Teaching Children with Disabilities

Outline

- Orthopedic vs. Neurological impairments
- Common diagnoses in children
  - Spina Bifida
  - Cerebral palsy
  - Down Syndrome
  - Muscular Dystrophy
  - Epilepsy

Outline, cont.

- Common diagnoses in children, cont.
  - Facial Deformities
  - Joined fingers
  - Rickets
  - Osteogenesis Imperfecta
  - Juvenile Rheumatoid Arthritis
- Integration of the special needs child in the classroom

Orthopedic vs. neurologic

- Orthopedic- muscles and bones
- Neurologic- brain and nerves

Spina Bifida

Spina Bifida- What is it?

- Spina = spine and bifida = split or divided
- Some back bones do not close over the spinal cord
- A soft, unprotected area is left which may bulge through the skin
- Surgery is often required to cover the nerves and prevent infection

When does Spina Bifida occur?

- It is a birth defect that comes from a problem very early in the development of the unborn child.
- Usually happens during the first month of pregnancy.

What causes Spina Bifida?

- Unknown
- Has been linked to inadequate intake of folic acid of the mother.
- Has been linked to mother taking Valproic Acid (a drug for seizures) during pregnancy.
- Some genetic factors may be involved.

How do you prevent it?

- Women of child bearing years can take folic acid supplemental tablets.
- Women of child bearing years can make sure they eat green leafy vegetables every day
- Women of child bearing years can avoid Valproic acid medication.
- Women should receive early pre natal care.

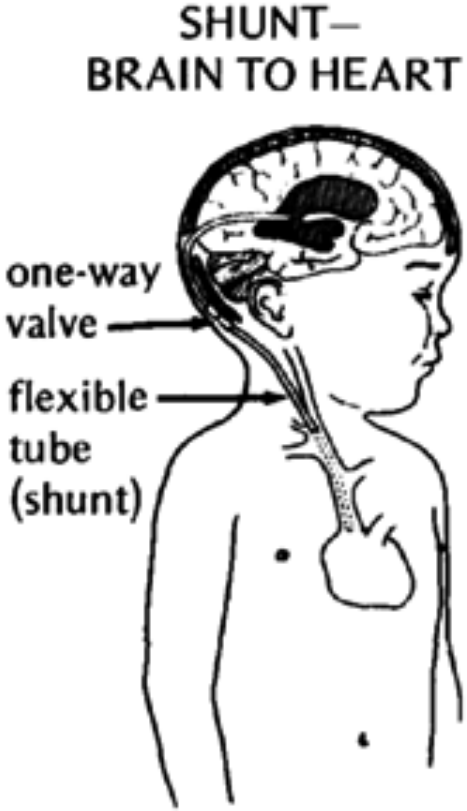
What problems do these children have?

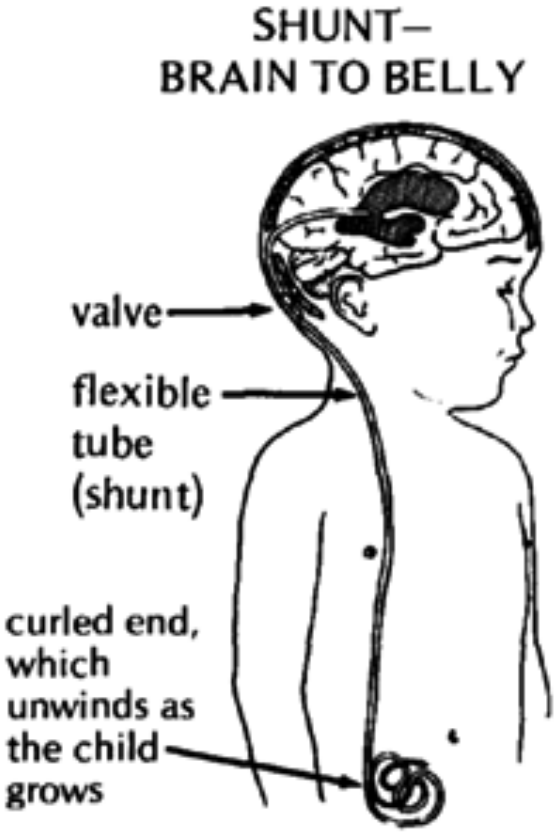
- Hydrocephalus (water on the brain)
- Muscle weakness- varies with each child. Some children will walk normally, others will need a wheelchair.
- Bone problems

What problems do these children have?

- Curvature of the spine
- Pressure sores
- Bowel and bladder problems
- Foot injuries
- Obesity
- (not every child has every symptom)

What is a shunt?





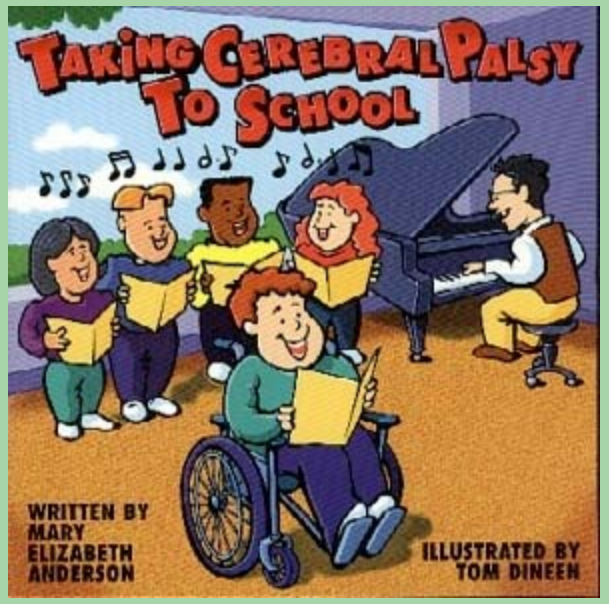
Signs that shunt is not working

- Vomiting
- Headaches
- Vision problems
- More tired than usual
- Easily upset
- Don’t feel right.
- Do not ignore these signs and refer the child to a neurologist or hospital immediately. This if ignored could cause the child’s death.

What are children with Spina Bifida able to do?

- Learn to be independent in the community either in a wheelchair or walking
- Learn, go to school, participate in family activities
- Be a part of the community and go to village functions, play, laugh, have friends
- Learn to be independent in daily living skills like eating, dressing, bathing, toileting

Cerebral Palsy



What is Cerebral Palsy (CP) ?

- Cerebral Palsy results from brain damage that happened before the baby was born, at birth, or after birth.
- Once the brain is damaged, the part(s) of the brain which suffered damage does not recover, nor does it get worse.
- Early intervention may impact the child by reprogramming undamaged parts of the brain to take over and do the work of the damaged parts.

