PE 2 – Prelim Coverage

PHYSICAL FITNESS AND WELLNESS

Physical fitness encompasses the body's ability to perform daily activities with vigor and without fatigue, while wellness represents a holistic approach to health that includes physical, mental, and social well-being. Together, they form the foundation for a healthy lifestyle, promoting longevity and quality of life through active living and healthy habits.

What is Physical Fitness?

Physical fitness is the ability of the body systems to work together efficiently, enabling individuals to carry out daily activities with vigor. It encompasses not only the physical aspects, such as stamina and strength, but also the mental and emotional elements that contribute to overall well-being. A physically fit individual can manage daily responsibilities, engage in recreational activities, and maintain a healthy lifestyle with minimal fatigue.

Components of Physical Fitness

1. **HEALTH-RELATED FITNESS -** Health-related fitness standards serve as the minimum benchmarks for individuals to maintain good health and reduce the risk of diseases. These standards focus on core components such as cardiorespiratory endurance, muscular strength, flexibility, body composition, and muscular endurance, all of which are essential for overall health and injury prevention.
    a. **Cardiorespiratory Endurance -** Cardiovascular endurance is the ability of the lungs, heart, and blood vessels to deliver enough oxygen to the cells to meet the needs of long-term physical activity. Getting stronger in your heart and lungs can make it easier for you to carry out the tasks you need to do every day. Jogging, running, cycling, and swimming can enhance cardiovascular endurance.
    b. Muscular Endurance - Muscular endurance refers to the ability of a muscle or group of muscles to sustain repeated contractions over an extended period without becoming fatigued. It is a key component of physical fitness and plays a crucial role in various activities, from endurance sports to everyday tasks. Circuit training, and bodyweight exercises are all good ways to build muscle endurance.
    c. **Muscular Strength -** Muscular strength refers to the ability of a muscle or group of muscles to exert force against resistance. It is a critical component of physical fitness and plays a pivotal role in various aspects of daily life, sports performance, and overall health. Push-ups, sit-ups, lifting, squats, and lunges promote muscular strength.
    d. **Body Composition -** Body composition is the quantitative analysis of the various elements within the human body, highlighting the relative amounts of fat, lean muscle mass, bone, water, and other tissues that compose an individual's physique. It serves as a comprehensive assessment of an individual's overall physical makeup, offering critical information about their health, fitness, and potential risk factors. Body composition analysis is typically expressed as a percentage of total body weight attributed to each component.
    e. **Flexibility -** Flexibility refers to the range of motion in your joints and muscles, which allows you to move freely and perform various physical activities with ease. It is a fundamental component of physical fitness and plays a crucial role in overall health and well-being. Flexibility involves the capacity of your muscles to elongate when stretched. This allows for better joint mobility and reduces the risk of muscle strains and injuries. It enhances the range of motion in your joints, including the shoulders, hips, knees, and spine. Improved joint mobility contributes to better posture and reduces the risk of joint-related issues.

2. **Skill-Related Fitness -** Skill-related fitness is the capacity to perform during games and sports. This level of physical fitness is needed to be able to perform the more technical parts of a wide range of sports. The five components of skill-related fitness include: agility, balance, coordination, power, reaction time, and speed.
    a. **Speed - S**peed is the maximum rate at which a person can move or cover a distance in a certain amount of time. Speed requires good strength and power, but body weight and air resistance can affect a person's speed.
    b. **Agility -** Agility is the capacity to shift or change the orientation of the body rapidly from one point to another. A person who competes in track and field exhibits a high level of agility.
    c. **Balance -** Balance is the ability to keep your body in place, whether you're standing still (static balance) or moving (dynamic balance). People who do gymnastics, yoga, and skiing as sports exhibit great balance.
    d. **Coordination -** Coordination is the ability to move in a way that is smooth, accurate, and under control. Coordination is a difficult skill that also requires good balance, strength, and agility.
    e. **Power -** Power is the ability to perform one maximum effort in the shortest possible time. In other words, it is the ability of your muscles to use as much force as possible in as little time as possible, like when you run or swim. This component of skill-related fitness has to do with cardiovascular endurance. Strength and speed are the two components that combine to create power.
    f. **Reaction Time -** The term "reaction time" refers to the rate at which an athlete reacts to an external stimuli. Athletes can be exposed to different stimuli when they play sports. So, reaction time is very crucial for any athlete. Whether a player wins or loses in a sport is usually decided in a matter of milliseconds, and it all depends on how fast the player can react.

