

SMAART Nutrition Informatics Template

- **What is childhood obesity?**

BMI is generally used to determine obesity in children and adults. However specific categories as classified by WHO for adults are not used for children. Instead BMI for age is calculated which is gender and age specific. The classification is done on the basis of age and sex specific percentiles of BMI. The reason being that the body composition of a child is continuously changing and there also exists a difference in the growth patterns of boys and girls. Therefore it would not be accurate to compare the two genders with each other. (1)

According to the classification given by CDC; children of the same gender and age falling between the 5th percentile upto the 85th percentile are classified as normal. Those whole are above the 85th percentile but below the 95th percentile are categorised as overweight. Lastly those children that are above the 95th percentile are categorised as obese. (1)

- **Discuss the causes and consequences of childhood obesity?**

Causes -

WHO states that the increase in childhood obesity is due to the global shift in diet towards increase in high calorie foods, foods that are high in fat and sugars but less in micronutrients essential for growth.

In addition the lack of physical activity that children are a part of has led to the rise in cases of childhood obesity. Children spend a sedentary lifestyle employing sedentary modes of entertainment such as gaming, reduced walking and running. (2)

WHO also states that societal changes too have brought about an increase in childhood obesity. The changes in social and economical development as well as policies related to agriculture, urban planning, food processing, distribution and marketing has also led to an increase of this pandemic. (2)

Consequences -

Childhood obesity has consequences which manifest even up to adulthood.

Obese children may have high blood pressure and cholesterol values which is a precipitating factor for cardiovascular disease. They have an increased risk of impaired glucose tolerance which would later lead to diabetes. Due to the accumulation of fat, breathing problems such as sleep apnea may result. Additionally the child may suffer from joint pains. (3)

While the above mentioned consequences are physical, the child may also suffer mental, emotional consequences. He or she may develop feelings of anxiety, depression and low self - esteem. It may also lead to other social problems such as bullying and stigma which further may damage the child's self esteem. (3)

References:

1. <https://www.cdc.gov/obesity/childhood/defining.html>
2. <https://www.who.int/news-room/q-a-detail/noncommunicable-diseases-childhood-overweight-and-obesity>
3. <https://www.cdc.gov/obesity/childhood/causes.html>

- **Design a Diet Plan for a childhood obese patient in the following SMART Nutrition Informatics Template.**

Guideline: On the basis of your understanding and the case study given formulate the case scenario into a 7-day week plan against what the patient normally used to eat, at what time he used to eat and the portion size he used to consume.

		Usual eating time	Foods you normally eat	Portion size you eat	Ideal Eating time	Foods you should eat	Portion size you should eat	Foods You should avoid	Comments
Monday	Breakfast	7:30 am	Chocolate ice cream	4 scoops	7:30 am	Whole wheat pancakes	2 med	Fast foods	Have small portions of food after every 2 hours. Use a small plate while eating Try to have a colourful meal by including ample amounts of fruits and vegetables
	Mid Meal	1 pm	Chicken Burger Chips	1 large 50 gm	10 am	Apple Lassi	1 med 1 glass	Cool drinks Deep Fried items Sweets	
	Lunch	3 pm	Rice Chicken 65 Tomato chutney	60 gm 50 gm 100gm	12:30 pm	Chapati Soya curry cucumber salad	1 1 katori 100gms	Processed food items	
	Evening	5 pm	Chocolate milkshake	250 ml	3 pm	Coconut water	1 cup		

