

Module 2

- *Food and health*
- *Nutritional guidelines for good health*
- *Obesity and overweight disorders and their management*
- *Eating disorders and their management*
- *Physical activities for health*
- *Fitness components for health and its function*

Lecture 1

Food and health

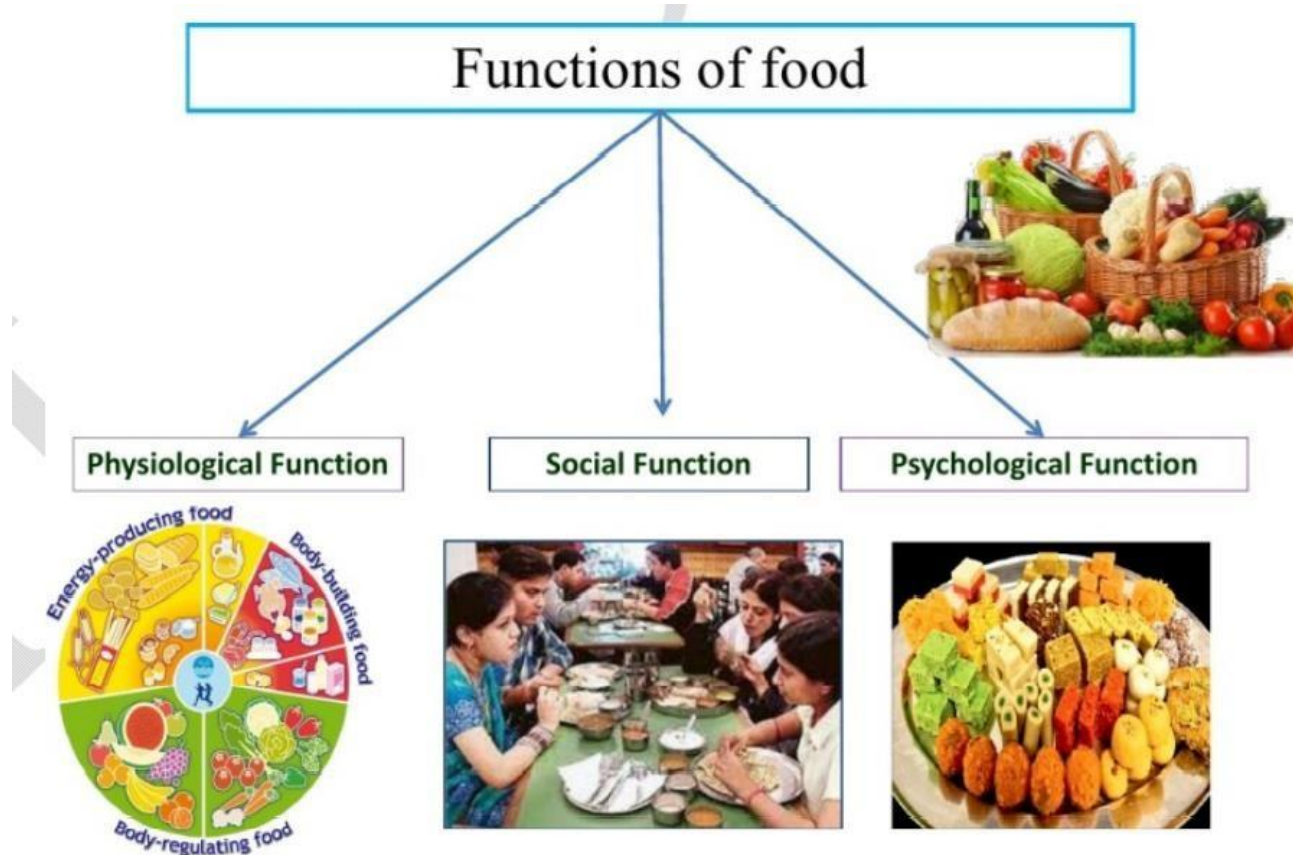
Nutritional guidelines for good health

- *FOOD is the means that nourishes the body.*
- *Food may also be defined as any substance eaten or drunk which meets the needs for energy, body building, regulation and protection of the body.*
- *Eating right kind of food in right amounts ensures good nutrition and health.*

