

Scientific study: Incubator's ElectroMagnetic Fields (EMF) may affect heart rates of newborns.

May 5, 2008 : [A new scientific study](#) suggests that ElectroMagnetic Fields – EMFs produced by incubators have the ability to modify the heart rates of newborn babies.

Researchers from the University of Siena's Department of Pediatrics, Obstetrics, and Reproductive Medicine studied 43 healthy newborns.

Twenty seven were tested in the incubators for three periods of five minutes each, with the machines turn on, then turned off and then turned on again.

The remaining 16 babies served as a control group.

Lead researcher Dr. Carlo Valerio Bellieni and his group found out that when the machine was on, heart variability of babies in the incubator decreases. Heart variability decrease means a poor forecast in adult patients with heart disease.

The study was published in the May issue of the Publications of Disease in Childhood.

Abstract:

ElectroMagnetic Fields - EMF produced by incubators influence heart rate variability in newborns.

C V Bellieni, M Acampa, M Maffei, S Maffei, S Perrone, I Pinto, N Stacchini, G Buonocore.

Background: Incubators are largely used to preserve preterm and sick babies from postnatal stressors, but their motors produce high ElectroMagnetic Fields. Newborns are chronically exposed to these EMFs, but no studies about their effects on the fragile developing neonatal structure exist.

Aim: To verify whether the exposure to incubator motor electric power may alter autonomous nervous system activity in newborns.

Material and methods: Heart Rate variability (HRV) of 43 newborns in incubators was studied. The study group comprised 27 newborns whose HRV was studied throughout three 5-minute periods: with incubator motor on, off, and on again, respectively. Mean HRV values obtained during each period were compared. The control group comprised 16 newborns with constantly unrecordable EMF and exposed to changes in background noise, similar to those provoked by the incubator motor.

Results: Mean (SD) total power and the High-Frequency (HF) component of HRV increased significantly (from 87.1 (76.2) ms² to 183.6 (168.5) ms²) and the mean Low Frequency (LF) - HF ratio decreased significantly (from 2.0 (0.5) to 1.5 (0.6)) when the incubator motor was turned off. Basal values (HF=107.1 (118.1) ms² and LF/ HF=1.9 (0.6)) were restored when incubators were turned on again. The LF spectral component of HRV showed a statistically significant change only in the second phase of the experiment. Changes in background noise did not provoke any significant change in HRV.

Conclusion: ElectroMagnetic Fields (EMFs) produced by incubators influence newborns' HRV, showing an influence on their autonomous nervous system.

More research is needed to assess possible long-term consequences, since premature newborns may be exposed to these high ElectroMagnetic Fields for months.



Premature newborns in an incubator.



Maternity : Incubator for newborns.