

A DOLESCENT O BESIY : AN EMERGING THREAT

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Key words of Today's Title

ADOLESCENT OBESITY : AN EMERGING THREAT

1. ADOLESCENT
2. OBESITY
3. EMERGING THREAT

What is **A**DOLESCENCE?

- Adolescence (from Latin adolescere, meaning 'to grow up')
- Adolescence is usually associated with the teenage years
- adolescence is viewed as a transitional period between childhood and adulthood ei is a period of time between childhood and adulthood
- Time period – roughly the second decade of life
- Not a disease or disorder!!!
- They are not only in large numbers but are the citizens and workers of tomorrow.
- Adolescence ≠ Puberty

A

dolescence.....

Adolescence is a period of active growth and development-physical, sexual, social and emotional.

Adolescence can be defined

- **biologically**, as the physical transition marked by the onset of puberty and the termination of physical growth;
- **cognitively**, as changes in the ability to think abstractly and multi-dimensionally; or
- **socially**, as a period of preparation for adult roles.



Human growth and development

Stages

- [Zygote](#)
- [Embryo](#)
- [Fetus](#)
- [Infant](#)
- [Toddler](#)
- [Child](#)
- [Preadolescent](#)
- Adolescent
- [Young adult](#)
- [Middle adult](#)
- [Old adult](#)

Developmental Stages of Adolescence

Population segment (e.g. 10–19 years)

Adolescence : 10 – 19 years

- Early Adolescence : 10 – 13 years
- Middle adolescence : 14 – 16 years
- Late adolescence : 17 – 19 years
- Youth : 15 – 24 years
- Young people : 10 – 24 years

Stages of Adolescent Development

Source: Participants manual: IMAI one-day or orientation on adolescents living with HIV ([World Health Organization](#), 2010).

- Early 10-15 Years
- Middle 14-17 Years
- Late 16-19 Years

Stages of Adolescent Development

	EARLY 10-15 years	MIDDLE 14-17 years	LATE 16-19 years
Growth of body (Biological)	<ul style="list-style-type: none"> •Secondary sexual characteristics appear •Rapid growth reaches a peak 	<ul style="list-style-type: none"> •Secondary sexual characteristics advance •Growth slows down •Has reached approximately 95% of adult growth 	<ul style="list-style-type: none"> •Physically mature
Cognition (ability to get knowledge through different ways of thinking)	<ul style="list-style-type: none"> •Uses concrete thinking (“here and now”) •Does not understand how a present action has result in the future 	<ul style="list-style-type: none"> •Thinking can be more abstract (theoretical) but goes back to concrete thinking under stress •Better understands results of own actions •Very self-absorbed 	<ul style="list-style-type: none"> •Most thinking is now abstract •Plans for the future •Understands how choices and decisions now have an affect on the future
Psychological and social	<ul style="list-style-type: none"> •Spends time thinking about rapid physical growth and body image (how others see them) •Frequent changes in mood 	<ul style="list-style-type: none"> •Creates their body image •Thinks a lot about impractical or impossible dreams •Feels very powerful •Experiments with sex, drugs, friends, risks 	<ul style="list-style-type: none"> •Plans and follows long term goals •Usually comfortable with own body image •Understands right from wrong (morally and ethically)

EPIDEMIOLOGY: Adolescence

- Around 1.2 billion people, or 1 in 6 of the **world's** population, are adolescents aged 10 to 19.
- Nations everywhere have obese citizens.
- More than 34 million adolescents aged 10-19 constitute **21%** of total population of **Bangladesh**.
- There are 29.5 million adolescents in Bangladesh, including 14.4 million **girls** and 15.1 million **boys**, together representing nearly one-fifth of the country's total population of 144 million (BBS, Population Census 2011).

O**besity**

Obesity is a major public health problem across the world. Adolescent obesity is a matter of concern worldwide and WHO has designated obesity as *global epidemic*.

