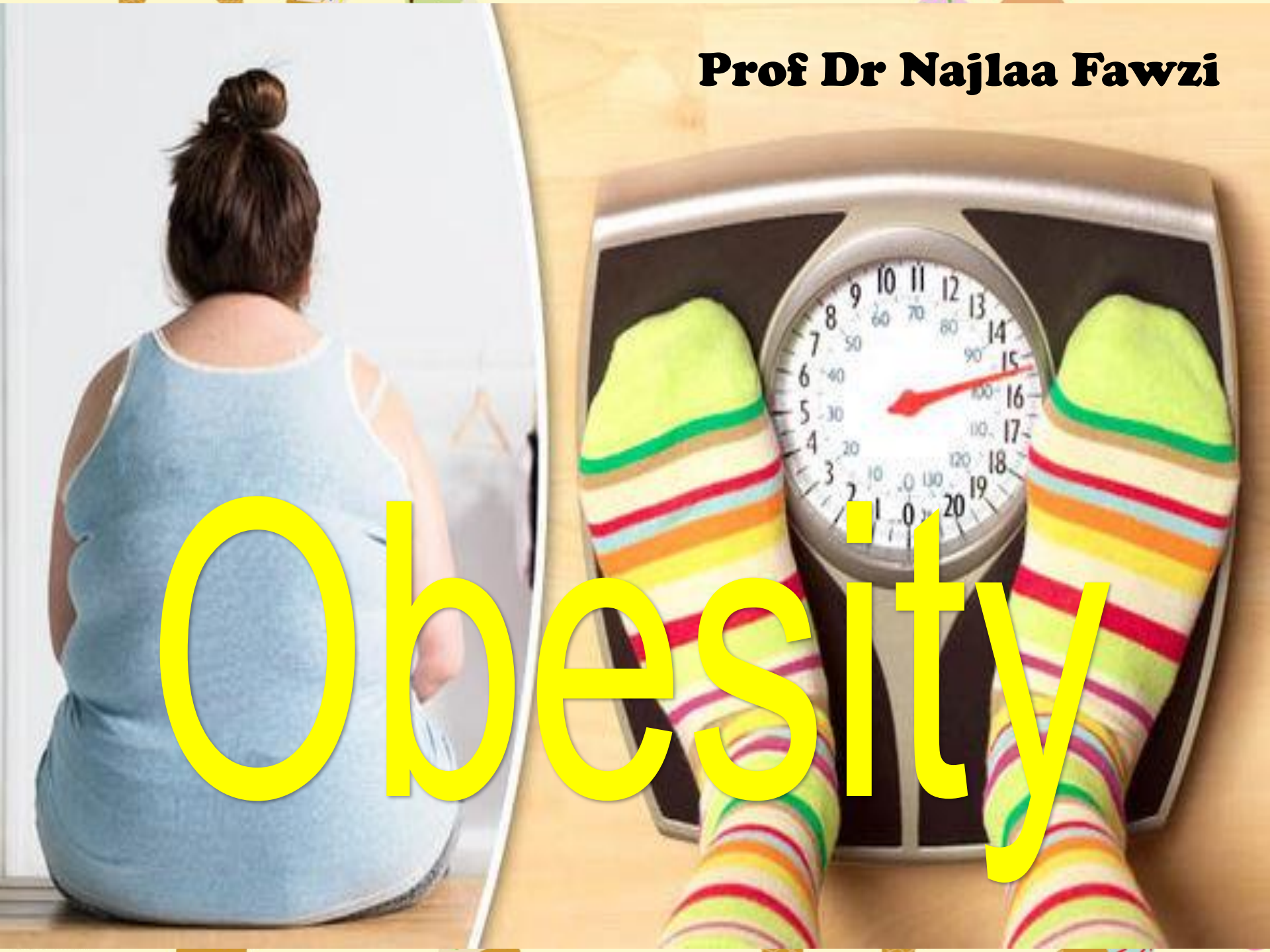
