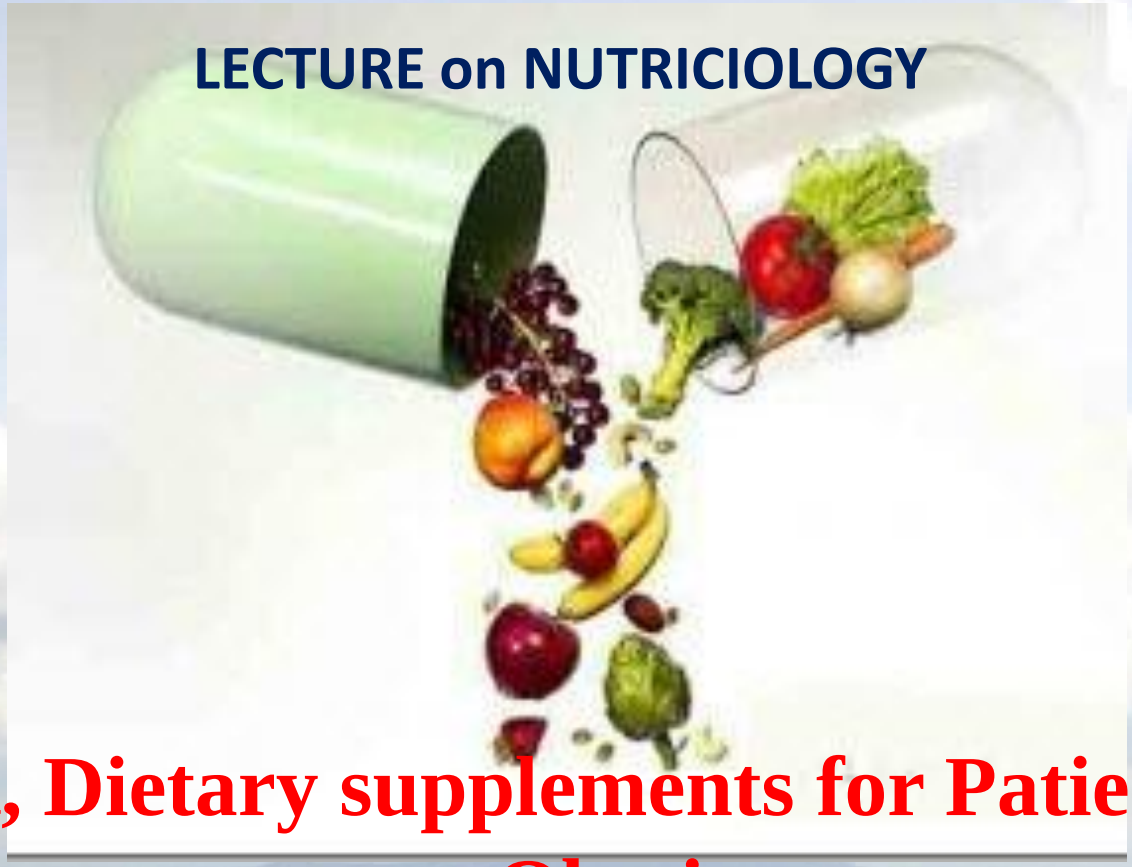
National University of Pharmacy

Department ofchemisry of natural compounds and nutriciology



Diet, Dietary supplements for Patients with Obesity

Kharkov 2020

Plan

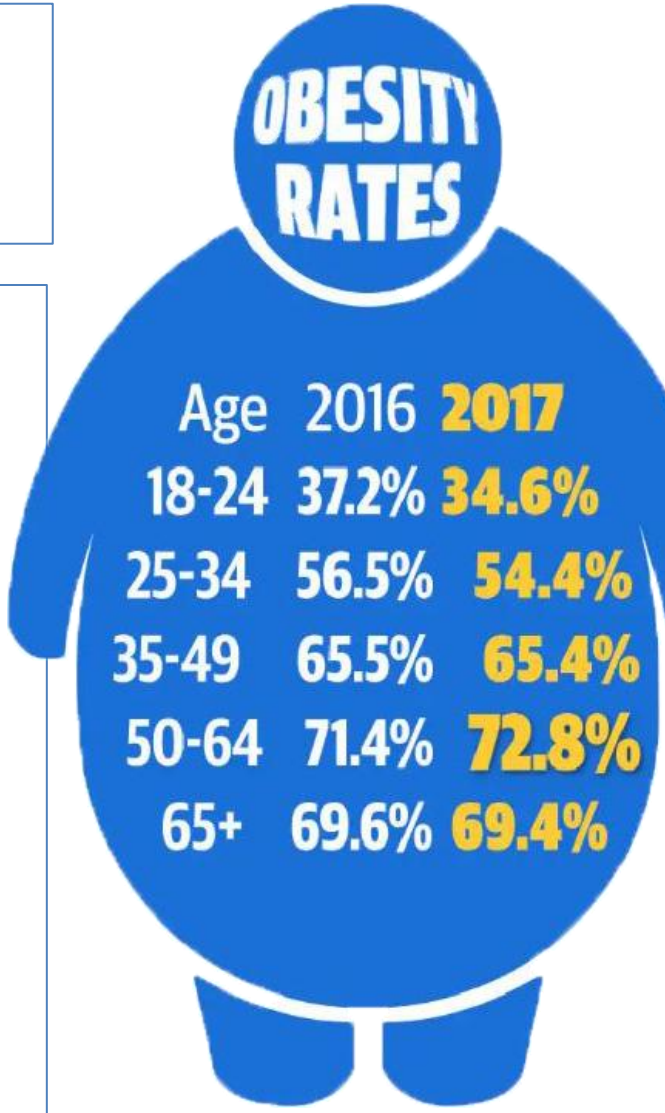
- Risk Factor for obesity
- Primary and secondary obesity
- Causes of obesity
- Energy imbalance
- Health risk of obesity
- Obesity diet
- Foods which are recommended and to be avoided

Risk Factors for Obesity

- **Diet: high calorie and low nutrient dense foods**
- **Physical Inactivity**
- **Age**
- **Socioeconomic status**
- **Certain medical conditions and medications**
- **Race**
- **Smoking cessation**
- **Family History**
- **Genetic susceptibility**

Just the Facts!

- According to WHO:
  As of 2005
  - 1.6 billion adults (over 15 years old) are overweight
  - 400 million are obese