	Late evening	7 pm	No food		6pm	veg Sandwich	1		Avoid outside junk foods
	Dinner	11 pm	Margarita	250 gm	8 pm	Veg Pulao			Drink 8 glasses of water per day
			Garlic bread sticks	50 gm		Raita	2 cups		Physical exercise or sport activity minimum 1 hour per day
			Chicken Pizza	2 slices			1 cup		
			Pepsi	250 ml					
	After Dinner	1 am	Popcorn	100 gm	10 pm	milk	1 cup		
Tuesday	Breakfast	8	skips		7:30 am	Egg Roll	1	avoid skipping breakfast	have a wholesome breakfast with a protein source
						Yogurt parfait	1 cup		
	Mid Meal	11 am	chips	200g	10 am	Veg and sprouts cutlet	2 in no.	avoid junk food	use veggies and cook in less oil
			juice	250 ml		Banana	1	and concentrated sugar sources	
							2 in no.		
	Lunch	1 am	cheese pizza	120 g	12:30 pm	paneer wrap	1		add fiber rich vegetables in wrap and
			coke	150 ml		peanut chikki			
			chocolate	200g			1		

	Evening	3 pm			3 pm	Veg sandwich			avoid using ketchup
			french fries	200 g					use whole wheat bread for making sandwich
	Late evening	7 pm		80 g	6 pm	apple custard	1 cup	avoid consuming deep fried	
			chocolate and banana muffin		8 pm			low fiber high calorie foods must be avoided	appetizing and kids friendly calcium sources must be included
	Dinner	10 pm		200g	10 pm	veg and paneer pulao	2 servings	avoid consumption of carbonated beverages	use skim milk
			chicken pasta	60 g		chicken kebab	1 serving		good quality protein sources
			cheese toast	200 ml		raita	1 serving		in the meal
	After Dinner	12 pm				skim milk	1 serving	avoid eating concentrated energy and full fat dairy product	instead of full fat dairy products use low fat alternatives
			cold drink						
			ice cream	80 ml					
Wednesday	Breakfast	11am	Skips	-	8am	Sprouts	1servin g	Fast foods Deep fried item	Breakfast should not be skipped

								Processed food items	Avoid junk food
	id Meal	12pm	Chicken manchuria	1serving	11am	Banana milkshake	1servin g	Sweets	Healthy food choices are preferred
	Lunch	3pm	Egg fried rice	2servings	1pm	Vegetable khichdi			Consume food rich in iron
	Evening	5pm	Noodles	1serving	3pm	Spinach dal Chikki	2servin g 1cup		Whole fruit is preferable than fruit juice
	Late evening	7pm	Chips	2packs	5pm	Fruit bowl	1bar		Fiber rich foods should be included in the diet
	Dinner	9pm	Mutton biryani	2serving	7pm	Chapathi	1servin g		Physical activity should be performed
			Raita	1serving		Chicken curry	2servin g		
	After Dinner	10 pm	Carrot Halwa	1serving	9pm	Skimmed lassi	1servin g		
							1servin g		
Thursday	Breakfast	11am	Chicken noodles	1 serving	8am		2servin g	Fast foods	

						Dosa tomato chutney	½ serving	Cool drinks	Breakfast should not be skipped
	Mid Meal	12pm			11am	mixed vegetable sambar	1cup	Deep Fried items	Too Much consumptio n of Fast- foods should be avoided
	Lunch	3pm	Chips	2 packs		Fruit bowl	1servin g	Sweets	Try to include 5food groups
			Fried rice	2servings	1pm			Processed food items	
			Veg- Manchuria	1serving		Vegetable rice	2servin g		
	Evening				3pm	Boiled eggs	1		Exercise 5days a week
		5pm	Cheese sandwich	1serving		Veg raita			
	Late evening	7pm			5pm	Flavoured lassi	1cup		
			Butterscot ch ice Cream	2scoops		Puffed rice laddu	1servin g		
	Dinner	9pm	Pasta	1serving	7pm		1servin g		
	After Dinner	10pm	Gulab jamun	1cup	9pm	Methi phulka			
						Chicken curry	2servin g		
						Milk	1servin g		
							1servin g		