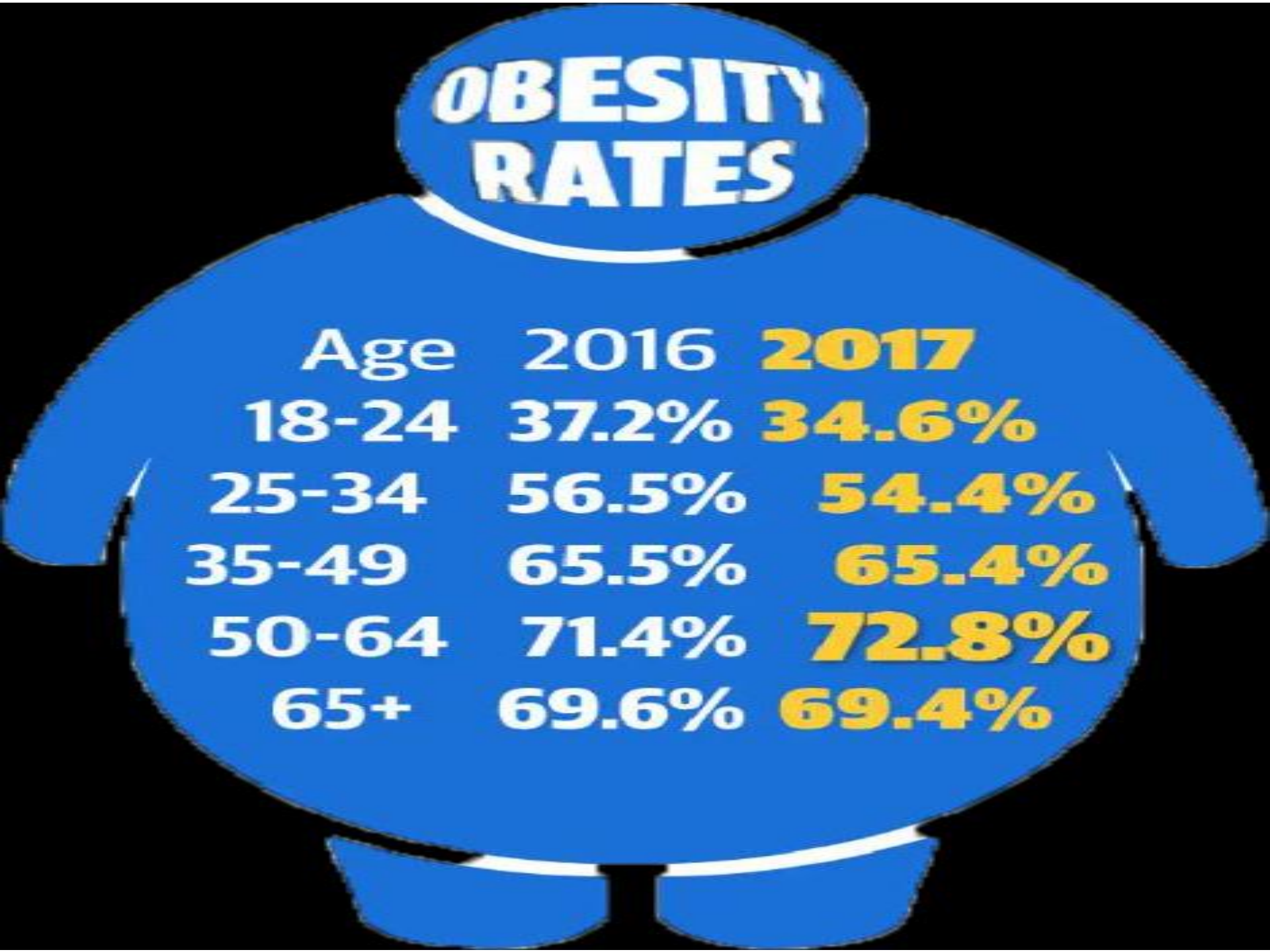
Prof Dr Najlaa Fawzi