  - Projects by 2015, 2.3 billion will be overweight and 700 million obese

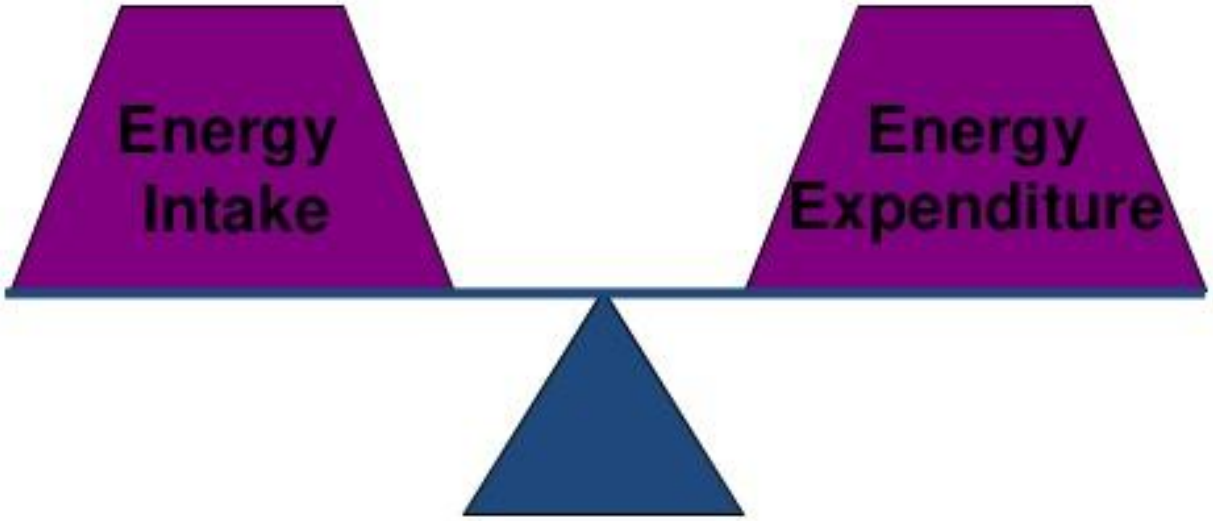


- **Primary or alimentary-exogenous obesity is distinguished, which in case of the absence of any disease is characterized by an excess of normal body weight due to the accumulation of fat. It is most common and accounts for 80% of all cases of obesity.**
- **Secondary obesity occurs due to endocrine and cerebral diseases.**

Obesity

- **Definition: excessive weight that may impair health**
- **How do we measure If someone is obese?**
  - **Body Mass Index (BMI)**
- **BMI Categories:**
  - **Normal weight = 18.5-24.9**
  - **Overweight = 25-29.9**
  - **Obesity = BMI of 30 or greater**

CAUSES OF OBESITY

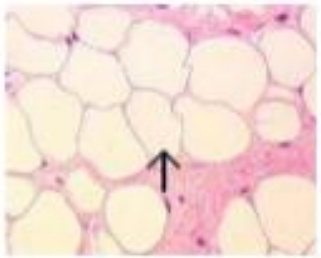


nutritional, activity levels, endocrine, genetic, drugs

Energy Imbalance
What is it?

