

FAQs –

Q. What is a Pediatric Orthopedic Surgeon?

A. Pediatric orthopaedic surgeons are specialists who treat musculoskeletal (bone, joint, back, or muscle) problems in children. Their specialty training is particularly valuable when treating bones that are still growing.

Q. What training is required for a Pediatric Orthopaedic Surgeon?

A. All orthopaedic surgeons must graduate from medical college (MBBS) and then do post graduation in orthopedics (MS ortho). After graduation, most pediatric orthopedic surgeons complete 1 or 2 additional years of subspecialty training, in which they focus on the special needs of growing children.

Q. Why does child need a specialist?

- Children are not just small adults. Their growing bones pose different challenges than those of adults.
- Sometimes, what looks like a problem in a child is just a variation that the child will outgrow over time.
- Some common pediatric problems don't even occur in adults.
- Pediatric orthopedic surgeons, their clinic, and supporting staff are all equipped to deal with kids and families to create a comfortable, patient-focused and family-friendly environment.

Q. When should I take my child to a Pediatric Orthopaedic Surgeon?

A. Pediatric orthopaedic surgeons diagnose and treat a variety of problems with the arms, legs and spine. Problems walking, crooked limbs, legs of different lengths, curves in the spine, broken bones, bone/joint infections or tumors, and birth defects of the hands or feet are just some examples of the conditions that may require a pediatric orthopaedic surgeon.

Children with complex pediatric problems such as developmental delay, skeletal dysplasias, or other syndromes are usually best managed by a multidisciplinary, medical-surgical team.

Q. What is 'Cerebral Palsy'?

A. 'Cerebral Palsy' (CP) is a disorder that affects a child's ability to control

his/her muscles. It is caused by damage to the parts of the brain that control movement and co-ordination. 'Cerebral Palsy' is a general term to describe a very wide spectrum of disorders. There are two important things to understand in a child who has CP –

- How the affected parts behave?
- Which parts are affected?

- **In terms of how the affected parts behave:**

Spastic CP – This is the most common form. In this, the affected muscles are in spasm i.e. they are very tight and do not relax easily.

Dystonic CP – In this form, the child's arms or legs repetitively move in abnormal twisting movements. This may occur whenever the child attempts to use the arm/leg, or may even occur continuously when the child is at rest.

Hypotonic – In this type, the affected parts are limp and floppy. It is like how the limbs are in a person who is paralyzed.

- **In terms of the parts of the child's body that are affected the most:**

CP Hemiplegia – When one half of the body i.e., the arm and leg on one side are affected.

CP Diplegia – Both legs are affected maximally. Usually, there are some problems in both arms as well, but this is very mild.

CP Quadriplegia – Both arms and both legs are equally affected. Very often, the trunk is also weak.

Q. What causes cerebral palsy?

A. CP occurs due to some damage to a small child's growing brain. This damage may occur while the child is in the womb or may occur around the time of birth – children who are born prematurely or who have a very low birth weight, babies who do not breathe immediately after birth and need to be resuscitated. Finally, the damage may occur soon after birth as well – babies who have trouble breathing and need to be kept on a ventilator, those who suffer from jaundice, or have bleeds in their brain. All these are the known risk factors for CP, however the exact cause may not be known in many cases.

Q. What are the symptoms of cerebral palsy?

A. The initial symptom of CP is usually a child who is slow to meet his/her developmental targets. CP also affects other body systems besides the movement problems:

- Learning disabilities

- Speech, vision and hearing problems
- Epilepsy (seizures or fits)
- Curvature of the spine and poor posture
- Joint and gait problems

Q. Which are the specialists that will be needed to treat my child?

A. The diagnosis of CP is usually made by your paediatrician or a neurologist. You may also need to consult a number of other specialists:

- Paediatric Orthopaedic surgeons – to treat the problems with muscles, joints and gait
- Eye specialists – For visual problems
- ENT specialists – For problems in hearing
- Physiotherapists – To help improve movement and strength
- Occupational therapists – To help your child learn daily living skills such as eating, dressing
- Speech therapists – To help with communication problems
- Nutritionists – To help give your child type of diet he/she needs
- Orthotists – To provide braces and aids to help your child walk and do other activities

Q. How is cerebral palsy treated?

A. The treatment of a child with CP consists of a combination of medications, physical therapy, bracing and surgery.

Q. Does cerebral palsy get worse over time?

A. The injury in the brain which results in CP remains the same and does not change over time. However, as the child grows, the problems with movement and other impairments do change and worsen.

