should we do about her obesity? Please guide us. Should we enroll her for a weight loss package offered by a cosmetic chain?

Weight loss packages are alluring but not safe for children. Further, our aim is to make and teach permanent lifestyle changes, not just go for crash or fad diets or powders, which lead to temporary, and unhealthy, weight loss. Instead, you all need to work together and make lifestyle modifications which become habits, so there is no excessive weight gain throughout life. Please consult your pediatrician, who will record her BMI and assess her for any complication of obesity, then guide you regarding diet and exercises as per her preferences, and monitor her growth. Please remember to encourage a healthy body image and self esteem.

- Teach her and other children in the family to cook.
- The entire family should consume homemade food, with less oil and ghee, including for school tiffin.
- Use whole grains; avoid refined grains like maida, suji and white rice. You should ensure a healthy diet with five portions of five different colored vegetables and fruits daily not only for her but for all members of the family.
- Avoid transfats, which are present in baked and fried foods.
- She should stop all sugary drinks and juices, and avoid caffeinated drinks like tea, coffee, sports drinks. Because she is in puberty, she needs plenty of low fat dairy, e.g., plain skimmed milk or yogurt, or shakes and smoothies made with them.
- She should not miss her breakfast.
- Restrict her recreational screen time to equal her physical activity time (or maximum 2 hours daily). Monitor her mobile and Internet usage. Make sure there are no screens—mobiles, TV—at meal times and in any bedroom.

- Inculcate a daily habit of at least 1 hour of some form of physical activity of her choice such as brisk walking, aerobics, dancing, cycling or playing badminton/football/kabaddi/running, etc. During these activities, she could sweat so do not forget to offer her plenty of water during these times.
 - Ensure she takes adequate sleep of 8–9 hours daily.
- Remember obesity does not run in families but in families who do not run. Also, slow and steady wins the race, so rather than indulging in fancy commercial rapid weight loss packages which are harmful, invest and indulge in cultivating enjoyable lifelong healthy lifestyle behaviors.

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Q9

My 13-year-old child weighs 88 kg. She was 75 kg a year ago. She tried dieting and going to the gym. It did not work; rather she developed pain in her knees. Are there any pills or medicines to reduce her weight?

Drug therapy and pills are neither the primary treatment for children, nor they are safe to use in this age group. Apart from side effects, any weight loss they result in, is temporary. As mentioned above, our aim should be to modify lifestyle permanently, rather than have unhealthy weight loss, which is soon regained. The entire family should follow the same advice, and make sure she is encouraged, supported and counseled non-judgementally, for each effort she makes.

Q10

She also has irregular periods and headache very often. Will she need bariatric surgery ultimately.

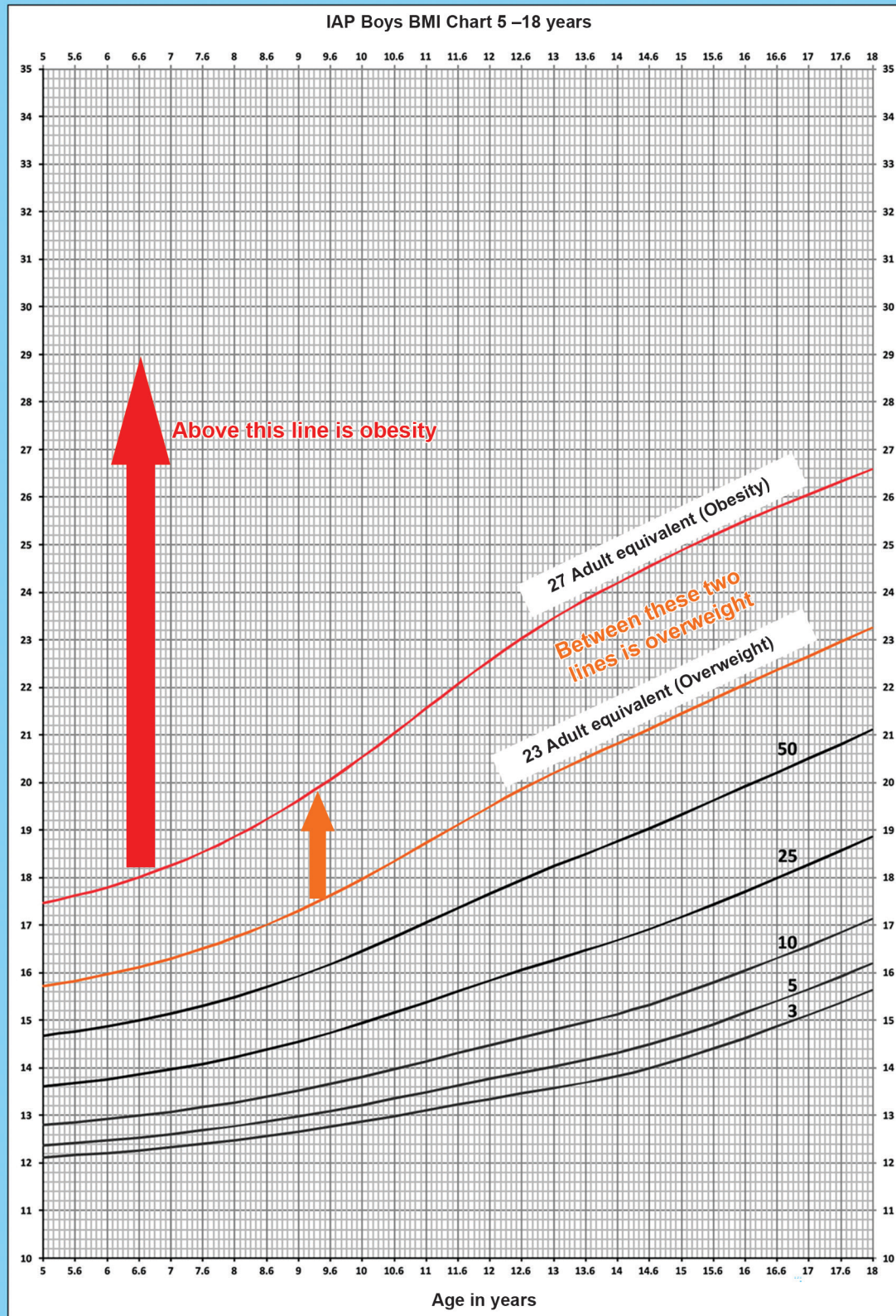
Irregular periods need a consultation with your pediatrician to rule out polycystic ovarian syndrome (PCOS) or insulin resistance. Your pediatrician may prescribe a medicine called metformin. Pain in her knees needs evaluation as it could be due to a disease, or ligament damage due to over-vigorous gym exercises. Headache should not be neglected, as it could be due to many conditions such as hypertension (high BP), migraine, and even pituitary-related disorders. Please get a thorough evaluation, including an ophthalmology consult.