Obesity


OBESITY RATES
Age 2016 2017
18-24 37.2% 34.6%
25-34 56.5% 54.4%
35-49 65.5% 65.4%
50-64 71.4% 72.8%
65+ 69.6% 69.4%

Definition and Etiology

- **Obesity is a chronic and often progressive condition not unlike diabetes or hypertension.**

  - **Obesity is defined as a BMI of 30 kg/m^2 or higher**
  - **In obesity, there is an imbalance between calorie intake and calorie output.**
  - **Therefore, energy consumption exceeds expenditure resulting in positive energy balance that leads to weight gain over time**
  - **Positive balance is caused by overeating, inactivity or a combination of both**

Imbalance between calorie intake and calorie expenditure is related to a combination of the following factors:

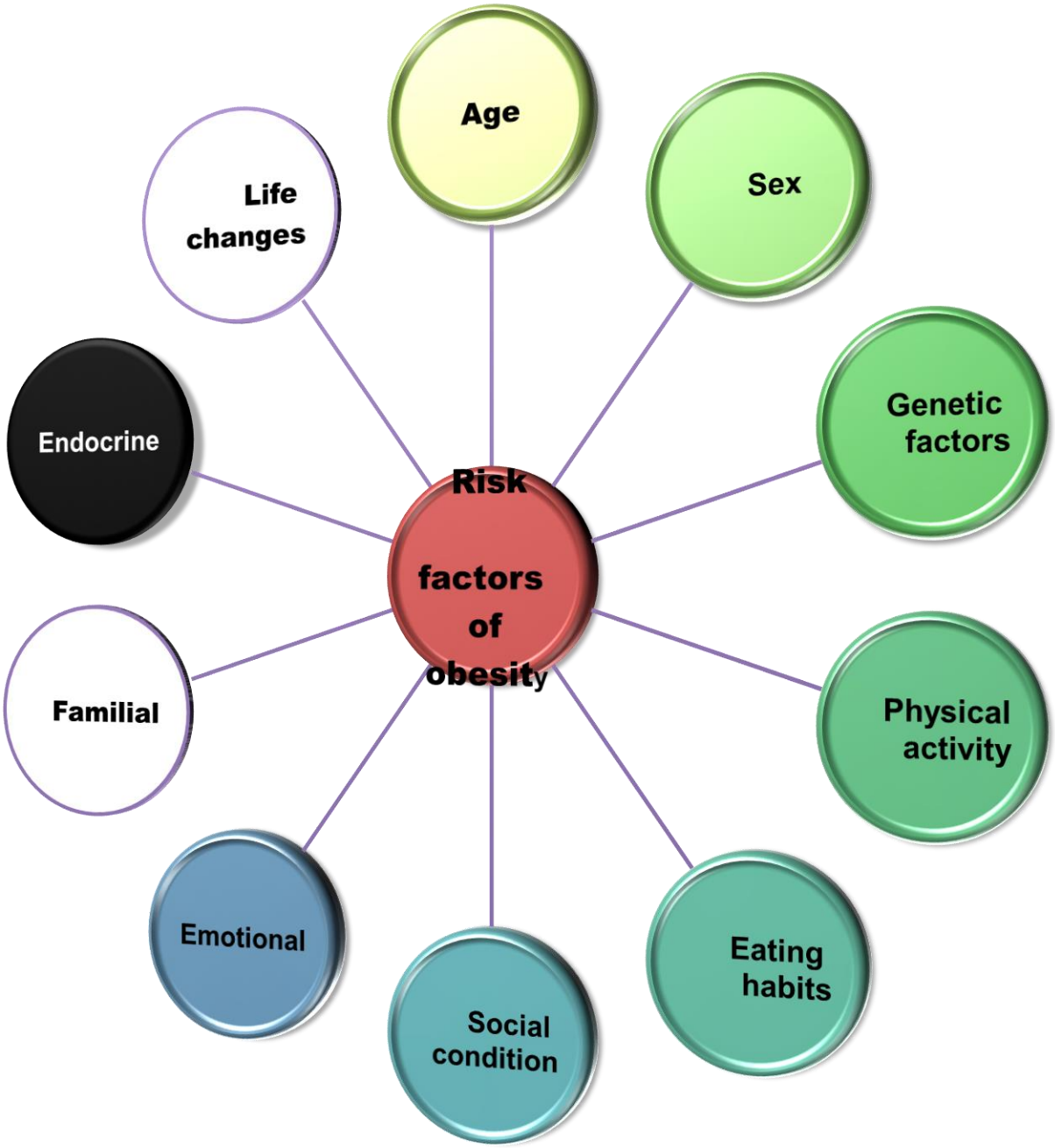
- **Genetics:** Family history increases the chance of becoming obese by 25% to 30%.

- **Nutrition factors:** Excessive food intake contribute to obesity.
- Diets high in fat contribute to excessive calorie intake

- 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

- **Level of activity: Physical inactivity is a major cause of obesity**

- **Sociocultural factors: ethnicity, race, gender, income, and education are important determinants of obesity**


Risk factors of obesity
Age
Sex
Genetic factors
Physical activity
Eating habits
Social condition
Emotional
Familial
Endocrine
Life changes

➢Age:

Obesity can occur in any age , and generally increases with age .

Infants with excessive weight gain have an increased incidence of obesity in later life

➢Sex:

women gain most between 45 and 49 of age.

➢Psychological factors

Emotional disturbance is deeply involved in the etiology of obesity .
Overeating is a symptoms of depression, anxiety, frustration and loneliness in childhood and adult life.

➢ Familial tendency :

Obesity runs in families but this is not necessarily explained by the influence of genes

Childhood Obesity

A child who is above the 85th percentile for weight (weighs more than 80 percent of children of the same age and height) is considered overweight, and a child above the 95th percentile for weight is considered to be obese.

