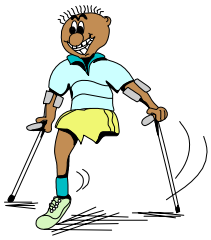
AMPUTATION



DEFINITION:

Amputation: Missing part or all of a limb.

Amputations can be classified into two categories: **Congenital or acquired amputation.**

Congenital amputation (limb deficiency): When an individual is born without a limb. Congenital amputations are classified according to the site or the level of limb absence.

Acquired amputation: When an individual has a limb removed by operation due to trauma, infection, diabetes and/or vascular impairment.

COMMON ABBREVIATIONS FOR INDIVIDUALS WITH AMPUTATIONS:

AK: Above or through the knee joint
BK: Below the knee, but through or above the ankle joint
AE: Above or through the elbow joint
BE: Below the elbow, but through or above the wrist joint

A **prosthesis** is a substitute for a missing body part. The purpose of the prosthetic device is to enable the student to function with as few restrictions as possible.

MEDICAL CONSIDERATIONS:

- Edema (swelling) of the stump
- Pressure sores from the prosthetic device
- Atrophy of musculature in or around the affected limb or joint
- Replacement of the device due to growth, especially in children
- Poor circulation at the level of amputation
- Contractures

ANEMIA

DEFINITION:

Anemia is a condition of reduced oxygen-carrying capacity of the blood due to a deficiency in either red blood cells or hemoglobin.

TYPES OF ANEMIA:

Clorosis or iron deficiency anemia: The result of reduced hemoglobin and usually occurs in young women at the time of puberty.

Pernicious anemia: The result of decreased red blood cells and can cause changes in the nervous system, resulting in loss of sensation in the hands and feet.

Aplastic anemia: This form of anemia results from the replacement of red bone marrow with fatty marrow. This form of anemia can be caused by radiation, radioactive isotopes, atomic fallout, and certain antibiotics.

Sickle cell anemia: This form of anemia is an inherited disorder.

Sports anemia: This form will affect athletes with low levels of red blood cells or hemoglobin. It is a consequence of physical activity and the effects are marginal.

CAUSES:

There are many causes of anemia, both congenital (present at birth) and acquired.

- Iron deficiencies in the diet
- Inadequate utilization of iron in the blood
- Menstrual loss (primary source of iron loss for females)
- Vitamin B-12 deficiency
- Folic acid deficiency
- Mechanical injury or trauma that impacts circulation
- Acute posthemorrhaging caused by a massive hemorrhage, such as a ruptured artery
- Chronic posthemorrhaging with prolonged moderate blood loss
- Disorders of red blood cell metabolism
- Defective hemoglobin synthesis
- Decreased production of bone marrow
- Gastrointestinal loss (common in runners)
- Sweat loss during prolonged exercise

POSSIBLE SIGNS, SYMPTOMS, AND CHARACTERISTICS:

- Loss of color in cheeks, lips, and gums or a bluish tint to the lips and nails
- Increased heart and breathing rates
- Weakness, drowsiness, and fatigue
- Decreased physical work capacity
- Headache
- Nausea
- Faintness
- Vertigo (dizziness)
- Tinnitus (ringing in the ears)
- Spots before the eyes
- Irritability
- Difficulty concentrating
- Lowered activity level
- Diminished VO max
- Lowered endurance
- Increased lactic acidosis
- Menstrual irregularities
- Heart murmurs
- Heart failure
- Delayed skeletal maturation
- Shortness of stature

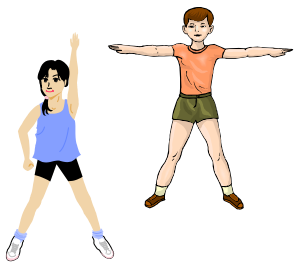
TEACHING TIPS:

- Design program activities based on the student's abilities, considering the social implications if the student cannot succeed.
- Evaluate the student to determine current physical fitness and motor skill development levels for designing an appropriate intervention program.
- Curtail activities so that the student does not overexert himself/herself.
- Closely monitor the student for signs of overexertion.
- Teach the student to monitor himself/herself for warning signs of overexertion.
- Avoid activities that minimize access to a ready supply of oxygen, such as underwater swimming.
- Avoid highly aerobic activities unless the student is appropriately conditioned.

**** Refer to the fact sheets on CARDIAC CONDITIONS for more information.**

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

ARTHRITIS



DEFINITION:

Arthritis: Inflammation of one or more joints. In most cases, arthritis is progressive, resulting in muscular stiffness. Arthritis left untreated can lead to joint immobility, muscle atrophy and contractures. In the early stages, the small joints of the hands and feet are usually affected.

MOST COMMON TYPES OF ARTHRITIS:

Adult Rheumatoid Arthritis: Considered to be the nations number one crippling disease. Usual onset is between 25 and 50 years of age. This type of arthritis affects women three times more than men.

Juvenile Rheumatoid Arthritis (Still's Disease): Considered a major crippler of young children. Usual onset is before 7 years of age.

Osteoarthritis: Second most frequent type of arthritis. This type affects the hyaline cartilage in weight bearing joints. Usually occurs because of destruction of bone coverings at the joints due to repeated use or trauma.

Ankylosing Spondylitis: Affects the axial skeleton and large peripheral joints of the body. Most prevalent in males with the age of onset ranging from 20 to 40 years of age. Common symptoms include recurrent back pain and early morning stiffness.

SIGNS AND SYMPTOMS OF ARTHRITIS:

- Inflammation of a joint
- Joints are sensitive to touch
- Deformity of limbs
- Limping due to pain
- Morning stiffness
- Recurrent back pain
- Ankylosed joints (immobile joints due to the union of bones because cartilage has been destroyed)

TEACHING TIPS:

- Encourage low impact aerobic activities, such as swimming, walking, cycling, and water exercise.
- Plan exercises that will strengthen the muscles around joints (extensors, abductors, internal rotators and pronators).
- Encourage range of motion exercises be done two to three times a day.
- Plan activities that involve creative dance. These activities stress extension and stretching techniques.
- Utilize gradual stretching exercises and isometric muscle contraction exercises.
- Activity should never increase pain or tire the individual, so normal recovery is not obtained the next day.

CONTRAINDICATED ACTIVITIES:

- Jumping activities (i.e., jump rope, trampolines)
- Activities where falls might be more frequent (i.e., roller skating, skiing, gymnastics)
- Sitting for long periods of time
- Repeated hopping, leaping or movement exploration activities in which the body leaves the floor
- Contact sports, particularly football and soccer

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

ASPERGER'S DISORDER

DEFINITION:

Asperger's Disorder, also known as Asperger's Syndrome or high-functioning autism, is a condition characterized by severe and sustained impairment in social interaction along with repetitive patterns of behavior, interests and activities, that seriously impacts daily function. The condition is estimated to occur in 3 in 10,000 births. Males are estimated to be affected 10 times more frequently than females.

DIAGNOSTIC CRITERIA:

Severe and sustained impairment in social interaction, as manifested by at least two of the following:

- Use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures, and gestures to regulate social interaction
- Failure to develop peer relationships appropriate to developmental level
- Lack of spontaneous seeking to share enjoyment, interests, or achievements with others
- Lack of social or emotional reciprocity

Repetitive and stereotyped patterns of behavior, interests, and activities, as manifested by at least one of the following:

- Preoccupation with one or more stereotyped and restricted patterns of interests that is abnormal in intensity or focus
- Inflexible adherence to specific, nonfunctional routines
- Stereotyped and repetitive motor mannerisms
- Persistent preoccupation with parts of objects

Clinically significant impairment in social, occupational, or other important areas of functioning.

No clinically significant delay in language.

No clinically significant delays in cognitive development or function, self-help skills, adaptive behaviors (other than social interaction), and curiosity about the environment.

Criteria are not met for another specific Pervasive Developmental Disorder or Schizophrenia.

TEACHING TIPS AND SUGGESTED ACTIVITIES:

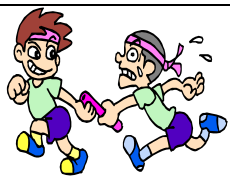
- Create a highly structured environment.
- Use the same organization and equipment each day.
- Use proper safety equipment at all times.
- Teach safety often and be very specific.
- Get full attention.
- Eliminate unnecessary external stimuli.
- Limit the amount of relevant stimuli presented at one time.
- Utilize sensory stimulation to increase attention span and decrease self-stimulation.
- Use vigorous aerobic exercise to reduce self-stimulatory and off task behaviors.
- Parents and professionals should use the same rules, expectations, and behavior management systems including positive reinforcement of desired behaviors.
- Utilize the Premack principle (pairing something liked with something disliked).
- Teach in a game-like environment to facilitate generalization.
- Improve motor skill acquisition by using reinforcement, task analysis, and physical prompting.
- Describe, discuss, and/or role play difficult situations.
- Use transitions that depict activities between each activity.

** Refer to the fact sheets on MENTAL RETARDATION and AUTISM for possible signs, symptoms, and characteristics and more helpful hints and suggested activities.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

French, R. (1997 - 2004)

ASTHMA



DEFINITION:

Asthma is a respiratory disease, which includes a wide range of causes. An inhaler that delivers medication directly to the lungs is often used. Some inhalers work best prior to exercise. Students with asthma tend to be sensitive to **weather changes, heavy exercise, pet dander, body temperature changes, pollution, dust, grass, smog, and cigarette smoke.** Two basic types based on causes of an attack. Extrinsic (Allergic) Asthma: Allergens cause an over reaction of immune system. Intrinsic (Non-Allergic) Asthma: Some causes are emotional stress, infections, exercise, cold air, and food additives.

POSSIBLE CHARACTERISTICS:

- Breathing difficulties
- Coughing
- Wheezing
- Possibly a "barrel chest" appearance or rounded shoulders posture

COMMONLY USED MEDICATIONS:

- Ventolin
- Alupent
- Proventol
- Intal
- Albuterol

FIRST AID:

- Assist the student with inhalers by providing controlled access to them during exercise.
- Use cool, wet towels on the back of the neck to assist in body temperature control.
- Make the student comfortable and monitor breathing difficulties and seek help if needed.

TEACHING TIPS:

- Communicate with parents, physician and school nurse regarding allergens, side effects of medications, and emergency procedures.
- Watch for fatigue and signs of overexertion such as redness in the face.

- Be sure to include warm-up exercises that are slow, long and include stretching of pectorals.
- Remind the student to breathe through the nose.
- Include breathing control exercise utilizing the diaphragm.
- Remind the student with asthma to drink adequate water during the class period.
- Encourage diaphragmatic breathing.
- Let the student be the guide in the level of activity at any given time, and provide alternate ways for the student to be part of the class when necessary.
- Avoid placing individual near allergens such as dust, fresh cut grass, and smog.
- Use caution on hot and humid, or windy and polluted days and amount of aerobic exercise.
- Avoid exposing student to sudden temperature changes.
- Encourage aquatics as activity of choice.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

AUTISM

DEFINITION:

Autistic disorder is defined as a presence of marked abnormal and impaired development in social interaction, communication and a markedly restricted repertoire of activity and interests. The autistic disorder must manifest itself before age 3. An autistic disorder adversely affects a student's performance. The term does not apply if a child's educational performance is adversely affected primarily because the student has a serious emotional disturbance.

DIAGNOSTIC CRITERIA FOR INDIVIDUALS WITH AUTISTIC DISORDER:

- A total of six (or more) items (1), (2), and (3), with at least two from (1) and one each from (2) and (3):

    1. Qualitative impairment in social interaction, as manifested by at least two of the following:

        a. Marked impairment in the use of multiple nonverbal behaviors such as eye-to-eye gaze, facial expression, body postures and gestures to regulate social interaction
        b. Failure to develop peer relationships appropriate to developmental level
        c. A lack of spontaneous seeking to share enjoyment, interests or achievements with other people
        d. Lack of social or emotional reciprocity

    2. Qualitative impairments in communication manifested by at least one of the following:

        a. Delay in, or total lack of, the development of spoken language (not accompanied by an attempt to use alternative modes of communication)
        b. In students with adequate speech, marked impairment in the ability to initiate or sustain a conversation with others
        c. Repetitive use of language or idiosyncratic language
        d. Lack of varied, spontaneous make-believe play appropriate to developmental level

3. Restricted repetitive and stereotyped patterns of behavior, interests and activities, as manifested by at least one of the following:

    a. Preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal in intensity or focus
    b. Strict adherence to specific, nonfunctional routines or rituals
    c. Stereotyped and repetitive motor mannerisms (i.e., hand slapping/flapping or twisting or complex whole body movements)
    d. Persistent preoccupation with parts of objects

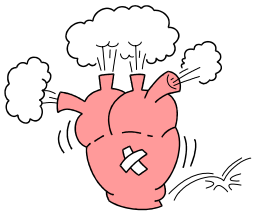
Delays or abnormal functioning in at least one of the following areas, with onset prior to age 3 years: (a) social interaction, (b) language as used in social communication, or (c) symbolic or imaginative play. The disturbance sometimes includes students also with diseases in the same spectrum such as: Rett's Disorder, Childhood Disintegrative Disorder, Asperger's Syndrome, and Pervasive Developmental Disorder.