- *Energy balance* can be compared to a scale.
- An *energy imbalance* arises when the number of calories consumed is *not equal* to the number of calories used by the body.
- *Weight gain* usually involves the combination of consuming too many calories and not expending enough through physical activity.

Energy Imbalance
Effects in the Body



- Excess energy is stored in fat cells, which enlarge or multiply.
- Enlargement of fat cells is known as *hypertrophy*, whereas multiplication of fat cells is known as *hyperplasia*.
- With time, excesses in energy storage lead to obesity.

Fat cells

2009

J La State Med Soc .2005; 156 (1): S42-49.

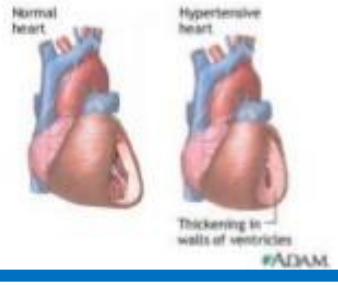
Factors Contributing to Obesity

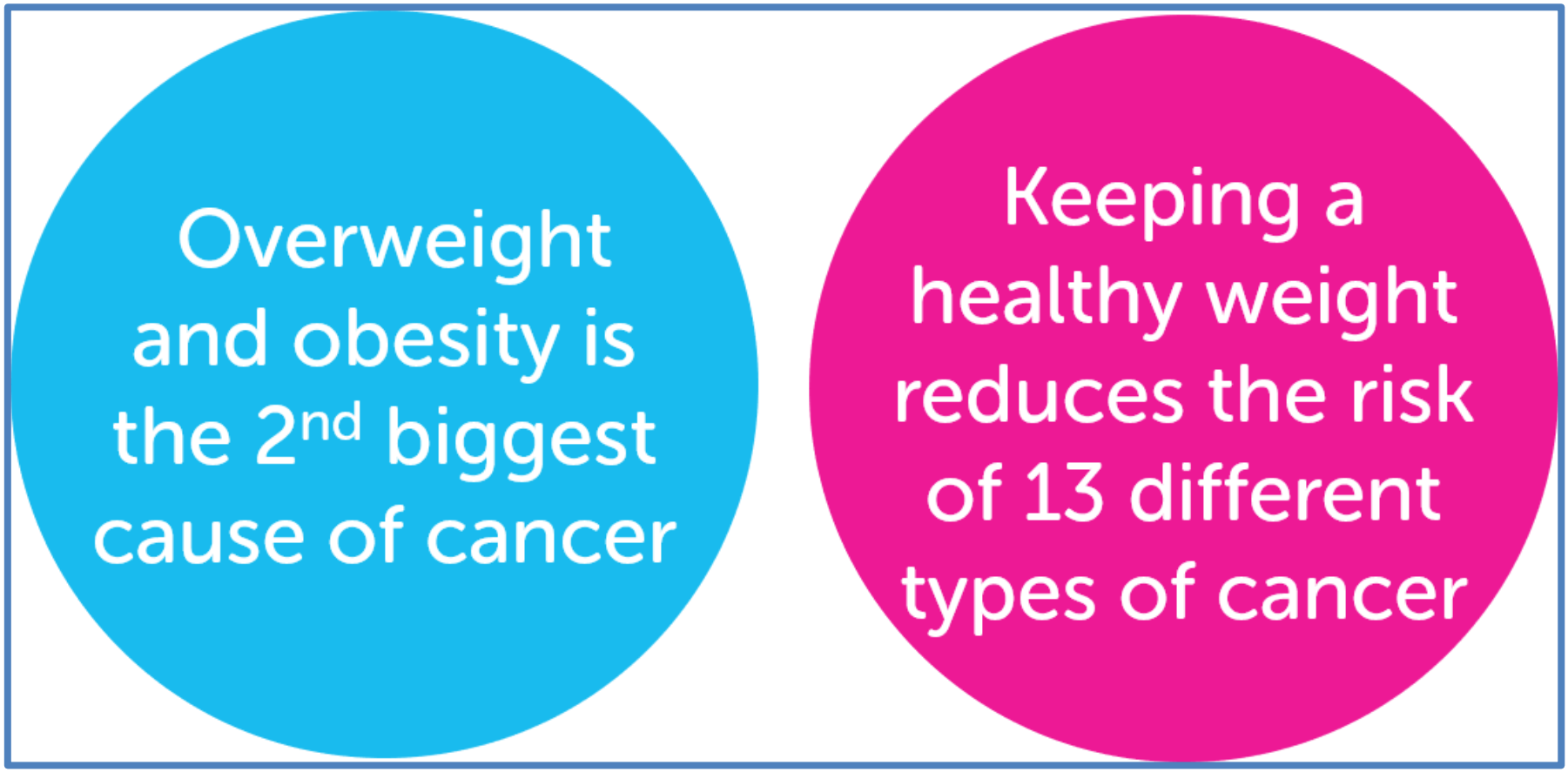
Lifestyle	**Psychosocial**	**Biomedical**
• Poor diet • Skipping meals • Sugary soft drinks • Poor sleep • Snacking • Alcohol • Sedentariness • Etc.	• Depression • Anxiety • Binge eating • Boredom • Social events • Low income • Stress • Etc.	• Genetics • Metabolism • Intrauterine growth • Medications • Injury • Mobility issues • Etc.

