COMPETENCY 1.0 HUMAN DEVELOPMENT

SKILL 1.1 Stages and characteristics of physical development during infancy, childhood, adolescence, and adulthood.

Physical development – Small children (ages 3-5) have a propensity for engaging in periods of a great deal of physical activity, punctuated by a need for a lot of rest. Children at this stage lack fine motor skills and cannot focus on small objects for very long. Their bones are still developing. At this age, girls tend to be better coordinated, and boys tend to be stronger.

The lag in fine motor skills continues during the early elementary school years (ages 6-8).

Pre-adolescent children (ages 9-11) become stronger, leaner, and taller. Their motor skills improve, and they are able to sit still and focus for longer periods of time. Growth during this period is constant. This is also the time when gender physical predispositions will begin to manifest. Pre-adolescents are at risk of obesity without proper nutritional and adequate activity.

Young adolescents (ages 12-14) experience drastic physical growth (girls earlier than boys do), and are highly preoccupied with their physical appearance.

As children proceed to the later stages of adolescence (ages 15-17), girls will reach their full height, while boys will still have some growth remaining. The increase in hormone levels will cause acne, which coincides with a slight decrease of preoccupation with physical appearance. At this age, children may begin to initiate sexual activity (boys generally more motivated by hormones, and girls more by peer pressure). There is a risk of teen pregnancy and sexually transmitted diseases.

SKILL 1.2 Understand the stages of motor development. Includes stages and characteristics of motor development during infancy, childhood, adolescence, and adulthood.

The development of motor skills in children is a sequential process. We can classify motor skill competency into stages of development by observing children practicing physical skills. The sequence of development begins with simple reflexes and progresses to the learning of postural elements, locomotor skills, and, finally, fine motor skills. The stages of development consider both innate and learned behaviors.

STAGES OF MOTOR LEARNING

Stage 1 – Children progress from simple reflexes to basic movements such as sitting, crawling, creeping, standing, and walking.

Stage 2 – Children learn more complex motor patterns including running, climbing, jumping, balancing, catching, and throwing.

Stage 3 – During late childhood, children learn more specific movement skills. In addition, the basic motor patterns learned in stage 2 become more fluid and automatic.

Stage 4 – During adolescence, children continue to develop general and specific motor skills and master specialized movements. At this point, factors including practice, motivation, and talent begin to affect the level of further development.

CHARACTERISTICS OF DEVELOPMENT

Physical education helps individuals attain a healthy level of fitness and renders significant experiences in movement. It provides an opportunity to refine and develop motor skills, stamina, strategies and the pure pleasure of physical activity and participation. Children, infants, and the disabled are all entitled to benefit from physical education. Instructors can adapt physical activities by recognizing the individual's abilities, learning skills, needs, etc. This requires knowledge about the science of movement, the process of skill development, social and psychological components, physical fitness, assessment of the practices of physical activities, and development and implementation of proper and appropriate activities.

Children are at a developmental stage where their physical, emotional, motor, and social skills are not fully constructed. Children in different age groups have distinct and urgent developmental needs. A developmental need varies from child to child. Instructors should respect a child's developmental needs and pace of learning. Instructors should place each child in an environment that stimulates him and offers challenges that are appropriate to his age, developmental needs, and ability. Instructors should never force any child should to take up an activity. Coercion discourages the child and he/she resists learning. However, the instructor can integrate motivation and stimulants into the activity to encourage the child without direct intervention of an adult. Self-motivation is the best tool for learning. Children need to challenge themselves through constant exploration and experimentation. The activity should suit the developmental age of the child so that he/she can perform it with minimal outside assistance. An adult should act as an assistant who provides help only when it is required.

The physical education program for children should be geared to suit their developmental needs (i.e., constructing their motor skills, concept of movement). Physical activity should be fun, pleasurable and aimed at developing and maintaining health. Motor skills are comprised of locomotor skills, non-locomotor skills and manipulative and coordination skills. Games like Bean Bag, parachute, hoola hoop, gymnastics and ball activities that instructors can modify and adapt to suit the particular needs of children, are particularly helpful. Physical activity should have the scope to adapt itself to suit an individual child's needs and goals. For an individual incapable of using his/her legs, an instructor can incorporate wheelchair races or activities that require the use of hands. For children in the grades 1 – 3, instructors should incorporate the concepts of movement and motor skills, allowing the child to perfect them. Concepts of movements like spatial consciousness regarding location, level or height and direction, body awareness and recognition of how the body can be manipulated to perform an activity, effort required regarding time, flow and force, relationship to the various objects and to others, are developed through various activities.