SPECIAL CONSIDERATIONS AND TEACHING TIPS:

- Monitor closely for safety - some students have no fears.
- Utilize Premack principle (pairing something liked with something disliked).
- Use teaching stations or a similar teaching technique that changes activities regularly.
- Teach to the preferred modality.
- Eliminate unnecessary external stimuli.
- Limit the amount of relevant stimuli presented at one time.
- Limit the use of prompts if appropriate for the student.
- Teach in a game-like environment to facilitate generalization.
- Improve motor skill acquisition by using reinforcement, task analysis, and physical prompting.
- Utilize sensory stimulation to increase attention span and decrease self-stimulation.
- Use vigorous aerobic exercise to reduce self-stimulatory and off task behaviors.
- Create a highly-structured environment.
- Use transitions that depict activities between each activity.
- Use the same organization and equipment each day.
- Redirect inappropriate behavior.
- Perform demonstrations several times and use verbal cues to direct attention.
- Encourage speech and speech sounds - use sign language and gestures, and picture communications as needed.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

CARDIAC CONDITIONS



DEFINITION:

Cardiac conditions can include, but are not limited to valvular heart disease, high blood pressure, congestive heart failure, pacemakers, angina, ischemia and myocardial infarction.

WARNING SIGNS:

*__DECREASE__ or __STOP__ activity if any of the following signs are observed:

- Shortness of breath
- Chest pain
- Dizziness
- Bluish tint to lips/nail beds
- Undue fatigue
- Swelling of ankle
- Poor recovery pulse rate following physical activity

COMMONLY USED MEDICATIONS:

- Nitroglycerine
- Cardizem
- Quinidex
- Digoxin
- Procardia
- Coumadin
- Tenormin
- Norvasc
- Lasix

OBTAIN MEDICAL CLEARANCE FOR THE FOLLOWING ACTIVITES:

- Competitive Sports
- Vigorous sustained activity
- Isometric exercises
- Anaerobic activities
- Static exercises (weight lifting)
- Hot pools (such as jacuzzis)

SUGGESTED ACTIVITIES:

- Breathing exercises
- Rhythmic activities
- Flexibility exercises
- Warm ups and cool downs
- Games with shorter periods of aerobic work

Students with **severe restrictions** should participate in activities that are low in energy expenditure including:

- Walking
- Social dancing
- Bicycling
- Relaxation training
- Bowling
- Passive exercise

Students with **moderate restrictions** should participate in activities that are moderate in energy expenditure including:

- Golf
- Walking
- Table tennis
- Social dance
- Relaxation techniques
- Bowling
- Aerobic dance
- Lead-up games
- Flexibility exercises
- Volleyball
- Stationary cycling
- Archery

NOTE: For both severe and moderate restrictions, eliminate competition, reduce boundaries or height of equipment and focus on relaxation and reconditioning exercises.

TEACHING TIPS:

- Utilize a team approach when writing the IEP.
- IEP should be approved by the physician.
- Program the student's goals based on the functional level and interests of the student.
- Monitor heart rate and blood pressure and teach self-monitoring of level of exertion.
- Design an exercise program to fit the students needs based on results of stress testing.
- Adjust the frequency, intensity, and time (duration) to fit the students needs and exercise tolerance.
- Increase frequency, intensity and time (duration) over an extended period of time.
- Avoid exposure to extreme temperatures.
- Incorporate a well-rounded program of nutrition, exercise and health/fitness education for the student.
- Limit the level of stress the student experiences in the classroom.
- Read medical records of each student with syndromes (i.e., down syndrome) that have a high incidence of heart conditions as secondary disorders.
- Know side effects of medication.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

CEREBRAL PALSY

DEFINITION:

Cerebral Palsy: A non-progressive condition, not a disease, caused by damage to the brain, usually occurring before, during or shortly following birth. "Cerebral" refers to brain and "palsy" refers to a disorder of movement or posture. Symptoms may vary from total inability to control body movements, to only slight impairment.

TYPES OF CEREBRAL PALSY:

Spastic: muscles are tense, contracted and resistant to movement. This makes muscle movement "jerky" and uncertain. These individuals have exaggerated stretch reflexes that cause them to respond to rapid passive stretching with vigorous muscle contractions. Spastic Cerebral Palsy is the most common type of Cerebral Palsy characterized by hypertonic muscle tone occurring during voluntary movement.

Athetoid: causes involuntary movements of the body parts affected. The hands may twist and turn, and often there is facial grimacing, tonguing and drooling. Because of the presence of primitive reflexes and inability to control muscles, posture is unpredictable. Athetoid Cerebral Palsy is the second most common type of Cerebral Palsy characterized by fluctuating muscle tonethat ie sometimes hypertonic and sometimes hypotonic. Generally, the terms athetosis and dystonia are synonymous.

Ataxia: disturbance or lack of balance and coordination. Student may sway when standing, have trouble maintaining balance and may walk with feet spread wide apart to avoid falling. Ataxia Cerebral Palsy is the least common type of Cerebral Palsy characterized by poorly conditioned and hypotonic muscle tones.

CAUSES OF CEREBRAL PALSY:

- Illness during pregnancy
- Premature delivery
- Lack of oxygen supply to the fetus
- Lead poisoning
- Illness early in the infant's life
- Child abuse

The most common cause of Cerebral Palsy is an insufficient amount of oxygen reaching the fetus or newborn infant's brain. It is the most frequent cause of severe disability in children and the orthopedic impairment most often found in public schools.

COMMON CHARACTERISTICS:

- Seizures – be aware that anti-seizure medication may decrease motor responses
- Loss of perceptual ability
- Poor depth perception and tracking ability due to difficulty with coordinating eye movements.
- Difficulty with speech, which should not be confused with lower intelligence.
- Learning disability or mental retardation
- Spastic or rigid muscles, which limits range of motion
- Contractures may develop when restricted range of motion is severe
- Hyperactive Stretch Reflex – when the muscles overreact, causing them to violently contract
- Scissoring gate (both legs involved) and hemiplegic gate (involves one side) makes balancing and locomotor activities more difficult
- Persistence of unwanted primitive reflexes and tremors
- Involuntary movement, such as constant, unpredictable, purposeless movement
- May exhibit both hypertonic and hypotonic muscle tone
- Slow to develop equilibrium reflexes and difficulty balancing
- Low postural tone, but may be able to walk unaided, usually with arms held out to the side
- Often under or over reaches
- Falls and stumbles easily

TEACHING TIPS:

- Adapt activities and modify rules and/or environment to permit safe participation in large groups.
- Students with cerebral palsy may need more time to plan and execute basic movements.
- Reinforce language and speech during physical education activities. Consult with speech and language therapist on communication boards and/or ASL (sign)
- Use larger balls that enable the fingers to be extended. This inhibits the hand grasp reflex.
- Teach striking activities with an open hand (i.e., tetherball or a balloon suspended on a string).
- Exaggerated hand grasp reflexes may make release difficult or impossible. Relax wrist and fingers by using shoulder and lower arm rotation.

- Integrate relaxation training into the lessons. Slow, static stretches and fluid movements are important. Aquatic environments are great for introducing relaxation exercises.
- Adding weight to implements (i.e., bat, racquet) will help with tremors or unwanted movements.
- Provide a bar or chair when doing activities requiring good balancing techniques.
- Provide elbow and knee pads for those who stumble and fall easily.
- Try throwing from a sitting position.
- Students with cerebral palsy who use wheelchairs are at high risk for hip dislocation. Consult with physical therapist and/or physicians (with parental permission).

THINGS TO AVOID:

- Students with the spastic type of cerebral palsy should not engage in quick, jerking or jumping activities and avoid tiptoeing when calf muscles are tight.
- Do not pry open fingers if making a fist.
- Discourage sitting in a "W" position.
- Many students with cerebral palsy have latex allergies.
- Do not use auxiliary type crutches (those touching the armpits) for physical activities.

SUGGESTED ACTIVITIES:

- Provide stretching exercises before and after strengthening or endurance activities.
- Physical fitness activities, which includes most sports, to strengthen large and small group muscles
- In track and field activities consider using a soft discuss and shot put
- When riding bicycles or tricycles utilize adapted equipment i.e., modified seats, straps or Velcro to keep feet on pedals, upper body supports
- In bowling/bocce type activities use ramp and/or bumpers when appropriate
- In soccer use wheelchair foot rest or racquet type implement to "kick" the ball
- In baseball use plastic or foam bat and ball placed on a cone or suspended on a string
- Use manual (hand or foot propelled) wheelchair maneuvers to build strength (i.e., 20M dash)
- Use motorized wheelchair maneuvers (i.e., slalom racing)
- Use aquatic activities. Ideal water temperature for spastic muscles is between 90 and 93 degrees F. If water is cooler, a hot shower or bath after swimming may help with muscle tightness.
- Rhythmic activities (gentle rocking and/or rolling on a therapy ball, balance board, swing, etc.)
- Use rhythm and dance activities to enhance postural relations
- Use tetherball and/or balloon activities

- Horseback riding is excellent for all types of cerebral palsy (contact NARHA for riding facility near you)
- Provide conscious relaxation exercises

POSITIONING AND ALIGNMENT TIPS:

- When transferring or holding students with an extensor tone (stiff all over), grasp as close to joint as possible and keep close to the body in a tucked position that maintains their head and limbs in flexion.
- To reduce flexor tone (bent or curled), hold and maintain head and limbs in an extension position.
- Keep body parts in good alignment as much as possible.
- Use inhibitory actions that are opposite of undesired pattern.
- Be aware of coactive movements (consult with physical and/or occupational therapists).
- Be aware of proper sitting alignment and optimum performance positions (consult with physical and/or occupational therapists).

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

CHILDHOOD CANCER

DEFINITION:

Childhood cancer is a cancerous growth whose specific characteristic is a loss of normal cell control. It is not as single disease; there are many types.

INCIDENCE:

Of all childhood diseases, cancer is the major cause of death in children ages 1 to 15 years. Approximately 7000 children younger than 15 years of age are diagnosed with cancer each year in the United States. Leukemia and lymphomas account for 38% and tumors of the nervous system account for 28%.

MAJOR TYPES:

Leukemia is a condition where there are too many white blood cells in the blood and bone marrow. Because of this, the body is unable to fight against infections.

Brain tumor often referred to as Medulloblastoma, Astrocytoma, and Brainstemglioma which affect the central nervous system.

GENERAL SYMPTOMS:

- Fatigue
- Cough
- Changes in bowel activity
- Skeletal pain
- Sweating
- Weight loss
- Changes in blood composition
- Persistent pain
- Fever

CAUSES:

The causes of most cancer remain unknown. A minority of cancers are known to be hereditary (i.e., retinoblastomas and Wilms' tumors). Factors known of increasing the risk of Leukemia are children with chromosomal abnormalities (Down syndrome) and chromosomal instability (AIDS). Exposure to large amounts of radiation and toxic chemicals are also factors.

TREATMENT:

- Chemotherapy – use of a chemically synthetic drug(s)

- Radiation - energy that destroys cancerous tissue
- Surgery – part or the entire tumor may be removed

SIDE EFFECTS OF CANCER AND OF TREATMENT:

- Retardation of growth
- Impaired fertility
- Scoliosis or other skeletal impairments
- Impaired renal, pulmonary, hepatic, and/or cardiac function
- Neuropsychological defects
- Psychosocial deficits
- Hair loss
- Vomiting

TEACHING TIPS:

- Allow student to stop exercising when fatigued.
- Be aware of side effects.
- Be sensitive to the needs of the student.
- Work closely with the child's physician, rehabilitation, therapist, and parent(s).
- Assign student to less strenuous activities.
- Avoid highly competitive activities (could cause injury).
- Begin exercise at the student's present level and build slowly toward a higher level of fitness.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

CYSTIC FIBROSIS

DEFINITION:

Cystic fibrosis is a congenital disease of the exocrine glands primarily affecting the gastrointestinal and respiratory systems. The lungs, pancreas, intestines, and sweat glands are primarily the affected organs.

Cystic fibrosis is currently the most common fatal disease in the United States. The median age of survival for a person with cystic fibrosis is 31 years.

Cystic fibrosis affects approximately 30,000 children and young adults. It occurs in approximately one in every 3,300 live births.

In about 10% of cases, the diagnosis of cystic fibrosis is not made until the student is in the late teens.

SYMPTOMS:

- High concentration of sodium and chloride in sweat
- Persistent coughing, wheezing, or pneumonia
- Excessive appetite but poor weight gain
- Production of abnormally thick mucus
- Progressive lung damage

TREATMENT:

- Postural damage (also called chest physical therapy) requires vigorous movement (by using cupped hands) on the back and chest to dislodge thick mucus from the lungs.

- Antibiotics are used to treat lung infections and are administered intravenously, via pills, and/or medicated vapors which are inhaled to open up clogged airways.

- When the digestive system is affected, the body does not absorb enough nutrients. An enriched diet (high caloric, fat, and protein) and twice the recommended daily allowance of vitamins and enzymes are recommended.

COMMONLY USED MEDICATIONS:

- Pulmozyme (mucus-thinning drug)
- Ibuprofen (anti-inflammatory)
- TOBI (tobramycin solution for inhalation)
- Phenylnbutyrate (remedy metabolic disorders)

HELPFUL HINTS:

- Encourage students with cystic fibrosis to cough out the mucus in their lungs. Other students in class need to understand that cystic fibrosis is not a communicable disease.
- Be prepared that the diet of students with cystic fibrosis may cause frequent trips to the restroom.
- Allow students with cystic fibrosis to take prescribed medications during class after written medical approval.
- Take precautions to minimize respiratory infections (i.e., weather conditions, proper clothing, taking of medications).
- Encourage these student's to take fluid before, during, and after exercise.
- Obtain physician's approval before student participates in any activity.