Food pyramid



Functions of Food



Types of foods:

- ***Energy Producing foods (GO foods) – carbohydrates (provide energy)***
 - ***Bread***
 - ***Cereal***
 - ***Pasta***

- ***Body building foods - (GROW foods) – proteins (necessary for growth)***
 - ***Eggs contain high quality protein, healthy fats, and other important nutrients like B vitamins and choline***
 - ***Meat and Fish - Salmon is a great choice for muscle building and overall health***
 - ***Dairy products - yogurt***
 - ***Pulses – Soyabeans***

- ***Body regulating foods (GLOW foods) – vitamins and minerals***
 - ***Vegetables***
 - ***Fruits and berries***

Physiological functions of food

- *provides energy*
- *body building*
- *repair of worn out tissues*
- *regulates the activities of the body*
- *improving the immune system*

Social functions of food

- *Food has always been the central part of our existence, social cultural and religious life.*
- *Special foods are distributed during religious functions*
- *Feasts are given in different stages of life as symbol of happiness*
- *Many feasts call for feeding specific segment of people.*
- *Certain menus are associated with specific foods in each region.*
- *Food has been used as expression of love friendship and social acceptance*
- *Food bring people together.*

Psychological functions of food

- *Food must satisfy certain emotional needs*
- *It includes a sense of security, love and attention.*
- *Familiar foods usually make us feel secure.*
- *Sharing of food is a token of friendship and acceptance.*
- *Anticipating needs and fulfilling these are expressions of love and attention.*
- *These sentiments are the basis of the normal attachment to mother's cooking or home food.*
- *If the foods included are unfamiliar or not tasty, then even nutritionally balanced foods may not be satisfactory.*
- *Planning meals must be such that it is nutritionally adequate and also enjoyable.*

Nutrition

Nutrition - is food at work in the body.

Nutrients are components of foods needed for body in adequate amounts for proper growth, reproduction and leading normal life.

The science of nutrition deals with what nutrients we need, in what quantity, how to get them and how the body utilizes them.

Adequate, optimum and good nutrition – indicates the right amount and proportion of nutrients for proper utilization for achieving highest level of physical and mental health.

Nutritional Status

- *It is state of the body as a result of foods consumed and their utilization by the body*
- *It can be good, fair and poor*
- *Good nutritional status – characterized by*
 - *alert*
 - *good natured personality*
 - *well developed body with normal weight for height*
 - *well developed and firm muscles*
 - *healthy skin*
 - *reddish pink colored eyelids and membranes of mouth*
 - *good layer of subcutaneous fat*
 - *clear eyes*
 - *smooth and glossy hair*
 - *good appetite and excellent general health which is recognized by stamina to work*
 - *regular meal time*
 - *sound sleep*
 - *Normal bowel habits*
 - *resistance to disease.*

Malnutrition

- *It is undesirable kind of nutrition leading to ill health*
- *It results from lack of, excess or imbalance of nutrients in the diet*
- *It includes both under and over nutrition*

Under nutrition is a state of insufficient supply of essential nutrients.

It can be

- *primarily due to deficiency in food intake*
- *secondarily due to error in metabolism or the interaction between nutrients or drugs used for treatment.*

Over Nutrition

- *Over nutrition refers to an excessive intake of one or more nutrients which creates a stress on body functions.*

Diet

- *refers to what ever is eaten or drunk each day*
- *Normal diet - consumed either individually or in groups*
- *Therapeutic diets - modified for making it suitable for sick individuals as a part of treatment*

Nutritional Guidelines for Good Health

Fruits and Vegetables (WHO)

- *Eating at least 400 g, or five portions, of fruit and vegetables per day reduces the risk of NCDs(Non Communicable Diseases)*
- *helps to ensure an adequate daily intake of dietary fiber*

Fruit and vegetable intake can be improved by:

- *Always including vegetables in meals;*
- *Eating fresh fruit and raw vegetables as snacks;*
- *Eating fresh fruit and vegetables that are in season;*
- *Eating a variety of fruits and vegetables.*