Friday	Breakfast	9:00 am	Chole Bature	1 Serving	8 am	Steamed Uttapam Coconut chutney	2	Avoid deep fried foods early morning for breakfast.	Having a lite steamed Uttapam will be a healthy option.
	Mid Meal	10:00 am	Chips	1 packet	11 am	Orange	1		
	Lunch	12:30 pm	Cheese Burst Pizza	3 slices	1 pm	Veg. Pulao Dal Fry Raita	1 1 1	Cheesy pizza.	Munching in between meals has to be avoided
	Evening	5 pm	Pani Puri Pav Bhaji	1 plate 2 pieces	4 pm	Aloo suji cutlets Sweet Tamarind Chutney	2 pieces 1		
	Late evening	7pm	Chocolate Thickshake		6pm	Strawberry	1		

	Dinner			1		MILKSHAKE		Processed juices or shakes.	Take homemade juices and shakes.
		9pm	Veg.Biryani Onion Pakodas	1	8 pm	Phulkas Brinjal Curry Boiled egg	2 1 1	Heavy junk food items.	Avoid eating unhealthy snacks at night time.
	After Dinner	11pm	Caramel popcorn Mc.aloo tikki burger	1 1	9pm	Milk	1	eating fast foods too often must be avoided.	
Saturday	Breakfast	Skips (Sleeps till late)			8:00 am	Ghee idly Chutney Sambhar	4 pieces 1 bowl 1 bowl	Only Mysore bajjis.	Consuming some ghee, idly, sambar and chutney is a healthier option to start off the day instead
	Mid Meal	12 pm	Chips coca cola	2 packets 200 ml	11:00 am	Veg Cutlet with Lemon Juice	2 pieces	Chips and coca cola	

	Lunch	3pm	Fried rice Manchuria	½ plate 2 katoris	1:00pm	Chapati Rajma curry Zeera rice Raita	1glass 1 1 bowl	Deep fried manchuria in large quantities.	of eating deep fried bajjis.
	Evening	5pm	Banana chocolate cake	2 servings	4:00pm	Banana Pudding	1 bowl 1 bowl 1 Bowl	Chocolate in large amounts	Eating a banana pudding would be healthier option
	Late evening	7pm	Curry puff Oreo biscuits	1 piece 1 packet	6:00pm	Sprouts bhel	1 Bowl	Processed foods.	Eating sprouts would provide protein, iron as well as be lite on the stomach.
	Dinner	8:00pm	Tandoori Roti Palak paneer	2 1	8:00pm	Corn soup Rotis Palak paneer	1 2 1	Rotis made from maida i.e refined flour items.	Tandoori rotis made from wheat flour can be consumed.
	After Dinner	10:00 pm	Double ka meetha	2	9:00pm	Fruit Custard	1		Fruit custard would be a healthier option with milk providing the calcium and fruits with vitamins.

Sunday	Breakfast	11am	Hakka noodles	2 ½ cups	8:00 am	Vermicelli upma & boiled egg	2 1	Processed foods like maggi	breakfast recipes should be prepared with veggies for micronutrient requirement
	Mid Meal	12:30pm	Gajar Halwa	1 ½ cup	11:00 am	Fruit Bowl	1	Sweets in large amounts	
	Lunch	3:00pm	Chicken Biryani with Thumps Up	2 cups 1 pet bottle	1:00pm	Chapathi	1	too spicy, too fried and soft drinks	It should be a balanced diet with inclusion of 3 foods groups at least
						Corn, Methi pulao, Capsicum curry & Tomato Raitha	1		
							1		
	Evening	5:00pm	Burger	1	4:00pm	Bhel puri	1	Junk foods	healthy food choices are preferred with veggies or sprouts which give fibre
Late evening								Healthy options for desserts	

	Dinner	7:00pm	French Fries	1 packet	6:00pm	Apple milk shake	1	Deep fried foods	like fruit custard, milkshakes
		9:00pm	Butter naan with Malai Kofta	3 1 cup	8:00 pm	Chapathi, Chole curry, Ladies finger curry	1 ½ 1 1	maida based products like naan	whole grain cereals along with good quantity of vegetables and pulses should be consumed
	After Dinner	10:00 pm	Chocolate Pastry	2 in number	9:00pm	Lassi	1	concentrated sweets, bakery products.	easily digested foods should be consumed