CONTRAINDICATED ACTIVITIES:

- Water diving
- Highly competitive sports where exercise pressures are beyond a safe level for the student

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

DEVELOPMENTAL COORDINATION DISORDER (DCD)

From www.disabilityart.com
Clip Disability Art (1998) Madgraphics

DEFINITION:

Developmental Coordination Disorder (DCD) is defined as marked impairment in the development of motor coordination. The diagnosis is made only if this impairment significantly interferes with academic achievement or activities of daily living. The diagnosis is made if the coordination difficulties are not due to a general medical condition (i.e., cerebral palsy, hemiplegia, muscular dystrophy) and the criteria are not met for Pervasive Developmental Disorder. The manifestations of this disorder vary with age and development.

CHARACTERISTICS:

Young children with DCD may display clumsiness, delays in achieving motor milestones such as sitting, crawling, walking, tying shoelaces, and buttoning shirts.

Older children with DCD may display difficulties with motor aspects such as assembling puzzles, playing ball, printing or handwriting.

Approximately 6% of children ranging in age from 5 to 11 years have DCD.

Recognition of DCD usually occurs when the child first attempts such tasks as running, holding a knife and fork, buttoning clothes or playing ball games. In some cases, lack of coordination continues through adulthood.

CONSIDERATIONS AND TEACHING TIPS:

- Check the student's record to eliminate the existence of specific neurological disorders.
- If mental retardation is present, eliminate motor difficulties typically associated with mental retardation before assessing for DCD.
- Task analyzes the areas that are deficient.
- Teach motor skills using component parts.
- Maintain a high motivational climate in which predisposes students to be successful.
- Use tactile balls to facilitate success in catching tasks.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

DIABETES

DEFINITIONS:

Diabetes is a general term referring to a variety of disorders that are divided into two groups: diabetes mellitus and diabetes insipidus.

Diabetes mellitus is a group of metabolic disorders resulting from insufficiency of insulin. The two most common types of diabetes mellitus are insulin dependent and non-insulin dependent diabetes.

Diabetes insipidus results from an inability to concentrate urine in the kidneys. The two types of diabetes insipidus are pituitary and nephrogenic.

TYPES OF DIABETES:

Insulin-dependent diabetes (Type I): is a condition in which the pancreas stops producing insulin and is usually diagnosed before 18 years of age. Insulin helps the body use carbohydrates. Students manage diabetes by taking insulin, eating regular nutritional meal and snacks, exercising regularly and monitoring blood sugars.

Non-insulin-dependent diabetes (Type II): onset is gradual and frequently does not occur until after 30 years of age. Insulin therapy is usually not necessary because individuals with this type of diabetes usually retain some insulin secretion capabilities. Obesity usually accompanies Type II diabetes.

High blood sugar (hyperglycemia) is a problem for active individuals with Type I or Type II diabetes. It results when daily exercise volume is suddenly reduced without increasing insulin or oral agents used to control glucose levels.

SYMPTOMS OF HYPERGLYCEMIA:

- Inattentiveness
- Extreme thirst
- Lethargy
- Frequent need to go urinate

Low blood sugar (hypoglycemia) is the greatest concern of the individual who has Type I diabetes. Hypoglycemia can occur quickly and needs immediate attention. Skipping or delaying meals or snacks, exercising or too much insulin can cause blood sugar to fall rapidly.

SYMPTOMS OF HYPOGLYCEMIA:

- Shaking/trembling
- Weakness
- Sudden hunger
- Sudden silence
- Inability to concentrate
- Irritability/mood swing
- Sleepiness
- Inappropriate responses
- Double vision
- Headache
- Sweating
- Mental slowness
- Sudden anger
- Slurred speech
- Numbness

FIRST AID FOR INDIVIDUALS WITH DIABETES:

If the student's blood sugar is high:

- Let the student rest if lethargic.
- Exercise the student if hyperactive.

If the student's blood sugar is low, give one of the following:

- Some form of sugar immediately (4 to 8 oz. of a regular soft drink, fruit juice or a commercial gel or sugar tablet).

When improvement occurs, give additional food. If the student does not improve after sugar intake, call for emergency assistance.

- Permit the diabetic student to leave the classroom to take medication, test blood sugar or to ingest sugar.
- Take care of cuts and bruises immediately, because diabetic students can develop skin infections easily.
- If the student becomes unconscious or is unable to take the sugar, call the nurse immediately.

TEACHING TIPS AND SPECIAL CONSIDERATIONS:

- Determine physical activity tolerance levels through communication with the student's parents and physician. If Indicated, supervise blood sugar test before & after class.
- Help the student schedule physical education within two hours of eating.
- Avoid psychological stress caused by competitive or excitatory activities. Stress may influence the student's metabolic rate, which in turn changes blood sugar levels.
- Avoid having the student walk barefoot.

- Avoid wearing clothes that are too tight, because this could cause circulatory restrictions.
- Exercise with a buddy who knows signs of hyperglycemia and hypoglycemia.
- Drink water before, during and after exercise.
- Keep a log book of blood sugar levels, dosage of insulin, amount and type of food eaten and type and intensity of exercise.
- Encourage the student to exercise.
- Avoid conducting all components of fitness testing in one session if individual is unaccustomed to such activities.
- Monitor adjustments to diet/insulin administration with respect to physical activity as per physician's Instructions.
- Encourage proper foot care and the reporting of any symptoms listed above
- Follow predetermined emergency plan.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

DOWN SYNDROME

DEFINITION:

Down syndrome is the most common and readily identifiable chromosomal condition associated with mental retardation. It is caused by a chromosomal abnormality; for some unexplained reason, an accident in cell development results in 47 instead of the usual 45 chromosomes. This extra chromosome changes the orderly development of the body and brain. In most cases, the diagnosis of Down syndrome is made according to results from a chromosome test generally administered shortly after birth.

INCIDENCE:

- One in 1,000 live births.
- Associated with advanced maternal age, particularly if over 35 years of age.
- One in 80 infants born from women older than 40 years of age.
- Parents of any age may have a child with Down syndrome.
- Although only 5 to 8% of pregnancies occur in women over the age of 35, they account for 20% of Down syndrome births.
- There is no association between Down syndrome and any given culture, ethnic group, socioeconomic status, or geographic region.

POSSIBLE PHYSICAL CHARACTERISTICS:

Physical appearances

- Flat-bridged nose
- Looseness of joints
- Lack of muscle tone during infancy
- Palmer crease (a normal groove across the palm of the hand)
- Protruded abdomen
- Short fingers, limbs, and neck
- Short stature
- Slanting, almond-shaped eyes
- Small oral cavity; enlarged or protruding tongue
- Small scull
- Structural abnormalities of the lungs, nasal passages, airways and chest walls could affect breathing in strenuous exercise
- Substantial delays in reflex integration
- Tendency to be overweight
- Tendency to have antlantoaxial instability (AAI) – a misalignment of the first two cervical vertebrae of the neck

- Varied levels of mental retardation

Motor problems
- Decreased ability in kinesthetic awareness (the ability to obtain information regarding the position and movement of the body in space)
- Significant decreases in static and movement balance

Other diseases
- Heart disease; 40 to 60% of infants with DS have significant congenital heart disease
- Susceptibility to pulmonary problems

Poor eyesight
- Most common disorders are near sightedness and cross-eyed or squint
- Constant movement of the eyeball
- Motor problems are intensified by visual disorders

Poor hearing
- Maybe auditory perceptual deficits – an inability to locate sound or distinguish between two sounds
- Hearing loss results in difficulty in learning to speak and follow instructions

TEACHING TIPS:

- Adapt cardiovascular activities.
- Adapt activities involving movement on uneven surfaces.
- Adapt activities involving agility and changing directions.
- An alternative method of communication may be necessary.
- Avoid activities that place the neck in extreme flexion, such as tumbling, in individuals who test positive for AAI.
- Check medical records and follow written guidelines established by the physician.
- Coordinate with medical community to prevent contraindications.
- Discourage hyperflexible postures.
- Determine cause of problem with other health professionals.
- Encourage muscular strengthening especially around joints.
- Incorporate family into solution.
- Proper nutrition and weight control should be stressed.
- Provide calorie burning activity.
- Stress personal care (i.e., wearing weather appropriate clothing, getting enough to drink) and hygiene (washing hands and face frequently).
- Stress activities like sitting, crawling, walking, and moving through various positions to increase muscle strength.
- Teach them to move or touch particular body part.
- Utilize visual demonstrations.
- Utilize tactile demonstrations.

- Use visual cues or stimulate visual tracking and acuity.
- Use auditory cues or require listening to complete.

ATLANTOAXIAL INSTABILITY (AAI):

Atlantoaxial Instability (AAI), also referred to as atlantoaxial subluxation, is a condition where there is increased mobility or movement between the first and second cervical vertebrae (segments of the spine in the neck). Various researchers have estimated that this condition occurs in 15% of children with Down syndrome. AAI is usually diagnosed with x-rays of the cervical spine, but typically does not produce noticeable symptoms. Symptoms are usually seen only when subluxation (incomplete or partial dislocation) of the joint between the first and second cervical vertebrae.

SIGNS AND SYMPTOMS OF AAI:

- Changes in bowel or bladder function
- Difficulty walking
- Weakness of any extremities
- Changes in neck posturing, neck pain, or limitations of neck movement
- Progressive clumsiness and loss of coordination
- Hypersensitivity
- Extensor plantar responses (abnormalities detected in the neurological examinations)

PRECAUTIONARY MEASURES:

- Have x-rays on school file prior to participation in physical activity.
- Check medical files, speak with parents, and adhere to physician's recommendations.
- Restrict participation in gymnastics, diving, butterfly stroke in swimming, high jump, soccer, and any warm-up exercises that places pressure on the muscles of the neck (may participate with written clearance from a physician).

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

DWARFISM

DEFINITION:

Dwarfism, as defined by Little People of America (LPA), is an individual with an adult height of 4 ft., 10 in. or shorter as a result of a medical or genetic condition. However, Dwarf Athletic Association of America (DAAA), uses a criterion of 5 ft. or less. In general, dwarfs are at least three standard deviations below the mean height of the general population.

CATEGORIES AND CAUSES:

While there are over 250 types of dwarfism, there are two main categories for classification. The categories are disproportionate (the most common) and proportionate. Disproportionate dwarfs have average-sized torsos with shorter arms and legs. The major cause of disproportionate dwarfism is skeletal dysplasia, the failure of cartilage to develop into bone. Skeletal dysplasia is either inherited or caused by spontaneous gene mutations. In the proportionate category, individuals' body parts are proportionate but unusually short. While the main cause is pituitary gland dysfunction (also called growth hormone deficiency), there are numerous other causes. However, many of these conditions are treatable so that the prevalence within this category is decreasing.

TYPES:

Achondroplasia: In this most common form of dwarfism, the student has a disproportionate body structure with an average size trunk, short limbs, and, in many cases a relatively large head. Associated problems include lumbar lorosis, waddling gait caused by abnormally short femoral heads, restricted elbow extension, and bowed legs.

Hypoachondroplasia: Students with this form have less achondroplasia and, as a result, are the tallest dwarfs.

Spondyloepiphyseal Dysplasia: This form dwarfism causes disproportionate short trunk with various spinal and limb irregularities. The arms typically look unusually long. Eye complications are common.

Diastrophic Dysplasia: This is the most disabling of the common forms of dwarfism. This condition usually involves spinal deformity (scoliosis in most cases) clubfoot, hand deformities, and hip and knee dislocations. Many students require crutches or wheelchairs for ambulation.

CONTRAINDICATIONS:

Atlantoaxial Instability (AAI): Nonachondroplasia dwarfism is associated with atlantoaxial instability. Physical educators must have a report from a physician indicating the result of the neck x-ray. Contraindicated activities when atlantoaxial instability is suspected are diving, jumping, gymnastics, heading soccer balls, and contact sports.

Limited Range-of-Motion (ROM): Several joint defects limit ROM and contribute to a high incidence of dislocation and trauma. Areas typically affected are the shoulder, elbow, hip, and knee.

SUGGESSTED ACTIVITIES:

Students with dwarfism are disadvantaged in most sports; however, there are some sports in which the average truck size and short limbs are advantageous.

- Powerlifting
- Gymnastics

Other sports that these students can participate in:

- Swimming
- Track
- Field
- Bowling
- Basketball-nets set at the standard height, regulation court size, and ball size used by average-sized women
- Volleyball – net slightly lowered for spiking
- Boccia – players take turns throwing small balls toward a target ball

TEACHING TIPS:

- Classes playing basketball and volleyball should be equated on heights.
- Teams with shorter students starts with a set number of points.
- Stretch daily with ROM exercises to increase flexibility.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

DYSMENORRHEA

DEFINITION:

Dysmenorrhea is one of the most common conditions affecting women. Dysmenorrhea means painful menstruation.