Causes of CP before birth

- Infections including shingles and German measles
- Differences between the blood of mother and child
- Maternal diabetes
- Toxemia during pregnancy
- Unknown

Causes of CP during birth

- Lack of oxygen
- Birth injuries
- Prematurity

Causes of CP after birth

- High fever
- Untreated jaundice
- Brain infection such as meningitis and encephalitis
- Head injuries
- Lack of oxygen
- Bleeding or blood clots in the brain
- Brain tumors

Early signs of CP may be

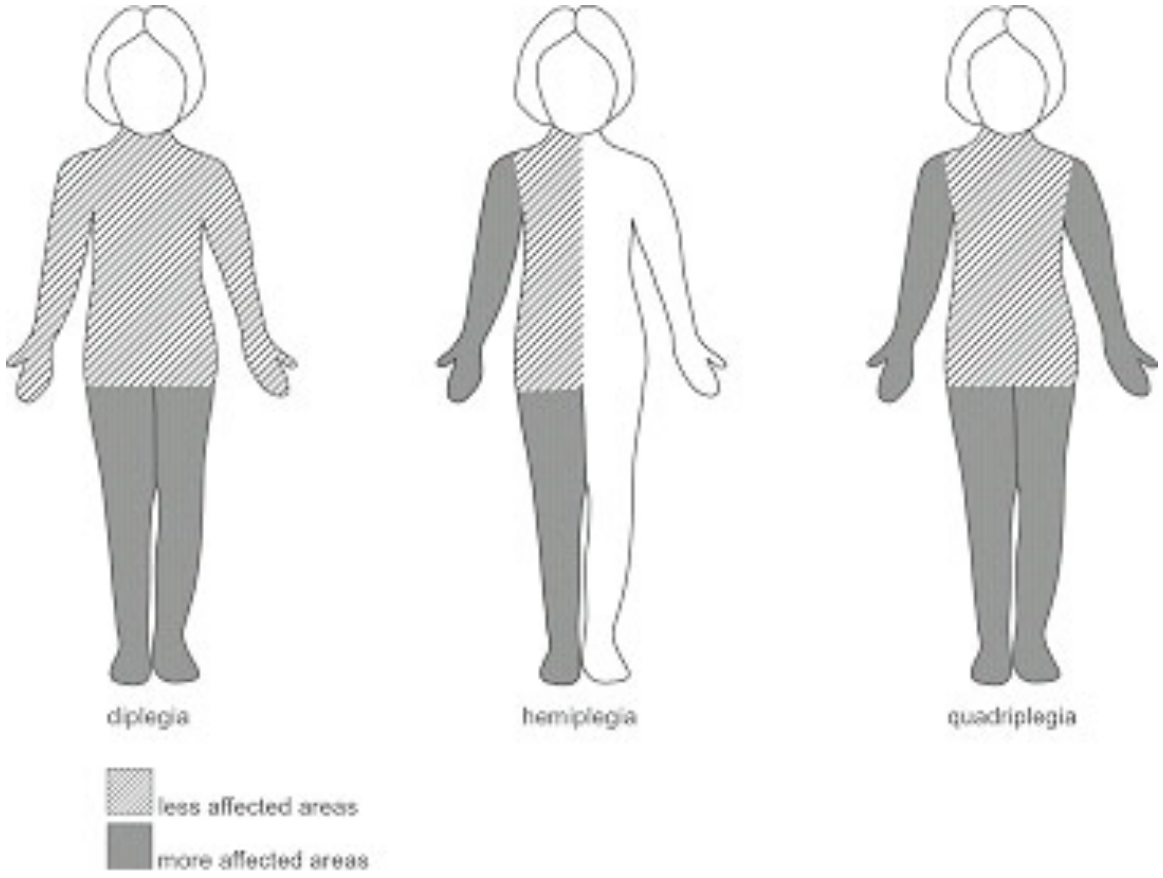
- At birth, a baby may be limp or floppy
- A baby may or may not breathe right after birth and turn blue
- Slow development compared to other children
- use one of hand
- problems with sucking, swallowing, chewing and may choke easily
- stiffening when carried, dressed, or washed

Early signs of CP may be (cont)

- crying and irritable, or quiet and almost never cry or smile
- not responding or reacting like other children
- developing speech and language skills later than peers
- fits and seizures
- behavioral problems due to the brain damage or they may be frustrated by their limitations
- inability to control body movements, affecting balance

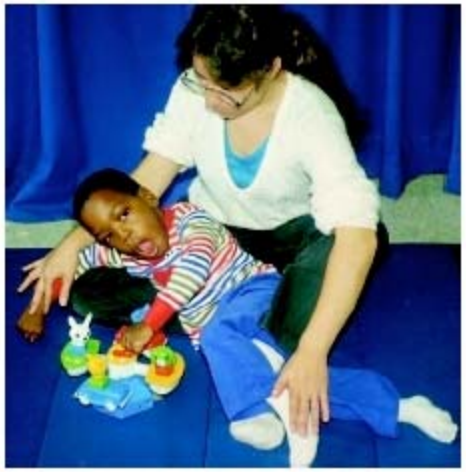
Intelligence may be affected, but do not make this judgment too soon! Sometimes, a lack of speech, asymmetrical facial muscles, or slowness to respond may cause a child to be labeled mentally retarded when they are not. Hearing and sight may be impaired.

Types of CP


diplegia
hemiplegia
quadriplegia
less affected areas
more affected areas

file and location.

What does a child with CP look like?



What are children with CP able to do?

- Learn to be independent in the community either in a wheelchair, walking independently, or walking with an assistive device
- Learn, go to school, participate in family activities
- Be a part of the community and go to village functions, play, laugh, have friends
- Learn to be independent in daily living skills like eating, dressing, bathing, toileting

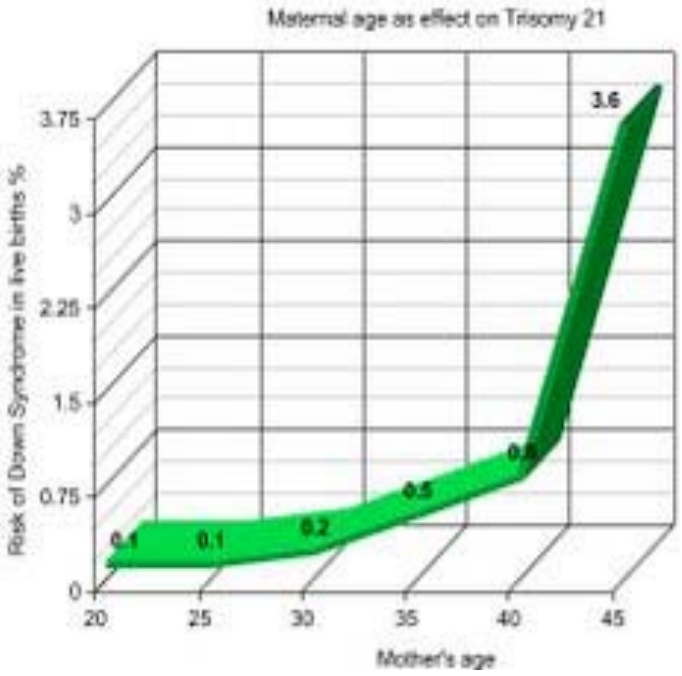
Down Syndrome

What is Down Syndrome?