- **Develops in infancy or childhood**
- **Increase in the number of adipose cells**
- **Adipose cells have long life span and need to store fat**
- **Makes it difficult to loose the fat (weight loss)**

The Causes?

- **Genetic Link**
  - **Multifactorial condition related to sedentary lifestyle, too much food intake and choice of foods actually alter genetic make-up, creating higher risk of obesity**

- **Behavioral**
  - **Children will more likely choose healthier foods if they are offered to them at young ages and in the home**

- **Environment**
  - **In homes where healthy food is not available, or the food choices are not healthy. Obesity can occur**

Childhood Obesity

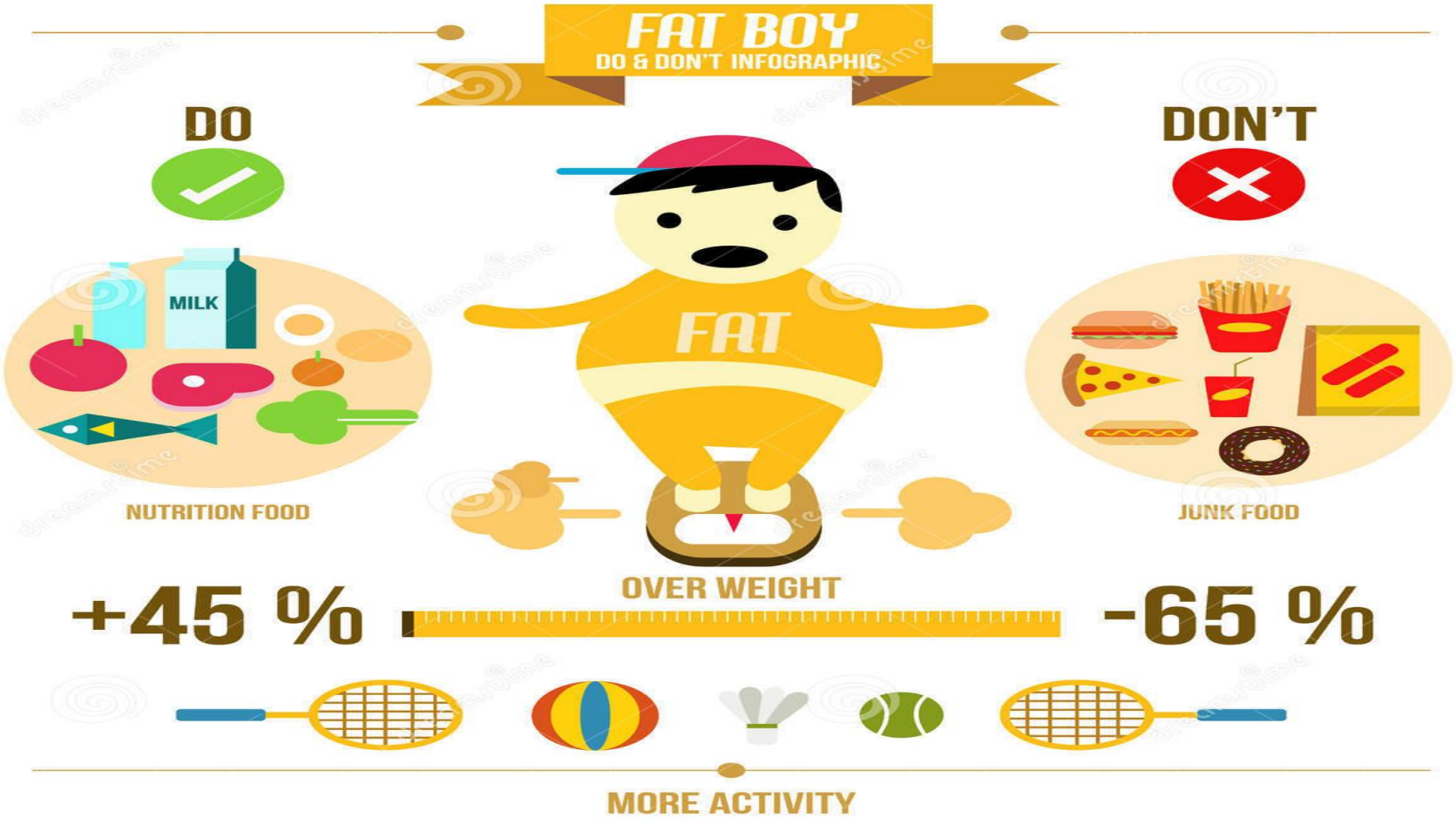
- **Why does this matter?**
  - **Premature death**
  - **Developing heart disease at younger ages**
  - **Developing diabetes type 2 at younger ages**

Children that are Overweight are also more at risk for:

- **Obstructive sleep apnea**
- **GERD (gastroesophageal reflux disease)**
- **Impaired balance and Joint problems**
- **Social isolation and teasing**
- **Low self esteem and depression**
- **Polycystic ovary disease**

❑What can be done?