CAUSES OF PAIN:

- Poor posture
- Insufficient exercise
- Weak abdominal muscles
- Improper diet
- Tight clothing
- Poor circulation
- Undue muscle tension
- Fatigue
- Organic causes of pain include ovarian cysts, endocrine imbalance or infections

SYMPTOMS OF DYSMENORRHEA:

- Headache
- Tension
- Constipation or diarrhea
- Pressure and pain in the abdominal area and/or low back
- Leg pain

SUGGESTIONS TO THE STUDENT:

- Decrease consumption of salt one week prior to menstrual onset.
- Increase water intake and consumption of roughage (celery, carrots, apples) one week prior to menstrual onset.
- Avoid wearing tight clothing.
- Avoid feeling chilled.
- Avoid exhaustive exercise.

TEACHING TIPS:

- Encourage exercises that develop abdominal strength.
- Inform the student that exercise during menstruation is safe and beneficial.
- Provide exercises that stimulate circulation and increase flexibility.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

EMOTIONALLY DISTURBED

DEFINITION:

An emotional disturbance involves a significant behavioral or psychological pattern that occurs in a student. About 8 million children, and teenagers, in the United States have a diagnosable emotional disorder.

PROMINENT BEHAVIORS:

- Physically sedentary
- Low or bad physical fitness levels
- Highly reduced maximal oxygen uptake
- Negative body attitude
- Negative perception of physical skills
- Negative feelings of general competence
- Low self-esteem
- Drug therapies may cause changes in movements, varying from fine tremors to gross jerky movements
- Feelings of awkwardness or clumsiness is common
- Repetitious movements (i.e., tics, tremors, tongue, and sucking movements are common)
- Dramatic change in movement patterns such as catatonic behavior (remaining motionless for various periods of time)

SUGGESTED ACTIVITIES AND TEACHING TIPS:

- Passive/calming/breathing exercises, relaxation training
- Stretching and flexibility exercises
- Warm ups and cool downs
- Create an environment that will enable the student to achieve success
- Conduct a program with a compatible, support, social group i.e., Mental Health Mental Retardation (MHMR) groups
- Create progress charts to submit to multidisciplinary team
- Monitor any type of strenuous physical activity (watch for obsessive tendencies)
- Encourage movement and activities that assist or allow the student to express emotions
- Seek counseling advice if student's emotional issues become strong
- Adjust frequency, intensity and time (duration) over an extended period of time
- Incorporate a well-rounded program of aerobic/anaerobic exercise, nutrition, and

health/fitness education for the student
- Limit the level of stress the student experiences

SPECIAL CONSIDERATIONS:

- Any exercise program must be individually considered and based on the students' needs, exercise tolerance, and medical history.
- Before actual programming, check with the student's multidisciplinary team, which may include the student, individual's family/guardian, educational personnel, legal representatives, mental health care advisors/counselors, pharmacist, nurses, and physicians.
- Symptoms may be masked and cautions must be taken when exercising if the student is on medication. Monitor the students' heart rate and blood pressure throughout the exercise session activity.
- Monitor the students' agitation and frustration levels during the exercise session or activity. Allow student to have short breaks when tension level appears to be building.
- Establish a structured, predictable, routine that is in the student's normal environment, often, one-on-one attention/instruction is initially most successful and suggested.
- Medication/drug therapies may cause i.e., reduced coordination and concentration, poor reaction time, drowsiness, blurred vision, irregular heart rates, muscle cramping, dry mouth, profuse sweating, irritability, weight gain, nausea, muscle stiffness listlessness, and others. In some cases exercising may need to be stopped due to these medication contraindications.
- Avoid exposure to extreme temperatures.
- Exercise programs may be stopped for various reasons i.e., counseling/therapeutic sessions, sleep/rest periods, medication/drug administrations, family/guardian/legal visitations.

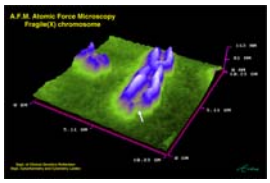
PREVENTING BEHAVIOR PROBLEMS

- Determine reinforcer preferences.
- Determine academic ability levels.
- Determine social interaction skills.
- Determine ability to remain on task.
- Determine group behavior.
- Monitor and limit contemporary determinants of inappropriate behavior such as having to wait, task length, task difficulty, peer involvement, etc.
- Base seating arrangements on behavior.
- Base group involvement on behavior.
- Maintain teacher mobility in classroom.
- Maintain teacher/student contact: visual, verbal, and physical.
- Use criteria for expectations based on observed behavior and performance.

- Use shaping, fading, and imitation procedures to gradually change behavior.
- Maintain variety in reinforcers.
- Use Premack Principle in arranging schedule (i.e., a more desirable behavior can be used to reinforce the completion of a less desirable behavior).
- Use curriculum as reinforcement.
- Use rules, point cards, and schedules of daily events as discriminative stimuli.
- Use contracting to individualize, specify expected behavior, and identify reinforcers.
- Arrange seating so all students have visibility to and from the teacher and teacher can scan the entire class.
- Maintain a full schedule of activities.
- Use language that is positive and firm, not demeaning, insulting, or harassing.
- Intervene early when any form of conflict occurs.
- Do not ignore behavior as an excuse for not intervening.
- Use time-out to help the student resolve problem behavior.
- Use removal to prevent contagion, destruction of property, and danger to others.
- Communicate and coordinate with other teachers.
- Communicate with home to prevent students playing one adult against another.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

FRAGILE X SYNDROME



DEFINITION:

Fragile X syndrome is the most common inherited cause of mental retardation. The condition occurs in approximately 1 in 1,250 males and 1 in 2,250 females. The condition manifests itself more fully in males because they have only one X chromosome, whereas females have two X chromosomes, with only one being effected.

CAUSE:

Fragile X syndrome is the result of an abnormally long X chromosome. Gaps or breaks in the long arm of this chromosome are due to a folic acid deficiency.

POSSIBLE SIGNS, SYMPTOMS AND CHARACTERISTICS:

For Males:

- Ninety-five percent of males with the full mutation are mentally retarded **
- Large testicles
- Strabismus
- Mitral valve prolapse
- Hypotonia
- Joint laxity
- Autistic-like behaviors such as hand flapping, preservation, hand biting, and poor eye contact
- Deficits in processing sequential information, receptive language skills, visual-spatial abilities, visual-motor coordination, and short-term memory

For Females:

- Fifty percent of females with the full mutation are mentally retarded and the other 50% usually demonstrate learning disabilities **
- Tend to be shy, depressed, anxious, and hypersensitive
- Demonstrate deficits in mental flexibility, visual-motor performance, and short-term memory for nonverbal information

For Both Genders:

- Sensory motor integration deficits
- Large, narrow face
- Prominent ears
- Hyperactive
- Impulsive
- Autistic behaviors
- Delayed balance
- Poor coordination
- Motor planning deficits
- Tactile defensiveness

TEACHING TIPS AND SUGGESTED ACTIVITIES:

- Sensory integration activities should be implemented as early in life as possible, especially vestibular, kinesthetic, and tactile stimulation.
- Use weight training activities to increase muscle tone, joint stability, and self-esteem.
- Contact sports, object control activities, and cardiovascular endurance activities should be planned carefully due to hypotonia, joint laxity, strabismus, and mitral valve prolapse. (e.g., falling down of slipping of the valve).
- Teach the whole task in the context where it will be used.

** Refer to the fact sheets on MENTAL RETARDATION and AUTISM for possible signs, symptoms, and characteristics and more helpful hints and suggested activities.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

HEARING IMPAIRMENT

DEFINITIONS:

"Deaf" means a hearing impairment which is so severe that the student is impaired in processing linguistic information through hearing, without amplification, which adversely affects educational performance.

"Hard of Hearing" means a hearing impairment, whether permanent or fluctuating, which adversely affects a student's educational performance but which is not included under the above definition of deaf.

Degrees of hearing loss and difficulty understanding speech/levels of loudness

Slight - conductive loss	27-40 dB	Faint speech is difficult to understand
Mild - use of hearing aid	41-55 dB	Normal speech
Marked/Moderate	56-70 dB	Loud speech
Severe - sensory-neural loss	71-90 dB	Shouted speech
Profound - use of signing	>90 dB	Any speech, even amplified

BEHAVIORAL CHARACTERISTICS OF HEARING IMPAIRED INDIVIDUALS:

- Lack of attention
- Uses gestures
- Works best in small groups
- Acts out
- Preoccupied with things, not people
- Responds to noises instead of words
- Turns or cocks head
- Lack of speech development
- Monotone quality in voice
- Difficulty in following directions
- Imitates others
- Reluctant to participate orally

"Motor Characteristics"

May have a balance problems may in turn cause developmental delays and motor ability delays. These balance problems occur as a result of vestibular damage, not deafness.

May have a difficulty of motor speed (i.e., the time it takes the child to process information and complete a motor act).

TEACHING TIPS:

- Position yourself where the student with the hearing impairment can see your lips and maintain eye contact; do not turn your back on the student and talk.
- When outdoors, position yourself so that you face the sun rather than the student.
- Use visual attention-getters (i.e., bright cones, jersey flags).
- Provide adequate lighting in the teaching environment.
- Encourage the use of what hearing the student may have.
- Coordinate communication methods (oral, sign, total communication) with your school.
- Learn some basic signs and use them during instruction.
- Refrain from having long lines and circle formations when giving information.
- Demonstrate or have a student demonstrate.
- Stand still while giving instructions and keep instructions simple and direct.
- Select activities that allow the student to be actively involved throughout.
- Familiarize the student with a hearing impairment with rules and strategies of a game before introducing the activity to the rest of the class.
- Provide safe place for hearing aids in aquatics and contact sports.
- Use handouts and chalkboard for learning environment.
- Talk to individual, not to interpreter.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

HEMOPHILIA

DEFINITION:

Hemophilia is a sex-linked recessive disorder of the blood clotting mechanism. It is believed to be caused by a clotting deficiency in one of the plasma proteins. Hemophilia occurs in approximately 1 in 10,000 males and 1 in 100,000 females.

POSSIBLE SIGNS, SYMPTOMS, AND CHARACTERISTICS:

Characteristics of students with hemophilia will vary depending on the severity of the condition. Generally, problems include:

- Internal bleeding around the bones, joints, stomach, intestines, throat, and nasal passages
- Excess bleeding
- Rebleeding with surgery and trauma
- Joint deformity
- Muscle atrophy
- Contractures
- Central nervous system bleeding
- Poor school attendance
- Low morale
- Motor coordination that is below normal

TEACHING TIPS AND SUGGESTED ACTIVITIES:

- Physical education programs should be carefully designed based on the severity of the student's condition and with continuous input from a physician.
- Most noncontact games and activities are highly recommended, including: jogging, stationary cycling, golf, tennis, and badminton. Outdoor cycling should be avoided due to the risk of falling.
- Swimming should be avoided during periods of external bleeding or oozing.
- Low resistance strength training activities to prevent atrophy and help stabilize joints. High resistance strength training should be avoided.
- High impact activities should be avoided (i.e., football, diving).
- Flexibility exercises to restore joint mobility in students with contractures.
- Provide activities that allow initial success.
- Activities to improve coordination may help reduce bleeding episodes caused by falling or running into objects.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

HUMAN IMMUNODEFICIENCY VIRUS/AIDS

DEFINITIONS:

Immune system: The immune system is the body's way of fighting infection and preventing illness. White blood cells are the immune system's primary infection fighters. Three special cells are especially important: Helper T-cells, Killer T-cells, and B-cells.

When a virus enters the blood, the immune system recognizes the invader and the white blood cells rush to fight it. Helper T-cells call upon Killer T-cells to destroy the virus by devouring and digesting it. Helper T-cells also call upon B-cells to make antibodies against the virus. These antibodies, in turn, block the virus so that it cannot infect healthy cells.

Human Immunodeficiency Virus (HIV): HIV is different from other viruses like the flu and colds. When HIV gets into the blood, it enters Helper T-cells and hides inside them. As the result, the infected Helper T-cells are unable to work as they should. For example, they no longer can call Killer T-cells to destroy the virus.

After the virus has been hidden in the T-cells for a while, which could last from a few months up to 10 years, it begins to male copies of itself. Some of these copies infect other T-cells. Eventually, HIV may destroy almost all the Helper T-cells. Up until this point, there may be no symptoms of infections or diseases. With no immune response from the body, however, it becomes easy for other infections to cause illness.

TRANSMISSION OF HIV/AIDS OCCURS:

- By having unprotected sexual contact with someone who has the virus.
- By sharing needles or syringes with someone who has the virus.
- By receiving blood transfusion or transplants of tissue or organs donated by someone with the virus.
- By getting HIV-infected blood, semen, breast milk or vaginal secretions into open wounds or sores.
- By having artificial insemination with the sperm of a man who has the virus.
- By being punctured or cut with a needle or surgical instrument contaminated with the virus.

AIDS IS NOT TRANSMITTED BY:

- Competing in sports
- Coming in contact with sweat
- Having causal contact, such as handshaking or hugging

- Living with someone who has AIDS and sharing utensils, towels, and toilets
- Kissing
- Swimming in a pool with someone who has AIDS

SYMPTOMS:

Stages of Acquired HIV/AIDS Progression

Stage 1: HIV infection
- A symptom-free condition lasing several years

Stage 2: HIV disease
- Chronic diarrhea
- Severe weight loss
- Nonproductive coughs with shortness of breath, swollen lymph nodes
- Fevers of unknown origin
- Chronic fatigue
- Skin rashes
- Increased susceptibility to infections

Stage 3: AIDS
- Required hospitalization and complete bed rest

Patterns of Congenital HIV/AIDS

- Pattern 1: which includes about 50% of infants born with HIV, is a symptom-free status. These infants test seropositive until about 2 years old because of antibodies passed on by their mother.
- Pattern 2: the static form of congenital HIV, includes infants who appear healthy until age 6 to 9 months, then exhibit disease symptoms for a short period, and thereafter have a relatively long period of freedom from illness before the AIDS stage begins. About 60% of these children will survive until age 5.
- Pattern 3: the progressive form of congenital HIV, is similar to pattern 2, except that, once illness begins, health rapidly deteriorates; the mean survival time is 8 months.