Fats

- ***Reducing the amount of total fat intake to less than 30% of total energy intake helps to prevent unhealthy weight gain (W.H.O)***
- ***The risk of developing NCDs is lowered by :***
 - ***Reducing saturated fats to less than 10% of total energy intake;***
 - ***Reducing trans-fats to less than 1% of total energy intake;***
 - ***Replacing both saturated fats and trans-fats with unsaturated fats.***
- ***The Saturated fat and industrially-produced trans-fat intake, can be reduced by:***
 - ***Steaming or boiling instead of frying when cooking***
 - ***Replacing butter and ghee with oils rich in polyunsaturated fats (soyabean or sunflower oils)***
 - ***Eating reduced-fat dairy foods and lean meats, or trimming visible fat from meat***
 - ***Limiting the consumption of baked and fried foods, and pre-packaged snacks and foods (e.g. doughnuts, cakes, pies, cookies, biscuits and wafers) that contain industrially-produced trans-fats.***

Salts

- *Salt intake - the recommended level of less than 5 g per day (sodium <2.3 g) (W.H.O)*
- *Most people consume too much sodium through salt around 9–12g per day i.e. 3-6g of sodium, and not enough potassium (less than 3.5 g)*
- *High sodium intake and insufficient potassium intake contribute to high blood pressure, which in turn increases the risk of heart disease and stroke.*
 - *Not having salt or high-sodium sauces and condiments on the table.*
 - *Limiting the consumption of salty snacks*
 - *Choosing products with lower sodium content*
 - *People should be encouraged to check nutrition labels to see how much sodium is in a product before purchasing or consuming it*
 - *Potassium can mitigate the negative effects of elevated sodium consumption on blood pressure*
 - *Intake of potassium can be increased by consuming fresh fruit and vegetables*

Sugars

- *In both adults and children, the intake of free sugars should be reduced to less than 10% of total energy intake*
- *A reduction to less than 5% of total energy intake would provide additional health benefits*
- *Consuming free sugars increases the risk of dental caries (tooth decay)*
- *Excess calories from foods and drinks high in free sugars also contribute to unhealthy weight gain, which can lead to overweight and obesity*
 - *Avoid sugary snacks, candies and sugar-sweetened beverages (i.e. all types of beverages containing free sugars)*
 - *Eating fresh fruit and raw vegetables as snacks instead of sugary snacks.*

Lecture 2

Obesity and overweight disorders and their management *Eating disorders and their management*

BMI	Weight Status
Below 18.5	Under Weight
18.5 to 24.9	Normal Weight
25 to 29.9	Over Weight
30 to 35	Obese
Over 35	Morbid Obesity

Body Mass Index (BMI) is a person's weight in kilograms (or pounds) divided by the square of height in meters (or feet).

$$\text{weight in kilograms (or pounds)} \ / \ (\text{height in meters or feet})^2$$

Obesity classification

- *Class 1: BMI of 30 to < 35*
- *Class 2: BMI of 35 to < 40*
- *Class 3: BMI of 40 or higher.*

Class 3 obesity is sometimes categorized as “severe” obesity.

- *Being overweight or obese are both terms for having more body fat than what is considered healthy.*
- *These terms are used to identify people who are at risk for health problems from having too much body fat.*
- *However, the term "obese" generally means a much higher amount of body fat than "overweight."*
- *The more body fat one has, the greater the risk for diabetes, kidney disease, heart disease, and other medical conditions.*
- *The signs of overweight and obesity are*
 - *Very High Body Mass Index (BMI).*
 - *Unhealthy body fat distribution.*
 - *Not enough sleep.*
 - *High amounts of stress.*

What causes obesity and overweight?