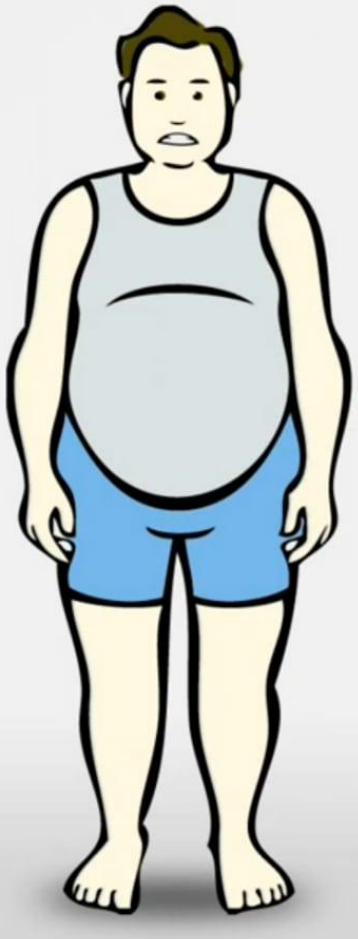
"SUPER SIZING"....

Health risks

- Psychological burden
- Osteoarthritis
- High blood pressure
- Increased level of cholesterol
- Diabetes
- Increased heart disease
- Cancers
- Stroke, dvt
- Renal disease
- Sleep apneas
- Menstrual irregularities
- Gallbladder diseases




Overweight and obesity is the 2nd biggest cause of cancer
Keeping a healthy weight reduces the risk of 13 different types of cancer



THE METABOLIC SYNDROME

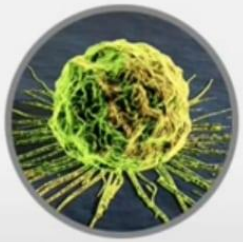
HEART DISEASE

LIPID PROBLEMS

HYPERTENSION

TYPE 2 DIABETES

DEMENTIA



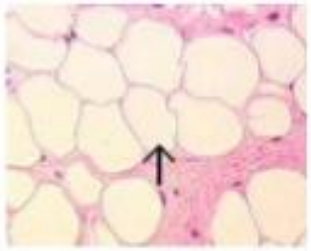
CANCER

POLYSYSTIC OVARIAN SYNDROME

NON-ALCOHOLIC FATTY LIVER DISEASE

Criteria for excessive body fat

- Percentage of body mass composed of fat
- Regional fat distribution
- Adiocytes size and number.



Obesity in the U.S.

- Obesity is further divided into three separate classes, with Class III obesity being the most extreme of the three.

With a BMI of:	*You are considered:*
Below 18.5	Underweight
18.5 - 24.9	*Healthy Weight*
25.0 - 29.9	Overweight
30 or higher	**Obese**

Obesity class	**BMI (kg/m²)**
Class I	30.0- 34.9
Class II	35.0-39.9
Class III (Extreme Obesity)	≥ 40.0

CDC, NHLBI

What is overweight and obesity?