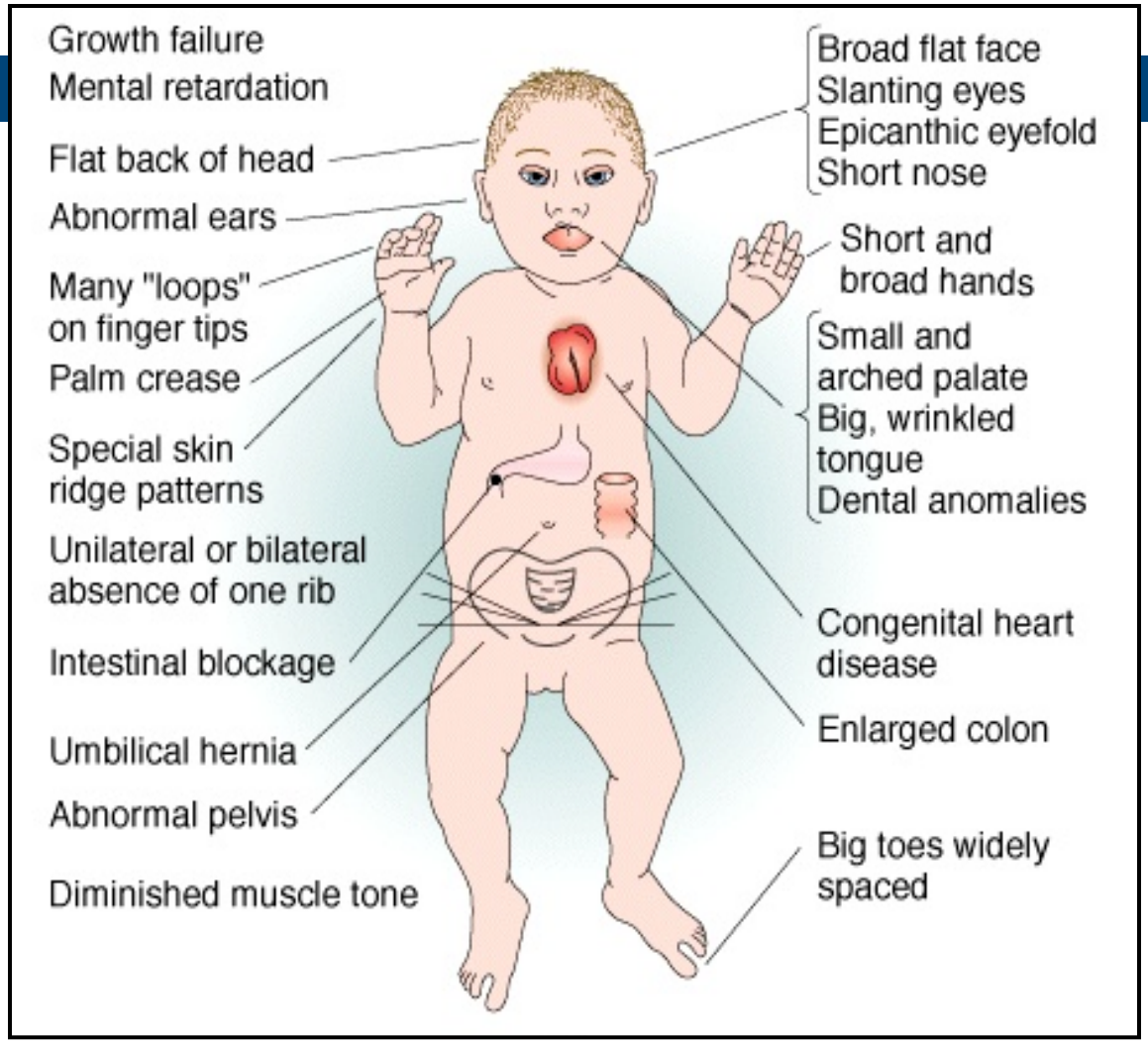
- Down Syndrome, also called trisomy 21, is a genetic disorder caused by extra genetic material (chromosomes).
- Chromosomes contain the instructions that determine the inherited characteristics that distinguish one individual from another.
- Most people have 23 pairs of chromosomes in each cell. Children with Down Syndrome have a third 21st chromosome.

Incidence

- The overall incidence of Downs is 9.2 cases in every 10,000 live births. However the rate of occurrence varies significantly among different racial/ethnic groups; for Hispanic (.12%), Caucasian (.09%), and Afro-American (.07%) infants. Rates of Down syndrome increase dramatically in all ethnic groups with increased age of the mother. See chart.



Common Characteristics



Common Characteristics

- **Hypotonia (low muscle tone)**
  Babies with Down syndrome have "hypotonia" or low muscle tone. Their muscles usually appear relaxed and feel "floppy".
  - Affects the baby's movement, strength and development
  - Affects the development of skills like rolling over, crawling, standing and walking
  - Affects feeding

Cognition

- Mental retardation in children with Down syndrome can be mild, moderate, or severe. Some children never learn to speak. Others talk (and often love to talk). Many can learn to read and write. Most of these boys and girls are very friendly and affectionate, and behave well with people who treat them well.

Cognition

- Even those who are more severely retarded, with help and good teaching usually learn to take care of their basic needs, and to help out with simple work. They can live fairly normally with their families and communities.

Medical problems

- Heart defects present from birth are often present in children with Down syndrome. Early death is often caused by heart problems.
- Problems with the blockage of the digestive tract in different spots (commonly the esophagus or the colon) are also common. Children with this problem may require surgery shortly after birth.