Instructors should also emphasize the significance of personal hygiene. With greater development of motor skills and concepts about movement, instructors can integrate more energetic and vigorous physical activities like volleyball, gymnastics, football, and hockey, into the physical education program. Along with these skills, instructors should select activities that develop group participation skills. It is essential to instill the values of physical education and its connection to general well-being and health. Apart from this, physical education for middle grade children should help develop a good body image and enhance their social skills. Activities like advanced volleyball, dance, and gymnastics can help to develop these areas.

A normal three-year-old should be able to walk up and down the stairs, jump from the lowest step, and land on both the feet without falling. They should also be capable of standing on one foot and balancing and kicking a large ball (though not with a lot of force). A three-year-old can jump on the same spot, ride on a small tricycle, and throw a ball (although not very straight and with limited distance). The large motor skills are more or less developed, but fine motor skills and hand-eye coordination need refining. For example, a three-year-old may not be able to dodge a ball or play games like badminton, which require greater hand-eye coordination, speed, and balance, but a three-year-old can catch a big ball thrown to him/her from a short distance.

A four-year-old is capable of walking on a straight line, hopping using one foot, and pedaling a tricycle with confidence. A four-year-old can climb ladders and trees with relative ease. A four-year-old child can run around obstacles, maneuver, and stop when necessary. A four-year-old can throw a ball a greater distance and is capable of running around in circles.

A five-year-old is capable of walking backwards, using the heel and then the toe, and is able to easily climb up and down steps by alternating feet without any outside help. Five-year-olds can touch their toes without bending at the knee and balance on a beam. They may be able to do somersaults provided it is taught in a proper and safe manner. A five-year-old can ride a tricycle with speed and dexterity, make almost ten jumps or hops without losing balance and falling, and stand on one foot for about ten senconds.

Early elementary school children have already acquired many large motor and fine motor skills. Their movement is more accurate and with purpose, though some clumsiness may persist. An elementary student is always on the run and restless. A child older than five finds pleasure in more energetic and vigorous activities. He/she can jump, hop, and throw with relative accuracy and concentrate on an activity which sustains his/her interest. However, concentration on a single activity usually does not last long. Early elementary students enjoy challenges and can benefit greatly from them.

When proper and appropriate physical education is available, by the time a child finishes the fourth grade he is able to demonstrate well-developed locomotor movements. He is also capable of manipulative and nonlocomotor movement skills like kicking and catching. He is capable of living up to challenges like balancing a number of objects or controlling a variety of things simultaneously. Children at this developmental age begin to acquire specialized movement skills like dribbling. When a child has finished eighth grade, he is able to exhibit expertise in a variety of fine and modified movements (e.g. dance steps). Children begin to develop the necessary skills for competitive and strategic games. Despite a lack of competency in a game, they learn to enjoy the pleasure of physical activity. By the time the children finish the twelfth grade they can demonstrate competency of a number of complex and modified movements with relative ease (e.g., gymnastics, dual sports, dance). Students at this age display their interest in gaining a greater degree of competency at their favorite game or activity.

SKILL 1.3 Understand cognitive, social, and emotional development. Includes stages and characteristics of cognitive, social, and emotional development during infancy, childhood, adolescence, and adulthood.

Cognitive development – Language development is the most important aspect of cognitive development in small children (ages 3-5). Allowing successes, rewarding mature behavior, and allowing the child to explore can improve confidence and self-esteem at this age.

Early elementary school children (Ages 6-8) are eager to learn and love to talk. Children at this age have a very literal understanding of rules and verbal instructions and must develop strong listening skills.

Pre-adolescent children (ages 9-11) display increased logical thought, but their knowledge or beliefs may be unusual or surprising. Differences in cognitive styles develop at this age (e.g. field dependant or independent preferences).
In early adolescence (ages 12-14), boys tend to score higher on mechanical/spatial reasoning, and girls on spelling, language, and clerical tasks. Boys are better with mental imagery, and girls have better access and retrieval of information from memory. Self-efficacy (the ability to self-evaluate) becomes very important at this stage.

