

OBESITY

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Definition

- Obesity is a medical condition in which excess body fat accumulates to the extent that it may have a negative effect on health, leading to reduced life expectancy and/or increased health problems
- Latin word "OBESUS" meaning fat.
- $BMI \geq 30$

Obesity **vs** Overweight

► **Overweight**

- Fat
- Fluid
- Muscle mass
- Bone
- Tumors

► **Obesity**

- Fat(adipose tissue)

Epidemiology

- ▶ The worldwide prevalence of obesity nearly **tripled** between **1975** and **2016**.
- ▶ In **2016**, more than **1.9 billion adults, 18 years and older**, were **overweight**. of these over **650 million** were **obese**.
- ▶ **39%** of adults aged **18 years** and over were **overweight** in 2016, and **13%** were **obese**.

Epidemiology Cont.

- ▶ Most of the world's population live in countries where **overweight** and **obesity kills** more people than underweight.
- ▶ Over **340 million** children and adolescents aged **5-19** were overweight or obese in **2016**.
- ▶ Overall, about **13%** of the world's adult population (**11% of men** and **15% of women**) were obese in

Epidemiology Cont.

- ▶ The prevalence of **overweight** and **obesity** among children and adolescents aged **5-19** has risen dramatically from just 4% in 1975 to just over 18% in 2016.
- ▶ Obesity is preventable.

(WHO, Oct. 2017)

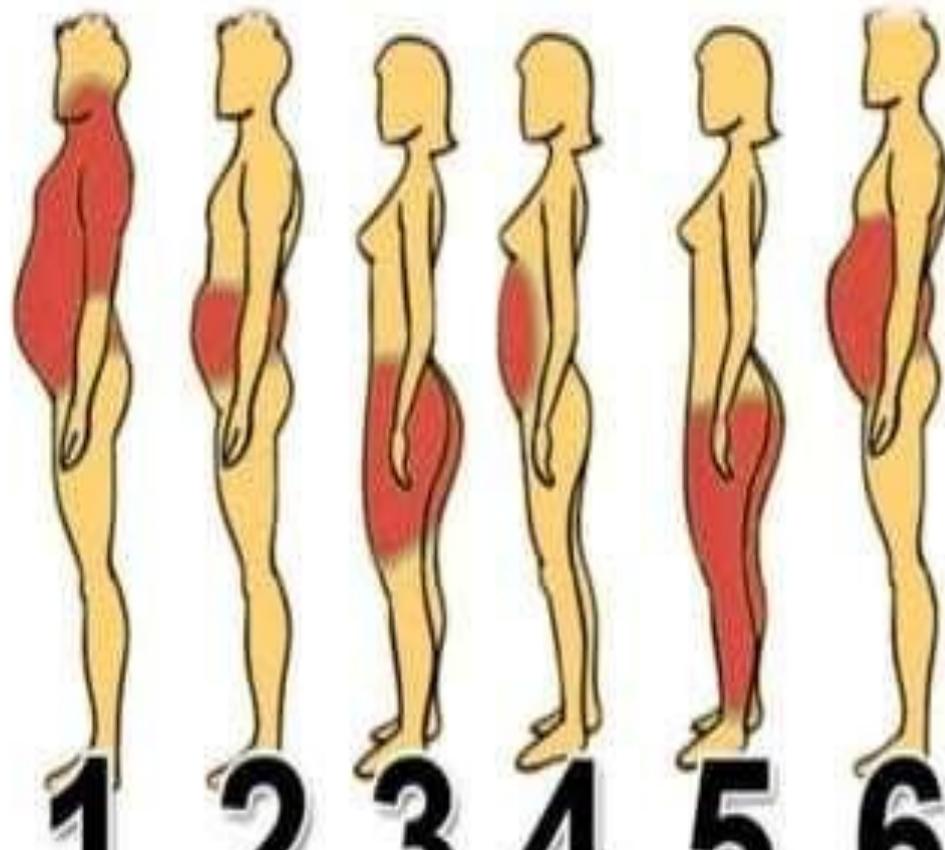
Measurement of obesity

- ▶ BMI
- ▶ Waist hip ratio
- ▶ Skin fold thickness
- ▶ Air displacement Plethysmography
- ▶ Total body electrical conductivity