Why the Concern?

- Tenfold increase in childhood and adolescent obesity in four decades.
- Worldwide obesity has nearly tripled since 1975. From 4% in 1975 to just over 18% in 2016.

The increase has been slightly more rapid among boys, with obesity occurring in 8% of boys and 6% of girls in 2016.

- The number of obese people in the world total is approximately 2.1 billion, which makes up about 30% of the total population. This number continues to rise.

Why the Concern?.....

- Childhood obesity persists into adulthood .
- Linked to subsequent morbidity & mortality, including type 2 diabetes and cardiovascular disease at a younger age.

Why the Concern?.....

- Approximately 80% of children who were overweight at aged 10–15 years were obese adults at age 25 years.
- 25% of obese adults were overweight as children.
- If overweight begins before 8 years of age, obesity in adulthood is likely to be more severe.
- Parental obesity associated with childhood obesity.

Why the Concern?.....

- Medical care costs increasing over time due mostly to rise in obesity prevalence
- Socioeconomic costs also related to disability and premature death
- Most of the worlds population live in countries where overweight and obesity kills more people than underweight.
- Over 3 million people each year die from obesity.

Defining Obesity

- “Overweight and obesity are defined as abnormal or excessive fat accumulation that may impair health.”
 - World Health Organization
- Obesity results from excessive caloric intake, decreased energy expenditure and/or from a combination of the two.

Primary Screening Measure

- Primary Screening Measure

$$\text{Body Mass Index (BMI)} = \text{weight(kg)} / \text{height(m)}^2$$

- The BMI measures a person's weight in relation to their height
- BMI was first used in 1835 as a way to estimate the proportion of body fat based on height and weight
- BMI has low sensitivity, especially below 30

World Health Organization (WHO) definitions for obesity

- Underweight: <18.5 BMI
- Healthy weight: 18.5-24.9 BMI
- Overweight (Class I obesity): 25.0-29.9 BMI
- Obese (Class II obesity): 30.0-39.9 BMI
- Extreme obese (Class III obesity): 40 or above BMI
- Super obese (Class IV obesity): BMI >50

So:

- Overweight is BMI greater than or equal to 25; and
- Obesity is a BMI greater than or equal to 30.

Defining obesity: For Children/Adolescents

- Sex/age-specific BMI
- BMI \geq 95th percentile is obese
- 85th to less than 95th percentile is overweight

BMI for Children/Adolescents

- Overweight

BMI greater than 1 standard deviation above the WHO Growth Reference median.

- Overweight: $>+1SD$ [equivalent to BMI 25 kg /m² at 19 years]

- Obesity

BMI greater than 2 standard deviations above the WHO Growth Reference median

- Obesity: $>+2SD$ [equivalent to BMI 30 kg /m² at 19 years]

Bangladesh is facing Dual burden of malnutrition and obesity

Prevalence of Children/Adolescents [6-15 years] overweight/obesity in the Bangladesh

Children/Adolescents [6-15 years] overweight/obesity

- >1% to 17.9%
- 3.5% obese, 10.0%[boys 10.2% girls 9.8%]
- 9.5% overweight, 5%[boys 4.3% girls 5.8%]

Underweight [6-15 years]

- 17.6% underweight [-2SD of BMI]

Prevalence of overweight Globally

- Globally, in 2016, over one in six adolescents aged 10–19 years was overweight.
- Prevalence varied across WHO regions, from lower than 10% in the WHO South-East Asia region to over 30% in the WHO Region of the Americas .

How has the obesity epidemic arisen?