- **Everyone has a Body Mass Index (BMI):**
- **BMI = weight in kilograms/ (Height in meters) ²**
- **Underweight <18.5**
- **Normal weight 18.5 - 24.9**
- **Overweight 25 - 29.9**
- **Obesity 30 - 39.9**
- **Morbid (expressed) obesity ≥ 40**

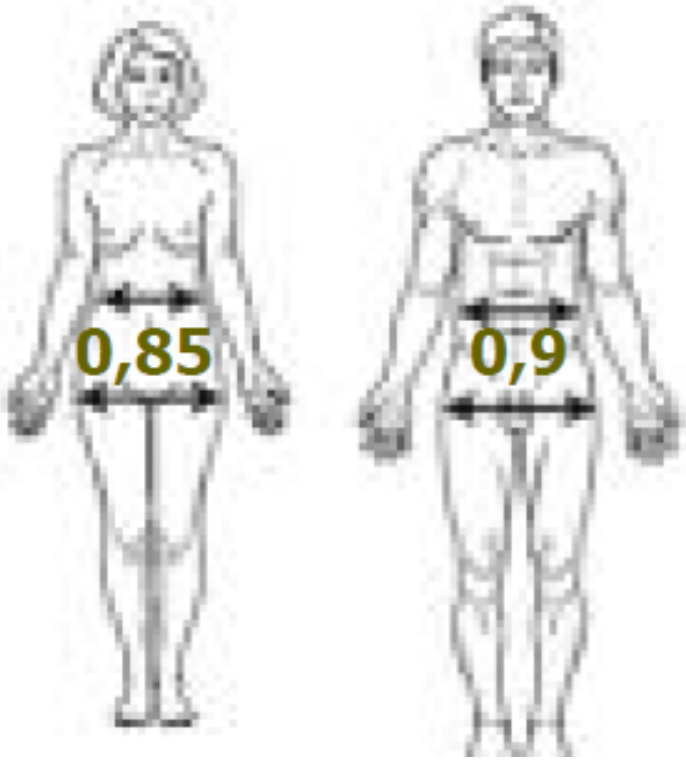
Nutritional assessment

- Diet History
- Height
- Weight
  - 20% above IBW (Metropolitan Life)
- BMI (kg/m^2)
- Circumferences
  - Waist
  - Waist/hip ratio
- Skinfolds
- Body fat cell distribution
  - Central
  - Peripheral
- Body Composition
  - BIA
  - DEXA – gold standard

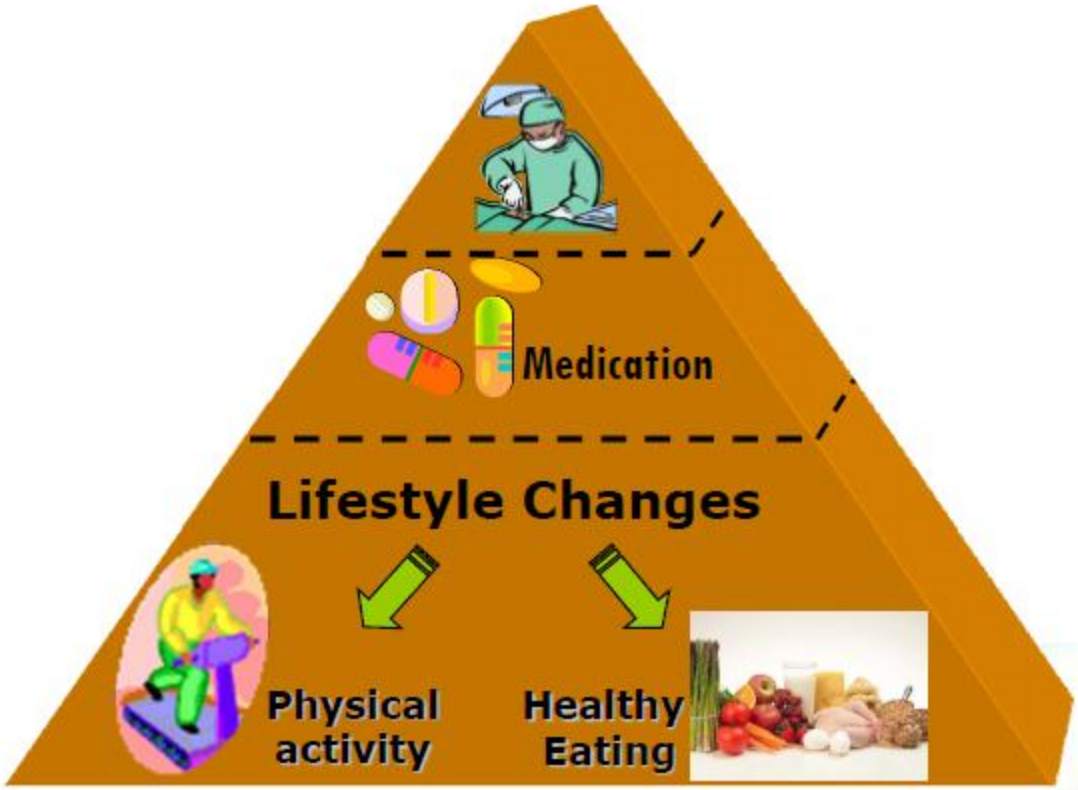
CMAJ 2007;176:S1-S13

Circumferences – Good indicators risk

- Waist/ Hip Ratio (W/H)
- Visceral obesity (abdominal/peripheral)
- Males
  - W/H>0.9
  - Waist > 102 cm
- Females
  - W/H>0.85
  - Waist > 88 cm