Wellness - Wellness encompasses a holistic approach to health that integrates physical, mental, and emotional well-being. It involves actively engaging in healthy lifestyle choices, fostering positive relationships, and maintaining a balance across various life dimensions to promote overall life satisfaction and longevity.

9 Dimension of Wellness

1. **Emotional Wellness -** Emotional wellness involves understanding, managing, and expressing your feelings effectively. It includes coping with stress and overcoming challenges in a constructive way, enhancing personal happiness and stability.
2. **Environmental Wellness -** Environmental wellness emphasizes living in harmony with our surroundings. It encourages practices that contribute to a clean, safe, and sustainable environment, promoting both personal health and the health of the planet.
3. **Financial Wellness -** Financial wellness refers to the ability to manage your financial resources effectively. It includes budgeting, saving, investing, and being prepared for unexpected expenses, leading to reduced stress and stability.
4. **Intellectual Wellness** - Intellectual wellness involves engaging in creative and stimulating activities that expand knowledge and skills. It encourages lifelong learning and curiosity, enhancing decision-making and critical thinking.
5. **Occupational Wellness -** Occupational wellness relates to finding personal satisfaction and enrichment in one’s work. It encourages work-life balance and meaningful engagement in professional activities, contributing to overall happiness.
6. **Physical Wellness -** Physical wellness encompasses maintaining a healthy body through regular exercise, proper nutrition, and preventive care. It focuses on meeting the physical challenges of daily life and maintaining overall health.

7. **Sexual Wellness -** Sexual wellness involves understanding and respecting your sexual health and engaging in safe and consensual sexual activities. It promotes communication and healthy relationships, enhancing overall well-being.
8. **Social Wellness -** Social wellness emphasizes building and maintaining healthy relationships and a supportive social network. It encourages positive interactions and communication, contributing to emotional strength and resilience.
9. **Spiritual Wellness -** Spiritual wellness involves seeking meaning and purpose in life, which can be achieved through various practices such as meditation, religion, or philosophy. It fosters a sense of connection to something greater than oneself.

TRAINING CONCEPTS AND METHODOLOGIES

1. **Specificity -** Specificity refers to the principle that training should be tailored to the specific needs of the individual or the sport. For example, a runner will focus on endurance training, while a weightlifter will engage in strength training to improve their performance in their respective activities.
2. **Overload -** Overload is the principle that to improve physical fitness, the body must be challenged beyond its normal workload. This can involve increasing the weight, duration, or intensity of an exercise to stimulate physical adaptation and improvement.
3. **Progression -** Progression is the gradual increase of exercise difficulty over time. To continue improving fitness levels, individuals should incrementally enhance the intensity, duration, or frequency of their workouts as their bodies adapt to the previous levels of exertion.
4. **Reversibility -** Reversibility refers to the principle that fitness gains are lost when training is stopped or decreased. Once an individual ceases regular exercise, the body will gradually return to its previous state. Therefore, maintaining a consistent exercise routine is essential for long-term fitness.

BIOMECHANICS - Biomechanics studies the physical principles governing the movement of living organisms, particularly focusing on the interactions between muscles, bones, tendons, and ligaments. Understanding these interactions is essential for enhancing movement efficiency, preventing injuries, and improving athletic performance.

ELEMENTS OF BIOMECHANICS

1. **Motion -** Motion refers to the movement of a body across space. It includes aspects such as speed and acceleration, which are critical in understanding how fast and in what direction a body is moving during physical activities.
2. **Force -** Force is the push or pull that can cause an object to accelerate, decelerate, stop, or change direction. In biomechanics, understanding the force exerted by muscles during movement helps analyze performance and prevent injuries.
3. **Momentum -** Momentum is defined as the product of an object's mass and its velocity. It plays a crucial role in understanding how athletes can maintain or change their speed and direction during sports and exercise.
4. **Levers -** Levers in the human body consist of bones acting as the bars and joints serving as fulcrums. Understanding levers is essential for improving performance and preventing injuries by optimizing the mechanics of movement.
5. **Balance -** Balance refers to the ability to maintain the body's center of gravity over its base of support. It is fundamental in all physical activities, helping athletes perform movements effectively and reducing the risk of falls and injuries.