Contributing Factors

- Built environment
- Commercial environment
- Environment factors that promote overeating
- Environmental factors that reduce physical activity
- Lack of public information
- Genetic Factors

Built environment

- Includes transportation systems, architectural design, use of land, parks, and public spaces.
- Life style discourages physical activity & encourage automobile use
- Neighborhoods without sidewalks - discourage walking.
- Tall buildings discourage stair case & encourage elevator and escalator use

Commercial environment

- Low cost junk food available everywhere heavily advertised especially to children.
- Many schools have vending machines & fast food outlets.
- Heavy promotion of activities and products that discourage physical activity.
- Sedentary forms of entertainment e.g. Home entertainment systems ...etc

Environment factors that promote overeating

- Availability of fast food & snacks
- Easy accessibility
- Low Cost
- Good taste
- Big Portion Size
- High Fat Content
- Energy Dense soft Drinks

Environmental factors that reduce physical activity

Technological advances reduce need for physical activity

- In most occupations
- In most jobs
- For daily living and household activities
- In schools
- Competition from attractive sedentary activities:
television, video/DVD, video/computer games, internet

Why people physically inactive?

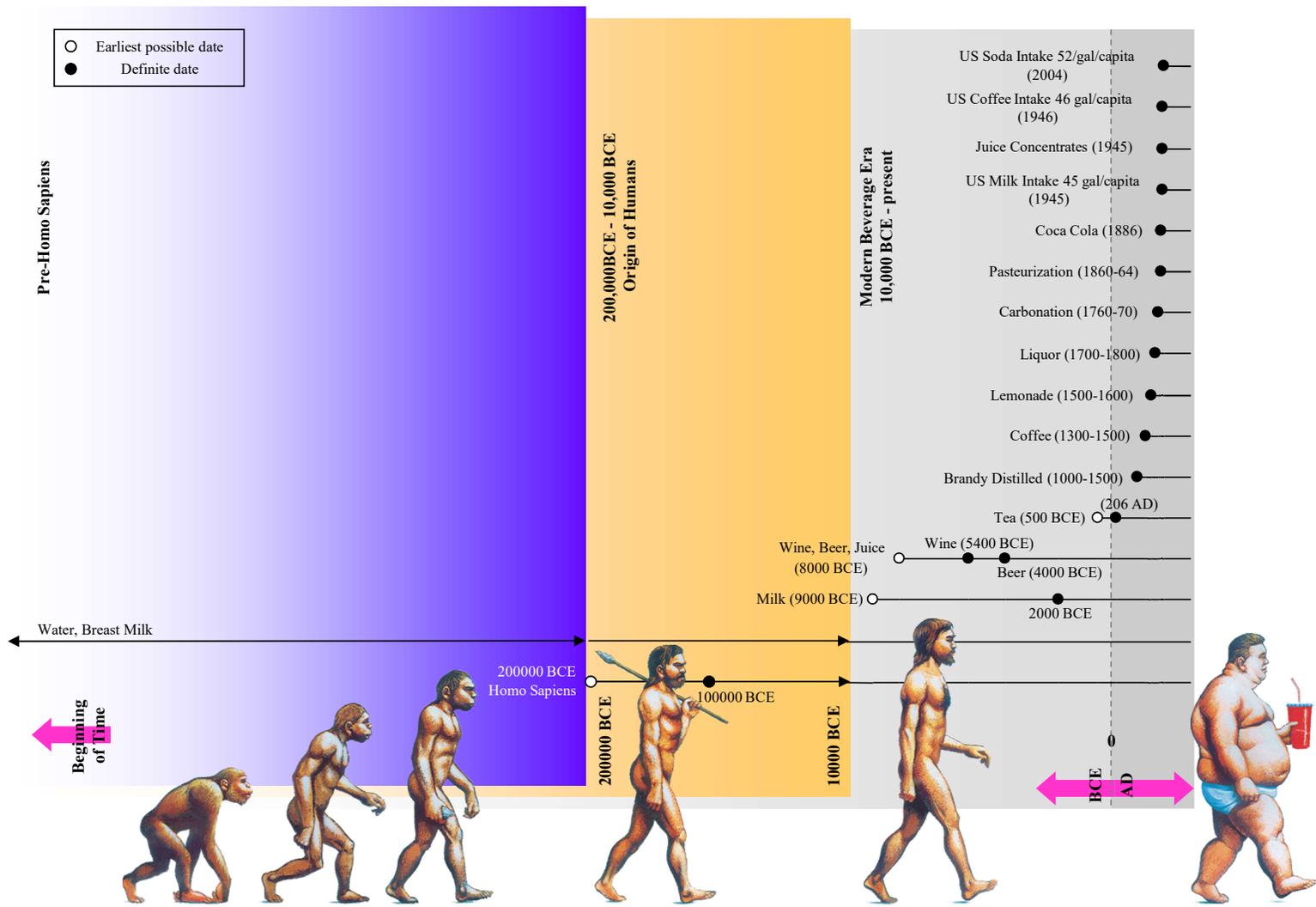
- Lack of awareness regarding the of physical activity for health fitness and prevention of diseases
- Social values and traditions regarding physical exercise (women, restriction).
- Non-availability public places suitable for physical activity (walking and cycling path, gymnasium).
- Modernization of life that reduce physical activity (sedentary life, TV, Computers, tel, cars).

