

Physical Activity

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Objectives

- To know the definition of physical activity and inactivity.
- To distinguish between physical activity, exercise, sport and fitness.
- To list the types of physical activity.
- To acknowledge the prevalence of physical activity.
- To know the recommended amount of physical activity.
- To recognize the benefits of physical activity.
- To identify the risks of physical inactivity.
- To identify strategies to increase physical activity.
- To know about physical activity programs.

We asked Dr. Shatha and she said the file is enough. Also, we asked her to write the exam questions from this file :D Basically she said I want you to know that there are complications from physical inactivity + which regions are the most inactive. (NO NEED to memorize the numbers) You can finish the file in 15 minutes or so. Read it.

■ Definition of Physical Activity

WHO: any bodily movement produced by skeletal muscles that results in energy expenditure measured in kilocalories.

Physical activity in daily life can be categorized into: Occupational, **sports**, household, or other activities.

CDC: defined by:

- **Duration:** amount of time spent participating in a physical activity session.
- **Intensity:** rate of energy expenditure.
- **Frequency:** number of physical activity sessions during a specific time period (e.g. one week)

Exercise: Subset of physical activity that is planned, structured, and repetitive to improve or maintain physical fitness.

Physical Fitness: set of health or skill-related attributes measurable with specific tests.

Physical inactivity: term used to identify people who do not get the recommended level of regular physical activity.

■ Types of Physical Activity

4 main types:

1. **Aerobic activity:** when your heart beats fast and you breathe harder.
 - **Moderate intensity:** you can still hold a conversation while doing the activity.
 - **Vigorous intensity:** you can't say more than a few words without pausing for breath.
2. **Flexibility:** activities that keeps your muscles relaxed and joints mobile.
3. **Strength:** weight bearing activities, which helps in:
 - increase muscle mass
 - strengthen muscles

- improve posture and balance

4. **Balance:** important to help people prevent falls (particularly older people).

■ Prevalence of Physical Activity

- Measuring the physical activity is based on the “age standardized” WHO measurements .
- Highest WHO regions in insufficient physical activity:
 1. **The Americas** (North and South) %32.4 in both males and females.
 2. **Eastern Mediterranean** %31.1 in both males and females.
- The most **active** WHO region is South East Asia.
- **Males** and **younger** population are generally more active.
- Saudi Arabia’s physical inactivity by WHO is **%58.5** in both sexes.

■ Recommended Amount of Physical Activity

Children aged 5-17	<ul style="list-style-type: none"> • Children and youth aged 5–17 should accumulate at least 60 minutes of moderate to vigorous-intensity physical activity daily. • For this age group, bone-loading activities can be performed as part of playing games, running, turning or jumping.
Adults aged 18-64	<ul style="list-style-type: none"> • In order to improve cardiorespiratory and muscular fitness, bone health, reduce the risk of NCDs and depression adults aged 18–64 should do at least 150 minutes of moderate-intensity aerobic physical activity throughout the week.

■ Benefits of Physical Activity

A. Lack of physical activity is considered as a risk factor for a number of noncommunicable diseases.

The Benefits of Physical Activity Includes but not limited to:

1. Weight control.
2. Muscles and bones health.
3. Cancer risk reduction.
4. Lowers the risk of heart disease.
5. Improving diabetes mellitus outcome.
6. Mental health.

B. Overall physical activity benefits for adults (young and old):

1. Benefits health.
2. Improves sleep quality.
3. Maintains healthy weight.
4. Assists with stress management.
5. Improves quality of life.
6. Reduces chances of:
 - Type II Diabetes by 40%.
 - Cardiovascular diseases by 35%.
 - Depression and dementia by 30%.
 - Joint and back pain by 25%.

- Colon and breast cancer by 20%.

C. Physical Activity & Weight control:

- * Strong scientific evidence verified the role of physical activity in maintaining weight over time.
- * Typical Required weekly activity to maintain healthy weight:
 - 150 minutes of moderate-intensity aerobic activity, or
 - 75 minutes of vigorous-intensity aerobic activity, or
 - An equivalent mix of the two.
- * The amount of physical activity required to maintain weight varies between people.
- * Both diet and physical activity play a critical role in controlling your weight.
- * Weight is gained when consumed calories exceed calories burned.
- * Losing weight typically requires combining physical activity with a healthy diet.

D. Physical Activity & Strengthening Bones and Muscles:

Aerobic, muscle-strengthening and bone-strengthening physical activity of at least a moderately-intense level was shown to slow the loss of bone density with age.

- * **Hip fracture:** risks were shown to be lower for people performing 120 to 300 minutes of at least moderately-intense aerobic activities each week.
- * **Arthritis and other conditions affecting the joints:** were shown to be subdued by moderately-intense, low-impact aerobic activities performed for 130 to 150 minutes a week.
- * **Strong and healthy muscles:** Can be built and maintained via muscle-strengthening activities. Slowly increasing the amount of weight and number of repetitions further improves benefits regardless of age.