- *energy imbalance between calories consumed and calories expended*
- *increased intake of energy-dense foods that are high in fat and sugars*
- *decrease in physical activities due to*
 - *increasingly sedentary nature of many forms of work*
 - *changing modes of transportation*
 - *increasing urbanization*
- *Endocrinal abnormalities.*

Complications of obesity and overweight disorders

- *Type 2 diabetes*
- *High blood pressure*
- *Heart disease*
- *Stroke*
- *Sleep apnea*
- *Metabolic syndrome*
- *Fatty liver diseases*
- *Osteoarthritis*
- *Kidney disease*
- *Gallbladder disease*
- *Emotional and Social problems*

Management of obesity and overweight disorders

- *Healthy eating plan and regular physical activity*
- *Weight-management programs : lose weight or keep from regaining lost weight*
- *Medications*
- *Weight-loss devices :*
 - *Gastric Band*
 - *Gastric Balloon Systems*
 - *Gastric Emptying Systems*
- *Weight-management devices :*
 - *Oral Removable Palatal Space Occupying Device*
 - *Ingested Transient Space Occupying Device.*
- *Bariatric surgery.*

Eating Disorders and their management

- *Disorder means illness that disrupts normal physical or mental functions*
- *Eating disorders are a range of psychological conditions that cause unhealthy eating habits to develop*
- *They might start with an*
 - *Obsession with food*
 - *Obsession with body weight*
 - *Obsession with body shape*

The types of Eating Disorders are

1. *Anorexia Nervosa*
2. *Binge eating disorder*
3. *Bulimia Nervosa*
4. *Pica*
5. *Rumination disorder*
6. *Avoidant/restrictive food intake disorder*
7. *Other disorders: Purging Disorder, Night Eating syndrome*



bulimia



normal



anorexia

Anorexia Nervosa

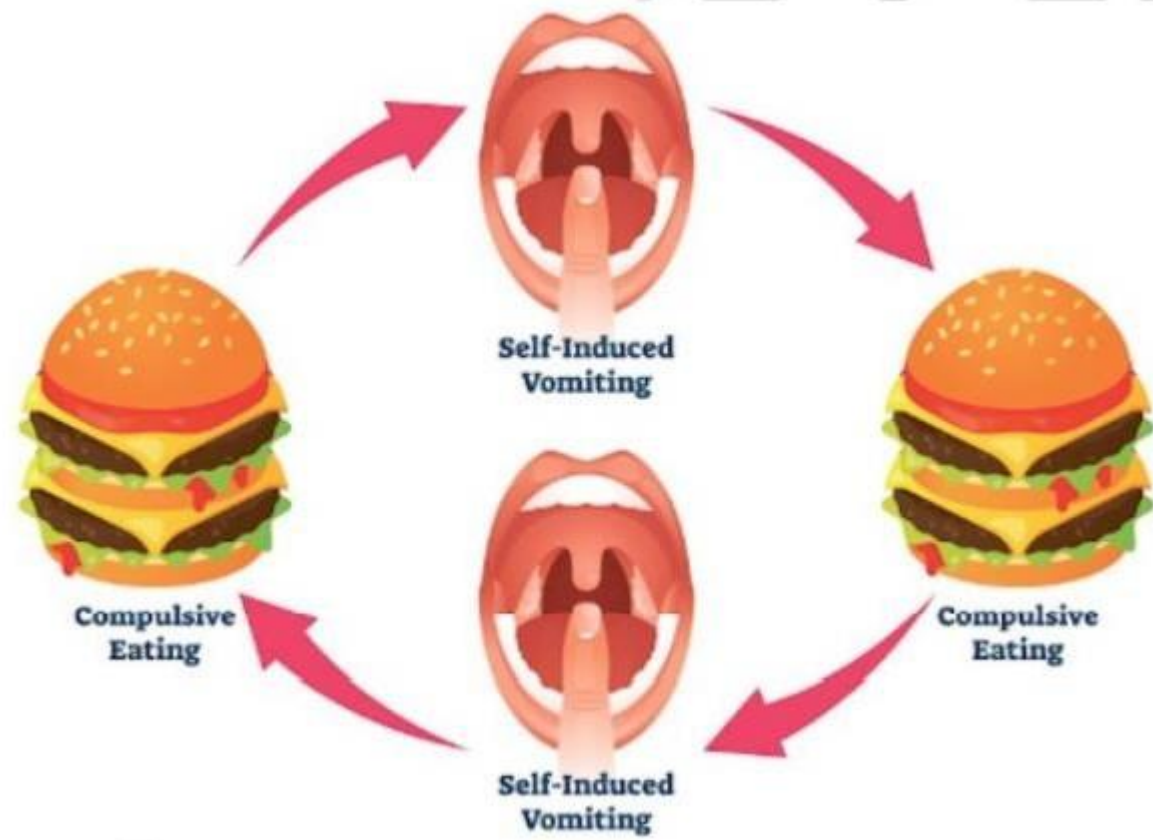
- *Common symptoms of anorexia nervosa include*
 - *Being considerably underweight compared with people of similar age*
 - *Restricted eating patterns*
 - *An intense fear of gaining weight or persistent behaviors to avoid gaining weight, despite being underweight*
 - *A relentless pursuit of thinness*
 - *A heavy influence of body weight or perceived body shape on self-esteem*
 - *A distorted body image, including denial of being seriously underweight*
 - *Serious weight loss: 15% below the normal weight (BMI is ≤ 17.5)*
 - *The weight loss is induced by avoidance of fattening foods.*
 - *Amenorrhea in women and loss of sexual interest in men*
 - *Use of excessive exercise or appetite suppressants.*