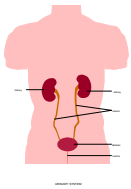
IMPLICATION FOR PHYSICAL EDUCATION

- Practice approved first-aid procedures with injuries in which blood is a factor (such as using gloves when treating broken-skin injuries or nose bleeds).
- Follow preestablished plan for handling body fluid waste and clean up on mats and gym floors.
- Plan rest periods.
- Provide adequate but not overtaxing physical activities.

- Avoid close contact with child who has cold or communicable disease.
- Consult with physician for contraindicated activities.
- Have students avoid contact with the body fluids of others.
- Encourage thorough laundering of uniforms and other clothing that may have been contaminated in play or instructional activity sessions.
- Be aware of the physical limitations of the students with HIV so that conditioning and other activities required strength and cardiovascular endurance are designed appropriate to their tolerance and ability levels.
- Use information about current status of confidentiality laws.
- Model an attitude of acceptance.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

KIDNEY DISORDERS



DEFINITIONS:

Kidneys are essentially blood-cleansing organs. An artery from the heart brings blood into the kidneys to be cleaned by a network of millions of tiny units called nephrons. The nephrons filter out toxins, excess nutrients and body fluid and excrete them in the form of urine into the bladder. The remaining cleaned and filtered blood then passes through veins back into circulation.

THE ROLES OF KIDNEYS ARE TO:

- Remove waste from the body in the form of urine
- Filter toxins from the blood
- Helps to regulate blood pressure and to balance certain important nutrients, including potassium and calcium

WHAT HAPPENS WHEN THE KIDNEYS STOP FUNCTIONING?

If both kidneys stop functioning due to disease, patients experience end-stage renal disease (ESRD), or total kidney failure. Because the kidneys perform so many critical functions, people whose kidneys fail face an immediate life-threatening condition. Kidney failure means that the body can no longer rid itself of certain toxins and cannot properly regulate blood pressure and critical nutrients. Unless those experiencing kidney failure are treated, they can die within days due to the build-up of toxins and fluid in their blood. More than 300,000 individuals in the United States today have ESRD and are dependent on artificial dialysis to stay alive.

DIALYSIS:

Dialysis is a life-saving process that artificially replaces the functions of the kidney. There are two types of dialysis: hemodialysis and peritoneal dialysis.

Hemodialysis involves removing blood from the body and filtering it in a machine. The patient is connected by a tube to the dialysis machine, which continuously draws blood out, cleanses it and removes excess fluid and then returns the blood back to the patient.

- **Hemodialysis** must be performed for 3 to 4 hours at least three times a week. It is usually performed at a dialysis center, though home dialysis is also possible.

- **Peritoneal Dialysis** is internal or in-body dialysis. Peritoneal dialysis entails use of a blood-cleansing solution called "dialysate" that is injected into the peritoneal cavity, the region of the abdomen that is lined by the peritoneum. While in the peritoneal cavity, the dialysate works to extract toxins and excess fluid from the blood. After a period of time, the solution is then drained from the body cavity. Peritoneal dialysis (CAPD) is the name given to this procedure when it is performed at 5-hour intervals four times a day during waking hours.

CAUSE:

- Diabetes and high blood pressure are the two leading causes of ESRD, accounting for more than 60 percent of new cases.
- Kidney disease can also develop from infection, inflammation of blood vessels in the kidneys, kidney stones and cysts.
- Other possible causes include prolonged use of pain relievers and use of alcohol or other drugs (including prescription medications).

SIGNS OF KIDNEY DISEASE:

- High blood pressure
- Swelling of the face and ankles
- Puffiness around the eyes
- Frequent urination (especially at night)
- Rusty or brown colored urine
- Back pain just below the rib cage

THE WAYS OF FIGHTING KIDNEY DISEASE:

- Drink plenty of fluids
- Exercise regularly
- Do not smoke
- Maintain your proper weight
- Have annual physical to check for diabetes and high blood pressure

TEACHING TIPS:

- Avoid physical fitness activities when infection is present.
- Monitor blood pressure.
- Plan for rest periods.
- Use caution/avoid cardiovascular and activities according to medical feedback.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

LEARNING DISABLED

DEFINITION:

A learning disability is a disorder in one or more of the basic psychological processes involved in understanding or using language, spoken or written, which may manifest itself in the imperfect ability to listen, think, speak, write, spell, or perform mathematical calculations. The term includes such conditions at perceptual disabilities, minimal brain dysfunction, dyslexia, developmental aphasia, and attention deficit disorder.

POSSIBLE BEHAVIORAL CHARACTERISTICS:

- Significantly different behaviors such as difficulty in beginning or finishing tasks, organization, consistency in behavior, or peer relationships
- Below average auditory comprehension, listening, and spoken language
- Academic problems
- Orientation difficulties including time concept and poor directionality relationships (i.e., south, north, far, near, under, behind, on, or close)
- Motor difficulties, including poor coordination, clumsiness, very poor balance, awkward movements, poor manual dexterity, and lack of rhythm in movements
- Impulsiveness and poor decision making skills
- Inability to sit or stand in one place for extended periods of time and hyperactivity
- Difficulty with visual-motor movements
- Delayed bilateral coordination (using both sides of the body together)

COMMONLY USED MEDICATIONS:

- Ritalin
- Benzadrine
- Cylert
- Methedrine
- Dexadrine

POSSIBLE SIDE EFFECTS:

- Depressed appetite
- Sleeplessness
- Balance and coordination may be affected

TEACHING TIPS:

- Increase alternative ways to get positive attention from peers or teachers.
- Instruct the student to continue with the easier part of a task or do a substitute task while waiting for the teacher's help.
- Inform the student in advance of anticipated difficult tasks or situations where extra control will be needed.
- Decrease the length of the task and make lessons brief.
- Provide short, clear instructions.
- Break lessons into shorter segments (task-analysis).
- Present new information in small quantities.
- Allow the student a "mini-break" when his/her tension level appears to be building.
- Deliver reinforcements immediately and more frequently than usual.
- Repeat directions to the student.
- Have the student repeat/explain the task back to you.
- Obtain frequent responses and input from the student.
- Avoid changing the learning environment frequently (use routines).
- Eliminate distractions (visual and auditory).

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

MENTAL RETARDATION

DEFINITION:

Public schools use the following definition of mental retardation which is contained in the Rules for Implementing the Individuals with Disabilities Education Act (IDEA): "Mental retardation means significantly sub average general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period that adversely affects a child's educational performance."

The American Association on Mental Retardation (AAMR) defines mental retardation as "substantial limitations in certain personal capacities. It is manifested as significantly sub average intellectual functioning, existing concurrently with related disabilities in two or more of the following applicable adaptive skill areas: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work. Mental retardation begins before the age of 18."

CAUSES:

The causes of mental retardation include, but are not limited to:

- Chromosomal abnormalities, such as Down syndrome and Fragile X syndrome
- Genetic metabolic disorders such as phenylketonuria (PKU) and Tay-Sachs disease
- Infections such as rubella and meningitis
- Poisoning from lead or drugs
- Traumatic head and brain injury
- Socioeconomic and environmental factors, including poverty

VARIOUS LEVELS OF COGNITIVE ABILITIES

- Mild MR
  IQ of 52-70
  Reach a level of education at least equal to the upper primary level.
  Develop mentally 1/2 to 3/4 the level of their "normal" peers.
  Acquire vocational skills at some level.

- Moderate MR
  IQ of 36-51
  Develop mentally 1/4 to 1/2 the level of "normal" children.
  Education at approximately a 2nd grade level is possible.

- Severely/Profoundly (S/P) MR
  Grossly intellectually deficient.
  Develop mentally at no more than 1/4 the level of "normal" children.
  Learn some fundamental skills, but many never develop competence even in self-help skills.
  Needs to be taught how to imitate and lacks the ability to attend to obvious stimuli independently.

POSSIBLE SIGNS, SYMPTOMS, AND CHARACTERISTICS:

- Obesity and overweight problems
- Congenital diseases
- Postural abnormalities: malalignment of the trunk or legs, protruding abdomen, flexed head, externally rotate the legs and use a wide base of support when walking and running
- Developmental patterns occur at a slower pace than other pupils
- Physical fitness and motor proficiency may be below normal
- Cardiorespiratory endurance may be a deficient performance area
- May be more successful in skills involving physical ability
- Function best in concrete, noncomplicated activities
- Generalization of skills may not occur without intervention
- Maintenance of skills may not occur without intervention
- Incidental learning may not occur
- Memory and attention span may be deficient
- Vocabulary may be limited
- These students may be underestimated
- May be easily frustrated
- May have an inadequate self image
- May lack motivation and aggressiveness
- Tend to be followers, not leaders
- May have difficulty exhibiting appropriate behavior
- May be easily upset with changes in routine
- May not be self-motivated
- May show little interest in play due to a lack of healthy play experiences

TEACHING TIPS AND SUGGESTED ACTIVITIES:

- Short instruction periods.
- Teach in small groups.
- Use few and simple words and maximize demonstrations.
- Over teach the cognitive information.
- Provide opportunities for choice of activities.
- Use peer partner.

- Emphasize range of motion exercises.
- Concentrate on postural righting activities.
- Concentrate on vestibular activities.
- Provide a well-rounded program of fitness and motor activities based on each student's present level of performance and developmental psychomotor needs.
- Allow for periods of rest during instruction.
- Simplify, demonstrate, positively reinforce, and use multisensory approaches.
- Plan activities with few rules to memorize.
- Program for generalization with the use of different people, equipment, environments, and times.
- Teach safety often by stressing cause-effect relationships.
- Provide prompt and consistent feedback.
- Check for skill retention often.
- Present information and instructions in small, sequential steps and review each step frequently.
- Generalize to community-based settings by teaching skills that the students can use frequently and apply to settings other than school.
- Offer activities that provide initial success.
- When appropriate, put in leadership roles.
- Systematically ignore inappropriate behaviors, model appropriate behaviors, and praise appropriate behaviors and responses.
- Program systematic, age-appropriate activities that include all domains of development including psychomotor, social, vocational, and academic objectives.
- Early intervention may lesson or prevent secondary problems such as posture and fitness deficiencies.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

MUSCULAR DYSTROPHY

DEFINITION:

Muscular Dystrophy: A disease of the muscular system characterized by weakness and atrophy of the muscles of the body. The disease is progressive and remission does not occur. The rate of progression is different for each set of muscles.

TYPES OF MUSCULAR DYSTROPHY:

Duchenne: Occurs primarily in males and presents itself between the ages of 3 and 7 years. This type of muscular dystrophy is most common and most severe. This type affects the pelvic girdle and then moves to the shoulder girdle.

Facioscapularhumeral: The most common form of muscular dystrophy in adults. This type affects both genders equally. Appears in adolescence but is not usually diagnosed until adulthood. Characterized by progressive weakness of the shoulder muscles and weakness of the face muscles. Life span for individuals with this type is normal.

Limb-Girdle: Occurs anytime from age 10 and on. Both genders are equally affected. Early symptoms include difficulty in raising the arms above shoulder level or difficulty in climbing stairs. Initially muscle weakness is either in the shoulder girdle muscles or the hip and thigh muscles.

CHARACTERISTICS OF MUSCULAR DYSTROPHY:

- Tendency to tire quickly
- Postural changes due to progressive muscle weakness
- Waddling gait with legs far apart
- Walking on tip toes
- Gower's sign (moving to all fours and then "climbing up the legs" when changing from a prone to standing)
- Tendency to lose fine manual dexterity
- Pseudohypertrophy particularly in the calf muscles
- Lack of motivation because of limitations

EIGHT STAGES OF DUCHENNE MUSCULAR DYSTROPHY:

- Ambulates with mild waddling gait and lordosis. Climbs stairs and curbs without assistance.
- Ambulates with moderate waddling gait and lordosis. Needs support to climb stairs and curbs.
- Ambulates with moderately severe waddling gait and lordosis. Cannot climb stairs or curbs.
- Ambulates with severe waddling gait and lordosis. Unable to rise from a standard height chair.
- Wheelchair independence. Sits erect and can roll chair and perform all activities of daily living (ADL) and wheelchair activities without assistance.
- Wheelchair with dependence. Needs assistance when performing ADL and wheelchair activities.
- Wheelchair with dependence. Sits erect only with support. Able to do minimal ADL.
- Bed patient. Needs maximum assistance for ADL.