E. Physical Activity & Cancer Risk Reduction:

- * Research suggests that physical activity lowers the risk for:
 - Colon cancer.
 - Breast cancer.
- * Preliminary findings also suggest a role for physical activity in reducing:
 - Endometrial cancer.
 - Lung cancer.
- * Regular physical activity also provides better quality of life for cancer survivors.

Physical Activity & Cardiorespiratory System

(1) Improvements in muscular function and strength

(2) Improvement in the body's ability to take in and use oxygen as one's ability to transport and use oxygen improves.

→ **Result:** regular daily activities can be performed with less fatigue.

Physical activity can also reduce risk factors associated with heart disease, because it:

1. Lowers blood pressure and triglyceride.
2. Raise HDL cholesterol levels | lowers LDL levels.
3. Improves insulin sensitivity.
4. Reduces levels of C-reactive protein (CRP)
5. Helps reduce overweight and obesity.

Physical Activity & Hypertension

- **Mechanism at which physical activity lowers blood pressure:**

Stronger heart can pump more blood with less effort → force on arteries decreases → lowering blood pressure.

- **If blood pressure is at a desirable level -less than 120/80 mmHg - exercise can**

1. help prevent it from rising with aging.

2. regular exercise helps maintain a healthy weight; that is another important way to control blood pressure.
- To keep blood pressure low exercising on a regular basis is needed. It takes about **one to three months** for regular exercise to have an impact on blood pressure. Benefits last as long as a person continues to exercise.

Physical Activity & Diabetes Mellitus Type 2

Benefits of physical activity for patients with type 2 diabetes are substantial. Recent studies strengthen the importance of long-term physical activity programs for (1) treatment (2) prevention of the illness or delaying the onset (3) prevention of its complications.

Physical activity benefits for diabetic patients:

1. **Glycemic control**
Regular physical activity has an effect on carbohydrate metabolism and insulin sensitivity.
2. **Prevention of cardiovascular diseases**
Studies show that diabetic patients with CVS diseases have a low level of fitness compared with control patients, even when matched for levels of ambient activity. Lack of fitness is associated with many of the cardiovascular risk factors.
3. **Prevent the risk of hyperlipidemia**
Physical activity is effective in reducing levels of triglyceride-rich VLDL.

Physical Activity & Mental Health

Scientific evidence shows that lower levels of physical activity can be beneficial in numerous ways, including:

- Maintaining thinking, learning, and judgment skills with age.
- Reducing the risk of depression and sleep disorders.

■ Risks of Physical Inactivity

Chronic diseases caused by these risk factors (physical inactivity, tobacco, poor diet and nutrition) are now the **leading causes of death** in almost every part of world. Precious lives can be saved by investing in prevention.

Risks of physical inactivity

1. Increase in body weight by imbalance between income and outcome of calories, which can further lead to obesity.
2. Decrease in elasticity and articular mobility muscular hypertrophy, decrease in the ability and capacity of reaction.
3. Slowing the circulation with the consequent sensation of heaviness and edema and development of varicose veins.
4. Low back pain and injury of the support system.
5. Poor posture, due to low development of respective masses of muscle tone.
6. Tendency to diseases such as HTN, DM2, metabolic syndrome, CHD (with other risk factors), cancer.
7. Frequent feeling of fatigue, discouragement, discomfort, decreases self-esteem, feelings of anxiety and depression.
8. Falls; older adults who are physically active can reduce their risk and improve their ability to do daily activities.

■ Strategies to Increase Physical Activity

Categorized into: **individual**, **community/governmental**, and **clinical** strategies.

* **Individual Strategies** aim is to learn skills to help add physical activity to daily routines. These include:

1. Goal-setting & self-monitoring.
2. Building social support.
3. Self-reward & positive talk.
4. Structured-problem solving
5. Prevention of relapse to sedentary life.

* **Community/Governmental Strategies**

1. Social supportive interventions | **Example:** walking clubs.
2. Campaigns | **Example:** public health and physical activity education
3. Community-scale urban design and land use policies | **Example:** addressing proximity of residential areas to stores
4. Street-Scale urban design and land Use Policies | **Example:** projects to increase safety of street crossing
5. Encouraging the use of stairs | **Example:** Motivational signs placed near stairwells
6. Transportation and travel policies and practices | **Example:** Creating walkable communities around transit hubs
7. School-Based physical education | **Example:** incorporate fitness and circuit training activities
8. Creation or enhanced access to places for physical activity | **Example:** building exercise facilities

* **Clinical Strategies**

All healthcare professionals have a role to play in **counseling**, **educating** and **encouraging** their patients about physical activity, especially **patients with chronic illnesses and whom are obese or overweight**.

■ Physical Activity Programs