- ❖ Childhood obesity is preventable
- ❖ Role of the schools
- ❖ Role of health care professionals



- **It is important that the emphasis be on increasing physical activity and eating the right types of foods, rather than restricting food.**

- **There should never be a stigma attached to being overweight-the maintenance of self-esteem is integral**

- **Children should be encouraged to make healthy choices from birth, with parents serving as role models**

- **Food should never be given as a reward or restricted for punishment, and children should never be force-fed**

- **Nutrition counts!**
  - **Nutrition is everything! Healthy foods, fruits, vegetables, legumes…a colorful diet is best!**
  - **Low sugar, low fat**
  - **Play an hour a day!**

What can Schools do to help?

- Create “healthy” eating policy during school hours. Meaning…no junk food
- Provide healthy snacks for children to have or purchase…local fruits and vegetables that children like to eat
- Have an exercise activity every day during school hours of at least 20 minutes

Reducing Childhood Obesity

- Takes collaborative effort from everyone
  - Promoter for healthy eating
  - Promoter obtaining nutritious food
  - Promoter for exercise…one hour a day to play
  - Promoter for health promoting exercise
  - Educate the public , limit television viewing and video game use
  - Encourage the love of books from a young age as an alternative: make the destination of one of your family hikes be the public library.????

Adult-Onset Obesity

- **Develops in adulthood**
- **Fewer (number of) adipose cells**
- **These adipose cells are larger (stores excess amount of fat)**
- **If weight gain continues, the number of adipose cells can increase**

How to Screen and diagnose Obesity?

1. **Health history:** **Elicit information from the patient regarding:**

- **History of weight fluctuation, past attempts of weight control, or periods of controlled eating**
- **Daily pattern and amount of food intake**
- **Exercise pattern**
- **Health related behaviour such as smoking, drug or alcohol abuse, or living with high levels of stress**
- **Family history of weight problems, DM, hypertension, and heart disease**
- **Medical history which helps reveal how dangerous excess fat is to patient's health**

2. Physical assessment:

- **Record height and weight**
- **Obtain BMI**
- **Record waist and hip ratio**

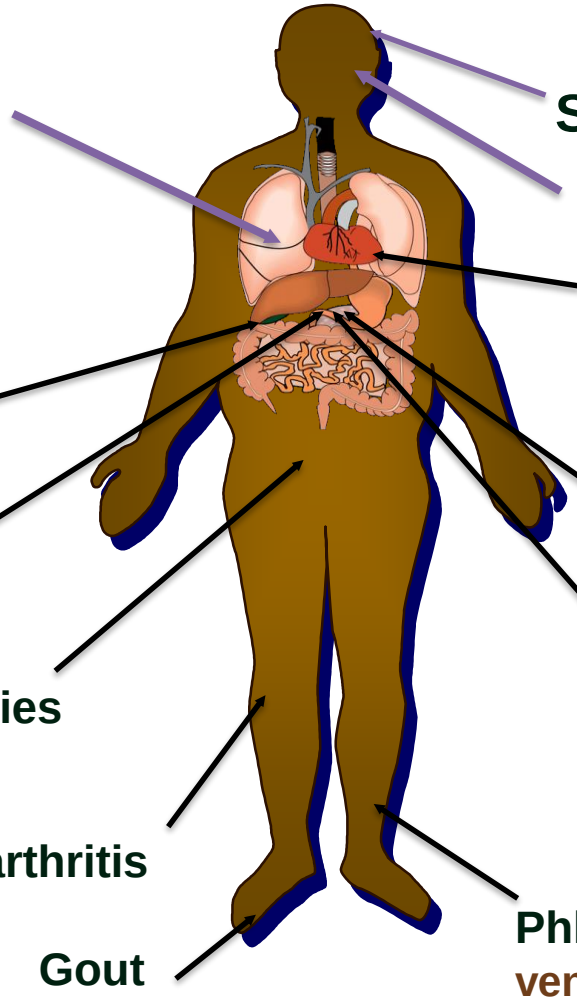
3. Laboratory investigation:

- **Thyroid function tests**
- **Glucose tolerance**
- **Triglycerides and cholesterol**