Obesity Treatment Pyramid

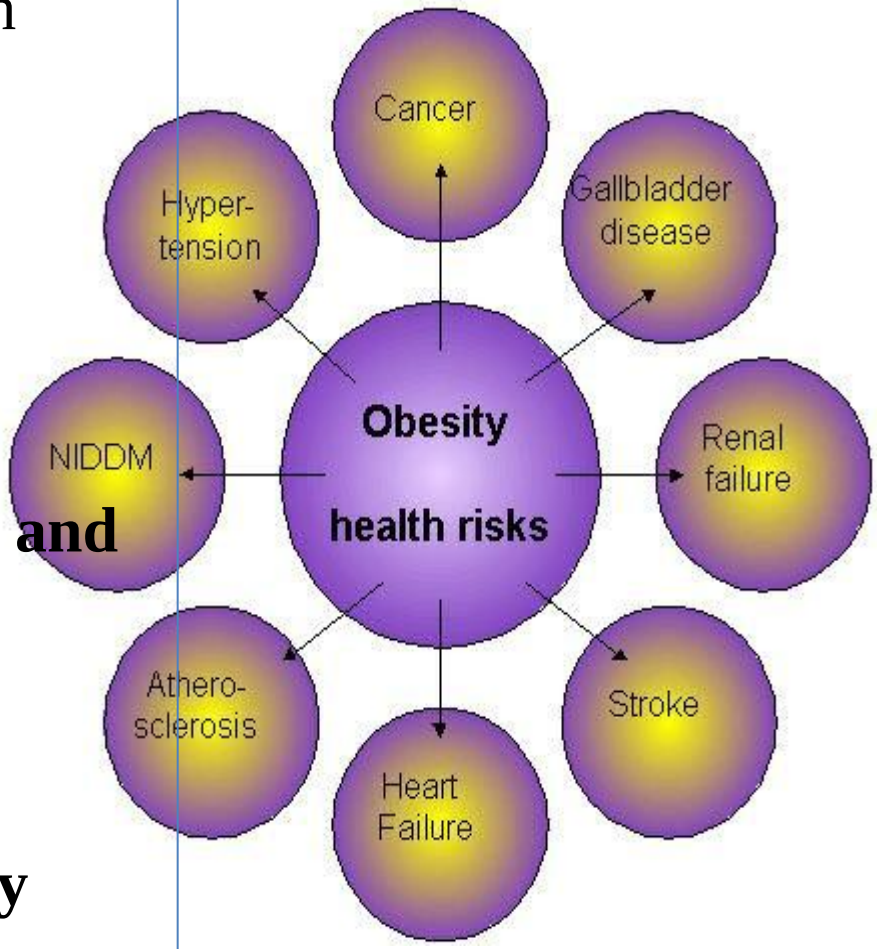


Cause of Obesity

- Simple equation…when you eat more than you use..it is stored in your body as "fat".
  - Causes
    - Global shift in how we eat
    - Western diet of processed food
    - Higher sugar, fat and calories in what we eat
    - Less nutrients
    - Reduced intake of vitamins and minerals

What does obesity do to our bodies?

- With more people gaining too much weight..there are health issues to consider
  - **Cardiovascular disease**
  - **Diabetes type 2**
  - **Musculoskeletal disorders**
  - **Cancers-endometrial, cervical and colon**
  - **Infertility**
  - **Gallstones**
  - **Premature death and disability**



If you decide to become a beautiful, graceful, wise, competent person, to change something in yourself, to lead a different lifestyle that will allow you to be more active - YOU NEED TO REMEMBER A FEW SIMPLE RULES:

- The main goal of treatment for diabetes and obesity - the **normalization of metabolic processes.**
- Diet - it does not mean hunger, on the contrary, to reduce your weight, **you need to eat 5 times a day!**
- **Diet regime** - the main way of treating obesity and diabetes 2!
- **Proper nutrition** - an important component of health.