In later adolescence (ages 15-17), children are capable of formal thought, but don't always apply it. Conflicts between teens' and parents' opinions and worldviews will arise. Children at this age may become interested in advanced political thinking.

Social development – Small children (ages 3-5) are socially flexible. Different children will prefer solitary play, parallel play, or cooperative play. Frequent minor quarrels will occur between children, and boys will tend to be more aggressive (children at these ages are already aware of gender roles).

Early elementary school children (ages 6-8) are increasingly selective of friends (usually of the same sex). Children at this age enjoy playing games, but are excessively preoccupied by the rules. Verbal aggression becomes more common than physical aggression, and adults should encourage children of this age to solve their own conflicts.

Pre-adolescent children (ages 9-11) place great importance on the (perceived) opinions of their peers and of their social stature, and will go to great lengths to 'fit in'. Friendships at this age are very selective, and usually of the same sex.

Young adolescents (ages 12-14) develop greater understanding of the emotions of others, which results in increased emotional sensitivity and impacts peer relationships. Children at this age develop an increased need to perform.

In the later stages of adolescence (ages 15-17), peers are still the primary influence on day-to-day decisions, but parents will have increasing influence on long-term goals. Girls' friendships tend to be close and intimate, whereas boys' friendships are based on competition and similar interests. Many children this age will work part-time, and educators should be alert to signs of potential school dropouts.

Emotional development – Small children (ages 3-5) express emotion freely and have a limited ability to learn how emotions influence behavior. Jealousy at this age is common.

Early elementary school children (ages 6-8) have easily bruised feelings and are just beginning to recognize the feelings of others. Children this age will want to please teachers and other adults.

Pre-adolescent children (ages 9-11) develop a global and stable self-image (self-concept and self-esteem). Comparisons to their peers and the opinions of their peers are important. An unstable home environment at this age contributes to an increased risk of delinquency.

Young adolescence (ages 12-14) can be a stormy and stressful time for children, but, in reality, this is only the case for roughly 20% of teens. Boys will have trouble controlling their anger and will display impulsive behavior. Girls may suffer depression. Young adolescents are very egocentric and concerned with appearance, and will feel very strongly that “adults don’t understand.”

In later stages of adolescence (ages 15-17), educators should be alert to signs of surfacing mental healthy problems (e.g. eating disorders, substance abuse, schizophrenia, depression, and suicide).

SKILL 1.4 Understand child and adolescent psychology. Includes sources and characteristics of stress and distress among children and adolescents, mechanisms used in coping with stress, the influence of peers and others in determining social behavior among children and adolescents, and ways to help students develop a positive self-concept.

SOURCES OF STRESS

The following are common stressors that many people experience: death of a spouse, death of a close family member or a close personal friend, divorce or separation from a significant other, divorce of parents, addition of a new family member, personal injury/illness, unintentional pregnancy, getting married, jail term, dysfunctional family and social ties, financial problems, fired from a job, moving, poor time management, overcrowding, expectations of others, workaholic personality, lack of self-control, lack of self confidence, lack of self-efficacy, low self-esteem, lack of social support, general insecurity, change, heat/cold extremes, poor living conditions, unsafe work environment, one’s occupation, retirement, academic/business readjustment, taking out a major loan, discrimination, being a victim of a crime, exposure to water borne or air borne chemicals, and noise.

SIGNS AND SYMPTOMS OF STRESS

The following are lists of the signs and symptoms of stress:

Emotional signs of stress include: depression, lethargy, aggressiveness, irritability, anxiety, edginess, fearfulness, impulsiveness, chronic fatigue hyper excitability, inability to concentrate, frequent feelings of boredom, feeling overwhelmed, apathy, impatience, pessimism, sarcasm, humorlessness, confusion, helplessness, melancholy, alienation, isolation, numbness, purposelessness, isolation, numbness, self-consciousness; inability to maintain an intimate relationship.