TEACHING TIPS:

- Individually designed activity program.
- Allow for full participation in games and athletics while condition is in early stages.
- Be aware that the individual may tire more easily.
- Introduce sedentary recreational activities that will carry over when the student is in a wheelchair.
- Allow the student to be in an aquatic environment as much as possible.
- Design stretching and strengthening programs for the student to maintain functional skills.
- Encourage movement and dance activities that allow the individual to express emotions.
- Due to progressive muscle weakness, respiratory and cardiac problems become evident.
- Encourage breathing games and exercises when the student is confined to the wheelchair.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

OBESITY

DEFINITIONS:

Obesity is considered one of the great current medical problems. **Obesity** is defined as the presence of an abnormally large amount of body fat or adipose tissue. An individual who is obese is considered to be 20% or more above his/her body weight.

Overweight is defined as body weight above an established standard which is related to height. An individual who is overweight is considered to be 10% or more above his/her ideal weight.

The most common reason for being overweight is that the individual's food and caloric consumption is greater than energy expenditure.

It has been estimated that 10% or more of school-aged children are considered overweight.

CAUSES FOR OVERWEIGHT AND OBESITY:

- Caloric imbalance
- Genetic factors
- Metabolic disturbances
- Endocrine dysfunctions (specifically pituitary and thyroid)
- Emotional disturbances

CHARACTERISTICS OF INDIVIDUALS WHO ARE OBESE/OVERWEIGHT:

- Immature social and emotional behaviors
- Dislike of active games, exercises and sports
- Clumsy
- Slow
- Oversensitive
- Withdrawn
- Poor self-concept
- Prefers sedentary activities

TREATMENT AND PROGRAMMING:

- Encourage the student.
- Introduce a variety of activities to reduce boredom.
- Create an environment that will enable the student to have successful experiences.
- Develop an individualized regularly scheduled progressive exercise program.
- Conduct a program with a compatible, supportive social group.
- Conduct a weight control program. An effective weight control program includes:

    - Counting calories
    - Calculating energy expenditure
    - Cutting down on the amount of food consumed
    - Setting short-term goals
    - Provide frequent feedback about progress and give social reinforcement when weight loss occurs
    - Seeking medical attention if the problem is because of grandular dysfunction
    - Seeking counseling advice when emotional causes are the root of the problem

- Create progress charts for the student to chart his/her behavior.
- Give frequent rest periods.
- Monitor any type of strenuous physical activity.
- Avoid activities that involve quick movements or sudden stops which might damage the knee and ankle joints.
- Allow the student to have a locker in an empty room.
- Allow the student to leave early to dress.

SUGGESTED ACTIVITIES:

- Walking
- Bicycling
- Swimming
- Water aerobics

Most children who are obese/overweight continue to be obese/overweight in adulthood. Active lifestyles and sound nutrition practices should be initiated in the home. Parents need to serve as role models so that children will develop and continue a healthy lifestyle into adulthood.

Information on this sheet contains only suggested guidelines. Each individual must be considered individually, and in many cases, a physician's written consent should be obtained.

OSTEOGENESIS IMPERFECTA

DEFINITION:

Osteogenesis imperfecta is a genetic disorder that is characterized by bones that break easily, often from little or no apparent cause. One of the known causes in some cases is a defect in how the body produces collagen. Collagen is the major protein of the connective tissue. The defect causes the bones and cartilage to be soft and brittle. It also causes the ligaments and skin to be hyperextensible and elastic. There is no present cure for this disorder only treatment to manage it. A student should receive a written consent from a physician before participating in physical activities.

CAUSES OF PAIN:

- Vertebral collapse
- Contractors
- Multiple fractures
- Deformity/malalignment of limbs
- Joint deformity
- Osteoarthritis
- Recurrent abdominal pain

CHARACTERISTICS OF PAIN:

- Acute or chronic
- Can be caused by muscle tension, spasm, weakness, and stiffness
- Response can cause one to try and prevent movement of the injured part
- Elevated heart rate

CONSIDERATION AND TEACHING TIPS:

- Avoid activities that involve high impact, jumping, twisting, turning, and even contact with others. The water allows more movement without this risk.
- Play activities with soft equipment to reduce possible contact.
- Due to brittle bones activity level is low therefore most likely their cardiovascular ability is low, make activities appropriate for their capacity.
- During transfer be careful to place pressure over the trunk to support student, avoiding undue pressure on the limbs.

SUGGESTED ACTIVITIES:

- Range of motion
- Strengthen muscles
- Swimming
- Awareness on how to keep oneself safe in his/her environment
- Improve stamina
- Body awareness
- Improve posture

TREATMENT:

The focus of treatment is controlling the symptoms. A key element is to develop bone mass and muscle strength. This will in turn reduces chance of fractures. Work on maximizing mobility. Many students with osteogenesis imperfecta use a wheelchair. A proper nutritious diet also helps with body strength.

PAIN MANAGEMENT:

- Interdisciplinary approach to pain management can produce the best results to reduce pain.
- Relaxation training may help reduce tension from muscles and in turn help reduce pain.
- Visual imagery or distraction.
- Heat can help with chronic pain or muscle stiffness.
- Ice can help numb the pain area and prevent swelling.
- Apply heat or ice for 15 to 20 minutes.
- Massage therapy
- Individual or family therapy with a focus on depression, anger, frustration.
- Psychological management has been effective on pain tolerance.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

PERVASIVE DEVELOPMENTAL DISORDER

DEFINITION:

Pervasive Development Disorder (PDD) is a nonprogressive disorder resulting from a central nervous system injury or abnormality that occurred during fetal brain development. This term is used to describe children and youth who have an impairment in the quality of their social interactions and communications, but do not meet the full descriptive or diagnostic criteria for other Pervasive Developmental Disorders including Autistic Disorder, Rett's Disorder, Childhood Disintegrative Disorder, and Asperger's Disorder.

CAUSES:

A number of factors have been associated with PDD including maternal infection, metabolic disturbance, injury to the nervous system, exposure to environmental toxins, and genetic abnormalities, however, no single etiology has been identified at this time.

POSSIBLE SIGNS, SYMPTOMS, AND CHARATEISTICS:

- Lack of responsiveness to sounds
- Lack of social smile and limited social interaction
- Difficult to engage in social games
- Does not anticipate social interactions
- Unusual patterns of behavior, interests, and activity
- Lack of or impaired speech
- Rambles when speaking
- Gaze behavior, gaze aversion, or empty starring
- Attachment to select objects
- Restricted food preferences
- Clumsy
- Impulsive
- Hyperactive
- Aggressive, violent or out of control behaviors
- Unexplainable distress
- Sleep problems
- Inability to empathize

COMMONLY USED MEDICATIONS AND THEIR SIDE EFFECTS:

- Ritalin
  -used to control impulsiveness and help the child pay attention
  -may cause appetite suppression and insomnia
- Prozac
  -used to reduce compulsions associated with anxiety or anger
  -may heighten the effects of haloperidol, carbamazepine, or lithium
- Haldol, Mellaril, Clozaril, and Risperdal
  -used to reduce fidgetiness
  -may cause dyskinesia (a condition of slow, rhythmical, automatic stereotyped movements, either general or in single muscle groups)

HELPFUL HINTS AND SUGGESTED ACTIVITIES:

- Create a highly structured environment.
- Use proper safety equipment at all times.
- Teach safety often and be very specific.
- Be sure you get the child's full attention.
- Describe, discuss, and/or role play difficult situations.
- Only one child with PPD should be placed in each group of students.
- All parents and professionals should have the same rules, expectations, and behavior management systems including positive reinforcement of desired behaviors.
- Use transitions that depict activities between each activity.
- Use vigorous exercise to reduce self-stimulatory and off task behaviors.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

POSTURAL DISORDERS
Kyphosis

DEFINITION:

An exaggerated arch in the normal thoracic curve of the spine.

COMMON CHARACTERISTICS OF KYPHOSIS:

- Rounded shoulder appearance
- Forward head posture

MEDICAL CONDITION ASSOCIATED WITH KYPHOSIS:

Scheuermann's Disease or Juvenile Kyphosis: an excess kyphotic thoracic spine resulting from inflammation of bone and/or cartilage. Two or more vertebral bodies may fragment due to the inflammation in vertebrae. Pain is often not great enough to limit movement but students should be protected from all movements by wearing a hyperextension brace.

TEACHING TIPS:

- Provide exercises to increase flexibility of the chest muscles and to strengthen muscles in the upper back region, such as pull-downs, prone chest raises, rows, etc.
- Encourage increase flexibility of neck musculature by simple neck range of motion exercises done actively by the student.
- Encourage abdominal strengthening exercises.
- Inform the student that all stretching exercises should be done pain-free.
- Collaborate with the adapted physical educator/physical therapist/occupational therapist to assist with the student's physical and motor development.

SUGGESTED EXERCISES:

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

POSTURAL DISORDERS
Lordosis

DEFINITION:

An exaggerated forward curve of the lumbar spine. Also called swayback or hollow back.

COMMON CHARACTERISTICS OF LORDOSIS:

- Anterior tilt of pelvis
- Hyperextended knees
- Upper body is shifted backwards

CAUSES OF LORDOSIS:

- Genetic predispositions
- Weak abdominals, gluteals, and hamstrings
- Tight lower back muscles

TEACHING TIPS:

- Provide exercises to (a) stretch lower back muscles, (b) strengthen abdominals, and (c) realign pelvic tilt.
- Encourage the student to consciously think about reestablishing proper pelvic alignment in normal daily activities.
- Inform the student that all stretching should be done pain-free.
- Collaborate with the adapted physical educator/physical therapist/occupational therapist to assist with the student's physical and motor development.

SUGGESTED EXERCISES:

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

PREGNANCY

DEFINITION:

Each year approximately 10 percent of teenage girls in the United States, between the ages of 15 and 18, give birth. Exercises can prepare young mothers for delivery and can also alleviate some of the complications associated with teen pregnancy.

Teenagers who are pregnant have a probability of developing complications such as toxemia, anemia and prolonged labor. Babies born to young mothers risk low birth weight, mental retardation, seizure disorders and spinal injury.

Teenagers who are pregnant need to maintain a reasonable level of physical fitness while avoiding potential hazards of inappropriate exercise. Most can safely begin an exercise program. Before any physical education begins, the student must have a written medical consent form from her physician. The consent should be renewed at least once every two months, not only during pregnancy, but for two months after birth.

CONTRAINDICATED ACTIVITIES:

- Contact sports (i.e., football, basketball, soccer, volleyball)
- Tennis, racquetball, ice skating, surfing, diving and gymnastics can be risky.
- Adventure sports such as mountain climbing, parachuting and scuba diving
- Avoid bouncy, jerky movements due to loose joints.
- Avoid exercising in hot, humid conditions due to possible heat injury to mother and/or fetus.

SUGGESTED ACTIVITIES:

- Non-weight bearing activities such as cycling, swimming or water aerobics
- Bowling, golf and walking

WARNING SIGNS:

- Pain of any kind
- Nausea
- Bleeding
- Cramping
- Leaking of amniotic fluid
- Faintness

- Dizziness
- Numbness
- Palpitations
- Decreased fetal activity

If any of the above warning signs are observed, contact the nurse immediately and notify the student's physician.

TEACHING TIPS:

- Begin an aerobic conditioning program, starting slowly and building up gradually.
- Check the student's pulse rate every 5 minutes.
- Allow frequent breaks.
- Limit her aerobic workout to 15 minutes, three to four times a week.
- Warm up and cool down for at least 5 minutes before and after activity.
- Perform exercises on a wooden floor or carpet to reduce shock and provide sure footing.
- Monitor liquid intake, consume liquids before, during and after exercise to prevent dehydration.
- Remind the student to be aware of body signals of discomfort or distress.
- Never allow the student to exercise to the point of exhaustion.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

PRENATAL DRUG EXPOSURE

DEFINITION:

Over one million women in the United States who use alcohol, nicotine, cocaine and other drugs increase the risk of giving birth to babies with developmental delays.

Fetal alcohol exposure is the nations leading cause of mental retardation.

Approximately **5,000-10,000** babies are born each year with severe **Fetal Alcohol Syndrome (FAS). FAS** is defined as defects to the developing fetus due to excessive alcohol consumption during pregnancy causing mental retardation, facial anomalies or heart defects in the child.

Approximately 11% of all newborns in the United States (375,000 infants) are exposed to drugs in utero.

CHARACTERISTICS OF FETAL ALCOHOL SYNDROME (FAS):

- Craniofacial defects (almond-shaped eyes, sunken nasal bridge, small flat midface)
- Significant growth retardation before and after birth
- Poor sucking behaviors in infants
- Disrupted sleep behaviors
- Tremors and abnormal reflexes
- Delays in fine and gross motor behavior
- Hyperactivity
- Speech delays
- Difficulties with verbal comprehension

CHARACTERISTICS OF "CRACK BABIES":

- Tremors
- Chronic irritability
- Poor visual orientation
- Strokes and/or seizures as infants
- Smaller head circumference
- Missing bowels

- Violent tendencies
- Hyperactivity
- Learning difficulties
- Little or no understanding of cause and effect
- Aggression towards peers
- Inability to play spontaneously
- Impulsive
- Distractible
- Low Apgar scores (Apgar scores are indicators of the infant's status immediately after birth, including breathing, color, heart rate, muscle tone and overall behavior)

TEACHING TIPS:

- Create exploration and play activities for the child's development needs.
- Create a structured and predictable environment.
- Develop rules that are clear, concrete and concise.
- Provide a 1:1 teacher/student ratio.
- Provide a positive role model for the child to imitate.
- Create a functional and creative environment for the child to play.