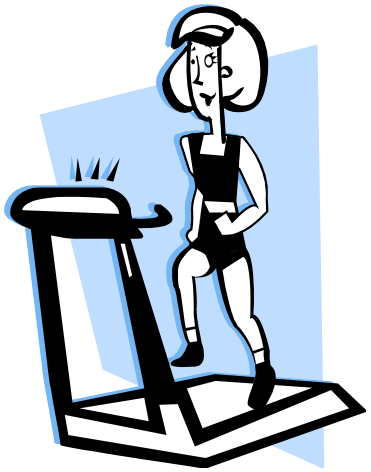
Be sure to measure your waist and record the values. Soon they will begin to decrease!

- Another important index - the value of waist circumference.
- **Normally, it should not exceed 94 cm in men and 80 cm in women.**
- If your waist circumference is greater than these numbers, you - abdominal type of obesity, i.e. fat is stored mainly around the internal organs - the liver, pancreas, heart, disrupting their work.
- It is this type of obesity **is most dangerous** to the development of diabetes, coronary heart disease, hypertension, myocardial infarction.

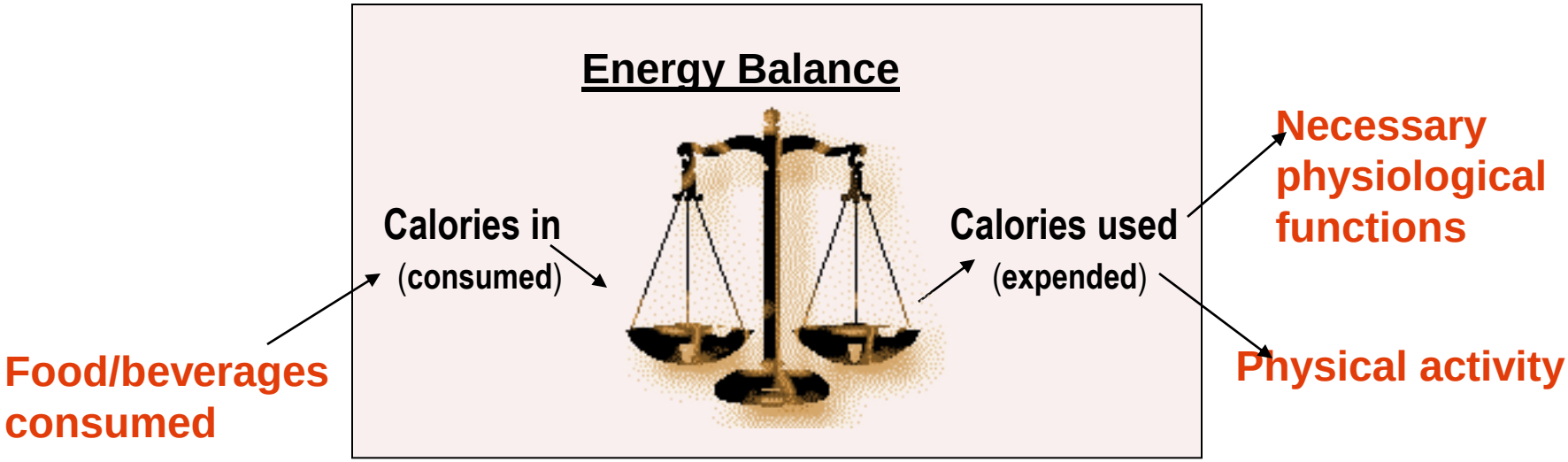
What causes obesity?

The most common cause of overweight and obesity - the imbalance between what we eat and how much, and how much and we are moving regularly.

Calories Used



- **Eating, digestion, sleeping, breathing, and movement.**
- **Excess calories.**
- **Physical activity.**



CDC

What are we eat?

- Food is a source of protein, fat, carbohydrates, and vitamins and minerals.
- To the food you take, to be useful, it should be every day:

Protein - 15% of the daily ration

Fat - not more than 30% of the daily ration

Carbohydrates - 55% of the daily ration

Amount of energy required for each person depends on the height, weight, age, sex and physical activity throughout the day.

Age group	Daily energy requirement, (kcal / day)	
	men	women
19 – 24 year	2600	2200
25 – 50 year	2400	2000
51 – 64 year	2200	1800
more 64 year	1900	1700

Amount of energy required for each person depends on the height, weight, age, sex and physical activity throughout the day.

For example, for an adult person with normal weight (BMI = 18.5-24.9 kg / m ²) and average physical activity during the day (office work) should be about **30 kcal / kg body weight per day.**

With a **deficit** of body weight (BMI less than 18.5 kg / m ²) daily kalorazh can be increased to **35-40 kcal / kg.**

Typically, patients with type 2 diabetes are overweight and obesity, which lead to the development of the disease, as well as contribute to the development of complications.