Lack of public information

- Some people can not judge which products are high in fat and by how much.
- Food manufacturers display macronutrients in grams, when the correct way would be to express their contribution in energy.
- Advertising gives children confused messages about nutrition, and can change their food preferences and buying behaviour.
- Subsidies on food products play an important part, as children as well as adults, are influenced by cheap prices.

- Gradual weight gain of up to 1 kg/month, can be produced by a very small degree of positive energy balance of 50 kcal/day.
- Obesity results from excessive caloric intake, decreased energy expenditure and/or from a combination of the two.
- Decreased physical activity as technology & urbanization promotes sedentary life style

Remarkably Short History for Caloric Beverages: Might the Absence of Compensation Relate to This Historical Evolution?



Energy intake

In 1980, about 50 percent of high school seniors reported **eating green vegetables** “nearly every day or more.”

By 2003, that figure had dropped to about 30 percent.

(YES Occasional Papers. Paper 3. Ann Arbor, Mich.: Institute for Social Research, May 2003)



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Energy intake

Between 1977-78 and 2000-01, *milk consumption* decreased by 39 percent in children ages 6-11, while consumption of *fruit juice* rose 54 percent, fruit drink consumption rose 69 percent and consumption of *carbonated soda* rose 137 percent.



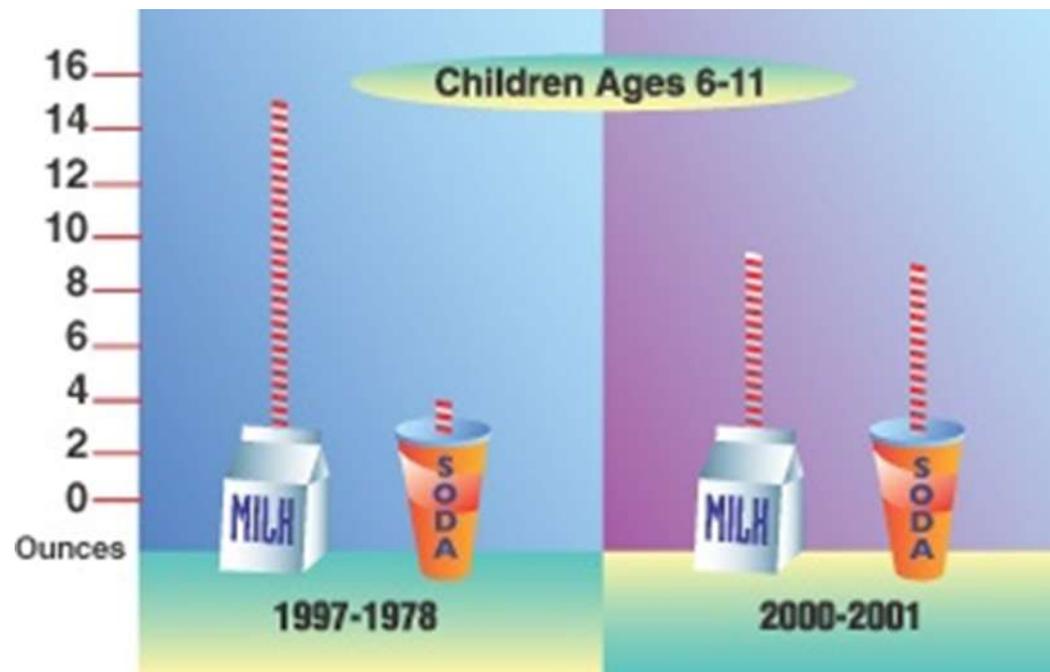
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Energy intake

