

# Abdominal palpation

## The Leopold Maneuver

**Abdominal palpation** - Regular abdominal palpation remains an important part in examination of every pregnant woman. It is the easiest and cheapest method of fetal monitoring.

**Determining age of pregnancy** - Does the measured fundal height correspond to the age of pregnancy calculated during history taking?

**Determining fetal lie and presentation** - Where is the fetal head, where are the back and the small parts of the child? Is there any suspicion of a twin pregnancy?

**Determining fetal wellbeing** - How are the fetal movements? What is the amount of amniotic fluid? Did the fetal growth and fundal height increase since the last examination?

**Uterus tonus** - Are there any uterine contractions?

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Follow the 4 steps of the Leopold Maneuver for abdominal palpation to determine fetal lie and presentation.

### Step 1

**First maneuver**  
Fundal grip

Using both hands and facing the pregnant woman, palpate the upper abdomen by putting both hands on the top of the uterus, called the fundus.

Use this maneuver to determine the shape, size, mobility and consistence of what can be felt.

With this first grip you will also determine the height of the fundus related to the umbilic or costal arch, derive the age of pregnancy and confirm longitudinal presentation.



### Step 2

**Second maneuver**  
Umbilical Grip

After identifying the uterine shape, the presentation of the fetus must be determined.

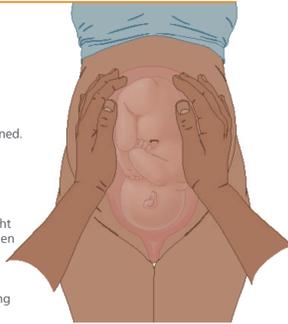
While still facing the woman, apply deep pressure with the palm of one hand to palpate the abdomen gently.

Perform this maneuver by placing the right hand on one side of the woman's abdomen while using the left hand to explore the woman's uterus from the left side.

Repeat this step on the opposite side using the opposite hand.

Observe that the fetal back is smooth and firm, the extremities of the fetus feel like protrusion and small irregularities. The back should connect with the form felt in the lower maternal inlet and upper abdomen.

Performing this maneuver will tell whether the fetal back is right or left, anterior or posterior positioned.



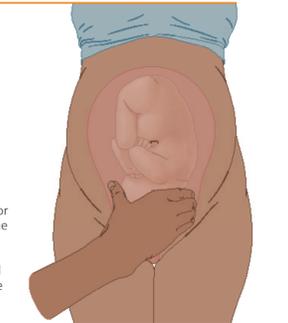
### Step 3

**Third maneuver**  
First Pelvic Grip

During this step of the process, the midwife must identify the part of the fetus that is above the pelvic inlet.

Palpate the lower uterine segment, right above the pubic symphysis in order to determine the presenting part (cephalic or breech or empty in transverse and oblique presentation).

It confirms longitudinal presentation and should validate what is determined in the first maneuver.



### Step 4

**Fourth maneuver**  
Second Pelvic Grip

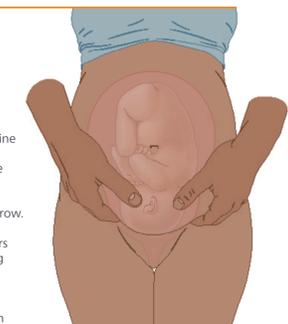
This is the method of palpating the engagement of the fetal head to determine whether it is mobile, fixed or engaged. This step should be done while facing the woman's feet.

The process involves locating the fetus' brow.

The midwife must gently move the fingers of both hands to the pubic area by sliding her fingertips between the woman's iliac crests and the fetal head. The side where a great resistance to the descent of the fingers is perceived, indicates the location of the fetal brow.

With a well flexed head the fetal front can be touched on the opposite side of the fetal back.

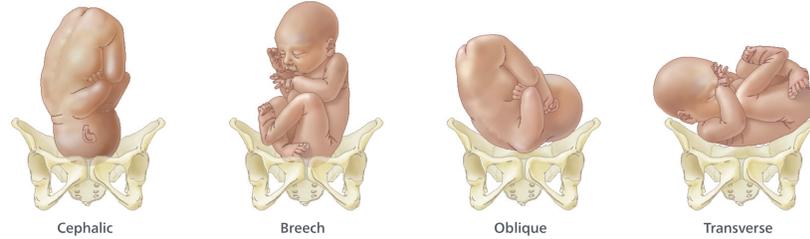
A head that cannot be felt, has likely engaged.



## Determining fetal lie, position, presentation and attitude

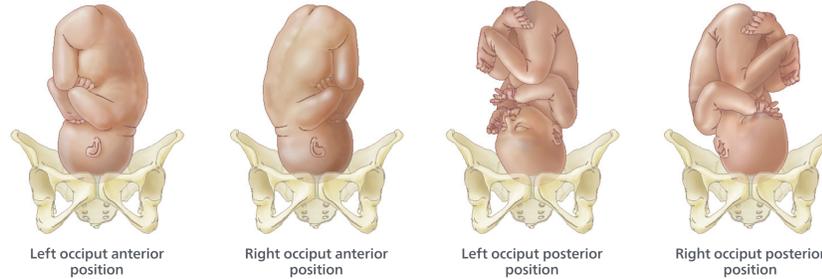
### The fetal lie

The lie of the fetus is the relation of its long axis to the mothers' vertical axis. Only a longitudinal lie is normal. Transverse and oblique lies are abnormal.



### The fetal position

The position of the fetus is defined by the relationship of the fetal back to the mothers' vertical axis. To determine the position, you have to feel the difference between the regular, hard side presenting the fetal back and the smaller parts like feet and hands on the other side of the mothers' body. The cephalic dorso-anterior position is preferred.