- If there is overweight (BMI = 25-29.9 kg / m ²) or obese (BMI greater than 30 kg / m ²), it is necessary to reduce the amount of calories to

15-20 kcal / kg body weight per day.

OBESITY: DIET

- The basis of preventive and therapeutic interventions for obesity should be **put change in the energy balance of the patient to the side of excess energy consumption on her arrival**.
- This is achieved by **reducing caloric diet and hygiene at the same time** by (walking, physical control, light sports, etc.) and spa (rubdown, shower, bath , bathing , etc.) activities that increase energy expenditure.
- **Feeding regime, not covering energy expenditure of the patient, should be appointed by the systematic and long term. Indication of the correct prescribed eating regime should serve not only decrease the patient's weight , but along with it, improving its health and performance.**
- When calculating calorie diet for obese people should be based on accepted standards for a healthy person as amended by the relevant restrictions .
- Dieters should lead an **active lifestyle .**

OBESITY

- **General characteristics of the diet following:**
  limiting the content of digestible carbohydrates and fats (mostly animal) with normal or slightly elevated protein content.

- **Restricting free liquid sodium chloride and appetizing foods and dishes.**

- **Increased fiber content.**

- **Use sugar substitutes for sugary foods and drinks (xylitol, sorbitol , etc.).**

- **Chemical composition and energy content of the daily diet:**

- **proteins - 90-110 g, fat - 80 g; carbohydrates - 150 g;**

- **ENERGETIC VALUE - 1700-1800 Kcal**

- **Food Technology: Meals are cooked, steamed, baked.**
- **Roasted, pureed and chopped products are undesirable.**
- **Low regular food.**
- **Eating 5-6 times a day.**

FOODS TO AVOID WHEN TREATING OBESITY:

- All ***simple or refined carbohydrates*** (white flour, white rice, white bread, pasta, cookies, cakes, crackers, processed snack foods, etc.).
- All foods containing ***refined sugar or synthetic sugar-substitutes such as aspartame***, Splenda, etc. These may actually contribute to weight gain, rather than aid in weight loss. Studies now show that artificial sweeteners trick the body into associating sweetness with zero calories. As a result, there's a tendency to splurge on the "real thing," because the body loses its ability to associate sweetness with a sense of fullness.
- ***Alcoholic beverages in excess*** since they hinder the functioning of the immune and digestive systems
- Carbonated soft drinks that cause blood pH levels to become acidic
- Bottom crawlers such as oysters, clams, and lobster that may contain toxic levels of mercury.
- Deep-sea fish such as tuna, mackerel, and swordfish that may contain toxic levels of mercury. Choose minimal-mercury tuna instead.

FOODS TO AVOID WHEN TREATING OBESITY:

- Farm-raised fish that contain PCBs and not enough omega-3 essential fatty acids, due to their land-based diets. Choose wild-caught salmon instead.

- ***Sodium nitrite*** found in processed foods such as hot dogs, lunch meats, and bacon

- ***Monosodium glutamate (MSG)*** found in many foods as a flavor enhancer

- ***Hydrogenated*** or partially hydrogenated oils (trans fats) found in many processed foods, deep-fried foods, fast foods, and junk food.

- ***Excessive caffeine intake.*** While moderate amounts of caffeine may be beneficial in boosting metabolism, excessive caffeine consumption can disrupt the body's systems, causing insomnia and digestive irregularity (constipation or diarrhea).

FOOD FOR OBESE PERSON

Food group	Benefits for obese person
Fruit and vegetable	Low energy and low fat
Nuts and almonds	Low energy and high protein
Whole meal and legume	Reduce the risk of diabetes
Dairy product	Low energy
Coffee	Reduce the chances of diabetes
Herbs	Phytochemical and antioxadants
Fish and sea foods	Low energy high protein

LOW FAT FOOD

- **Meat/Meat substitute**: Lean cuts of lamb chicken ,Processed meat prepared from lean meats, e.g., lean ham, lean frankfurters, lean meat with soy protein Dry beans and peas Tofu, tempeh; low-fat or nonfat meat analogs
- **Eggs:** Egg whites, cholesterol free egg substitute
- **Dairy products**: Milk: skim, or 1% (fluid, powdered, evaporated), butter milk Yogurt: nonfat or low fat yogurt of yogurt beverage
- **Fats and Oils**: Unsaturated oils, Olive, Canola, Peanut, Soybean, Margarine: made from oils listed above, light or diet margarine, especially soft or liquid forms. Use those with no trans fatty acids.
- **Breads, rice and pasta**: Breads with 2 g of fiber or more: whole grain, English muffins, bagels, buns, corn and flour tortillas

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- OK.. DONE, LET’S GO HOME!!