Behavioral signs of stress include: elevated use of substances (alcohol, drugs; tobacco), crying, yelling, insomnia or excessive sleep, excessive TV watching, school/job burnout, panic attacks, poor problems solving capability, avoidance of people, aberrant behavior, procrastination, accident proneness, restlessness, loss of memory, indecisiveness, aggressiveness, inflexibility, phobic responses, tardiness, disorganization; sexual problems.

Physical signs of stress: pounding heart, stuttering, trembling/nervous tics, excessive perspiration, teeth grinding, gastrointestinal problems (constipation, indigestion, diarrhea, queasy stomach), dry mouth, aching lower back, migraine/tension headaches, stiff neck, asthma attacks, allergy attacks, skin problems, frequent colds or low grade fevers, muscle tension, hyperventilation, high blood pressure, amenorrhea, nightmares; cold intolerance.

STRESS MANAGEMENT

General stress management principles of interest to physical education instructors include regular physical activity, exercise, physical play, and proper nutrition. Proper nutrition refers to the consumption of a balanced diet, consisting of adequate amounts of lean protein, complex carbohydrates, fruits, vegetables, and unsaturated fats.

Stress management and good nutrition are among the cornerstones of healthy living. Physical education instructors can introduce students to these important concepts through development of individualized fitness and wellness plans. Fitness and wellness plans should include a concrete exercise plan and a detailed nutritional plan.

INFLUENCE OF PEERS

Adolescents spend most of their spare time with peers. Adolescence is a time characterized by friendly relationships that mature and become deeper. At this stage, teenagers tend to distance themselves from their parents in a quest for more independence. This is a very crucial stage for teenagers as they have a tendency to unconsciously acquire the attitudes and behaviors of their peers. Parents must understand the critical stage their child is going through while still acting as a guiding force. For example, parents should encourage their child to be selective in choosing her friends. If she happens to spend time in the company of peers who spend most of their time studying, chances are they too will become studious. However, if her group of friends frequents bars and clubs and stays out late, she will be more likely to do the same. This can have a domino effect on the child and cause a lack of sleep and related physical and psychological ailments. If this behavior becomes habitual, she will later be prone to absenteeism and may develop a negative reputation.

In order to prevent this negative situation, an appropriate inquiry for a parent, guardian, or teacher is to ask what kind of company the child is keeping. It is also beneficial for a parent to become familiar and friendly with their child's friends.

DEPRESSION AND MENTAL HEALTH

Depression (clinical depression or major depressive disorder) is a state of intense sadness, melancholia, or despair that disrupts the social and/or professional function of the individual. While we often refer to a regular feeling of sadness as "feeling depressed", it is not the same thing as clinical depression. Depression is a clinically diagnosed condition, and is much more severe than normal depressed feelings.

Risk factors relating to suicide include previous suicide attempts or a family history of suicide, history of mental disorders (particularly depression), a personal history of alcohol or substance abuse, a family history of child abuse, feelings of hopelessness, impulsive or aggressive tendencies, barriers to accessing mental health treatment, loss (can include relational, social, professional or financial), physical illness, easy access to means for suicide, unwillingness to seek help because of the stigma attached to mental health disorders, local epidemics of suicide (which can serve as a mental trigger to see suicide as a possible course of action), and feelings of isolation or being cut off from other people.

Suicide prevention strategies should help teachers and counselors identify the broad spectrum of at-risk students, and ensure that qualified school staff (e.g. counselors) is available to help identified students. Teachers and counselors should seek to diminish predisposing conditions (e.g., attempt to make the school social environment more inclusive, intervene with students displaying risk factors in a timely fashion). Good suicide prevention strategies will also focus on developing coping skills among students. Schools can do this, for example, by offering drama classes focusing on common teen problems, or providing cards students can carry that list coping skills and peer support hotlines.

SELF-CONCEPT

There is an important relationship to consider between physical activity and the development of personal identity and emotional and mental well-being, most notably the impact of positive body image and self-concept. Instructors can help children develop positive body image and self-concept by creating opportunities for the children to experience successes in physical activities and to develop a comfort level with their bodies. This is an important contributor to their personal and physical confidence.

SKILL 1.5 Understand the components, functions, and common disorders of the skeletal system.