Health risks associated with being clinically obese

- Obese people are at increased risk of heart disease
- Hypertension
- Type 2 diabetes
- Gallstones
- Osteoarthritis of weight-bearing joints
- Sleep apnea
- Reproductive disorders
- Some cancers

Medical Complications of Obesity



Pulmonary disease
abnormal function
obstructive sleep apnea
hypoventilation syndrome

Stroke

Cataracts

CHD
Diabetes
Dyslipidemia
Hypertension

Nonalcoholic fatty liver disease
cirrhosis

Gall bladder disease

Severe pancreatitis

Gynecologic abnormalities
abnormal menses
infertility
PCOS

Cancer
breast, uterus, cervix
colon, esophagus, pancreas
kidney, prostate

Osteoarthritis

Phlebitis
venous stasis

Gout

Benefits of Weight Loss

- **Lowers blood pressure**
- **Lowers serum triglycerides levels**
- **Increase HDL cholesterol levels and lowers LDL cholesterol levels**
- **Reduce blood glucose levels in some type 2 diabetes**

Obesity Management is About Improving Health and Well-being, and not Simply Reducing Numbers on the Scale

ASSESS obesity related risk and potential 'root causes' of weight gain

ASSESS

- **Assess Obesity Class and Stage**

- **Assess for Obesity Drivers, Complications, and Barriers (4Ms)**

- **Assess for Root Causes of Weight Gain**

Assess Obesity Class and Stage

- **Obesity Class (I-III) is based on BMI and is a measure of how BIG the patient is.**

- **Obesity Stage (0-4) is based on the medical, mental, and functional impact of obesity and is a measure of how healthy the patient is.**

- **Waist circumference provides additional information regarding cardio metabolic risk.**

Obesity Stages (EOSS*)

Stage 0: No Apparent Risk Factors
Stage 1: Established Co-Morbidity
Stage 2: Preclinical Risk Factors
Stage 3: End-Organ Damage
Stage 4: End-Stage

***Edmonton Obesity Staging System**

Assess for Obesity Drivers, Complications, and Barriers

- **Use the 4Ms framework to assess Mental, Mechanical, Metabolic, and Monetary drivers, complications, and barriers to weight management**

The 4Ms of Obesity

Mental
Cognition
Depression
Attention Deficit
Addiction
Psychosis
Eating Disorder
Trauma
Insomnia

Mechanical
Sleep Apnea
Osteoarthritis
Chronic Pain
Reflux Disease
Incontinence
Thrombosis
Intertrigo
Plantar Fasciitis

Metabolic
Type 2 Diabetes
Dyslipidemia
Hypertension
Gout
Fatty Liver
Gallstones
PCOS
Cancer

Monetary
Education
Employment
Income
Disability
Insurance
Benefits
Bariatric Supplies
Weight-Loss Programs

Assess for Root Causes of Weight Gain

Is weight gain due to slow metabolism?

- Age
- Hormones
- Genetics
- Low Muscle Mass
- Weight Loss
- Medication

Address root causes of low metabolism

Is weight gain due to increased food intake?

- Socio-Cultural Factors
- Physical Hunger
- Emotional Eating
- Mental Health Issues
- Medication

Address root causes of overeating

Is weight gain due to reduced activity?

- Socio-Cultural Factors
- Socio-Economical Limitations
- Physical Limitations / Pain
- Emotional Factors
- Medication

Address root causes of reduced activity

Sound Weight Loss Program

- Meets nutritional needs, except for kcal
- Slow & steady weight loss
- Adapted to individuals' habits and tastes
- Contains enough kcal to minimize hunger and fatigue
- Contains common foods
- Fit into any social situation
- Chang eating problems/habits
- Improves overall health
- See a physician before starting

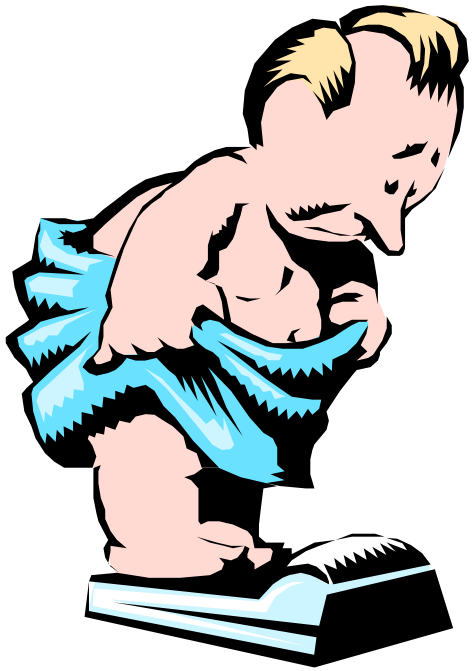
A sound approach to weight management

- A balanced diet of moderate caloric intake
- Adequate exercise
- Cognitive-behavioral strategies for changing habits and behavior patterns
- Attention to balancing self-acceptance and the desire for change.