Prenatal drug exposure often continues to affect the child as he/she enters school. These children and young adults demonstrate an exaggerated need for routine in a patient and structured environment, and one-on-one attention from teachers and care givers.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

RETT'S DISORDER

DEFINITION:

Rett's disorder, also known as Rett's syndrome, is a severe degenerative condition diagnosed by deceleration of head growth, loss of previously acquired hand skills, loss of interest in the social environment, appearance of stereotyped hand movements and gait and coordination problems, and subsequent development of severe impairments in language and psychomotor function. Rett's disorder has been reported only in females and is estimated to occur in 1 in 10,000 to 1 in 15,000 female births.

CAUSE:

The cause of Rett's disorder is not known. However, because only females are affected, it is believed to be a result of a dominant mutation on a Y-linked gene.

DIAGNOSTIC CRITERIA:

Each of the following:

- Apparently normal prenatal and perinatal development
- Apparently normal psychomotor development through the first 5 to 6 months
- Normal head circumference at birth

Onset of each of the following occurs after the period of normal development:

- Deceleration of head growth between ages 5 months and 4 years
- Loss of previously acquired purposeful hand skills between ages 5 and 30 months and the subsequent development of stereotyping hand movements
- Early loss of social interaction
- Appearance of poorly coordinated gait or trunk movements between ages 1 and 4 years of age
- Severely impaired expressive and receptive language development with severe psychomotor retardation

TEACHING TIPS AND SUGGESTED ACTIVITIES:

- Develop a highly structured environment.
- Use the same organization and equipment each day.
- Use proper safety equipment at all times.
- Teach safety often and be very specific.

- Obtain the student's full attention.
- Eliminate unnecessary external stimuli.
- Limit the amount of relevant stimuli presented at one time.
- Utilize sensory stimulation to increase attention span and decrease self-stimulation.
- Use vigorous aerobic exercise to reduce self-stimulatory and off task behaviors.
- Parents and professionals should use the same rules, expectations, and behavior management systems including positive reinforcement of desired behaviors.
- Utilize the Premack principle (pairing something liked with something disliked).
- Teach in a game-like environment to facilitate generalization.
- Improve motor skill acquisition by using reinforcement, task analysis, and physical Prompting.
- Describe, discuss, and/or role play difficult situations.
- Use transitions that depict activities between each activity.

** Refer to the fact sheets on MENTAL RETARDATION and AUTISM for possible signs, symptoms, and characteristics and more helpful hints and suggested activities.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

SEIZURES

DEFINITION:

Epilepsy is a group of symptoms caused from abnormal electrical activity in the brain, which results in seizures of varying magnitude.

TYPES OF SEIZURES:

Grand Mal (generalized seizures): Seizures that always produce a loss of consciousness. This type of seizure often starts with an aura (warning signal), such as ringing in the ears, tingling sensation or a distinct smell. The actual seizure starts with the tonic phase (continuous, stiff or rigid), followed by the clonic phase (spasmodic jerking and loss of consciousness). During the convulsive phase, the person may lose bladder or bowel control. Afterwards, the person may be very tired or want to sleep.

Petit Mal (partial seizures): Seizures where the person appears to stare into space and have a lapse of attention. The eyelids may flutter rapidly.

Focal: Seizures are similar to grand mal seizures where there is a loss of body tone and the person may collapse; however, the person usually does not lose consciousness. In Jacksonian focal seizures, there is localized twitching of muscles in the extremities which move up the arm or leg.

CONDITIONS THAT COULD TRIGGER SEIZURES:

- Hyperventilation
- Heightened emotional state of stress
- Excessive noise or bright flashing light
- Intense concentration
- Menstruation
- Growth spurts
- Hyperthermia (too much body heat)
- Hyperhydration (excess water ingestion)
- High alkalinity of the blood
- Lack of sleep or fatigue
- Constipation
- Improperly used medications
- Alcohol consumption
- Low blood sugar

WHAT TO DO IF A SEIZURE OCCURS:

- Remain calm; a seizure cannot be stopped.
- Help the person to the floor to avoid self injury.
- Turn the persons head to the side, so that secretions can drain from the mouth.
- Move all obstacles away from the person.
- Never force anything into the person's mouth or between clenched teeth.
- Do not restrain the person.
- Gently loosen any restraining clothing.
- Tilt the head back to open an airway if the person is having trouble breathing.
- Observe the person throughout the seizure and report the incident in detail.
- Call for medical help if the seizure lasts for more than 5 minutes (but it depends on individual student's medical reports), one seizure immediately follows another, or if it is the first known seizure.
- After the seizure, allow the person to rest.

COMMONLY USED MEDICATIONS:

- Valium
- Diazepam
- Depakene
- Phenobarbital
- Dilantin
- Tegretol
- Luminal

Seizure medications have a number of adverse side affects. Among these are reduced coordination and concentration, poor reaction time, drowsiness, blurred vision and irritability.

CONTRAINDICATED ACTIVITIES:

- Archery
- Parallel bars
- Balance beam
- Horseback riding
- Tackle football
- Wrestling
- Activities that involve repeated blows to the head (e.g., heading a soccer ball)
- Bicycling
- High bar
- Rope climbing
- Lacrosse
- Diving
- Underwater swimming
- Scuba diving

THE MOST COMMON SIGNS OF POSSIBLE SEIZURE ACTIVITY:

- Brief staring spells (5-10 seconds) in which the child does not respond to direct attempts to gain his attention

- Periods of confusion
- Head dropping
- Sudden loss of muscle tone
- Episodes of rapid blinking, or of the eyes rolling upwards
- Inappropriate movements of the mouth or face, accompanied by a blank expression
- Aimless, dazed behavior, including walking or repetitive movement that seem inappropriate to the environment
- Involuntary jerky of an arm or leg

NOTE: Observing a single instance of any of the these actions is no proof a seizure disorder. It could be caused by other things. But if the teacher sees a pattern of this behavior, it could be followed up in whatever manner the school requires when student health is at issue.

IMPLICATIONS FOR THE ADAPTED PHYSICAL EDUCATOR

- Avoid situations/activities that may be risky, such as stress, that may trigger a seizure.
- Be aware of common side effects of anti-convulsant.
- Be aware of the occurrence of generalized seizures. If these seizures have not previously been noted by parents, teachers, and others, the physical educator should notify parents and the child's physician of their occurrence.
- Be aware of body temperature.
- Check for breathing following seizure.
- Consult with physician before doing contact and collision sports.
- Do not place anything in mouth.
- Encourage vigorous activity and social interaction.
- Fill out appropriate incident/accident forms.
- Know individual precautions.
- Treat a child with seizures in ways similar to the way normal children are treat in a physical education class.
- Provide plan of action for other students during care of the individual with a generalized seizure.
- Protect from injury by placing soft materials under/near any moving body.
- Provide special supervision for swimming activities.
- Contact sports should be avoided, as should sports in which falling may be a hazard (diving, gymnastics, and trampolining).
- Provide place for rest following seizure.
- Provide additional staff during high risk activities.
- Refer student for medical care for atypical behavior such as irritability, drowsiness, increase in clumsiness, blurred vision, etc.
- Use caution in activities such as scuba diving.

SUGGESTED ACTIVITIES:

- Long distance running
- All fundamental motor skills
- Eye-limb coordination
- Swimming
- Dance
- Individual activities
- Group activities

IMPORTANT CONSIDERATIONS:

- All activities should be monitored and individually adjusted for each student's exercise tolerance and medical history.
- Before actual programming, check the district's medical history sheet and contact the student's physician.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

SEVERE AND/OR MULTIPLE DISABILITIES

From www.disabilityart.com
Clip Disability Art (1998) Madgraphics

DEFINITION:

Individuals with severe and/or multiple disabilities have two or more disabilities that, in combination, cause severe educational problems.

POSSIBLE SIGNS, SYMPTOMS, AND CHARACTERISTICS:

Students with severe and/or multiple disabilities may exhibit a wide range of behaviors depending on the combination and severity of the disabilities. However, there are some general characteristics that are representative students with severe and/or multiple disabilities.

- Limited speech and/or communication
- Difficulty with basic physical mobility
- Generalization of skills may not occur without intervention
- Maintenance of skills may not occur without intervention and frequent use
- Need for support in major life activities (e.g., domestic, leisure, community, and vocational)

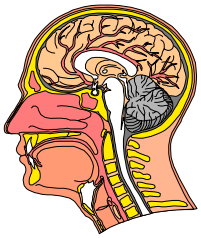
TEACHING TIPS AND SUGGESTED ACTIVITIES:

- Simplify, demonstrate, positively reinforce, and use multisensory approaches.
- Early intervention may lesson or prevent secondary problems such as posture and fitness deficiencies.
- Program for generalization with the use of different people, equipment, environments, and times.
- Generalize to community-based settings by teaching skills that the students can use frequently and apply to settings other than school.
- Check often for skill retention.
- Provide a well-rounded program of fitness and motor activities based on each student's present level of performance and developmental psychomotor needs.
- Design activities to increase the student's skill and independence in performing routine activities in life.

**** Due to the diversity of characteristics possible within this classification, it is difficult to provide specific instructional strategies for students with severe and/or multiple disabilities. Programming should involve the combining of instructional strategies appropriate for <u>each</u> student's unique needs.**

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

SHUNTS



DEFINITION:

Shunting is a surgical procedure that involves inserting a tube into the ventricles. This tube has a one-way valve that lets cerebrospinal fluid flow out of the brain and into another tube that is threaded just under the skin down to the abdomen where fluid is reabsorbed in membranes of surrounding internal organs.

The only visible evidence of a shunt is a small scar behind the ear.

A shunt is necessary for those individuals who have hydrocephalus. Hydrocephalus is most commonly seen in children with spina bifida.

Hydrocephalus is increased cerebrospinal fluid in the ventricles of the brain. Increased cerebrospinal fluid causes intracranial pressure and increased head circumference.

Shunts need to be replaced when they become clogged or malfunction.

COMMON SYMPTOMS OF SHUNT PROBLEMS:

- Vomiting
- Seizures
- Lethargy
- Irritability
- Swelling
- Redness along the shunt tract
- Change in personality or school performance
- Dilated pupils
- Headaches

ACTIVITY RESTRICTIONS AND MODIFICATIONS FOR INDIVIDUALS WITH SHUNTS:

- Avoid trauma to the head.
- Heading a soccer ball
- Boxing

- Headstands
- Forward/backward rolls
- Discourage rebounding in basketball.
- Keep passes under control. Make sure the student is ready to catch the ball.
- Use a lighter ball (i.e., beach ball, balloon) when playing volleyball, so the student can play in any position.
- Avoid throwing at runners between bases in games such as kickball, softball, and baseball.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

SPEECH AND LANGUAGE DISORDERS

DEFINITIONS:

Speech disorders refer to difficulties producing speech sounds or problems with voice quality.

Language disorders refer to impairments in the ability to understand and/or use words in context, both verbally, and nonverbally.

POSSIBLE CAUSES:

- Hearing loss
- Neurological disorders
- Muscular disorders
- Developmental delays
- Brain injury
- Mental retardation
- Autism
- Cerebral palsy
- Drug abuse
- Vocal abuse or misuse
- Physical impairments such as: cleft lip or palate; or paralysis of, absence of lesions or nodules on the vocal cords

POSSIBLE SIGNS, SYMPTOMS, AND CHARACTERISTICS:

- Speech and/or language skills that are noticeably behind their peers
- Partial or total loss of the voice
- Interruptions in the flow or rhythm of speech such as stuttering
- Articulation or phonological disorders
- Difficulties in the pitch, volume, or quality of the voice
- Improper use of words and their meanings
- Inability to express ideas
- Inappropriate grammatical patterns
- Reduced vocabulary
- Inability to follow directions

TEACHING TIPS AND SUGGESTED ACTIVITIES:

- Develop a method with which the student can summon the teacher or a classmate in case of an emergency.
- Do not underestimate the student's intelligence or physical ability.
- If necessary, use other forms of communication such as sign language, symbols, sign cards, chalkboards, or communication boards.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

SPINA BIFIDA

DEFINITION:

Spina Bifida: Spina Bifida is the most common congenital spinal defect. Spina Bifida is caused by failure of the neural arch of the vertebra to properly develop and enclose the spinal cord. This usually occurs between the fourth and sixth week of pregnancy. Sometimes commonly known as "cleft spine." The incidence of spina bifida is estimated at 2 per live births, making it one of the most common birth defects that can lead to physical disability.

TYPES OF SPINA BIFIDA:

***Myelomeningocele:** Most severe type of Spina Bifida. Spinal cord, nerve roots and lining (meninges) protrude out into a sac from an opening in the spine (Refer to as cyst-like). Over 70% of children born with myelomeningocele also have hydrocephalus.

***Meningocele:** The spinal cord lining protrudes out into a sac, but the spinal cord and nerves are not displaced.

***Oculta:** The least severe type. Vertebral arches fail to fuse, but there is no protrusion of the spinal cord lining or the spinal cord itself. This type does not cause paralysis or muscle weakness and usually is not diagnosed unless an x-ray is taken. Some take the form of a dimple or small hair growth on the back.

**Myelomeningocele and Meningocele require surgical correction.*

*Refer to Shunt fact sheet

*Obesity fact sheet

MEDICAL CONDITIONS ASSOCIATED WITH SPINA BIFIDA:

Hydrocephalus: Increased cerebrospinal fluid in the ventricles of the brain. This condition is surgically corrected by placing a shunt into the ventricles of the brain to drain excess fluid. Removing the excess cerebrospinal fluid protects the child against brain damage resulting from pressure on the brain.