SKELETAL SYSTEM AND MOVEMENT OF BODY JOINTS

The axial skeleton consists of the bones of the skull and vertebrae. The appendicular skeleton consists of the bones of the legs, arms and tail, and shoulder girdle. Bone is a connective tissue. Parts of the bone include compact bone that gives strength, spongy bone that contains red marrow to make blood cells and yellow marrow in the center of long bones to store fat cells, and the periosteum that is the protective covering on the outside of the bone.
A joint is a place where two bones meet. Joints enable movement. Ligaments attach bone to bone. Tendons attach bone to muscle. Joints allow great flexibility in movement. There are three types of joints:

1. Ball and socket – allows for rotational movement. An example is the joint between the shoulder and the humerus. Ball and socket joints allow humans to move their arms and legs in many different ways.

2. Hinge – movement is restricted to a single plane. An example is the joint between the humerus and the ulna.

3. Pivot – allows for the rotation of the forearm at the elbow and the hands at the wrist.

MAJOR BONES OF THE SKELETAL SYSTEM

Skull – comprised of cranium (head) and facial bones

Vertebral column – backbone
- seven cervical vertebrae (neck)
- twelve thoracic vertebrae (middle back)
- five lumbar vertebrae (lower back)

Shoulder
- Clavicle – Collarbone
- Scapula – Shoulder socket located on this bone

Thorax
- Sternum – breastbone
- Ribs – twelve pairs, each attaching to the twelve thoracic vertebrae

Arm
- Humerus – upper arm; attaches to scapula to form shoulder joint
- Ulna and Radius – forearm

Legs
- Femur – upper leg; largest bone in body
- Tibia and Fibula – lower leg
- Patella – knee

Hip
- Ilium, Ischium, and Pubis

COMMON SKELETAL SYSTEM DISORDERS

Three common skeletal system disorders are arthritis, scoliosis, and osteoporosis.

Arthritis is disease of the joints that causes pain and loss of movement. Inflammation, pain, and stiffness are the main symptoms of the various types of arthritis. Inflammation is the immune system's response to invasion by foreign bodies or damaged cells and tissue. The symptoms of inflammation (redness, swelling, etc.) result from increased blood flow and fluid leakage into the diseased area caused by chemicals released by immune cells.

Two of the most common types of arthritis are osteoarthritis and rheumatoid arthritis. The cause of osteoarthritis is the gradual breakdown of joint tissue associated with aging and prolonged "wear and tear". The underlying cause of rheumatoid arthritis is unknown. Rheumatoid arthritis is an autoimmune disease in which the body's immune system recognizes healthy tissue (usually joint tissue) as foreign and attacks it.

There is no known way to prevent rheumatoid arthritis, but weight management and avoiding joint injury and over use may prevent or delay the onset of osteoarthritis. The main treatments for arthritis are physical therapy and first and second-line drugs. Regular physical therapy helps maintain joint mobility and range of motion. First-line drugs, such as non-steroidal anti-inflammatory drugs (e.g. aspirin, ibuprofen, and naproxen), corticosteroids, and cox-2 inhibitors (e.g. Celebrex®), provide direct analgesic and anti-inflammatory relief. Second-line drugs used to treat rheumatoid arthritis, such as gold salts, sulfasalazine, methotrexate, chloroquine, hydroxychloroquine, and azathioprine, may delay the progression of the disease symptoms.

Scoliosis is side-to-side curvature of the spine. The cause of scoliosis is unknown in most cases. Some serious types of scoliosis are caused by spinal birth defects, muscular or nerve damage, and deterioration of bone between the vertebrae. Most minor cases of scoliosis require little more than careful observation while cases that are more serious may require bracing or surgery. There is no known way to prevent scoliosis, but bracing can prevent progression of the disease.

Osteoporosis is the loss of bone mass leading to brittle bones, neck and back, pain, loss of height, and rounded shoulders. Some causes of osteoporosis are aging, sedentary lifestyle, smoking, calcium and vitamin D deficiency, decreased estrogen levels in women, and long-term use of corticosteroid drugs. Engaging in regular exercise, consuming a diet rich in calcium and vitamin D, refraining from smoking, and limiting caffeine and alcohol consumption may prevent osteoporosis. Hormone replacement treatment is the main treatment for osteoporosis. Other drugs used to treat osteoporosis include biphosphonates, raloxifene, alendronate, and calcitonin.