

**Fetal Cardiac Time Intervals in Healthy Pregnancies- An Observational Study by Fetal ECG (MONICA Healthcare System)**

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**Background:** Fetal electrocardiogram (fECG) can detect QRS signals in fetuses from 17 weeks' gestation onwards; however, the technique is limited by the minute size of the fetal signal relative to noise ratio. The aim of this study was to evaluate precise fetal cardiac time intervals with the help of a newly developed fetal ECG device.

**Methods:** The small and wearable Monica AN24 monitoring system uses standard ECG electrodes placed on the maternal abdomen to monitor fetal ECG, maternal ECG and uterine EMG. 149 fECGs were performed on healthy fetuses (> 32 weeks gestational age). Fetal cardiac time intervals were estimated on 1000 averaged fetal beats. Detection was deemed successful if there was a global signal loss of less than 30% and an analysis loss of the Monica AN24 signal separation analysis of less than 50%.

**Results:** After applying the requirements 117 fetal ECGs remained for CTI analysis. CTI measurements (in ms) were comparable to other available methods, such as e.g. fetal magnetocardiography.

**Conclusions:** Although limited and preclinical in its use, fetal ECG (MONICA Healthcare System) could be an additional and less expensive useful tool to detect precise fetal cardiac time intervals from 32 weeks gestational age onwards. This helps to better define fetal arrhythmias.