Neurological Impairments: Range from mild muscle imbalance to sensory loss in the lower limbs to paralysis of one or both legs to lack of control of bowels and bladder.
Skin Breakdown/Lesions: Due to lack of sensation in the lower limbs, it is critical to continuously check the individual for skin problems.

TEACHING TIPS:

- Develop activities that utilize the head, trunk, shoulders, arms and hands.
- Develop activities that encourage pushing, pulling and lifting (i.e., scooterboards, parachutes, hanging and climbing, and weight training).
- Avoid activities that could displace a shunt or put pressure on the sensitive areas of the spine without discussing with the child's physician, after getting parent permission, (i.e., headstands, soccer heading, forward rolls and any upside-down positions for long periods of time).
- Introduce daily passive flexibility exercise to prevent contractures and associated foot deformities.
- Discuss diving with physician after getting parent permission before incorporation into aquatics program.
- Encourage walking whenever possible.
- Teach functional movement skills.
- Develop a bathroom plan and make sure to provide for privacy toileting and dressing.
- Encourage change of position and self-monitoring of bruises and cuts.
- Use care in transferring and physical assistance.
- Provide nutritional information and activities for calorie burning for students.
- Be aware that it may be difficult for the student to participate in activities in a crowded gymnasium without a wheelchair.
- Be aware many students who have spina bifida are allergic to latex (i.e., balloons, many playground balls).

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

SPINAL CORD INJURIES

DEFINITIONS:

Spinal cord injury (SCI) results in the impairment or loss of motor or sensory function (or both) in the trunk and/or extremities due to damage of neural elements within the spinal canal. The lesion can either be complete or incomplete. Incomplete lesions are more conducive to sport and activity success than complete lesions. Persons with SCI are usually referred to as Paraplegics or Quadriplegics.

Paraplegia: Caused by injury to thoracic segments T2-T12. Impairment is in the trunk, legs and/or pelvic region.

Quadriplegia: Caused by injury to cervical segments (C1-C8) or the highest thoracic segment (T1). Impairment occurs in the arms, trunk, legs and pelvic organs (bladder, bowel and sexual organs).

There are approximately 7,000 to 10,000 new cases of SCI in the United States every year.

CAUSES OF SCI:

- Motor vehicle accidents
- Falls
- Violence
- Sport injuries

**Diving causes 10 times more SCI than any other sport.*
**Age of onset for about 50% of all SCI is persons under the age of 25.*

MEDICAL CONCERNS FOR SCI:

- Contractures (abnormal shortening of the muscles)
- Atrophy of limbs - decrease in size due to loss of muscle tone
- Muscle spasms
- Bowel and bladder dysfunction
    - bowel and bladder management program
    - provide area for privacy in toileting/dressing
    - remind Individual to empty external collection bag
- Spasticity of muscles that prevent effective movement
- Scoliosis
- Urinary infections

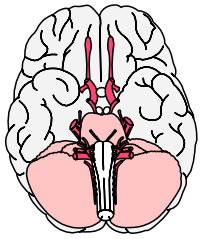
- Overweight because of low energy expenditures
- Heterotopic bone formation (laying down of new bone in soft tissue around joint)
- Sensation and skin breakdown (impaired feelings of touch, pressure, heat and cold) check skin frequently for abrasions; encourage weight shifting and position changes
- Abnormally low resting heart rates
- Pooling of blood in the veins of paralyzed body parts
- Low blood pressure for persons with lesions above T6
- Poor temperature control, inability to sweat below the level of injury

TEACHING TIPS:

- Develop a program of exercise for all usable body parts.
- Include activities to develop strength, flexibility, muscular endurance, cardiovascular endurance and coordination.
- Enable the student to use the wheelchair in a variety of environments.
- Emphasize functional movement skills.
- Teach wheelchair mobility.
- Teach parachute games and target games (both require very few modifications).
- Include aquatic activities.
- Develop stretching exercises to improve flexibility.
- Introduce wheelchair sports to the student.
- Adapt activities for use with mobility aids.
- Teach upper body activities, but avoid overuse which could cause injuries to arms and hands.
- Plan activities for limited mobility (quad rugby).
- Educate regarding: hygiene (i.e., showering after physical activity, proper workout clothing).

Information on this sheet contains only guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

TRAUMATIC BRAIN INJURY



DEFINITION:

Traumatic brain injury (TBI) is injury caused to the head that results in minor to serious brain injury. It is caused by either an open head injury where there is a penetrating lesion or closed head injury (most common) where there is no outward injury. Characterized by permanent brain damage caused by concussion, contusion, or hemorrhages. Student's with TBI have similar psychomotor profiles of persons with Cerebral Palsy.

LEVELS OF TBI:

Minor: Common bump to the head with no evidence of concussion. Generally not seen by a physician.

Mild: Brief loss of consciousness, if any, with accompanying symptoms of concussion, such as vomiting, lethargy or lack of recall of the injury.

Moderate: Evidence of concussion; loss of consciousness for less than 5 minutes.

Severe: Concussion or skull fracture; loss of consciousness for 5 to 30 minutes.

Serious: Loss of consciousness for more than 30 minutes; concussion or skull fracture and noticeable neurological soft signs (complicate behavioral, perceptual and motor performance).

The term sequelae, refers to the alteration of sensation, perception, emotion, cognition and motor function. The extent of difficulties in attention, memory, and visual motor behaviors varies widely depending on location and nature of the damage, as well as, age.

COMMON CAUSES OF TBI:

- Motor vehicle accidents
- Falls
- Bicycle accidents
- Child abuse injuries
- Assaults
- Sport injuries

TBI is currently the leading cause of disability for persons under age 35. Typically over half of children with TBI have some degree of permanent spasticity and/or ataxia (types of CP). Sensorimotor Intergration of the tactile, kinesthetic, vestibular, and visual input is particularly affected. Post Traumatic Amnesia (PTA) often occurs and is a good predictor of future function.

COMMONLY USED MEDICATIONS:

- Methylprednisolone
- Phenobarbital
- Navane
- Valium
- Dilantin
- Dantrium
- Thorazine
- Lasix
- Codeine
- Haldol
- Ritalin
- Tegretol
- Elavil
- Mannitol
- Solumedrol

Symptoms may be masked and caution must be taken when exercising if the student is on medication.

COMMON CHARACTERISTICS OF TBI:

- Excessive muscle tone-stiff, spastic muscles limiting the range of motion and mobility
- Difficulties due to hemiplegia (i.e., student may be affected on one side of the body).
- Disturbance or lack of balance and coordination – or ataxia, which limits agility
- Visual motor deficits may have problems with depth perception
- Cognitive difficulties (i.e., memory and sequencing deficits, and decreased attention span)
- Abnormal reflexes and decreased fine motor ability
- Speech apraxia (i.e., receptive and expressive language disorders)
- Inappropriate social skills
- May show a lack of judgment
- Change in personality behaviors (i.e., lack of initiation, impulsiveness, or agitation)
- Seizure disorders which may require medication control
- Thermoregulation disorders (i.e., may not adjust to temperature changes sufficiently)

Students with TBI often suffer with reflex, balance, and muscle tone disorders. However, recovery from motor involvement is typically better than from cognitive and behavioral sequelae.

TEACHING TIPS AND SPECIAL CONSIDERATIONS:

- Each case must be considered and developed based on the individual's needs.
- Program goals based upon what is achievable for the level of the head injury.

- Provide handouts of rules when learning a new game.
- Monitor the student if taking any medication for seizures (collaborate with parents).
- Provide protection equipment and safe landing or stopping points.
- Use caution with activities involving balance.
- Scheduled rest periods are needed.
- Monitor the student's agitation and frustration levels during activities.
- Avoid activities involving contact or could lead to contact with the head.
- Avoid activities such as quick, jumping movements (may cause muscles to spasm).
- Allow extra time and a wider area on agility exercises.
- Use repetition and provide frequent reinforcement and feedback.
- Use bright and contrasting objects when used as targets.
- Use visual demonstrations and physical prompts when possible.
- Develop cue words to help student key in on specific points.
- Keep success oriented activities to a maximum to decrease fear of failure.
- Reinforce language and speech during physical education activities. Consult with speech and language specialist on communication boards and/or American Sign Language.
- Ask open-ended, as well as, yes-no questions and allow ample time for responses.
- Be sensitive to student's frustration when a message is difficult to convey.
- Provide the student with a signal to alert teacher of an emergency.
- Persist in finding out what is being said by the student when it is difficult to understand.
- Never assume a person with intelligible speech has mental retardation. Too often, students with TBI are placed incorrectly in programs designed for students with mental retardation, rather than in those designed for students with learning disabilities.
- Anticipate impulsive behavior and provide students with a structured environment, with behavior limits already set.
- Provide contained choices and use questioning to review the rules of an activity.
- Be aware that some students with TBI may not be able to adjust from one temperature extreme to another.

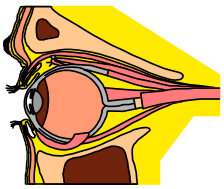
SUGGESTED ACTIVITES:
Collaborate with parents and medical personnel (with parent's permission) on determining particular contraindicated activities.

- Emphasize slow, static stretching
- Strength training for large and small muscles
- Conscience relaxation exercises
- Specific body awareness activities
- Activities involving role playing to help develop appropriate social skills and acceptable ways to exhibit frustration
- Nonverbal games and activities

- Movement exploration with hierarchy of cues to encourage self-direction
- Activities designed to teach self-monitoring techniques
- The U.S. Cerebral Palsy Athletic Association (USCPAA) serves athletes with Cerebral Palsy type difficulties that have average or above, intelligence. Athletes with mental retardation commonly participate in Special Olympics programs.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

VISUAL IMPAIRMENT



DEFINITION:

Visual Impairment: An impairment in vision which, even with correction, adversely affects a student's educational performances. This term includes children who are partially sighted and blind.

TYPES OF VISION:

Refractive Vision (Acuity): The degree of detail that can be seen in an object. The product of light rays bending and reaching receptors (rods and cones) of the retina. Refraction is influenced by the size and shape of the eyeball which changes with age.

Refractive vision includes myopia (nearsightedness), hyperopia (farsightedness) and astigmatism (blurring or distortion of the image).

Orthoptic Vision: Refers to the activity of the six external muscles of the eye responsible for providing coordinated movements of the eyes.

Orthoptic vision includes binocular vision (the ability of the eyes to coordinate), depth perception (including strabismus, amblyopia and alternating) and nystagmus (constant involuntary movement of the eyeballs).

Visual acuity is commonly tested using the Snellen Eye Chart. The effect of impaired vision can negatively impact motor development. The age onset commonly determines future problems in these areas.

Refractive problems are commonly corrected using prescription glasses or surgery.

Orthoptic vision problems can sometimes be treated with surgery; however, the problem may be corrected with a special lens or with eye exercises. When depth perception problems exist, students should refrain from participating in activities that require judging where in space moving objects are located.

INDICATORS OF VISUAL IMPAIRMENTS:

- Lack of coordination in directing vision of both eyes
- Eyelids are crusted and red
- Squinting

- Body tension
- Faltering or stumbling
- Walking overcautiously
- Frequent rubbing of eyes
- Bloodshot eyes
- Sensitive to normal light levels
- Avoidance of climbing apparatus
- Going down steps one at a time
- Failure to visually track a moving object

TEACHING TIPS:

- Assess posture - give feedback.
- Ensure optimal lighting in all possible situations to ensure use of residual vision.
- Provide opportunities for movement experience.
- Encourage the student to explore the environment.
- Provide many opportunities to practice.
- Teach running with a guide rope or use a sighted guide.
- Keep the activity area free of clutter.
- Modify texture of equipment.
- Use brightly colored objects and boundaries.
- Place audio devices inside balls, bean bags, by goals and on bases.
- Protect the students' eyes.
- Keep equipment and objects in the same place. Moving objects around can frustrate the student and cause an accident.
- Alter the playing surface texture (i.e., sand, dirt, asphalt), increase or decrease the grade to indicate play area boundaries.
- Limit the number of participants.
- Use tactile cues for proper body mechanics.
- Provide strengthening and stretching activities.
- Use sounds for new experiences.
- Make safety the number one priority.
- Use peer buddies when possible.
- Teach activities that can be done independently.
- Provide Braille, large print texts, audio tapes, or oral tests when necessary.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.

TEACHING TIPS:

- Perform physical activity safely.
- Enable the individual to effectively use the prosthesis.
- Introduce exercises to strengthen muscles around the stump.
- Introduce activities that will improve balance and enhance ambulation.
- Shorten the distance and/or decrease the speed of an activity for the individual (primarily for individuals with lower limb deficiencies).
- Develop strength and flexibility of the unaffected limb.
- Develop and maintain cardiovascular endurance.
- Provide activities in which the individual can succeed or perform equal to or better than other students.
- Supplement physical education instruction with activities that involve gross motor movement.
- Provide opportunities for independent work (i.e., obstacle courses, circuit training).
- Teach appropriate techniques for falling.
- Demonstrate and encourage a normal gait pattern, especially for individuals with lower limb problems.

Information on this sheet contains only suggested guidelines. Each student must be considered individually, and in many cases, a physician's written consent should be obtained.