Treatment Options

Average sustainable weight loss with behavioral intervention is about 3-5% of initial weight.

- **SLEEP, TIME, and STRESS**
- **Dietary intervention**
- **PHYSICAL ACTIVITY**
- **PSYCHOLOGICAL**
- **LOW CALORIE DIETS**
- **ANTI-OBESITY MEDICATIONS**
- **BARIATRIC SURGERY**



➢Dietary intervention

✓ **Weight loss diets generally involve modifications of energy content and macronutrient composition.**

✓ **Dietary intervention is considered the cornerstone of weight loss therapy.**

✓ **Current recommendations center around decreasing caloric intake by improving eating pattern, nutritional hygiene, and portion size.**

✓ **Extreme and 'fashion' diets are generally not sustainable in the long-term.**

- **Decrease in total calorie intake**
- **A 1to 2- pound loss/ week is vital**
- **Daily calorie intake should not be below 1200 for adult women or 1500 for adult men**
- **Total calories can be determined by calculating the number of calories needed to maintain healthy body weight and subtracting 500 to 1000 for a 1to 2-pound weight loss/ week, respectively.**

National Institutes of Health (NIH) Guidelines:

Overweight (BMI of 25.0 to 29.9 kg/m2) and two cardiovascular disease risk factors

- **decrease their energy intake by approximately 500 kcal/day**

Class I obesity (BMI of 30 to 34.9 kg/m2)

- **decrease their energy intake by approximately 500 kcal/day**

Class II or higher (BMI of 35.0 kg/m2 or higher

- **energy deficit of 500 to 1000 kcal/day**

➢ **PHYSICAL ACTIVITY** or exercise alone is generally not a successful weight-loss strategy.

Rather than focusing on 'burning' calories, activity interventions should aim at reducing sedentariness and increasing daily physical activity levels to promote fitness, overall health, and general well-being.

➢ **PSYCHOLOGICAL** interventions can improve self-esteem, reduce emotional eating, and promote nonfood coping strategies.

- **Think thin :** List reasons for weight loss, give self nonfood reward for weight loss, don't talk about food, enlist support of significant others, and learn to distinguish between hunger for desires

- **Plan ahead:** Keep food only in the kitchen where one need to stay out except for meal preparation or cleaning, keep low calorie foods in the front of the fridge and hide high calorie ones, remove temptation to better resist it, and keep forbidden foods to a minimum

- **Eat wisely :** Never skip meals, eat before starve and stop when satisfied, devote all attention to eating, eat low calorie foods first, drink water with meals, use small plate, eat slowly and chew food thoroughly, eat before attending a social occasion that features food, don't eat within 3 hours of bedtime

- **Shop smart:** Never shop while hungry, shop only from a list and buy only the quantity need, buy low calorie foods, and don't buy foods that are tempting.

- **Change lifestyle:** Keep busy with activities that are incompatible with eating, brush teeth immediately after food, trim recipes of extra fat and sugar, don't weigh self too often, keep food and activity record, keep hunger record, and exercise.

➢ **LOW CALORIE DIETS (medically supervised) and meal replacements can be safe and effective approaches for patients requiring a greater degree of weight loss.**

Balanced-deficit diets of conventional foods usually contain more than 1500 kcal/day and an appropriate balance of macronutrients.

- **Low-calorie diets (LCDs) contain 800 to 1500 kcal/day and are consumed as liquid formula, nutritional bars, conventional food, or a combination of these items.**

❑ **Very-low-calorie diets (VLCDs) contain less than 800 kcal/day and are generally high in protein (70 to 100 g/day) and low in fat(<15 g/day).**

Such diets may be consumed as a commercially prepared liquid formula and may include nutritional bars.

Composite results of trials indicate that an LCD providing 1000 to 1500 kcal/day induces about an 8%weight loss after 16 to 26 weeks of treatment.

Dangers of Severe Caloric Restriction

Side effects of these severe calorie restricted diets include:

- **Orthostatic hypotension**
- **Fatigue**
- **Cold intolerance**
- **Dry skin**
- **Hair loss**
- **Menstrual irregularities**
- **Cholelithiasis**
- **Cholecystitis**
- **Pancreatitis (rare)**

PHARMACOTHERAPY OF OBESITY

- Pharmacotherapy - adjunct to lifestyle therapy and not alone.

- Can help patients achieve and sustain 5-10% weight loss.

