



## HIGH VOLTAGE POWER LINES AND BIRTH PROBLEMS

### The Myth:

Overhead high voltage power lines and associated electromagnetic fields (EMFs) have no impact on the incidence of birth defects, miscarriage or other birth problems.

### The Facts:

- Pregnant women in the San Francisco area studied by Li et al. (2002) experienced miscarriage risks that increased with an increasing level of magnetic field exposure. The risk of miscarriage among women exposed to above-normal magnetic field levels varied from 2.9 to 5.7 times the expected.
- Miscarriages among northern California women were linked to magnetic field exposure during pregnancy (Lee et al. 2002), with risks of miscarriage for exposed women up to 3.1 times the expected.



- A study of close to 1.3 million births in Norway indicated an association between several birth defects and parental exposure to 50-Hz magnetic fields (Blaasaas et al. 2002). Maternal exposure to EMFs was associated with increased risks of spina bifida (incompletely formed spinal cord at birth) and club foot. Paternal exposure to EMFs was associated with increased risks of anencephaly (children born without a forebrain) and a number of other defects.
- Blaasaas et al. (2003) studied risks of birth defects among Norwegians by residential exposure to 50-Hz magnetic fields from power lines. The greatest increase in risk was for esophageal birth defects, 2.5 times the expected.



- Birth outcomes were studied for pregnant Norwegian women in relation to distance lived from power lines (Blaasaas et al. 2004). The highest increased risks of birth defects for women living near power lines were seen for hydrocephalus (“water on the brain”), 1.7 times the expected; and for heart defects, 1.5 times the expected.
- Birth malformations among pig litters whose mothers had been exposed to 60-Hz electric fields for 18 months were 2.6 times more numerous than among litters whose mothers had not been exposed, the difference being statistically significant (Sikov et al. 1987). This increased risk of birth malformations was passed on to first generation female pigs as well.
- A laboratory study of rats was conducted to determine the effects of EMFs on development of sexual characteristics of embryos (McGivern et al. 1989). Data indicated that EMF exposure during this critical period of sexual development in male embryos resulted in several negative sexual abnormalities once animals reached adulthood.

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