PRINCIPLES USED IN BIOMECHANICS

1. **Dynamics -** Dynamics is the study of forces and their effects on the motion of objects. It encompasses the analysis of how acceleration, speed, and direction change when forces are applied, allowing us to understand how to optimize performance in physical activities.
2. **Kinematics -** Kinematics examines the motion of objects without considering the forces that cause that motion. It focuses on parameters such as displacement, velocity, acceleration, and the trajectory of movement, providing insights for improving efficiency and techniques in physical activities.
3. **Kinetics -** Kinetics studies the forces that cause motion, including internal forces (muscle contractions) and external forces (gravity, friction). This principle helps in understanding how to generate power and improve techniques in various sports activities.
4. **Statics -** Statics deals with systems in equilibrium, where forces are balanced and there is no motion. Understanding statics is crucial for maintaining stability and safety in various physical activities, ensuring that athletes can perform without injury.

OBJECTIVES OF BIOMECHANICS

a. The primary objective of biomechanics is to enhance performance in sports and physical activities by understanding the mechanics of movement.
b. The secondary objective of biomechanics aims to improve physical fitness and prevent injuries through the application of scientific principles of movement, allowing individuals to train effectively and safely.

APPLICATIONS OF BIOMECHANICS

1. **Study Of Movement -** Biomechanics is essential for analyzing how different body parts move and interact during physical activities, allowing for a deeper understanding of human motion and the mechanics behind it.
2. **Understanding Muscle Function -** By understanding muscle function and coordination, biomechanics helps identify how muscles work together, enhancing performance and preventing injuries in athletes.
3. **Designing Medical Treatments -** Biomechanics plays a crucial role in developing innovative medical treatments and rehabilitation techniques, ensuring better recovery and mobility for individuals with injuries or disabilities.
4. **Designing Sports Equipment -** The principles of biomechanics are applied in the design of sports equipment to enhance performance, reduce injury risks, and improve athletes' overall experience in their respective sports.

FUNDAMENTAL BODY MOVEMENTS - Fundamental body movements form the essential skills needed for physical activities, including sports and games. Mastering these movements at an early age is crucial, as it lays the groundwork for more complex skills and promotes lifelong physical activity engagement.

TYPES OF FUNDAMENTAL BODY MOVEMENTS

1. **Locomotor Movements -** Locomotor movements involve the body's movements that allow it to travel from one location to another. These include walking, running, hopping, leaping, and jumping. Locomotor movements can be categorized into rhythmic movements (like walking and running) and irregular movements (such as skipping and galloping), providing a foundation for many physical activities and sports.
2. **Non-Locomotor Movements -** Non-locomotor movements, also known as axial movements, refer to movements that do not cause the body to travel but involve the body moving in place. Examples include bending, stretching, twisting, swaying, and balancing. These movements are essential for developing body awareness, coordination, and flexibility, serving as foundational skills for various physical activities.

FUNDAMENTAL MOVEMENT SKILLS

1. **Body Management Skills** - Body management skills involve balancing, maintaining equilibrium, and controlling the body's posture in both stillness and motion. These skills are foundational for all physical activities and include actions such as rolling, stopping, stretching, bending, twisting, landing, climbing, and turning. They are essential for developing coordination and stability.
2. **Locomotor Skills -** Locomotor skills refer to the skills that involve moving the body from one location to another. These include walking, running, jumping, hopping, galloping, marching, and skipping. Mastery of locomotor skills is critical for participating in various sports and recreational activities, as they form the basis for more complex movements.
3. **Object Control Skills** - Object control skills involve the ability to control various implements and objects using different body parts, such as hands and feet. This includes actions like throwing, catching, kicking, and striking. Developing these skills is crucial for participating in team sports and individual activities that require coordination and precision.