- Adding pharmacotherapy produces greater wt. loss & wt. loss maintenance.
- Short-term t/t (3-6 mo.) with weight loss medications is not recommended.
- Consider differences in efficacy, adverse effects, warnings, as well as weight-related complications and medical history.

Is used as an assistant to comprehensive weight loss therapy including the prior strategies.

- Should be considered after 6 months of weight loss therapy that fails to produce a 1-pound loss per week
- Should not be used for cosmetic weight loss
- Should be discontinued if it is ineffective or if the side effects are serious
- Examples of drugs used are sibutramine (Meridia) and orlistat (Xenical)

Indication for Pharmacotherapy

- **BMI ≥ 30 kg/m². OR**
- **BMI ≥ 27 kg/m²- For patients who have concomitant obesity-related diseases and for whom dietary and physical activity therapy has not been successful.**
- **No contraindications to drug therapy**
  - **Medication interactions**
  - **Medical conditions that may be adversely affected by the obesity drug**

Weight loss with obesity medicines is modest
Obesity medicines are not a substitute for diet and exercise
Weight loss is often not maintained after drug is discontinued

BARIATRIC SURGERY or weight-loss surgery refers to surgery usually performed in patients with a body mass index (BMI) of 40 kg/m^2 or greater and those with a BMI between 35 and 40 kg/m^2 and a major medical comorbidity in order to:

- Support weight loss
- Treat or prevent obesity-related comorbidities (e.g., diabetes, hypertension, cardiovascular disease, obstructive sleep apnea)

- should be considered for all patients requiring more than 15% sustainable weight loss.

Modern laparoscopic bariatric surgery is both safe and effective, and substantially reduces morbidity and mortality.

All surgical patients require multidisciplinary pre surgical assessment and long-term medical, nutritional, and psychosocial support.

Unrealistic weight-loss expectations can lead to DISAPPOINTMENT and NON-ADHERENCE.

- **A reasonable weight-loss target with behavioral and medical interventions is 0.5 to 1.0 kg per week for a total of 5 to 10% of initial weight, after which weight loss will generally plateau.**

- **A greater or more rapid weight loss with non-surgical interventions does not result in better long-term outcomes.**
- **For some patients, PREVENTION or SLOWING of WEIGHT GAIN may be the only realistic weight target.**


Worldwide obesity gains 30 %
DAVE GRANLUND © www.davegranlund.com

Worldwide Obesity - 2015

Approximately

604 million adults

108 million children

WHO Strategy

- **WHO Strategy for preventing overweight and obesity**
  - **Adopted by World Health Assembly in 2004 and WHO Global Strategy on Diet, Physical Activity and Health**
    - **Four objectives**

      1-Reduce risk factors of chronic disease

      2-Increase awareness and understanding

      3-Implement global, regional, national policies actions plans

      4-Monitor science and promote research

- **Reduce risk factors for chronic disease**
  - **To reduce, there needs to be more exercise and better eating habits**
- **Increase awareness and understanding**
  - **To understand the influence of diet and why physical activity makes a difference**
- **To develop and implement global, regional, national policies and action plans**
  - **Work to improve diets and definition of physical activity**

- **Monitor Science and promote research**
  - **On how diet affects the body, how to influences**
  - **How much physical activity is best for most**

Evidence

- **Where is the evidence?**
- **The Global Strategy on Diet, Physical Activity and Health have determined:**
  - **When dangers to health are addressed, people can remain health into their 80's and 90's**
  - **Risk reduction…even modest has sustainable benefits**
  - **Healthy living with not smoking is considered effective in reducing threats of non communicable disease**

- **Something as simple as eating fruits and vegetables can save millions of lives; according to WHO :**
  - **Low fruit and vegetable intake**
    - **2.7 million lives could be saved with enough fruits and vegetables**

- **WHO states:**
  - **Fruits and vegetables need to be part of the daily diet to prevent disease such as obesity and non communicable disease**
  - **The statistics are shocking**
  - **Lack of enough fruits and vegetables cause**
    - **19% of GI deaths**
    - **31% of Ischemic heart disease**
    - **11% of stroke**

WHO recommends at least 400 Gms of fruit and vegetables each day.

It is well known that obesity is preventable. It is caused by eating more than we need…so how can we prevent obesity?

Each of us can…according to WHO

- ✓ **Have a balance of energy and healthy weight**
- ✓ **Limit how much fat we eat…we need to eat some .. but not too much.**
- ✓ **Increase fruits and vegetables**
- ✓ **Limit sugars**
- ✓ **Increase exercise to at least 30-60 minutes per day on most days**