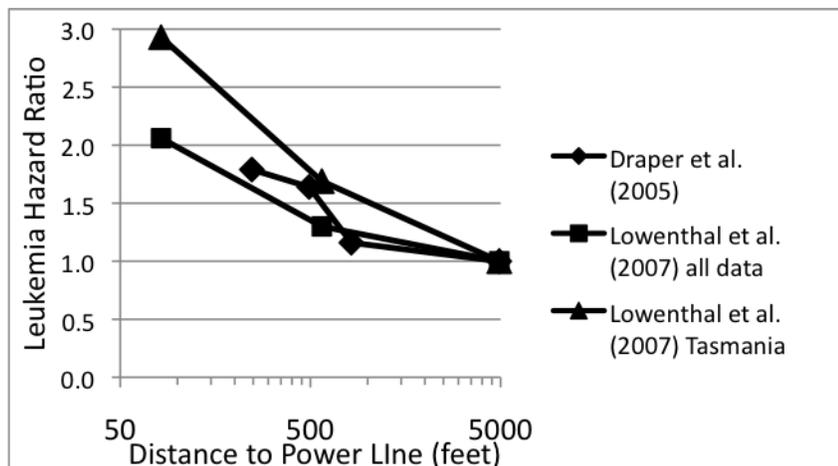


Recent Biomedical Literature on Health Risks of Power Transmission Lines

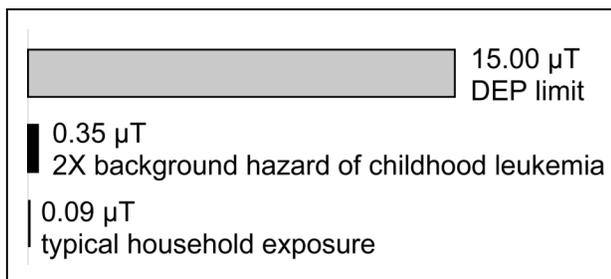
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Childhood Leukemia

Over a dozen studies have shown a doubling in the incidence of leukemia in children living near power lines and in children chronically exposed to weak magnetic fields of 0.3 or 0.4 μT . Data from two recent studies on incidence of leukemia in people living near power lines are shown below (Draper et al., 2005; Lowenthal et al., 2007). Hazard ratio is the measured incidence relative to the background population incidence. In the study by Lowenthal et al. (2007) hazard ratios were even higher for people exposed as children during years 0-5. The sub-population from Tasmania (triangles) is more sedentary and thus may have had longer exposure times.



The U.S., the EU, and the World Health Organization all consider 100 μT to be a safe chronic level of exposure to low frequency magnetic fields (LFMFs). Florida Dept of Environmental Protection (2008, DEP chapter 62-814) permits LFMF intensities of 15 μT at the edge of a 115-230 kV power line right-of-way. However LFMF intensities of only 0.3 to 0.4 μT have been associated with a doubling in risk of childhood leukemia (Greenland et al., 2000; Kabuto et al., 2006). Two new studies have shown that those children who do get leukemia are more likely to die if they reside in LFMF intensities above 0.2 or 0.3 μT (Foliart et al., 2006; Svendsen et al., 2007).



A common issue in the interpretation of childhood leukemia studies is that small number of contributing cases. To get around the “tyranny of small numbers”, multiple studies may be combined in “meta-analysis”, which is not without its own problems because of differences in methods of individual studies. The published meta-analyses of data from the 1990s (Michelle et al., 1995; Daniel, 2001) support the relation between proximity to transmission lines (wire codes), EMF exposure, and childhood leukemia. These findings have been confirmed by more recent results using better methods.

Epidemiological studies have been discounted by the electric power industry and government panels because no lab based animal studies confirm the epidemiological results. This issue is being remedied by elegant new lab studies showing that magnetic field intensities permitted under U.S. and EU law increase cancer rates in rats. In these studies, rats are treated with the carcinogen BDMA to produce mammary cancers in about 50% of individuals. Exposure to magnetic fields of 100 μT increased their incidence of cancers by another 45% in 4 months (Fedrowitz & Loscher, 2008).

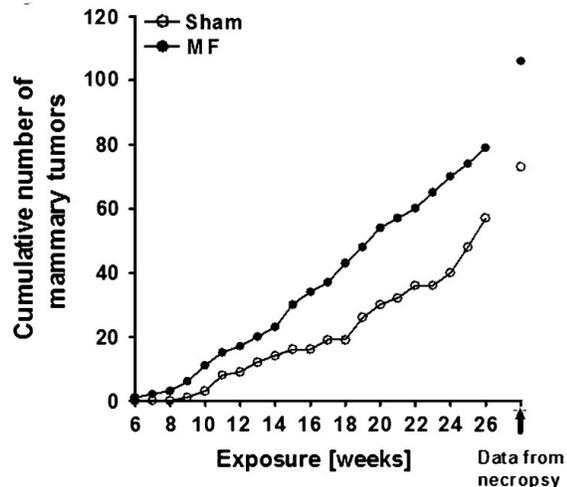
Since 2000, the mounting tide of evidence has shifted the dominant view of risks from low frequency EMF. The EU and the conservative NIH now list low frequency magnetic fields as a “possible carcinogen”. One of FPL’s own consultants on health risks of transmission lines, a biostatistician and professional skeptic, now says in public that the mass of data on health risks of power lines must be taken seriously.

Alzheimer’s Disease and Senile Dementia

The biomedical literature has many reports of magnetic fields intensifying mental disorders. These effects, even if significant in one study, have proven elusive in follow-up studies.

One particularly worrisome paper shows a

strong relation between residence near power lines and the doubling of Alzheimer’s Disease (AD) cases and other forms of senile dementia (Huss et al., 2009). With incidence of AD on the rise, this study begs for replication.



Application

While adhering to Florida DEP standards, FPL’s planned powerlines will legally expose people to magnetic fields 40 to 50 times greater than those associated with a doubling in the incidence of childhood leukemia and Alzheimer’s disease. This year, FPL representatives and the head of the Florida DEP Siting Coordination Office have both stated in public forums that the risks of transmission lines are unsupported by science. Such claims can only be made if one ignores all recent evidence to the contrary. If anyone is to look out for the health of our children it must be us.

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