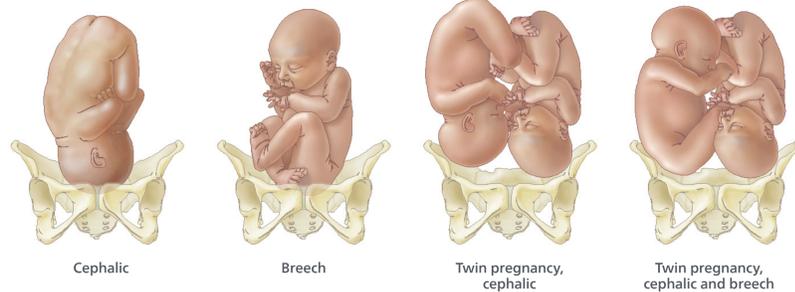
### The fetal presentation

The presentation is the part of the fetus in the lower pole of the uterus overlying the pelvic brim, e.g. cephalic, breech.

**Cephalic pole:** round, hard, regular and moveable between the hands, separated from the rest of the body by the indent of the neck. Beyond that indent, the projection of the shoulder can be felt.

**Breech pole:** soft, larger and less regular than the cephalic pole, no neck indent.

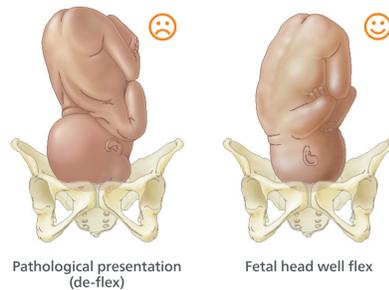
The Leopold Maneuver will also indicate twins and their presentation.



### The fetal attitude

The attitude is the relation between the fetus's head to his back, e.g. flexion, neutral, deflexion, extension.

A well flexed head is preferred in order to support the natural birth mechanism. In neutral and deflected attitude the fetal head circumference is larger and becomes an obstacle to physiological birth.



Follow Step 5 - a complementary diagnostic procedure after performing the Leopold Maneuver

### Step 5

**After performing the Leopold Maneuver**  
Auscultation of the fetal heart rate

After performing the Leopold Maneuver, the fetal heart rate (FHR) needs to be auscultated.

The sound transmission of the fetal heart rate is best, where the fetal back or chest - his heart - is close to the mothers' uterus wall.

The findings from the Leopold Maneuver about the fetal lie, presentation and position will be now confirmed by detecting the best spot to listen to the fetal heart rate.



Double-head fetoscope and traditional Pinard Horn

#### Actions to do

1. Place the fetoscope
2. Auscultate – listen and count
3. Diagnose
4. Let mother or family members listen

## Auscultation of the fetal heart rate

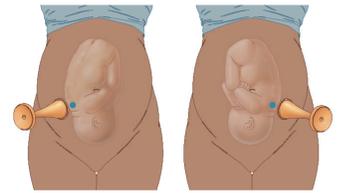
### Finding the right spot

#### Fetus in cephalic presentation

Since the sound transmission of the fetal heart rate is best where the fetal back lies anterior towards the mothers' uterus wall in dorso anterior position, the fetal heart rate can be heard in the lower lateral part of the mothers abdomen.

As further the fetus turns towards a dorso-posterior position, the heart rate will be found in the mothers' lateral right or left flank.

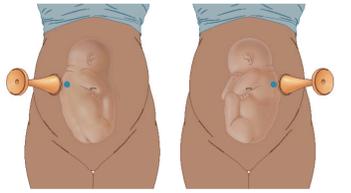
A well flexed head and dorso-anterior or lateral position is also the most physiological position supporting the natural birth mechanism.



#### Fetus in breech presentation

In breech presentation, the fetal heart rate will be found around or above the mothers' navel.

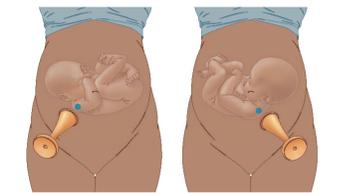
A fetal heart rate found at this spot can confirm the suspicion of a breech presentation, detected during the performance of the Leopold Maneuver.



#### Fetus in transverse lie

If the fetus is in transverse lie, the fetal heart rate can be auscultated around the navel of the mother.

Often, if the fetal back is posterior positioned (towards the mothers back) the sound transmission is difficult, or the heart rate can be heard as far away. The suspicion of a transverse lie appearing during the performance of the Leopold Maneuver can be confirmed by the fetal heart rate auscultation.

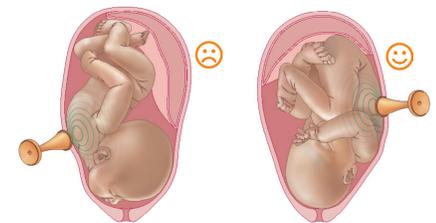


## A diagnostic tool

The diagnostic power of using the Leopold maneuver in combination with fetal heart rate auscultation.

Performing the Leopold Maneuver regularly and in combination with the fetal heart rate auscultation will help to detect abnormal fetal lie and presentation, twin pregnancy, fetal distress.

Especially the added value of this complementary examinations will support health care providers in their management decisions during pregnancy and childbirth.



## Diagnose

Count for 60 seconds to have the fetal heart rate bpm (beats per minute) or count for 15 seconds and multiply by 4.

A normal heart rate is between 120 and 160 bpm. Signs of fetal distress and asphyxia are fetal bradycardia (FHR < 120 bpm for more than 3 minutes) and tachycardia (FHR > 160 bpm for more than 10 minutes).

If any doubt, count longer and repeat after 15 minutes.