Binge Eating Disorder

- *Common symptoms of Binge Eating Disorder*
 - *Eating large amounts of foods rapidly, in secret and until uncomfortably full, despite not feeling hungry*
 - *Persistent preoccupation with eating, and a strong desire or a sense of compulsion to eat (craving)*
 - *Feeling lack of control over eating, feeling disgust or shame*
 - *No use of purging behaviors like vomiting, excessive exercise, laxative or diuretic use*

Bulimia Nervosa

- *Common symptoms of bulimia nervosa include*
 - *Persistent preoccupation with eating, and a strong desire or a sense of compulsion to eat (craving)*
 - *Recurrent episodes of overeating in which large amounts of food are consumed in short periods of time*
 - *Alternating periods of starvation - Use appetite suppressants*
 - *There is a self-perception of being too fat with a fear of too fat*
 - *Counteract the “fattening effect” perception by Self-induced vomiting and other Common purging behaviors include laxatives, diuretics, enemas, and excessive exercise and abnormal fasting.*
 - *Oral mucosa, teeth and knuckles are damaged due to inducing vomiting*

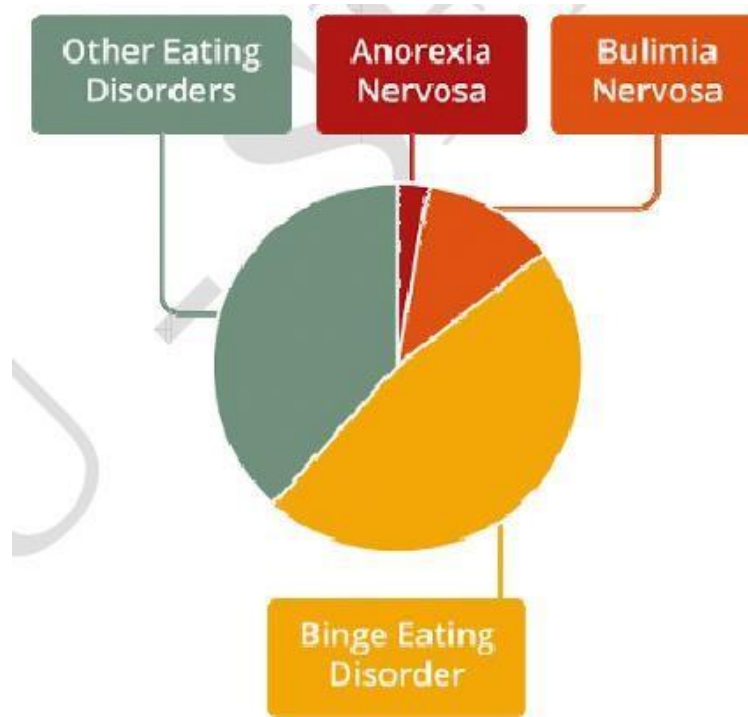


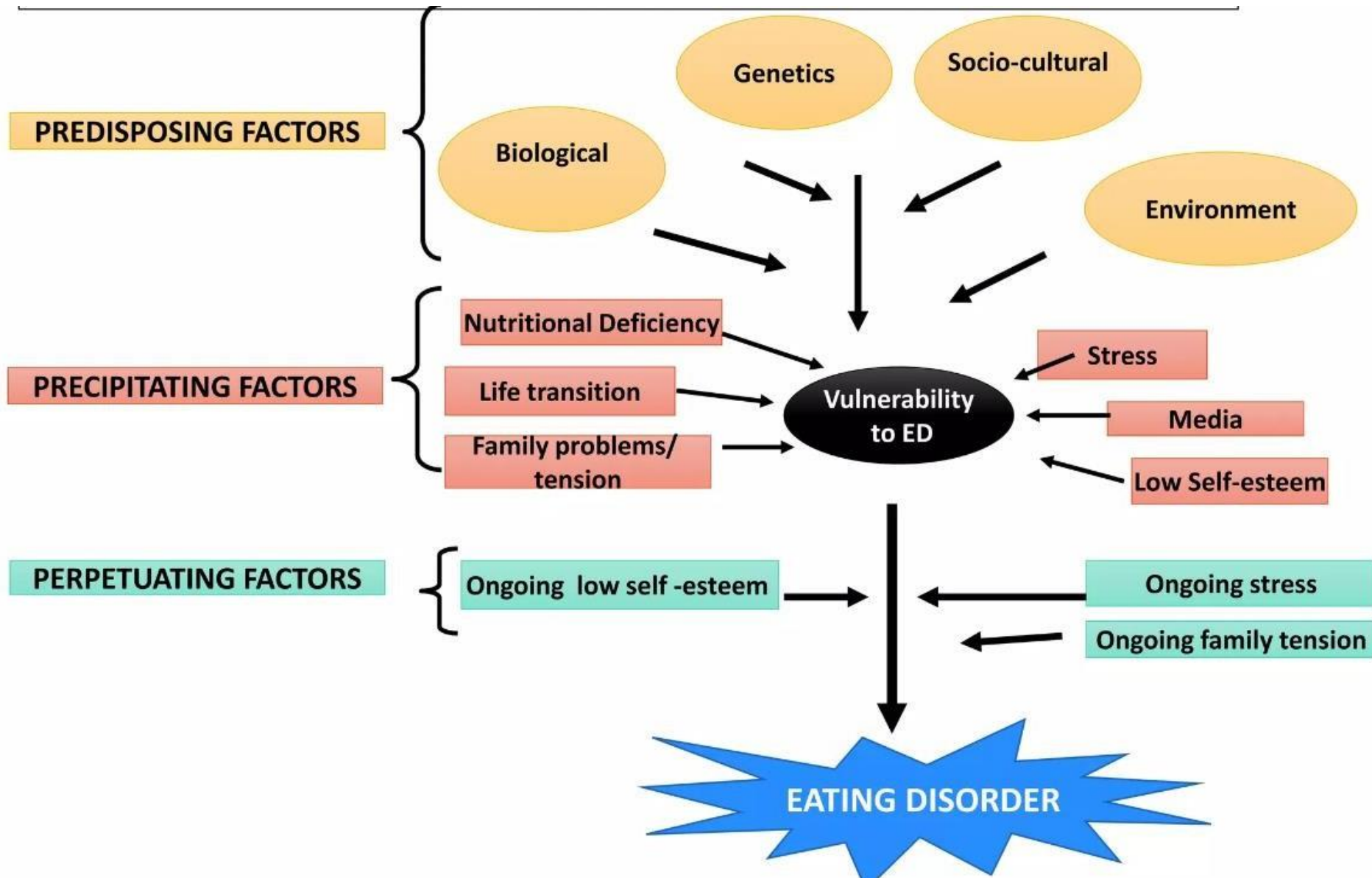
Pica

- *Common symptoms of pica includes*
 - *Eating things that are not considered as food*
 - *Craving for items like ice, dirt, chalk, soil, soap, paper, hair, cloth, wool, pebbles, detergents or cornstarch*
 - *It can be seen in any age group, but more common in children, pregnant women and mentally disabled*

Rumination disorder

- *They regurgitate the food they have recently swallowed. Then they chew it again, swallow it or spit it out.*
- *It can affect people at all stages of life*





Who suffers from eating disorders?

