

Fetal Heart Rate Monitoring

BASELINE FHR

The normal FHR range is between 120 and 160 beats per minute (bpm). The baseline rate is interpreted as changed if the alteration persists for more than 15 minutes.

FHR VARIABILITY

Prematurity decreases variability therefore, there is little rate fluctuation before 28 weeks. Variability should be normal after 32 weeks.

Beat-to-beat or short-term variability is the oscillation of the FHR around the baseline in amplitude of 5 to 10 bpm.

Long-term variability is a somewhat slower oscillation in heart rate and has a frequency of 3 to 10 cycles per minute and an amplitude of 10 to 25 bpm. Clinically, loss of beat-to-beat variability is more significant than loss of long-term variability and may be ominous.

Decreased or absent variability should generally be confirmed by fetal scalp electrode monitoring when possible.

Increased variability in the baseline FHR is present when the oscillations exceed 25 bpm. This pattern is sometimes called a saltatory pattern and is usually caused by acute hypoxia or mechanical compression of the umbilical cord.

FETAL TACHYCARDIA

Baseline heart rate greater than 160 bpm and is considered a non-reassuring pattern. Mild when the heart rate is 160 to 180 bpm and severe when greater than 180 bpm.

FETAL BRADYCARDIA

Fetal bradycardia is defined as a baseline heart rate less than 110 bpm.

Bradycardia in the range of 100 to 110 bpm with normal variability is not associated with fetal acidosis. Bradycardia of this degree is common in post-date gestations and in fetuses with occiput posterior or transverse presentations.

Moderate bradycardia of 80 to 100 bpm is a nonreassuring pattern.

ACCELERATIONS

The presence of at least two accelerations, each lasting for 15 or more seconds above baseline and peaking at 15 or more bpm, in a 20-minute period is considered a reactive NST.

EARLY DECELERATIONS

Early decelerations are caused by fetal head compression during uterine contraction, resulting in vagal stimulation and slowing of the heart rate. This type of deceleration has a uniform shape, with a slow onset that coincides with the start of the contraction and a slow return to the baseline that coincides with the end of the contraction.

LATE DECELERATIONS

Late decelerations are associated with uteroplacental insufficiency and are provoked by uterine contractions. Any decrease in uterine blood flow or placental dysfunction can cause late decelerations.

A late deceleration is a symmetric fall in the fetal heart rate, beginning at or after the peak of the uterine contraction and returning to baseline only after the contraction has ended

VARIABLE DECELERATIONS

Variable decelerations are shown by an acute fall in the FHR with a rapid downslope and a variable recovery phase.

<https://www.aafp.org/pubs/afp/issues/1999/0501/p2487.html>

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