Medical Problems

- Cancer of the blood (leukemia) is also more common in children with Down syndrome.
- Unstable joints are common in kids with DS. Children with Down's syndrome are more likely to have subluxation of the hips, knee caps, and cervical spine. Up to 15% of children show x-ray evidence of asymptomatic C-1/C-2 instability. Less than 1% of children demonstrate neurologic symptoms which may require treatment. Symptoms may include: abnormal reflexes, stumbling or inability to walk, loss of bowel or bladder control and stiff neck.

Treatment

- There is no specific treatment for Down syndrome. Early intervention programs like CARE can help provide parents with realistic expectations and to facilitate growth and development in a delayed child. Physical and mental development is slower than normal in children with DS. Parents will need guidance to provide the right activities and stimulation that will help their children develop. Children with DS have varying degrees of mental retardation but most thrive in a school setting. Referrals to special school district should be made for school aged children. Because the risk of vision problems, hearing loss, and infection, is increased, screening and treatment may be necessary.

Treatment

- Children with DS have varying degrees of mental retardation but most thrive in a school setting. Referrals to special school district should be made for school aged children. Because the risk of vision problems, hearing loss, and infection, is increased, screening and treatment may be necessary.

Life expectancy

- About 85% of infants with Down syndrome survive 1 year, and 50% of people with Down syndrome live longer than 50 years.

Down Syndrome in School

- Since children with Down syndrome have a wide range of abilities, success at school can vary greatly, which stresses the importance of evaluating children individually
- The cognitive problems that are found among children with Down syndrome can also be found among typical children. Therefore, parents can use general programs that are offered through the schools or other means.

Down Syndrome in School

- Language skills show a difference between understanding speech and expressing speech. It is not uncommon for children with Down Syndrome to have a speech delay.
- It is common for them to need speech therapy to help with expressive language

Down Syndrome in School

- Fine motor skills are delayed and often lag behind gross motor skills and can interfere with cognitive development
- Gross Motor Skills can be affected anywhere from minor to major. Some children will walk at around 2 while others around 4

Down Syndrome in School

- In education, mainstreaming of children with Down syndrome is becoming less controversial in many countries.
- For example, there is a presumption of mainstream in many parts of the UK.

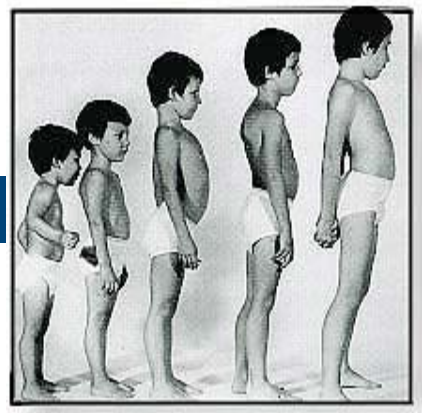
Down Syndrome in School

- Children with Down syndrome may not age emotionally/socially and intellectually at the same rates as children without Down syndrome, so over time the intellectual and emotional gap between children with and without Down syndrome may widen
- Complex thinking as required in sciences but also in history, the arts, and other subjects can often be beyond the abilities of some, or achieved much later than in other children

Down Syndrome in School

- Some European countries such as Germany and Denmark advise a two-teacher system, whereby the second teacher takes over a group of children with disabilities within the class. A popular alternative is cooperation between special schools and mainstream schools.
- In cooperation, the core subjects are taught in separate classes, which neither slows down the typical students nor neglects the students with disabilities. Social activities, outings, and many sports and arts activities are performed together, as are all breaks and meals

Muscular Dystrophy



What is Muscular Dystrophy?

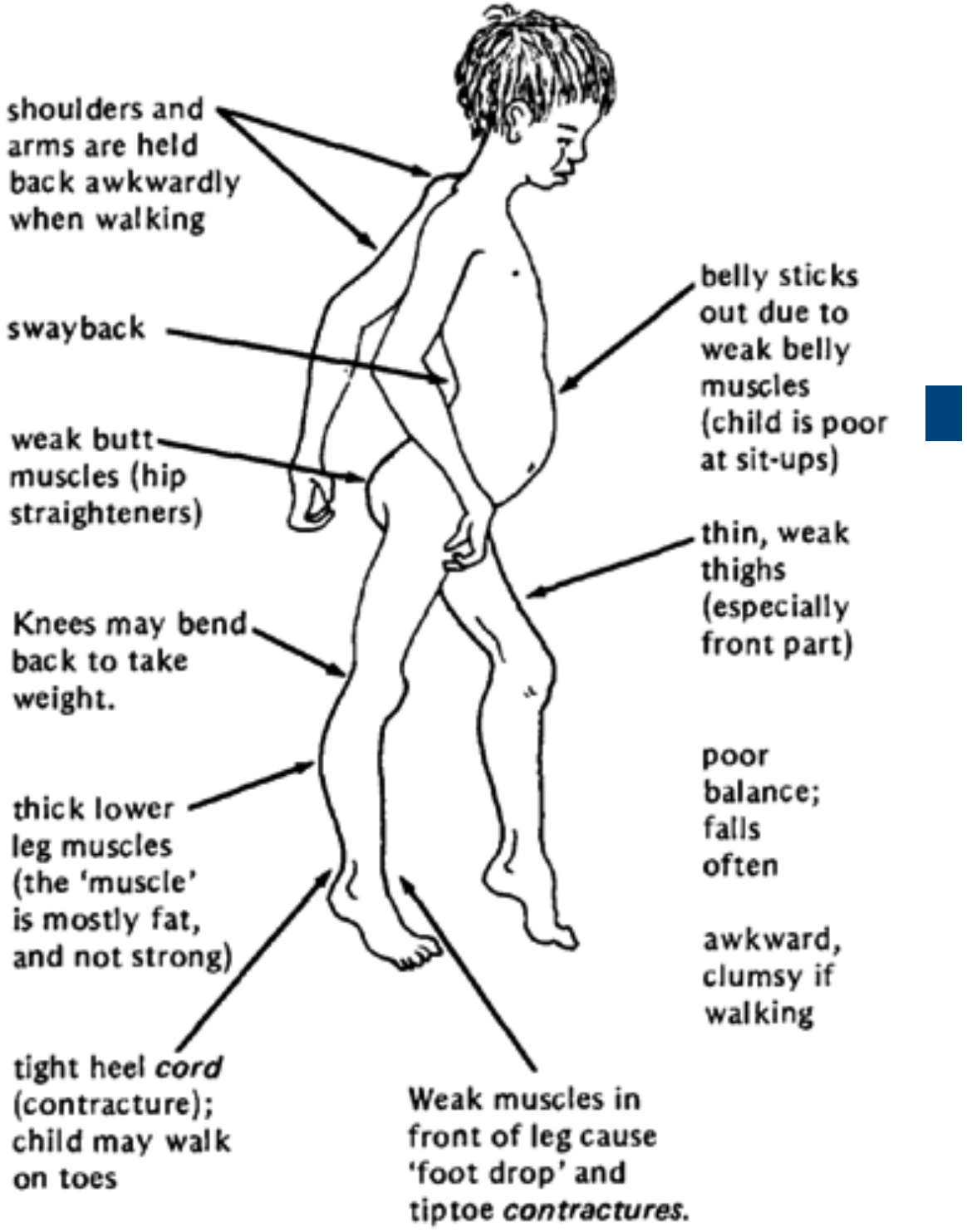
- A genetic progressive weakness in skeletal muscles caused by a defect in the protein dystrophin

What causes Muscular Dystrophy?