- Eating disorders are most common in teenagers or young adults, but can also affect almost anyone.
- Higher in females than males (males almost half of females)
- People of all ages, backgrounds, body weights, and ethnicity can be affected by eating disorders.
- Although common in teenage women, men and boys can also be vulnerable.
- People sometimes have eating disorders without their families or friends ever suspecting that they have a problem.
- Aware that their behaviour is abnormal, people with eating disorders may withdraw from social contact, hide their behaviour, and deny that their eating patterns are problematic.

Management of Eating Disorders

- *A mental health professional, such as a psychologist to provide psychological therapy.*
- *A registered dietitian to provide education on nutrition and meal planning.*
- *Medical or dental specialists to treat health or dental problems that result from your eating disorder.*
- *Your partner, parents or other family members. For young people still living at home, parents should be actively involved in treatment and may supervise meals.*

Psychological Management

- *Normalize your eating patterns and achieve a healthy weight*
- *Exchange unhealthy habits for healthy ones*
- *Learn how to monitor your eating and your moods*
- *Develop problem-solving skills*
- *Explore healthy ways to cope with stressful situations*
- *Improve your relationships*
- *Improve your mood*

Medical Management

- *Medications can't cure an eating disorder. They're most effective when combined with psychological therapy.*
- *Antidepressants are the most common medications used to treat eating disorders but depending on the situation, other medications are sometimes prescribed.*
- *Hospitalization may be necessary if you have serious physical or mental health problems. Severe or life-threatening physical health problems that occur with anorexia can be a medical emergency.*

Lecture 3

Moderate intensity physical activity

(Requires a moderate amount of efforts and accelerates the heart rate)

- ***Brisk walking***
- ***Dancing***
- ***Gardening***
- ***House work and domestic chores***
- ***Water aerobics***
- ***Bicycling slower than 10 miles per hour***
- ***General building tasks (roofing, thatching, painting)***
- ***Active involvement in games/ sports with children/ walking domestic animals***
- ***Carrying/ moving moderate loads (< 20 KG)***

Vigorous-intensity Physical activity

(Requires large amount of efforts with rapid breathing and substantial increase in heart rate)

- ***Race walking, jogging, or running***
- ***Walking/ climbing briskly up a hill***
- ***Fast swimming***
- ***Aerobics***
- ***Fast Bicycling***
- ***Jumping rope***
- ***Heavy gardening (continuous digging)***
- ***Hiking uphill or with a heavy backpack***
- ***Competitive sports and games***
- ***Carrying /shifting heavy loads (>20 kg)***

Physical activity recommended by WHO Adults 18 to 65 years

- At least 150 minutes of moderate-intensity physical activity or at least 75 minutes of vigorous-intensity physical activity or an equivalent combination throughout the week.
- Physical activity includes leisure time physical activity (walking, dancing, gardening, hiking, swimming), transportation (e.g. walking or cycling), occupational (work), household chores, play, games, sports or planned exercise, in the context of daily, family, and community activities.
- For additional health benefits, adults should increase their moderate-intensity physical activity to 300 minutes per week, or at least 75 minutes of vigorous-intensity physical activity throughout the week or an equivalent combination of moderate- and vigorous- intensity activity.
- Muscle-strengthening activities should be done involving major muscle groups on 2 or more days a week.
- Aerobic activity should be performed in bouts of at least 10 minutes duration.

Fitness Components for Health

A well-balanced exercise activities address all health-related components of fitness.