In 1977-78, children ages 6-11 drank about four times as much milk as soda.

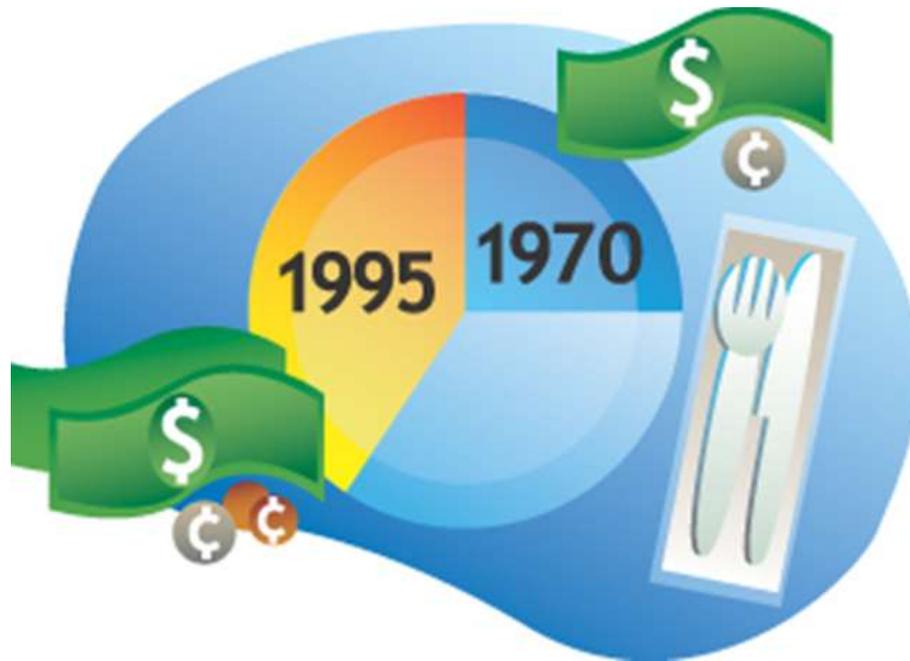
In 2001-02, they drank about the same amounts of *milk and soda*.



Energy intake

In 1970, about 25 percent of total food spending occurred in *restaurants*.

By 1995, 40 percent of food dollars were spent away from home.



Energy intake

Children eat nearly twice as many calories (770) at *restaurants* as they do during a meal at home (420).



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Physical activity and Sedentary behavior

According to a national study, 92 percent of elementary schools do not provide daily physical education classes for all students throughout the entire school year.



Physical activity and Sedentary behavior

Six out of 10 children ages 9-13 don't participate in any kind of organized sports/physical activity program outside of school, and children whose parents have lower incomes and education levels are even less likely to participate.

Nearly 23 percent don't engage in any free-time physical activity.



