

# Normal Fetal Limbs – Mid-trimester scan evaluation

*Patient Information Series – What you should know, what you should ask.*

## What is a Normal Ultrasound Examination of the Fetal Limbs?

Visualisation of the fetal limbs is an important part of the comprehensive examination of the fetus and is best accomplished at the end of the first trimester, early in the second trimester, or at the fetal anatomy examination at 18-20 weeks. At later gestational ages, examination of the fetal limbs is less reliable because of shadowing from other fetal parts, fetal positioning, tightly closed hands, and a decrease in the amount of amniotic fluid relative to fetal size, among other obstacles to optimal ultrasound visualisation, which might result in an incomplete examination.

Standard first-trimester examination includes the presence of limbs if the fetal size is sufficient for visualisation. The appropriate gestational age to examine the fetal limbs is at 11-14 weeks, during the first fetal anatomic assessment. This can be performed either by transabdominal or transvaginal scan. At this gestational age and at the 18-20 weeks anatomy scan, the presence of each bony segment of the upper and lower limbs and the presence and normal orientation of the two hands and feet should be noted. However, counting fingers or toes is not required as part of any routine fetal ultrasound survey scan. If the hand is persistently closed, the existence of extra digits (polydactyly) may be difficult to assess and may be missed.

## Fetal Limb Movements

Fetal limb movements are detectable from 9 weeks on, and more refined limb movements begin after 11-12 weeks. Also, it is quite usual to observe normal “jumping” movements by the end of the first trimester. Open hands and selective distal limb movements are usually seen with no major effort at this stage of pregnancy. As the pregnancy advances the hands are closed at rest and fingers are more difficult to examine. Abnormal positioning or unusually restricted or persistently absent fetal movements may suggest abnormal fetal conditions with articular rigidity (joint stiffness). Although the temporary absence or reduction of fetal movements during the fetal scan has prognostic significance in the third trimester, it should not be considered a risk factor during a routine mid-trimester scan.

## What are Fetal Limb abnormalities?

Fetal limb anomalies are a complex group of congenital abnormalities, varying from very mild to severe. If your exam turns up an abnormality in your baby’s limbs, your sonographer or physician will explain the results of your individual scan. A fetal limb abnormality may have important diagnostic and prognostic implications and can be the clue to the presence of chromosomal anomalies, genetic syndromes, bone deformities or malformations. Differentiation of these disorders before delivery poses a significant diagnostic challenge, especially in advanced pregnancies, and requires advanced genetic molecular testing to arrive at an appropriate diagnosis. Moreover, some skeletal dysplasias affecting the extremities may evolve throughout life, making diagnosis difficult or impossible to achieve by ultrasound during fetal life.

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## **Is three-dimensional ultrasound (3D ultrasound) necessary for normal fetal limb examination?**

Although three-dimensional ultrasound scanning can be useful to better depict the features of an anatomical defect or the spatial relationship between the various anatomic segments, to count the fingers or to demonstrate an anomaly more clearly, it is not mandatory, as anomalies can be detected and adequately demonstrated in 2D ultrasound. Also, 3D imaging systems do have limitations. They face the same difficulties and restrictions that affect 2D imaging and ultrasound in general, including unfavorable maternal body habitus, decreased amniotic fluid, and advanced gestational age.

### **What other questions should I ask?**

- Were all the baby's limbs visualized and do they appear normal?
- Are they normally sized for this time in my pregnancy?
- Are the fetal limb movements appropriate for this stage of my pregnancy?
- In the case of limb abnormality:
  - What further tests should I have done?
  - Can I consult prior to delivery with the specialists that will take care of my baby after he/she is born?

*Last updated November 2022*