Q. What is 'Botox'? Will Botox injections help?

A. 'Botox' or 'Botulinum toxin' is a chemical that relaxes tight muscles when injected into them. The effect of botox lasts for only a few months. However, if you regularly do physiotherapy and use the necessary braces, the beneficial effects of botox can be prolonged by several months.

Q. Will my child need special shoes or braces?

A. Yes, braces and splints are very important in the treatment of CP.

Q. Will my child need surgery?

A. The need for surgery will depend on many factors. Regular exercise and use of braces can help in delaying the need for surgery, however, most children with severe CP need surgery eventually.

Q. Can stem cell injections help?

A. NO. Stem cell injections have NOT been proven to be effective in cerebral palsy.

Q. My child has flat feet. Why does this happen?

A. Flat feet is a condition where the arches of the feet are flattened. When walking, it appears as if the entire foot is resting flat on the ground, instead of the normal tripod shaped area of contact. Flat feet are normal in the majority of small children and in more than 20% of adults as well. This is called flexible flat foot, because the arch can be seen when the person is sitting on standing on tip-toes, and disappears only when they are standing. This type of flatfeet is painless. In some instances, flat feet can be a sign of an underlying abnormality of the bones/muscles/nerves or can occur due to certain types of arthritis. In these cases, the flatfoot is usually 'rigid', which means that the arch of the foot may not appear even when sitting or on tip-toes. These disorders are often painful.

Q. Will my child grow out of his flat feet?

A. 80 to 90% of children with 'flexible flatfeet' do grow out of it. In small children, the arch of the foot is usually present but obscured because the feet are normally quite chubby at this age. The arch usually develops during the first ten years of life. In the remaining 10 to 20% of children, the flatfoot may persist into adolescence and adult life.

Q. Will my child need to have any tests?

A. Flexible flatfeet can be diagnosed simply by examining your child's feet and legs. Usually, no investigations are required. However, if the flat feet are

associated with pain, or are rigid, or there are signs of some nerve/muscle problem, your doctor might ask for x-rays or other tests.

Q. Is there any treatment for flat feet?

A. The vast majority of flatfeet are asymptomatic and do not require any treatment. There is no need for braces/shoe inserts/special shoes in children with flexible flat feet. In some children with flatfeet, there is also some tightness of the calf muscles, which can be a source of pain. If this is found on examination, your doctor will advise some simple exercises to stretch out these muscles, known as heel cord stretching exercises. Older children and teenagers with flat feet, sometimes complain of arch pain. Soft shoe inserts to support the arch can be helpful for them. Sports shoes that have in-built arch supports work just as well. There is no need for expensive custom-made braces or special shoes. Hard or rigid arch supports actually cause more pain and should be avoided.

Q. Can the flat feet cause my child pain/discomfort during athletics or regular activities?

A. The majority of children and adults with flat feet do not have any pain or discomfort. They are able to do all regular activities and even participate in sports.

Q. Will my child's flat feet prevent him/her from playing sports or joining any job?

A. There are many professional athletes who have flat feet. Flat feet will not stop your child from playing any sport.

Q. What Are Bow-legs?

A. When a child with bowlegs stands with his or her feet together, toes pointed straight ahead, and the knees do not touch, he or she has bow-legs. The medical term is "genu varum". It may come from the thighbone (femur), shinbone (tibia) or both.

Q. What Are Knock-Knees?

A. When a child with knock-knees stands with his or her legs together, feet pointed straight ahead, and the knees touch but their ankles do not, he or she has knock-knees. The medical term is "genu valgum". It too may come from the thighbone, shinbone or both.

Q. So, What's Normal (Physiological) Bow-legs And Knock-knees?

A. A newborn child is normally born with about 10 to 15 degrees of varus angulation. The angulation gradually decreases in the second year of life and reaches 0 degrees by 2 years age. This normal varus angle which persists till the age of 2 years is called "Physiological" bowlegs. Thereafter the knee starts growing into valgus and reaches a peak valgus angle of about 10 degrees by the age of 4 years. This normal valgus angle is called "Physiological" knock-knees. After the age of 4 years, the valgus decreases to adult angle of about 6 degrees valgus by the age of 8 years.

Q. So, What Are The Red-Flag Signs To Identify Abnormal Or Pathological Deformities Which Need Treatment?

A. Any deformity which fails to follow the above normal pattern is deemed to be abnormal. · Deformity persisting beyond the above mentioned ages. E.g Bowlegs in a 7 years old Child · Deformity more severe than the above mentioned angles. E.g: Bowlegs angulation of 20 degrees in a 2 years old Children, Asymmetrical deformity, deformity in association with an underlying skeletal dysplasia, following an infection/trauma or due to underlying metabolic bone disease.

