



Intoeing vs. Outtoeing and Bowlegs vs. Knock Knees: When To Be Concerned

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Intoeing vs. Outtoeing

Intoeing and outtoeing are very common complaints among parents of infants and small children. Many unnecessary treatments have been used in these children to make the parents feel like they are “doing something to make it better.”

The position of a child’s foot when standing or walking is most commonly affected by the position of the hip joint, tibial bone and the foot itself. Most infants are born with the hips in external rotation (rotated out), which will cause the feet to appear to be outtoed. Once a child reaches the age of walking, the hip will often demonstrate some increased internal rotation (rotating in). We call this *femoral anteversion*. This is due to normal development of the upper end of the femur (thighbone) and usually resolves with growth by the time the child reaches age seven or eight. There are no braces, special shoes or exercises that will cause this to go away any faster.

In the first five years of life, the tibia (shinbone) is internally rotated, causing the toes to point in. We call this *tibial torsion* and it is part of the normal development of the tibia as it grows out of the position it adopted in the womb. There is such variation among children in the amount of tibial torsion, just as each child will vary in his or her height and weight. Tibial torsion will generally improve with growth and is usually corrected by the age of five. Again, there are no braces, special shoes or exercises that will cause it to go away any faster.

The foot itself can cause the child’s toes to point in. *Metatarsus adductus* is a condition seen in the feet of infants where the midfoot bends inward. If this is correctable, it usually resolves on its own, otherwise it may require some stretching and casting. Clubfeet have a metatarsus adductus component as well as twisting in and up of the heel. This deformity usually requires orthopedic treatment. A screening exam is called “the heel bisector” and looks for a line that bisects (splits in half) the long axis of the foot between the 2nd and 3rd toes. If a line does not bisect, then an orthopedic surgeon should see the child.

The vast majority of intoeing and outtoeing conditions will resolve with growth, and do not require orthopedic intervention. Some factors that would cause immediate concern are:

- One leg looks normal and the other looks abnormal.
- One leg is shorter than the other.
- The child has other congenital anomalies.
- Onset of walking is delayed (normal is 9-18 mos).

Bowlegs vs. Knock Knees

During the normal development of the leg in children, the knee will have a bowlegged phase and a knock-kneed phase. Most infants are born with bowing of the legs (*genuvarum*). Once the child begins to stand and walk, the bowing may become a bit more obvious. In addition to the bowing of the leg, internal tibial torsion (as discussed) will cause the leg to appear even more bowed. Most often, the bowing improves between the ages of 18 months to two years.

Knock-knees (*genu valga*) begins to appear between ages two and three and reach its maximum at about four years of age. Further growth will result in some straightening of the knees to the normal adult position of slight knock-knees.

A simple screening tool for bowed legs is determining the “intercondylar distance.” The child lays on their back with the ankles together. The distance between the knees is the intercondylar distance. This measurement will reach its maximum at about six months of age and should show a decreasing value by 12-18 months of age.

A similar measurement is used to evaluate knock-knees, called the “intermalleolar distance.” Again, the child lays on their back, this time with the knees together. The distance between the ankles is the intermalleolar distance. This measurement will reach its maximum at approximately four years of age, but should not exceed 10 centimeters (4 1/2 inches).

The vast majority of bowlegs and knock-knees will resolve with growth and do not require orthopedic intervention. Findings that should be evaluated by an orthopedic surgeon are as follows:

- Failure of bowlegs (intercondylar distance) to improve by the age of two years.
- Pain in the knees.
- Any nutritional deficiency or kidney disorder.
- If both legs do not look the same (asymmetry).
- Intermalleolar distance greater than 10 centimeters.
- Any genetic disorders (especially short stature).