- The mother often carries the gene that produces MD in her sons. The daughters may be normal, but they may have sons with the disease.

Characteristics of MD

- First signs occur ages 3-5 with clumsiness or awkward movements noted, and increased tendency to fall.
- Muscular Dystrophy is a condition in which muscles get weaker month by month. This condition is progressive (does not get better).
- Muscle weakness will first affect feet, thighs, hips and belly. Next shoulders and elbows become weak. Later, muscles of the hands, face and neck are affected.
- Teenagers with this condition may develop severe curves of the spine. Most children are unable to walk by age 10.
- Heart and breathing problems occur due to muscle weakness. Most children die by age 20 from heart failure or pneumonia.


shoulders and arms are held back awkwardly when walking
swayback
weak butt muscles (hip straighteners)
Knees may bend back to take weight.
thick lower leg muscles (the 'muscle' is mostly fat, and not strong)
tight heel *cord* (contracture); child may walk on toes
Weak muscles in front of leg cause 'foot drop' and tiptoe *contractures*.
belly sticks out due to weak belly muscles (child is poor at sit-ups)
thin, weak thighs (especially front part)
poor balance; falls often
awkward, clumsy if walking

Gower's Sign

- A clinical sign of muscular dystrophy in childhood, evidenced through observation of children's use of their arms to push themselves erect by moving their hands up their thighs. This permits assuming the standing position from one of kneeling. The patient is unable to stand from a sitting position with the arms outstretched.

Treatment

- Treatment for cure is not available. No medicines will help. However much can be done to prevent complications and deformities and to improve the quality of life for the child.
- The goal of the family is to help the child be as active and happy as possible, and to adjust to his increasing limitations.

Keeping Active

- To help a child to keep walking as long as possible, involve the child in games and work and other activities that keep the hip joints flexible. Keeping moving has the added benefit of keeping the child's weight stable. Extra body weight will make it more difficult for the child to move, breathe, and walk.

Adaptive equipment

- A walker or crutches may be helpful, but eventually a wheelchair will be needed. The child may later require help to propel the chair.
- Braces that go above the knee should not be used until absolutely necessary, as this will make the child's legs weaker. Short ankle foot braces may be helpful.

What are children with Muscular Dystrophy able to do?

- A child with muscular dystrophy's abilities vary anywhere from complete independence to total dependence for all daily functions.
- The child's abilities depend on age, type of muscular dystrophy, current and past intervention, and assistive devices

Epilepsy (Fits)

What is epilepsy?

- Epilepsy is ***repeated*** seizures that may occur as often as several times a day, or as little as once every few months.
- Normally, millions of tiny electrical charges pass between nerve cells in the brain and throughout the body to control the body's many functions.
- Epileptic seizures are caused by unusual and strong bursts of electrical energy in the brain.

Incidence

- The incidence of epilepsy in the general population is about .85 percent.
- In Belize that is about 2,307 people. Nearly one-third of people newly diagnosed each year with epilepsy are children.
- Children are most prone to developing epilepsy in early childhood or as they become teenagers. However, epilepsy can develop at any age in children or adults.

What causes epilepsy?

- Epilepsy may be triggered by abnormal shape or structure of the brain, brain injury (before or after birth), an infection, or other factors. In the majority of cases, however, the cause cannot be determined.

Diagnosis

- To diagnose epilepsy a doctor will need a detailed history from the parents and will perform a physical examination of the child. An MRI, when available, is also a useful test to identify the location of the abnormal electrical activity in the brain.
- An EEG is also a useful diagnostic tool and can be performed at the private hospitals in Belize City.

Treatment

- Fortunately, many children respond well to epilepsy treatment. The two drugs most commonly used to treat epilepsy in Belize are Depakene (valproic acid) and phenobarbitol.
- Children who are taking these medications need to follow up regularly with the doctors and may require periodic laboratory testing. Also, the dosage that a child is prescribed is based on their weight and will need to be adjusted as the child grows.

Side effects

- The most common side effect when taking valproic acid is drowsiness.
- The most common side effects with phenobarbitol are drowsiness, dizziness and headache.

Side Effects

- A common problem with seizure medicines is that either due to cost or due to the side effects of the medication, parents may choose to ration the medicine, giving it every other day or some weeks and not others. Rationing seizure medicine can have disastrous results.

What to do when a child has a fit

- If a person is having a small fit — for example, where the person seems to ‘tune out’ but doesn’t fall to the ground or appear to lose consciousness — talk calmly and reassure the person. Lead them somewhere safe, if necessary.
- If they are having a big fit — for example, falling to the ground with loss of consciousness and jerking body movements — don't restrain them. Make sure there is nothing they can hurt themselves on, put something soft under their head and loosen their clothing if it’s constricting their breathing.

What to do when a child has a fit

- If you are able time the seizure using a wrist watch.
- If they have vomited, lie them on their side so that any fluid can easily flow out of their mouth and not obstruct breathing.
- Do NOT put anything in their mouth or force their mouth open: this may damage the area. They will not swallow their tongue.
- DO NOT move them unless they are in a dangerous position.

What to do when a child has a fit

- When the fit is over, turn them on their side, reassure them, tell them where they are and that they have had a fit.
- Watching someone have an epileptic fit is very frightening — it can seem to go on forever; stay very calm and try not to panic
- Let the child sleep when the fit is over. They may be groggy for a while.

A child should be seen by a doctor if…

- It is their first seizure.
- A seizure occurs that lasts for more than 5 minutes.
- If the seizure lasts more than 10 minutes, you probably should call an ambulance or get to the emergency room. In general, a seizure won't hurt the brain unless it continues for at least 30 minutes.
- Children should also go to the emergency room if they have trouble breathing after the jerking stops, if they have Diabetes, or if you are in doubt for any reason.