Q. What's The Treatment Of Bow-legs And Knock-knees?

A. The first step in the treatment of bowlegs and knock knees is establishing the diagnosis, which is done on the basis of clinical examination, blood investigations (blood levels of Calcium, Vitamin D, etc.) , X-rays and in special situations advanced imaging like MRI, CT-scan, etc. In most of the cases, bowlegs/ knock-knees is normal (physiological) in which case parents need to be reassured that the deformity will automatically resolve with age. In cases where the deformity is abnormal (pathological), treatment may consist of: - Medical treatment: Supplementation with Calcium and Vitamin D is needed in cases where the deformity is secondary to a nutritional deficiency of these nutrients. Surgical treatment: is needed in most cases of pathological (abnormal) bowlegs and knock-knees. Surgical treatment is broadly of two types: Growth modulation (guided growth) with eight plates: The eight plate is a metallic device which is implanted in the growing bone straddling the growth plate. The eight plate functions by guiding the bone growth in such a way that the deformity corrects with growth. This technique is an ideal modality for younger children with healthy growth plates with sufficient growth remaining.

Corrective Osteotomy: Osteotomy is a surgical procedure in which the deformed bone is cut at the level of deformity, the deformity is corrected and the bone is fixed in the corrected position with implants to maintain correction. It is a larger surgical undertaking than a growth plate and needs to be performed in older children or in children with damaged growth plates in whom the potential for remaining growth is limited.

Q. What is rickets?

A. Rickets is a disease caused by deficiency of certain nutrients (vitamin D, calcium or phosphorus) in growing children. It causes bones to become weak and over time they become crooked and deformed.

Q. What are the risk factors for rickets?

A. Rickets is most commonly a nutritional disorder. Risk factors include:

- Poor diet – Diets poor in Vitamin D and calcium can result in rickets. This often occurs in strict vegetarian diets, and when children are very fussy with what they eat.
- Lack of sun exposure –Vitamin D is naturally produced in the body, when human skin is exposed to sunlight. Lack of exposure to sunlight can be a cause of Vitamin D.
- Exclusive breast feeding – Breast milk has very small amounts of vitamin D. Children who are exclusively breast fed need to be given supplemental Vitamin D.

Q. Can rickets be hereditary?

A. A small proportion of cases of rickets do not respond to supplementation with the usual doses of Vitamin D and calcium. These cases are due to genetic disorders that interfere with the metabolism of Vitamin D and calcium in the body. Such disorders are collectively called 'resistant rickets'. This sub-group of rickets is hereditary.

Q. How can I tell if my child has rickets?

A. Rickets is usually discovered when parents notice deformities of the legs. They are usually curved, known as bow-legs. Besides, the child is often weak

and easily becomes tired. The child's wrists and ankles appear disproportionately widened. The child's growth and development are slowed down.

Q. How does a doctor diagnose rickets?

A. The diagnosis of rickets is usually apparent on examination of the child. It can be confirmed by taking X-rays of the wrists and knees. To determine the severity of the disorder, your doctor will usually also ask for blood tests to check for the levels of calcium, phosphorus and Vitamin D. In cases where your doctor suspects 'resistant rickets', he/she might refer you to an endocrinology specialist, i.e., a doctor specializing in hormonal disorders.

Q. How is rickets treated?

A. Rickets is treated with calcium and Vitamin D supplements. Vitamin D is given in the form of powder or granules, to be dissolved in water or milk, and taken once a week. Calcium, in the form of syrup or powder is taken daily. After a month of starting treatment, your doctor will take an X-ray to check for signs of improvement. Exact dosing and form of medicines will be told by your doctor.

Q. Can children with rickets recover?

A. Most children with rickets do well once treatment is started. The tiredness and weakness recovers first, and the child soon becomes active and playful. The bony deformities, for example bow legs, take legs to recover, usually several months.

Q. Will my child need surgery?

A. In most cases, the bony deformities due to rickets gradually recover. In some cases, especially in older children who are close to completing growth or have very severe deformities, surgery may be necessary.

Q. What are the good sources of Vitamin D and calcium?

A. Good sources of calcium include:

- Milk and milk products (cheese, curds)
- Ragi (nachni)
- Spinach

- Soyabean
- Eggs