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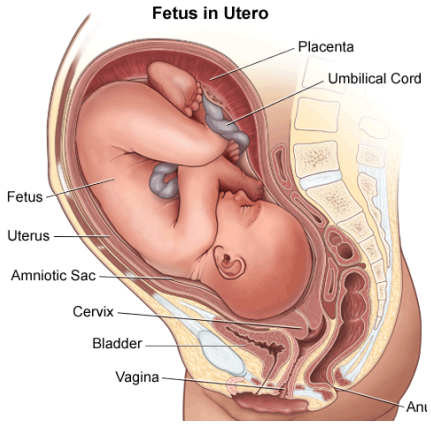
Children's Orthopaedic
and Scoliosis Surgery Associates, LLP
Your Kids Are Our Kids™

Common Benign Orthopaedic Conditions

In-toeing, Out-toeing, Growing Pains, Bowlegs, Knock-Knees and Flat Feet

Understanding Your Child's Flatfeet

In-toeing AKA "pigeon toes" is a common finding in growing children. It is often a concern for parents but rarely requires any treatment. Most causes of in-toeing are a persistence of fetal position. That is, the baby is folded inside the uterus with the legs and feet turned in to best fit into the small space. After birth, the baby maintains this rotated position. It is this persistent twist that causes in-toeing. It takes several years for the child to "un-twist". Children who in-toe may seem clumsier than children who don't. This will usually be outgrown.



In-toeing is usually due to persistent twist in one to three areas: the feet, legs or hips. One or a combination of sites may cause your child's condition.

Metatarsus Adductus

Metatarsus Adductus occurs when the child's foot curves in at the middle giving the foot a "bean-shaped" appearance. The majority of metatarsus adductus gets better on its own. Your doctor will determine if any treatment is indicated. A stiff metatarsus adductus may need treatment. Most feet can be corrected to a normal appearance. If your child's foot is stiff, your doctor may recommend a series of casts or special shoes. Surgery is rarely needed, and adults who have metatarsus adductus do not have any disability or increased foot pain.

Rigid Flat Feet

Rigid flatfeet are uncommon and may be due to abnormal connections between the foot bones. Rigid flatfeet tend to be painful as the child gets older. Orthotics are the first line of treatment but surgery may be needed.

Examination

The doctor will examine your child's feet, perform a neurological exam, and watch him or her walk to determine what type of flatfoot he or she has, and if any treatment is needed. Fortunately, most flat feet do not need any treatment other than reassurance.

Understanding Your Child's In-toeing

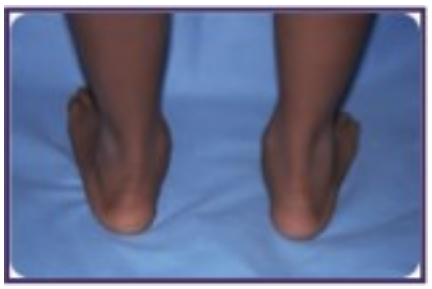
Flat feet are very common in children. In fact most children have flat feet and it is a normal stage of development. The arch develops slowly over a period of years and 20% of children never develop an arch. Studies have shown that children that do not wear shoes develop an arch better than children that do wear shoes. Regardless, no child develops much of an arch until age 3.

There are two types of flat feet: flexible and rigid.

Flexible Flatfeet

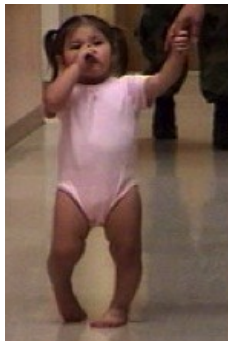
Flexible flatfeet are the most common type of flatfeet. A child with a flexible flat foot has no arch when standing but when sitting or when doing a heel rise, the arch is present. This is due to laxity of the supporting ligaments of the arch and is often seen in children with ligamentous laxity or "loose joints". Flexible flatfeet are rarely painful. Studies have shown that there is no long-term disability associated with flexible flatfeet.

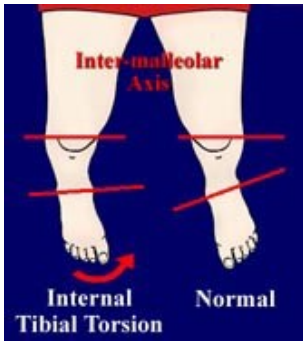
Rarely, flexible flatfeet become painful, especially as the child gets older. Orthotics and heel cord stretching are the first line of treatment. Surgery is rarely needed. Special shoes, inserts, wedges and exercises do not create an arch and can be uncomfortable and expensive.



Tibial Torsion

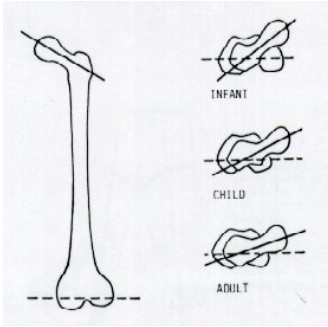
Tibial torsion is in-toeing caused by persistent "leg twist". This usually becomes evident when the child first starts walking. You will notice the kneecaps point straight ahead but the foot turns inward because of a twist in the leg bone. Most children outgrow this by the time they start kindergarten. Treatment is very rarely needed and your doctor will determine if anything needs to be done.