Exercise and seizures

- Some parents whose children have epilepsy discourage them from exercise as they are afraid it will bring on a seizure.
- It is very rare for someone to have a seizure while exercising. Rather than triggering seizures, physical activity can actually decrease them.

What can children with epilepsy do?

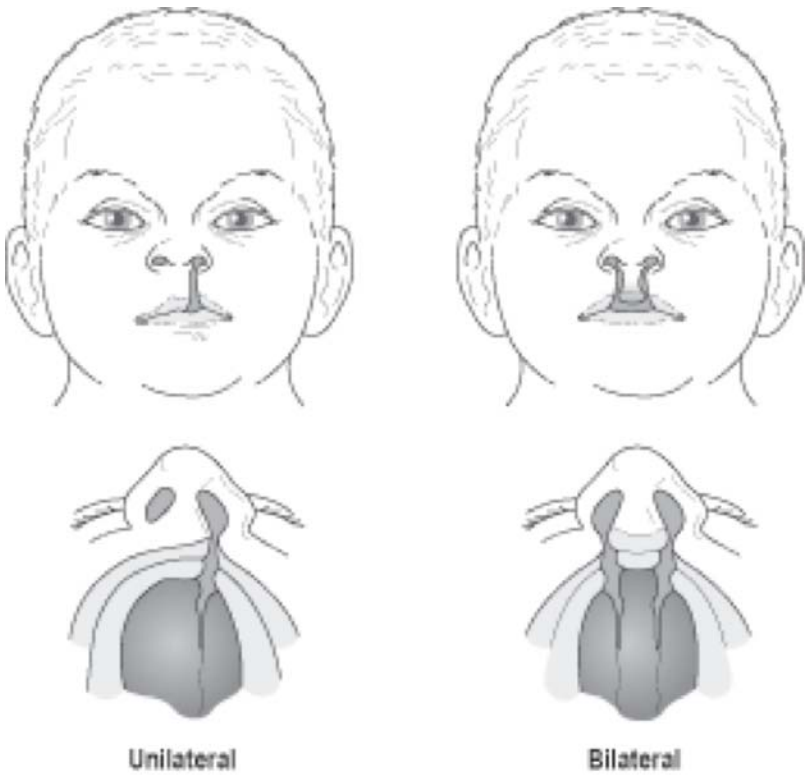
- Depending on the severity of the epilepsy, many children can participate in all activities.
- Talk with the parent about specific activities that cause the child to have a seizure and avoid these activities.

Common Childhood Orthopedic Problems

Facial Deformities

Cleft lip

Cleft papate

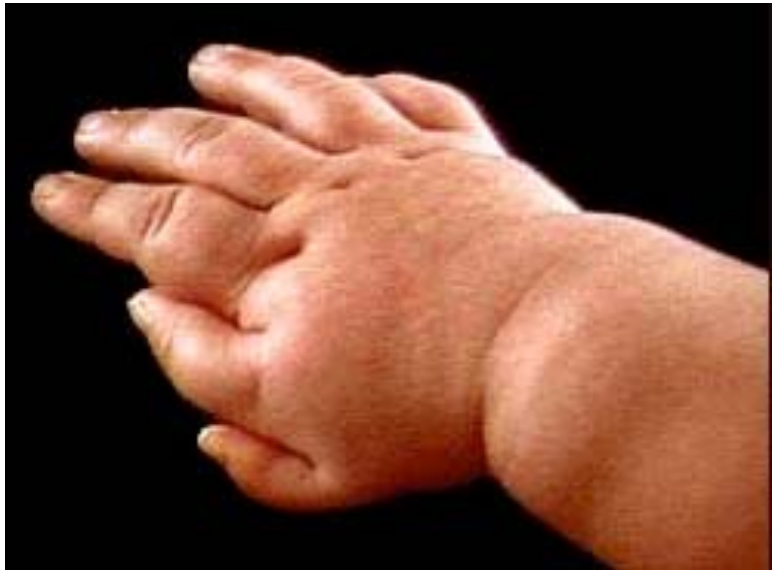


- **Cleft palate** – is an opening in the roof of the mouth connecting with the canal of the nose
- **Cleft lip** – is an opening or gap in the upper lip, often connecting to the nostril

- Problems with hearing, speech, sucking and swallowing may occur depending on the severity of the deformity. Surgery is indicated to correct both problems. Usually the best age for lip surgery is 3 months and within the first year of life for palate surgery. This surgery is not currently performed by Belizean doctors.

Joined fingers and extra toes or deformed fingers or toes

- a variety of deformities may occur such as webbed fingers and toes, or extra fingers or toes (polydactyly). The most common form of polydactyly is a small, soft, extra finger that contains no bone.



Incomplete or missing arms or legs

- A child born without arms but with normal legs can often learn to use his feet as if they were hands for eating, writing, and playing games.
- Artificial arms would be beneficial but may not be practical due to cost

Arthrogryposis

What is Arthrogryposis?

- Multiple joint contractures which are present at birth. In some cases, just a few joints maybe affected and the range of motion may be nearly normal. In the "classic" case of Arthrogryposis, the hands, wrists, elbows, shoulders, hips, feet, and knees are affected.
- In the most severe cases, nearly every body joint may be involved, including the jaw and back. Frequently, children have joint contractures *and* muscle weakness making it even more difficult for them to move about.