Your child is just 13 years old: bariatric surgery is not advised in this age group. Even in older adolescents, it is the last resort, to be considered only when all advice is strictly adhered to for at least 6 months, and yet there is no response. Also, it should be done only at experienced centers with a team of very skilled surgeons. The safety profile for these surgeries is not completely established in this age group, especially in our country.

You should plan a sensitive and goal-oriented positive team approach with help of your pediatrician and whole family should work towards it. It does work over a period of time. Meanwhile build your child's self-esteem and confidence to achieve.

5 to 18 years: IAP Boys Body Mass Index Charts

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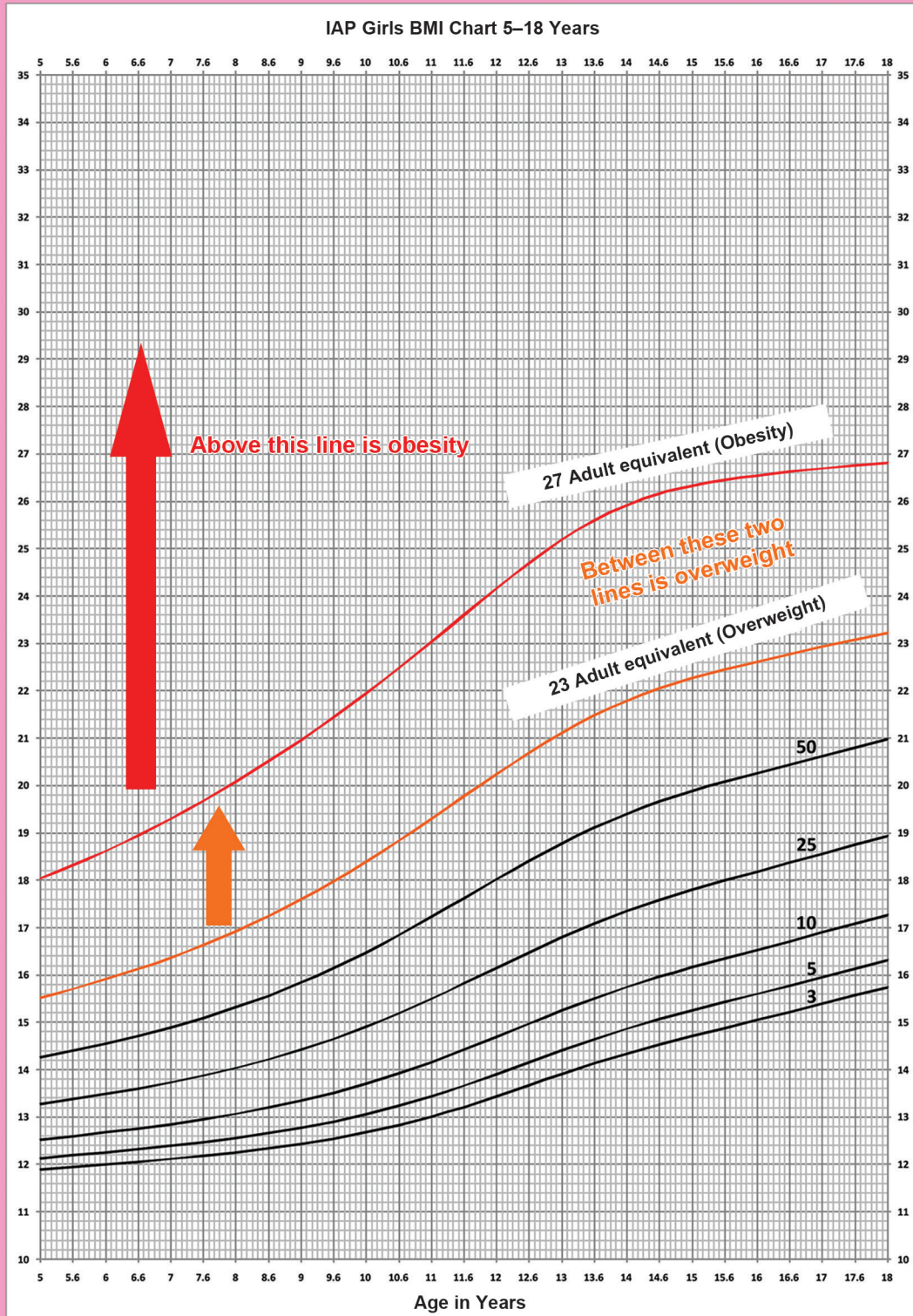


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