Femoral Anteversion

Femoral anteversion describes how the thigh bone (femur) is angled relative to the hip joint. Increased femoral anteversion in children causes in-toeing. These children tend to sit in a "W" position and may have an "eggbeater" run where their legs whip out to the side. Treatment is rarely indicated and most kids outgrow it by the time they are 10.



During the examination for in-toeing, the doctor may watch your child walk and do a series of tests with the child standing or lying on the table. X-rays are rarely needed.

Understanding You's Bowlegs & Knock-Knees

What is Out-Toeing?
Out-toeing or "duck feet" is much less common than in-toeing in children. Out-toeing describes the externally rotated or "turned out" appearance of the child's feet when he walks.

Out-toeing may be due to persistent fetal position but may also be due to abnormal growth or an underlying neurologic problem. Also, unlike in-toeing, out-toeing may lead to pain and disability as the child grows into adulthood.

Out-toeing usually occurs in one of three places: the feet, legs or hips.

Flat Feet
Flat feet or pes planus occurs when the child has no arch in their foot. When this happens the foot appears to turn to the outside. Treatment is rarely indicated. (See Flat Foot section)

External Tibial Torsion
External tibial torsion is an outward twist to the leg bone. Unlike internal tibial torsion it is usually seen in late childhood or early adolescence and usually affects only one leg (right is more common). It can produce pain around the knee, called
patellofemoral pain , which is not uncommon in adolescents (for a variety of reasons).

Can Bowlegs or Knock-Knee be Prevented?
No, there is no guaranteed method of preventing a child from developing bowlegs or knock-knees. In fact, during growth, children normally go through a period of being relatively bowlegged or knock-kneed.

Some children at the extremes of the normal growth curve may have bowlegs or knock-knees that look severe. Your pediatric orthopaedic surgeon will help decide if any further work-up or treatment is necessary.

Treatment Options
Treatment for the vast majority of children only involves observation (allowing growth and time to correct the legs) and parental reassurance. Physical therapy, chiropractic, special shoes, vitamins and bracing have no effect on the normal development of normal legs.

If you or your pediatrician have concerns, your child may be referred to a Pediatric Orthopaedic Surgeon for evaluation. Concerns are raised if one side is affected more than the other, the deformity is severe or if there is a significant family history. X-rays may be ordered by your doctor to confirm the diagnosis or to exclude other problems.

Two conditions that may require treatment include Rickets and Blount's disease.

Rickets
Rickets is a disorder caused by a lack of vitamin D, calcium, or phosphate. It leads to softening and weakening of the bones. It may cause bowlegs or knock-knees. It is usually diagnosed by your pediatrician with lab tests or x-rays. Treatment is medical but may also require bracing or surgery.

Blount's Disease
Blount's Disease is a disorder caused by an abnormal growth plate in the upper tibia. It's cause is unknown. It can affect toddlers and teenagers. Treatment depends on the severity of the deformity and the age of the child. It may involve observation, bracing or surgery.

Understanding Your Childr Child's Out-toeing

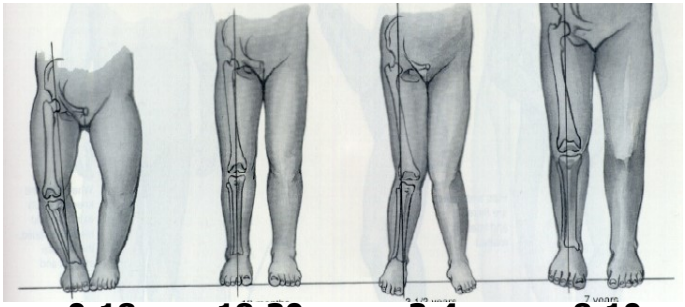
Growth and Development

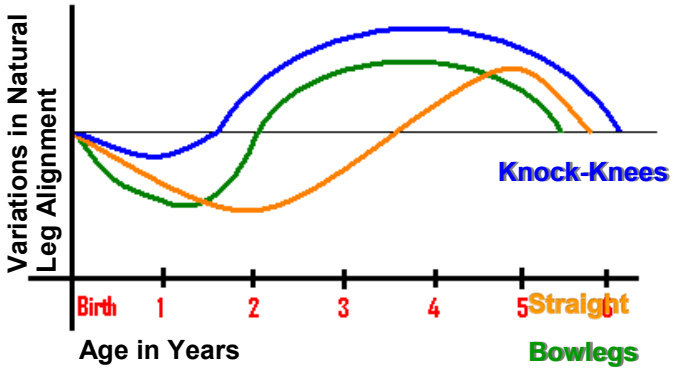
A child's legs are initially bowlegged (varus). Think of the toddler who walks with his feet wide apart.

When the child is between 1 1/2 and 2 1/2 years, the legs have usually straightened.

By 3 to 4 years, the child's legs typically grow into a knock-knee (valgus) position.

Finally, by age 8 to 10 years, the child's legs have settled in to what will likely be their adult alignment.