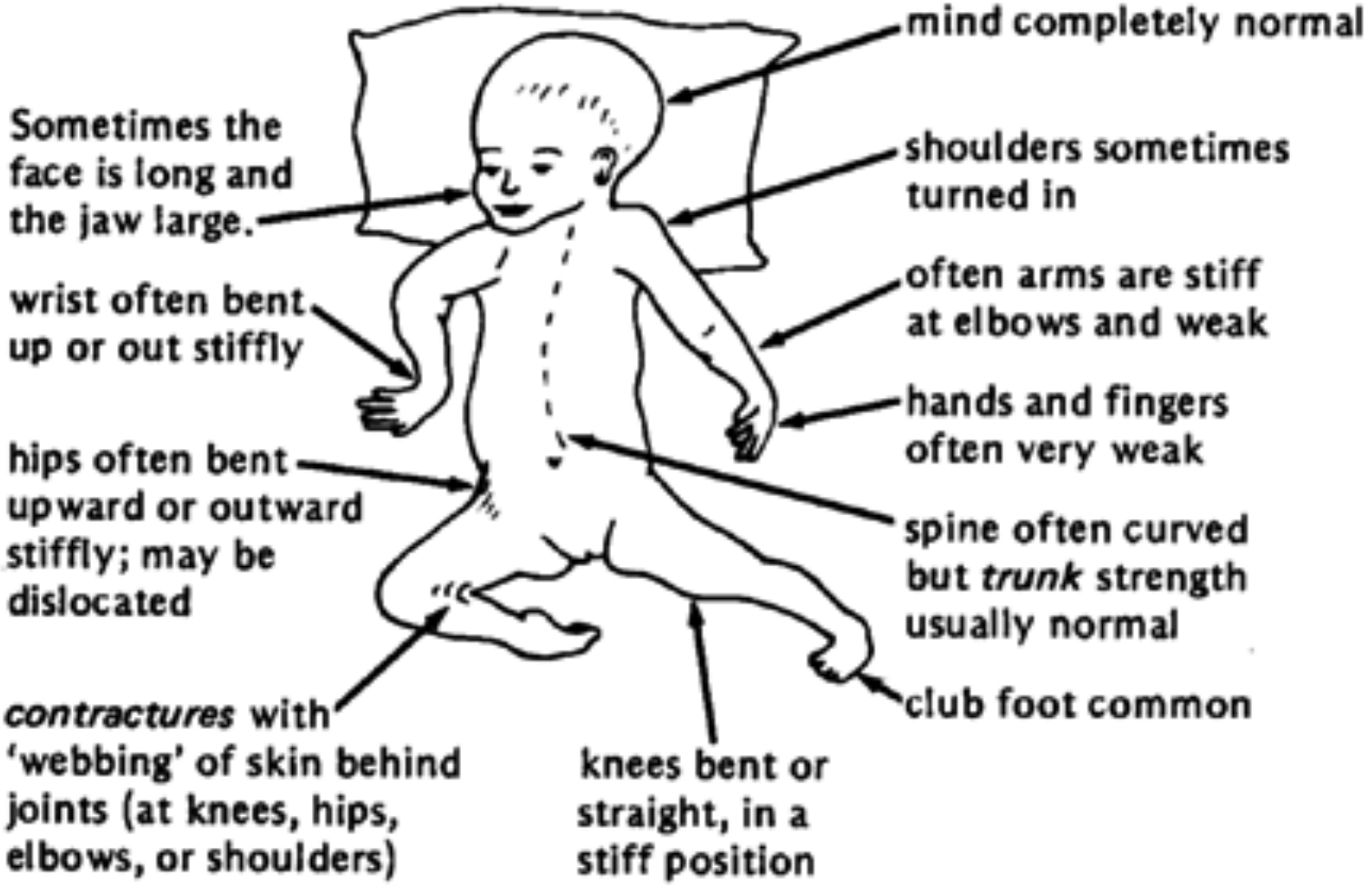
What causes Arthrogryposis?

- The exact cause of this disability is not known. In general, it is thought that any condition that decreases the amount of movement of the fetus of the womb could lead to the formation of multiple joint contractures at birth

What causes Arthrogryposis?

- Decrease movement of the fetus may be due to abnormal development of the nerve, muscle and connective tissue.
- Decreased movement of a fetus in the womb may also occur if the womb is abnormally shaped or does not have enough fluid inside.
- Other researchers think that a virus contracted in the womb may be responsible for the condition.

TYPICAL BABY WITH ARTHROGRYPOSIS



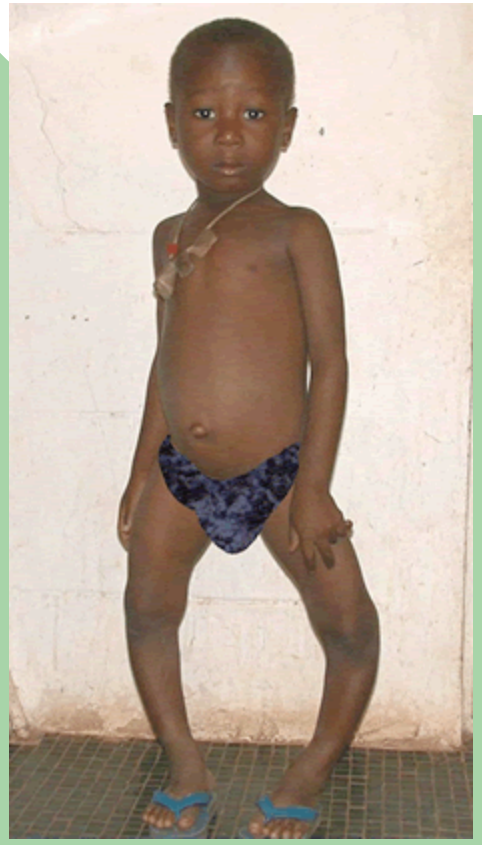
Treatment of arthrogryposis

- Stretching and splinting is the treatment of choice and is always attempted prior to considering surgery.
- Surgery may be indicated for correction of hip dislocation, club foot deformity or contractures.

What can a child with arthrogryposis do?

- Cognitively, they are normal
- Function is based on the severity of the disease. This ranges from mobile dependence to independent.

Rickets



What is Rickets?

- Weakening of the bones

Rickets

- Rickets is usually caused by not having enough Vitamin D. Vitamin D can be low if children do not eat enough foods that contain Vitamin D, or if that don’t get enough exposure to sunlight which allows the skin to form Vitamin D. Vitamin D is necessary for calcium to be absorbed in the digestive system. If a child does not have enough vitamin D, they will not absorb the calcium that they have eaten. The body tries to correct the low levels of calcium in the body by pulling it from the bones. The result is weak, deformed bones.

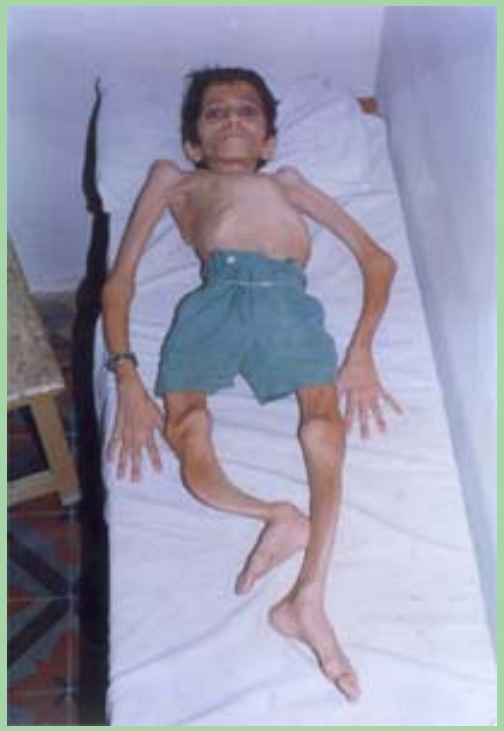
Signs and symptoms of rickets include:

- Bone pain or tenderness
- Dental problems
- Muscle weakness
- Weak bones that break easily
- Skeletal deformity (scoliosis, bow legs)
- Growth problems
- Tetany (muscle spasms all over the body due to low calcium).