- 1. Body composition : It is the amount of fat, bone, muscle mass and water in the body.***
- 2. Flexibility: is the ability of each joint to move through the available range of motion for a specific joint.***
- 3. Muscular strength :It is the amount of force a muscle can produce.***
- 4. Muscular endurance :It is the ability of the muscles to perform continuous without fatiguing.***
- 5. Cardio-respiratory endurance :It is the ability of the heart and lungs to work together to provide the needed oxygen and fuel to the body during sustained workloads.***

Examples would be jogging, cycling and swimming, Cooper Run

Wellness and Physical Function

- *Physical function is the ability to perform both basic and instrumental activities of daily living, and the ability of older adults to reside in the community depends to a large extent on their level of physical function.*
- *Being active helps maintain healthy bones, muscles and joints.*
- *Physical activity decreases the risk of some health problems such as heart disease, stroke, diabetes, and high blood pressure.*
- *Exercising helps reduce feelings of anxiety and depression, helps prevent and manage stress, and promotes mental well-being.*

Physical wellness is the ability to maintain a healthy quality of life that allows us to get through our daily activities without undue fatigue or physical stress.

The physical component of wellness involves the ability to

- carry out daily tasks*
- develop cardio respiratory and muscular fitness*
- maintain adequate nutrition*
- healthy body fat level*
- get adequate sleep*
- avoid abusing alcohol and other drugs or using tobacco products.*

How to avoid exercise injuries

What Causes Exercise Injuries?

Some of the most common causes of exercise injuries include:

- Exercising before your body has warmed up*
- Repeating the same motion over and over again*
- Not having proper form for your exercise*
- Not resting in between workouts*
- Pushing your body too hard or too quickly*
- Doing an exercise that is too strenuous for your level of fitness*
- Not using proper equipment*

Warm up and Cool Down

- *Warming up before exercise gets your blood flowing, warms up your muscles, and helps you avoid injury. The easiest way to warm up is to exercise slowly for the first few minutes, then pick up the pace. For example, before running, walk briskly for 5 to 10 minutes.*
- *You should also cool down after exercise to bring your heart rate and body temperature back to normal. Cool down by ending your routine at a slower pace for the last 5 to 10 minutes.*

To Stretch or not to Stretch

To stay flexible, you should stretch at least 2 times a week. But it is unclear whether stretching really helps reduce injury.

You can stretch either after you have warmed up or after you exercise.

- *Do not stretch cold muscles.*
- *Hold stretches for no longer than 15 to 30 seconds.*
- *Do not bounce.*

Choose Your Exercise Wisely

- *If you have not been active, or have a health condition, talk with your health care provider to make sure you are healthy enough for exercise.*
- *Ask what types of exercise might be best for you.*
- *If you are new to exercise, you may want to start with low-intensity options such as:*
 - *Walking*
 - *Swimming*
 - *Riding a stationary bike*
 - *Golf*

These types of exercise are less likely to cause injury than higher-impact activities like running or aerobics.

Contact sports like soccer or basketball are also more likely to cause injury.

Use the Right Equipment

Using safety equipment can greatly reduce your risk of injury.

- *Safety equipment for your sport may include:*
- *Footwear*
- *Helmets*
- *Mouth guards*
- *Goggles*
- *Shin guards or other protective guards*
- *Kneepads*

Be sure you use the right type of equipment for your sport. Make sure your exercise equipment:

- *Fits you properly*
- *Is the right design for your sport or activity*
- *Is in good working condition*
- *Is used correctly and consistently*

Learn Good Form

If you are new to an exercise or sport, consider taking lessons to learn the basics.

Learning the right way to do an exercise or sport can help prevent injury.

You can also consider hiring a personal trainer.

Cross Train

To help prevent overuse injuries, vary your workouts. For example, instead of running 3 days a week, cycle 1 day and run 2.

Listen to Your Body

Forget the old saying "no pain, no gain."

You can expect sore muscles after your workout. But you should never feel pain when exercising. If you feel pain, stop right away.

Being tired all the time can also be a sign that you may be overdoing it. In general, avoid increasing these 3 things all at the same time:

- *Number of days you exercise*
- *Length of time you exercise*
- *How hard you work out*

If you do have an injury, you can try to treat strains and sprains at home.

When to Call the Doctor

Go to the hospital right away or call the local emergency number if:

- *You have chest pain during or after exercise.*
- *You think you have a broken bone.*
- *The joint appears out of position.*
- *You have a serious injury or severe pain or bleeding.*
- *You hear a popping sound and have immediate problems using the joint.*