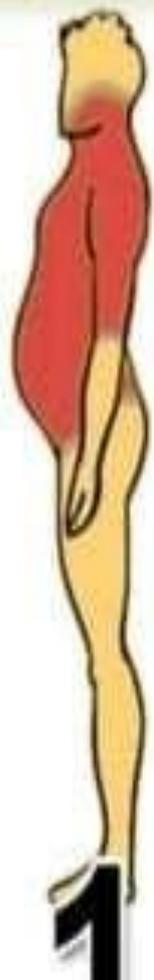
- **Air displacement plethysmography (ADP)**
 - Assesses body volume
 - $\text{Mass/Volume} = \text{Density}$
 - Density of fat is a constant
 - Density of fat-free mass is variable by age and is estimated
 - Prediction equation relates mass, and these densities to yield:
 - **Fat Mass**
 - **Fat-free Mass**
 - **Percent Body Fat**



Types of obesity



1. Inactivity Obesity



- It is no secret that a lack of physical activity can cause you to become overweight. In this type of obesity, once-strong parts of the body quickly gain fat and become unhealthy.

2. Food Obesity



- ▶ If you overeat, and particularly if you overindulge in unhealthy foods, you may suffer from food obesity.
- ▶ Excessive sugar intake can also cause food obesity, which may lead to accumulation of fat around the middle part of the body.

3. Anxiety Obesity



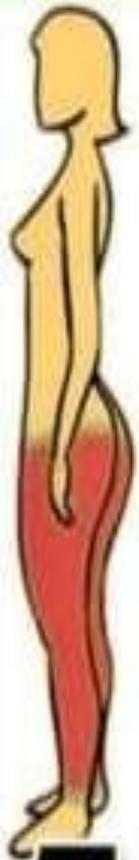
- Anxiety or depression can often lead to overeating and accumulation of fat in the body, since the body must constantly survive in fight-or-flight mode.
- To treat this type of obesity, you must control your anxiety.
- Common treatments include medication, a decrease in caffeine intake.

4. Venous Obesity



- ▶ Venous circulation is one obesity cause that is genetic in nature, rather than habitual in nature. If anyone in your family suffers from venous circulation, you run the risk of the same condition.
- ▶ This type of obesity is particularly common in pregnancy.
- ▶ Exercise is the best solution for this problem.

5. Gluten Obesity



- ▶ You are likely no stranger to the many health problems that gluten can cause. In fact, gluten can actually cause obesity.
- ▶ This type of weight gain is most common in women.
- ▶ It is often spotted during periods of hormonal change, like puberty, pregnancy, and menopause.

6. Atherogenic Obesity



- ▶ People whose fat tends to accumulate in the stomach area often suffer from atherogenic obesity.
- ▶ This is a particularly dangerous condition since it can affect your other organs and lead to breathing problems.
- ▶ It is extremely important to avoid drinking alcohol if you have atherogenic obesity.

Several factors are responsible for obesity

- ▶ Behavioral and lifestyle factors
- ▶ Diseases
- ▶ Mental illness
- ▶ Genetics

Behavioral and lifestyle factors

- ▶ Unhealthy dietary patterns
- ▶ Less physical inactivity
- ▶ Medication use
- ▶ Easy availability of fast food
- ▶ Unfavorable physical activity environment
- ▶ Less education and skills
- ▶ Food marketing and promotion

Behavioral and lifestyle factors

1. Diet

- ▶ **A diet high in simple carbohydrates.**

Carbohydrates increase blood glucose levels, which in turn stimulate insulin release by the pancreas, and insulin promotes the growth of fat tissue and can cause weight gain.

Behavioral and lifestyle factors

1. Diet Cont.

- ▀ **Frequency of eating.** The relationship between frequency of eating (how often you eat) and weight is somewhat controversial

Behavioral and lifestyle factors

2. Sedentary lifestyle

- **Physical inactivity.** Sedentary people burn fewer calories than people who are active. The National Health and Nutrition Examination Survey (NHANES) showed that physical inactivity was strongly correlated with weight gain in both sexes.

Behavioral and lifestyle factors

3. Medications

- ▶ Medications associated with weight gain include certain **antidepressants**, **anticonvulsants**, some **diabetes medications**, certain **hormones** such as **oral contraceptives**, and most **corticosteroids**.
- ▶ Weight gain may also be seen with some **high blood pressure medications** and **antihistamines**.