Treatment

- To get more vitamin D, they need to eat foods that contain vitamin D such as fish, liver, processed milk, butter, egg yolks, animal fats and orange juice. Kids with Rickets also need to be exposed to sunlight.

Osteogenesis imperfecta (OI)
Brittle Bone Disease



What is OI

- characterized by bones that break easily, often from little or no apparent injury.
- genetic condition, passed down from a parent to a child

Signs of OI

- Signs and symptoms of this disease range from mild to severe. Some children with OI may have just 10-20 fractures during their childhood. Others may have 100 or more fractures and their life expectancy may be limited. The main cause of early death in children with OI is breathing problems caused by an abnormally shaped spine and rib cage and lack of mobility. Fractures may occur for the first time immediately after birth or within the first few years of learning to walk and exploring the world.

Signs of OI

- In addition to broken bones, people with OI sometimes have muscle weakness or joint laxity (loose joints), and they often have skeletons that are shaped abnormally for example, scoliosis, bowed legs and short stature.

OI in School

- Children with OI usually have normal cognition
- Maintaining a safe and clutter-free environment is crucial
- Children with OI often utilize adaptive equipment such as wheelchairs

Juvenile Rheumatoid Arthritis (JRA)

- JRA joint pain often begins between ages 5 and 10, and usually keeps getting worse for several years. It affects different children in different ways. Some may be mildly affected and others may be very affected and disabled. Symptoms may get better and then get worse.

What causes JRA

- The exact cause is not known. It does have something to do with the immune system as this part of the body not only attacks germs but the body itself.
- The problem is usually not hereditary, or due to climate, diet or the child’s way of life.

Characteristics of JRA

- **Joint pain.** Often begins in the knees, ankles, and wrists. Later it affects the neck, fingers, toes, elbows, and shoulders. Still later, the hips and back may be affected.
- Joints are especially painful and **stiff in the morning** (morning stiffness).
- **Fevers and rash** that come and go. (in some children these are the first signs.
- The knees become large and may turn inward (**deformity**).
- **Pain** may make it difficult to straighten the knees, hips, and other joints. The *cords* may tighten, forming *contractures,* and the bones may gradually become *dislocated.*

Treatment

- Bracing and Casting - If severe contractures have developed, braces or casting may be needed to stretch them. The best way though is to do ROM and strengthening exercises several times a day and prevent the contractures from forming.

Treatment

- Exercises and Movement – Exercises are needed to strengthen the muscles that straighten the joints. When pain strikes, it's natural for a child to want to sit still. But it's important to maintain a regular exercise program, especially for those with arthritis. Muscles must be kept strong and healthy so they can help support and protect joints.

What can a child with JRA do?

- JRA does not affect cognitive function
- A child with JRA may have difficulty holding a pencil at school—try a large diameter pencil
- May need to modify fine motor tasks such as activities using scissors

Integration of the child with a disability into the classroom

What are the benefits?

Benefits for the disabled student

- Teaches student self reliance
- Helps student master new skills
- Helps the student strive for greater achievement
- Student can learn more about themselves
- Student can learn new coping skills
- Student feels an active part of community

Benefits for peers

- Peers learn to accept others with differences
- Peers learn that disabled children just like themselves can do some things better than others.
- Peers have the opportunity to make friends with many different individuals
- Peers have opportunity to learn and grow by interacting with friends who are disabled.

Benefits for Teachers

- Teachers have a chance to make a significant impact on a disabled child.
- Teachers have an opportunity to be creative in the techniques they develop to assist a child with special needs
- Teachers have an opportunity to broaden both their teaching and personal experience

Benefits for Parents

- Parents feel less isolated, and have less shame
- Parents can learn new ways to help their child
- Parents are helped the think about their disabled child more realistically
- Parents feel better about their children and themselves.

How to design a classroom to meet the needs of a special needs child

- Be a role model. How you interact with a disabled child will influence the other children
- Give lessons frequently about acceptance, and kindness to all
- Positively reinforce peers who are especially kind to the disabled child. This encourages and motivates the other children in the classroom

How to design a classroom to meet the needs of a special needs child

- Use lots of praise and encouragement
- Be honest with your feedback
- Place disabled child in front of classroom
- Ensure the child is sitting comfortably
- Make the room accessible, place often used items in easy arms reach
- Have a place to store wheelchair in the classroom

Use a Buddy System

- Children helping children
- Pair the disabled child up with a “special friend” who can collect materials or books, turn in work, helping the child to move around, and helping with tasks.
- Praise and reinforce the help that the special friend is providing

Group Work

- Children feel more acceptance when they work in a group. Children are then able to provide help for the disabled child
- Group work allows the disabled child to participate more fully in the activity

Modify lessons

- Break down skills into sub-skills. Have disabled child do only one sub skill and not the whole skill.
- Sequence activities from simple to complex.
- Use physical contact and guidance. Guide the hand to help with arm or hand control

Modifications for writing skills

- Use a pencil with a built up handle
- Tape paper to the desk so it won’t fly away
- Use a wooden or cardboard table on child’s wheelchair to make a desk for them to write on
- Guide their hand as needed

How to develop teamwork between Teachers and Parents

- Invite parents to observe and participate in the classroom
- Invite parents to communicate their fears and concerns
- Use a daily diary to allow written communication between the teacher and parent.

Daily Diary example

- Monday- Teacher writes- Carlos was able to clap his hands to the song Happy Birthday that we sang. Have him practice at home
- Tuesday- Parent writes Carlos liked singing Happy birthday song and clapping with our family last night. Will continue with practice.

How to develop teamwork between Teachers and Parents

- Build on child's strengths and work on the child's weaknesses. Ex. Child can draw simple lines, have them work on shapes like circles, triangles instead of harder activity of his/her name.
- Focus on what the child currently can do instead of what they can't

How to develop teamwork between Teachers and Parents

- Point out to parents what is going well
- Be honest with your reassurance
- Help parents find the answers by referral
- Don’t be afraid to answer parents with “I don’t know” when they ask when a child will walk or talk

Common Parent worries

- My child won’t fit in
- My child won’t be accepted or liked by other children
- My child won’t make progress

Remember…

- All children with disabilities have the same needs as all children for
  - LOVE
  - ACCEPTANCE
  - EXPLORATION
  - SENSE OF COMPETENCE

Questions???