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## **Fetal MRI Guidelines for Parents**

Fetal Magnetic Resonance Imaging (MRI) is considered a safe and effective imaging tool to obtain more information about congenital anomalies after they have been detected on ultrasound.

Theoretical concerns exist about tissue heating, teratogenesis (process by which congenital malformations are produced in an unborn baby) and acoustic damage but no evidence of actual harm exists.

Limits exist to regulate heat generated in both mother and fetus during an MR study. Ongoing studies are exploring the effect of acoustic noise on the fetus. "Present data have not conclusively documented any deleterious effects of MR imaging at 1.5T on the developing fetus [1-11]." – ACR-SPR PRACTICE PARAMETER FOR THE SAFE AND OPTIMAL PERFORMANCE OF FETAL MAGNETIC RESONANCE IMAGING (MRI).

For the MRI scan you will lie on your back (or rolled slightly on to your left side with pillow support if lying on your back is uncomfortable) for the duration of the scan. You will enter the machine feet first and your head will be outside the machine so you shouldn't feel claustrophobic.

The scan usually takes less than 30 minutes but if your baby moves a lot during the study it may take a bit longer if it's necessary to repeat some of the studies.

It is best not to eat or drink just before the study as increased blood sugar can make the baby more active! Avoid drinks with caffeine and sugar 3 hours before the study but eat and drink water as normal.

A radiographer will be watching you throughout the study and you will have an emergency button to push if needed.

The results of the study will not be available directly afterwards. Your fetal medicine doctor will discuss the results with you at your follow-up appointment.

- 1. Baker PN, Johnson IR, Harvey PR, Gowland PA, Mansfield P. A three-year follow-up of children imaged in utero with echo-planar magnetic resonance. *Am J Obstet Gynecol*. 1994;170(1 Pt 1):32-33.
- 2. Chew S, Ahmadi A, Goh PS, Foong LC. The effects of 1.5T magnetic resonance imaging on early murine in-vitro embryo development. *J Magn Reson Imaging*. 2001;13(3):417-420.
- 3. Clements H, Duncan KR, Fielding K, Gowland PA, Johnson IR, Baker PN. Infants exposed to MRI in utero have a normal paediatric assessment at 9 months of age. *Br J Radiol.* 2000;73(866):190-194.
- 4. Glover P, Hykin J, Gowland P, Wright J, Johnson I, Mansfield P. An assessment of the intrauterine sound intensity level during obstetric echo-planar magnetic resonance imaging. *Br J Radiol.* 1995;68(814):1090- 1094.
- 5. Kanal E, Gillen J, Evans JA, Savitz DA, Shellock FG. Survey of reproductive health among female MR workers. *Radiology.* 1993;187(2):395-399.
- 6. Kok RD, de Vries MM, Heerschap A, van den Berg PP. Absence of harmful effects of magnetic resonance exposure at 1.5 T in utero during the third trimester of pregnancy: a follow-up study. *Magn Reson Imaging*. 2004;22(6):851-854.
- 7. Levine D, Zuo C, Faro CB, Chen Q. Potential heating effect in the gravid uterus during MR HASTE imaging. *J Magn Reson Imaging*. 2001;13(6):856-861.
- 8. Merkle EM, Dale BM, Paulson EK. Abdominal MR imaging at 3T. *Magn Reson Imaging Clin N Am.* 2006;14(1):17-26.
- 9. Myers C, Duncan KR, Gowland PA, Johnson IR, Baker PN. Failure to detect intrauterine growth restriction following in utero exposure to MRI. *Br J Radiol.* 1998;71(845):549-551.
- 10. Schwartz JL, Crooks LE. NMR imaging produces no observable mutations or cytotoxicity in mammalian cells. *AJR Am J Roentgenol*. 1982;139(3):583-585.
- 11. Shellock FG, Crues JV. MR procedures: biologic effects, safety, and patient care. *Radiology*. 2004;232(3):635-652.