Movement Concepts

1. **Body Awareness -** involves recognizing and understanding one's own body parts and their functions. It is crucial for developing coordination and ensuring effective movement during physical activities.
2. **Spatial Awareness -** pertains to understanding how much space is occupied by the body and how to navigate through that space. This skill is important in sports and physical activities to avoid collisions and enhance performance.
3. **Overload Awareness -** Directional awareness is the understanding of left, right, up, down, and other directional concepts. This awareness is vital for executing movements accurately and safely in various physical activities.
4. **Temporal Awareness -** involves recognizing and managing the timing of movements. This aspect is crucial for rhythm and coordination in activities such as dance, sports, and fitness routines.
5. **Relationship Awareness -** refers to understanding how the body interacts with other objects or individuals. This skill is essential for teamwork in sports and collaborative physical activities, ensuring effective communication and coordination.

Movement Strategies - Movement strategies encompass a variety of techniques and approaches utilized to efficiently navigate physical activities and achieve specific movement outcomes. Effective strategies enhance performance, promote teamwork, and adapt to different physical environments, ensuring that both individual and group objectives are met during various activities.

MOVEMENT PRINCIPLES

1. **Balance -** Balance is the ability to maintain the body's center of gravity over its base of support. It is crucial for stability during movement and is essential in various physical activities, helping to prevent falls and injuries.
2. **Centering -** Centering involves the body's core stability, which is vital for effective movement. It refers to engaging the core muscles to support the spine, enhancing coordination and overall physical performance.
3. **Center Of Gravity -** The center of gravity is the point in a body where the mass is evenly distributed in all directions. Understanding and controlling it is essential for performing movements efficiently and safely, particularly in sports and physical activities.
4. **Posture -** Posture refers to the alignment and positioning of the body in relation to gravity. Good posture is crucial for balance, stability, and efficient movement, while poor posture can lead to injuries and discomfort.
5. **Gesture -** Gesture involves the movement of body parts to convey meaning or express emotions. In physical activities, gestures can enhance communication, especially in team sports, improving coordination and team dynamics.

6. **Rhythm -** Rhythm is the patterned movement of the body in time with a beat or cadence. It is essential in various physical activities, including dance and sports, as it helps improve coordination and timing.
7. **Breathing -** Breathing is a fundamental movement principle that involves inhalation and exhalation during physical activity. Proper breathing techniques enhance performance, endurance, and overall well-being by ensuring adequate oxygen supply to the body.

Physical Activity and Physical Exercise

Physical Activity - Physical activity (PA) includes all bodily movements that require energy expenditure, encompassing various activities like walking, running, dancing, and daily chores. It is crucial for improving overall health and well-being, contributing to physical fitness, mental health, and quality of life.

The Need for Physical Activity

1. **Reduce Health Issues -** Engaging in regular physical activity significantly reduces the risk of serious health issues such as heart disease, type 2 diabetes, obesity, and certain cancers, promoting a longer and healthier life.
2. **Lower Chronic Disease Burden -** Regular physical activity lowers the burden of chronic diseases, which can lead to better overall health outcomes and reduced healthcare costs for individuals and society.
3. **Improve Weight Management -** Physical activity is key to improving weight management by burning calories, building muscle, and boosting metabolism, which helps maintain a healthy weight.
4. **Reduce Health Issues -** Engaging in regular physical activity significantly reduces the risk of serious health issues such as heart disease, type 2 diabetes, obesity, and certain cancers, promoting a longer and healthier life.
5. **Enhance Mental State -** Participating in regular physical activity enhances mental well-being by reducing stress, anxiety, and depression levels, leading to improved mood and overall mental health.

Health Risks of Sedentary Life

Sedentary lifestyles contribute significantly to various health problems. Individuals who engage in little to no physical activity face higher risks of obesity, cardiovascular diseases, diabetes, and certain types of cancer, leading to a decrease in overall life expectancy.