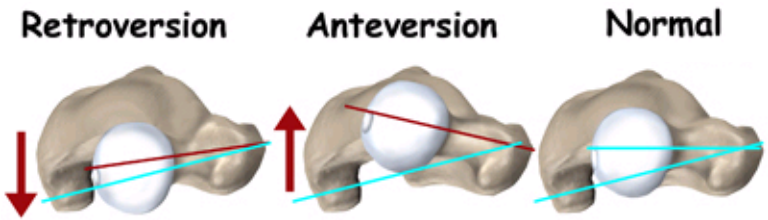
*Note: these are generalizations and your child may be ahead of or behind the "normal" development curve.

Hip Contracture

Infants are born with their hips externally rotated or turned out because of their position in the uterus. The hips are contracted or tight in this position because they have not moved during gestation. This external hip contracture resolves but the time varies among children. If the child has persistent hip tightness when he starts walking, it will appear that his feet are turning out. Combined with the fact that most babies are flatfooted, it is clear why most toddlers walk with their feet turned to the outside. No treatment is needed as it will resolve on its own.

Femoral Retroversion

Femoral retroversion occurs when the thighbone (femur) is angled backwards relative to the hip joint. It is much less common than femoral anteversion. This causes the entire lower extremity to turn to the outside. It is usually seen in obese children and may predispose them to early arthritis or another childhood hip condition called slipped capital femoral epiphysis (SCFE).



Treatment

As with in-toeing, shoe wear, bracing, physical therapy and chiropractic manipulation are not helpful in resolving the deformity. Occasionally, a child will have out-toeing from tibial or femoral outward twisting that does not resolve by the time they are ten. This may cause functional difficulties. If this is the case, surgery can be done to cut the bone and rotate it to a more normal position. This is called an osteotomy. This surgery is rarely necessary.

Understanding Your Child's Growing Pains

The cause of growing pains is unknown. They typically occur in two periods during childhood: among 3 to 5 years of age and later in 8 to 12 years of age. About 25% to 40% of children experience them at some time and the frequency that they experience them is variable. Most children do not have growing pains every day.

The most likely cause of growing pains is the stress the child places on their legs during the day while running, jumping, climbing and playing. Most parents relate that growing pains are worse after an especially active day.

Signs and Symptoms

Characteristically growing pains occur shortly before or after the child falls asleep. The child may awaken from sleep complaining of leg pain that is throbbing or aching in one or both legs. Parents will usually rub or massage the legs and may or may not give Tylenol or Ibuprofen. Typically, the child feels better in the morning.

Growing pains typically affect the muscles of the legs and not the joints. If the joints are affected, a different diagnosis should be entertained. For most children, growing pains stop once they reach their teens.

Diagnosing Growing Pains

One symptom that doctors find helpful in making a diagnosis of growing pains is how the child responds to touch while in pain. Children who have pain from a serious medical problem don't like to be handled because movement tends to increase the pain. Children with growing pains respond differently — they feel better when they're held, massaged, and cuddled.

Growing pains are what doctors call a "diagnosis of exclusion". This means that other conditions should be ruled out before a diagnosis of growing pains is made. A thorough history and physical examination by your doctor will usually accomplish this. In rare instances, blood tests and X-ray studies may be required before a final diagnosis of growing pains is made.

Helping Your Child

Some things that may help alleviate the pain include: Massaging the area, stretching, placing a heating pad on the area, administering ibuprofen or acetaminophen (Never give aspirin to a child under 12 due to its association with Reye syndrome, a rare but potentially fatal disease.)

Understanding Your Child's Bowlegs & Knock-Knees

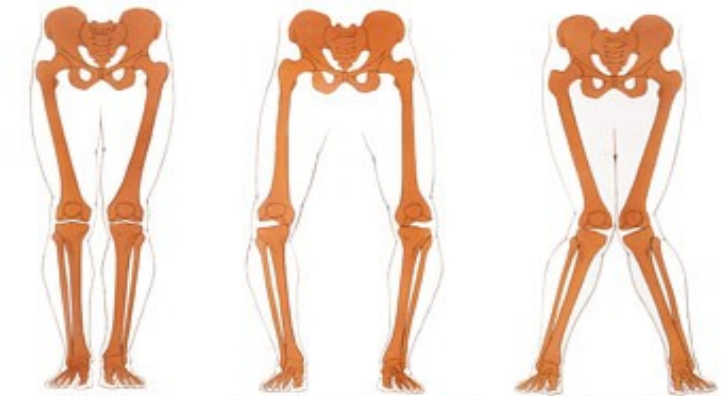
What are Bowlegs?

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.

What are Knock-Knees?

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.

Physiologic bowlegs and knock-knees will not affect your child's ability to crawl, walk, run or play. Some children may walk with their toes pointed in, trip more, or appear clumsier than other children their age. This is common and frequently will be outgrown.



Normal Bowlegs Knock-Knee

Common Causes

Bowlegs and knock-knees are very common concerns for parents. The vast majority are due to the child's normal growth and development. Only a very small number of children need treatment. Understanding how a child's legs change as they grow is important in understanding these conditions.