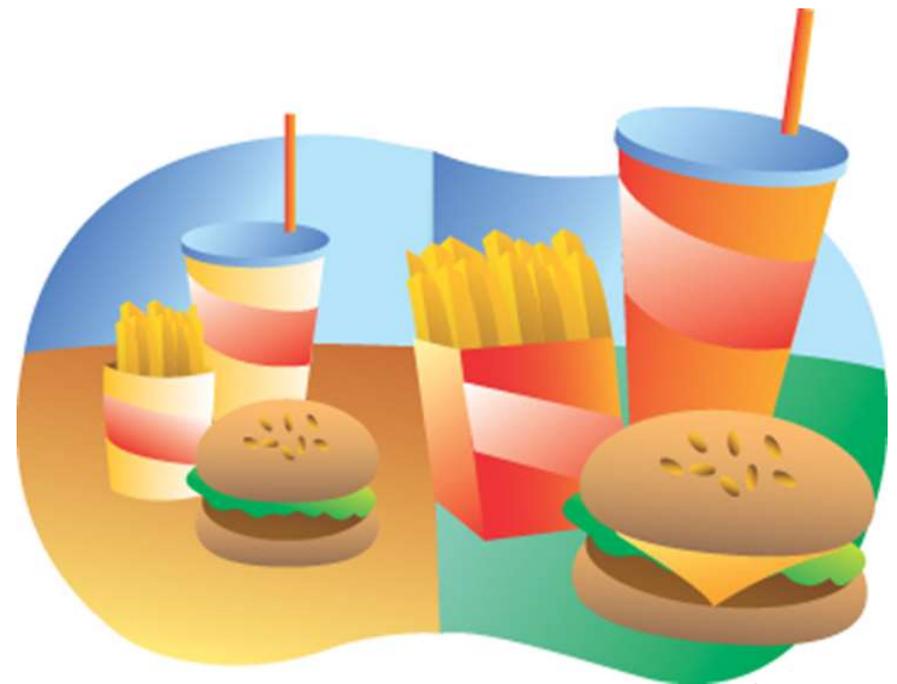
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Studies have shown that, between 1977 and 1996, portion sizes for key food groups grew markedly in the United States, not only at fast-food outlets but also in homes and at conventional restaurants.

One study of portion sizes for typical items showed that:

- Salty snacks increased from 132 calories to 225 calories.
- Soft drinks increased from 144 calories to 193 calories.
- French fries increased from 188 calories to 256 calories.
- Hamburgers increased from 389 calories to 486 calories.



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Morbidity associated with obesity

[what are the common consequences of overweight and obesity]

- Type 2 Diabetes
- Cardiovascular Disease
- Stroke
- Hypertension
- Nonalcoholic fatty liver disease
- Osteoarthritis
- Some cancers

Common consequences of overweight and obesity

TABLE 2-1 Physical Health, Psychosocial, and Functional Consequences of Obesity Over the Life Course

Physical Health	Psychosocial	Functional
<ul style="list-style-type: none"> • Cardiovascular disease • Cancer • Glucose intolerance and insulin resistance • Type 2 diabetes • Hypertension • Dyslipidemia • Hepatic steatosis • Choleslitis • Sleep apnea • Reduction of cerebral blood flow • Menstrual abnormalities • Orthopedic problems • Gallbladder disease • Hyperuricemia and gout 	<ul style="list-style-type: none"> • Stigma • Negative stereotyping • Discrimination • Teasing and bullying • Social marginalization • Low self-esteem • Negative body image • Depression 	<ul style="list-style-type: none"> • Unemployment • Mobility limitations • Disability • Low physical fitness • Absenteeism from school or work • Disqualification from active service in the military and fire/police services • Reduced productivity • Reduced academic performance

SOURCE: Adapted from IOM, 2010a.

Conclusions

- Obesity is not a disease, it is a public health problem and it is a risk factor for several chronic diseases.
- Understanding the role of environmental factors on development of obesity help in control & prevention.
- Healthy eating combined with increased physical activity is the answer

Your will and your lifestyle are in control of weight management.

Exercise vs. Lifestyle Physical Activity



Exercise



Lifestyle Physical Activity

THANK YOU