Diseases

Many diseases like

- ▶ Cushing's disease
- ▶ Polycystic ovary syndrome
- ▶ Thyroid and other endocrine disorders

Mental illnesses

- ▶ Depression
- ▶ Eating disorders

Genetics

- ▶ A person is more likely to develop obesity if one or both parents are obese.
- ▶ Genetics also affect hormones involved in fat regulation.
- ▶ For example, one genetic cause of obesity is **leptin deficiency**.

Health consequences of obesity

According to CDC obesity affects almost all organ systems and creates adverse health effects.

1. Hypertension
2. Dyslipidemia
3. Type 2 diabetes
4. Coronary heart disease
5. Stroke

Health consequences of obesity Cont.

6. Gallbladder disease
7. Osteoarthritis
8. Sleep apnea, obesity related asthma
9. Endometrial, breast, colon, liver cancers
10. Low quality of life
11. Mental illness
12. Chronic pain

Prevention

Primary Prevention

Lifestyle Assessment Related to Obesity Risk

- ▶ Assess BMI at least annually, monitor for increasing BMI.
- ▶ Review dietary and physical activity habits in addition to sleep duration
- ▶ Review other obesity risk factors such as **medical comorbidities**, **familial obesity**, **medication** use, and lack of **nutrition knowledge** and/or **skills for food**

Primary Prevention Cont.

Counseling and Approaches

- ▶ Discuss weight control interventions for overweight patients to prevent the progression to obesity
- ▶ Encourage a self-management approach including setting goals for healthy lifestyle habits

Primary Prevention Cont.

Physical Activity and Exercise

- ▶ Encourage adults and children to engage in regular physical activity and decrease sedentary activity.

Physical Activity Recommendations with Definitions and Examples

A. Children & Adolescents

Minimum of one hour of active play and other activities daily that include moderate-or vigorous-intensity aerobic physical activity, muscle-strengthening activities, and bone-strengthening activities

Physical Activity Recommendations with Definitions and Examples Cont.

B. Adults

Aerobic exercise – either or a combination of:

1. At least 150 minutes of moderate-intensity exercise weekly.
2. At least 75 minutes of vigorous-intensity exercise weekly.

Physical Activity Recommendations with Definitions and Examples Cont.

B. Adults

For additional health benefits, also consider:

- 1. Strength/resistance exercises** 2-3 days/week
- 2. Neuromotor exercise** (balance, agility, and coordination) 2-3 days/week
- 3. Flexibility exercises** \geq 2 days/week

Physical Activity Recommendations with Definitions and Examples Cont.

Flexibility



Strength



Neuromotor



Primary Prevention Cont.

Diet and Eating

1. Promote consumption of a variety of nutritious foods.
2. Recommend avoidance of high calorie foods and sugar sweetened beverages.

Primary Prevention Cont.

Diet and Eating

3. Encourage and support breastfeeding during infancy
4. Encourage families to create a healthful eating environment that is responsive to hunger and fullness cues

Primary Prevention Cont.

Diet and Eating

5. Discuss ways to access affordable healthy foods
6. Promote family meals and limited eating out and fast food
7. Limit children's screen time and exposure to food and beverage marketing

Primary Prevention Cont.

5-2-1-0 (Quick Summary for Children and Adolescents)

5 or more servings daily of fruits and vegetables.

2 hours or less of screen time daily (Keep TV/computer out of bedroom. No screen time under the age of 2.)

1 hour or more daily of physical activity

0 sugary drinks – more water & low fat milk

Primary Prevention Cont.

Sleep

- ▶ Promote age-appropriate sleep durations.

Children:

- ▶ Preschoolers (3-5 years): 11-13 hours),
- ▶ Pchool-aged (5-12 years: 10-11 hours)

Adolescents and Adults:

- ▶ Adolescents (12-18 years): 9-10 hours),

Secondary Prevention

1. Annual assessment of BMI should be recorded and discussed with patients.
2. Annual assessment of BMI should be recorded and discussed with patients.
3. indicating increased risk for developing obesity.

Secondary Prevention Cont.

General goals of weight management in obese persons are:

1. Reduce body weight
2. Sustain weight loss by minimizing risk of weight gain
3. Prevent further weight gain.

Thank
you