How to Increase Physical Activity

1. **Prioritize Walking for Transportation -** Instead of driving, taking the bus, or riding a jeepney, walk to school or the mall whenever possible. Choose the stairs over elevators and escalators, and park further away to get in extra steps.
2. **Active Family Leisure -** Replace sedentary habits, like watching TV or Sunday drives, with active ones like a 30-minute stroll, a family dance session, or a scheduled Saturday morning walk.
3. **Productive Movement at Home -** Turn daily necessities into exercise by staying active with household work, yard chores, gardening, or home repairs. Involve the whole family in raking, weeding, or planting.
4. **Intentional Exercise & Play -** Dedicate at least 30 minutes daily to playing together. You can also join local sports teams, follow workout videos when the weather is poor, or have friendly fitness competitions (like sit-up contests) at home.
5. **Personalized Activity Planning -** Inquire about each family member's preferred activities and select variety that fits your everyday routine. Continuously explore new and enjoyable ways to stay moving.

Physical Exercise - Physical exercise refers to planned, structured, and repetitive movements aimed at improving or maintaining physical fitness, such as weightlifting, running, or participating in organized sports.

Four Different Types of Physical Exercise

1. **Endurance -** Endurance exercises improve the efficiency of the cardiovascular system and increase stamina. Activities such as running, swimming, cycling, and brisk walking are great examples that help in enhancing the body's ability to sustain prolonged exercise without fatigue.
2. **Balance -** Balance exercises enhance stability and coordination. They are crucial for preventing falls and improving overall body control. Activities such as yoga, tai chi, and specific balance drills help strengthen the core and lower body, leading to better balance in daily activities.
3. **Strength -** Strength training involves exercises designed to improve muscular strength and endurance. Common forms include weight lifting, resistance band exercises, and bodyweight workouts like push-ups and squats. This type of exercise is essential for maintaining muscle mass, boosting metabolism, and enhancing overall body strength.
4. **Flexibility -** Flexibility exercises involve stretching the muscles and improving the range of motion in the joints. Regular flexibility training, such as static stretching and dynamic warm-ups, is vital for injury prevention and overall mobility. Activities like Pilates and yoga are excellent for enhancing flexibility and promoting relaxation.

Benefits of Regular Physical Exercise

1. **Improve Memory and Cognitive Function -** Regular physical exercise has been shown to enhance memory and cognitive function by promoting neurogenesis, improving blood flow to the brain, and increasing levels of neurotransmitters associated with learning and memory.
2. **Reduce Blood Pressure -** Engaging in regular exercise helps to lower blood pressure by improving heart health and promoting better blood circulation, which can reduce the risk of heart disease.
3. **Help with Weight Loss -** Exercise is a key component in weight management and fat loss, as it burns calories, boosts metabolism, and helps maintain muscle mass during weight loss.
4. **Improve Sleep Quality -** Regular physical activity improves sleep quality by helping you fall asleep faster and deepening your sleep cycle, which leads to more restorative sleep.

Physical Activity Prescription

1. **Children: 60 minutes daily -** Children aged 5-12 should engage in at least 60 minutes of daily physical activities that can include active travel, chores, sports, or unstructured play. This helps develop foundational movement skills and promotes overall health.
2. **Adolescents: 60 minutes daily -** Adolescents and young adults, aged 13-20, are recommended to have at least 60 minutes of physical activity daily. This should include a mix of moderate to vigorous activities, organized sports, or recreational activities to promote fitness and social interaction.
3. **Adults: 30-60 minutes daily -** For adults aged 21-45, it is essential to accumulate 30 to 60 minutes of daily physical activity. Activities can vary from brisk walking, cycling, to structured exercise sessions aimed at maintaining fitness and promoting a healthy lifestyle.
4. **Older Adults: 30 minutes daily -** Older adults, aged 46 and above, should aim for at least 30 minutes of daily physical activity. This can include low-impact exercises, walking, or activities that focus on flexibility and balance to maintain mobility and independence.

Personal Fitness Plan

A personal fitness plan serves as a roadmap tailored to an individual's fitness goals, preferences, and lifestyle. It encompasses various elements such as physical activities, nutrition, and wellness strategies that contribute to overall health and well-being.

Integrating physical activity with structured exercise maximizes health benefits, enhances fitness levels, and promotes overall well-being. This dual approach not only improves physical capabilities but also supports mental health, fostering a balanced and sustainable lifestyle.