The Shrill Cry To Stop EMF Research

The Melatonin Hypothesis Revisited

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"Now it is enough!" claims Maria Feychting of Sweden's Karolinska Institute. Feychting wants to stop wasting money on any more epidemiological studies of breast cancer risks from power-frequency electromagnetic fields (ELF EMFs).

"We can be confident that exposure to ELF magnetic fields does not cause breast cancer," she writes in an invited commentary published last week in the influential *American Journal of Epidemiology (AJE)*. Feychting's call to stop research was prompted by a new study of breast cancer among Chinese textile workers from the Fred Hutchinson Cancer Research Center in Seattle, which found no association with ELF magnetic field exposures. Feychting's confidence is based in large part on the exposure assessment used in the textile study, which, she believes, was "better than in previous studies."

***NEW:* Feychting responds to charge of not reporting a potential conflict; *see below*.**

If Feychting's call to halt research is heeded, she will have shattered a key driver for EMF–cancer research that has held sway for the last 25 years: the melatonin hypothesis. First proposed in 1987 by Richard Stevens in the same journal (AJE), the hypothesis links the use of electric power to breast cancer through the suppression of melatonin, a powerful antioxidant produced at night by the pineal gland. Stevens pointed to two different types of electromagnetic signals that could suppress our bodies' production of melatonin: light at night (LAN) and power-frequency EMFs. Feychting would now cut out EMFs and limit the hypothesis to LAN only.

Stevens: Not Ready to Give Up on EMFs

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In an interview with *Microwave News,* Stevens agreed that the evidence collected to date has not supported a link to EMFs. "My own research is now focused on LAN," he said. Yet, he cautioned against any categorical decisions eliminating EMFs as a risk factor for breast cancer. Stevens pointed out that not that long ago most scientists dismissed the possibility that LAN could be biologically important. "Breast cancer rates are high and we still don't know why," he said. "I would be receptive if someone suggested a fundamentally new way to assess EMF exposures."

Stevens said that some of the lab data gives him pause. He singled out a large body of work from Wolfgang Löscher's lab in Hanover, Germany, showing that ELF EMFs play a role in the formation of breast cancer tumors (see our report, "It's Genetics, Stupid"). "It is astonishing," Stevens wrote a few years ago, "that the work of Löscher and his coworkers, published in major journals for over ten years, has not gained the attention of other labs and funding agencies." This is as true today as it was then.

Gene Sobel, an epidemiologist and biostatistician formerly on the faculty of the University of Southern California (USC) in Los Angeles, thinks that the melatonin hypothesis is alive and well. The exposure assessment in the Hutchinson study is not as reliable as Feychting would have us believe, he told us. Sobel was the first to link ELF EMF exposures to Alzheimer's disease in a study of textile workers (seamstresses) in Finland (see *MWN,* J/A94, p.4). "Most of the breast cancer studies done to date have not been properly designed and used exposure metrics that were inappropriate," Sobel said.

"It's really simple," Sobel explained, "There's strong evidence that low levels of melatonin are a risk factor for breast cancer and relatively moderate magnetic fields affect circulating melatonin," he said. "When we use our own exposure matrix, we see an Alzheimer risk all the time." He conceded that he has not looked at breast cancer as an end point, but maintains that, "It is very likely that there is a link between magnetic fields and breast cancer."

"I don't think they captured the correct exposures," he said, referring to the Hutchinson study. "In our studies, we found that seamstresses —at least parts of their bodies— were exposed to magnetic fields that were much higher than those reported in the new paper." (He believes that even modern equipment entails significant exposures.) Sobel noted that the Hutchinson team included the entire history of the women's exposures, but some of that data may not be relevant. In other words, more information might in fact tell you less. "What's important is capturing the biologically relevant exposures," he explained, "What happens early in life may not be as important as what happens later in life."

Female vs Male Breast Cancer

"Whatever causes male breast cancer causes female breast cancer," said Sam Milham, a medical doctor and epidemiologist who was the first to link occupational EMF exposures to leukemia back in 1982. And Milham is convinced that male breast tumors are a sentinel cancer for EMF exposure, just as mesothelioma is for

asbestos. He points to a recently published meta-analysis of 18 studies that showed a statistically significant association between EMF exposures and breast cancer among men.

Feychting does not address male breast cancer risks in her commentary.

Milham does agree with Feychting that more research on ELF EMFs is not likely to add much to what we already know. Milham believes that the focus of exposure assessment should be on measuring high-frequency transients and harmonics. He pointed out that the EMDEX II meter, used by the Hutchinson team, does not pick up signals over 800 Hz.

Others Have Called for EMF Research To Stop

Feychting has now joined a small but growing number of epidemiologists who want an end to various types of EMF research. In 2010, Leeka Kheifets and John Swanson, two industry operatives, called for an end to the study of ELF electric fields. (We published a reply in the journal and at greater length in these pages.)

Later that same year, Sven Schmiedel of the Danish Cancer Society and Maria Blettner of Germany's Johannes Gutenbert University Mainz argued that epidemiological studies of EMFs and childhood leukemia had come to a dead end. Feychting agrees with them. "More of the same will not move the science within this area forward," she writes in her new commentary, adding no small measure of irony to the mix. The foundation of Feychting's career at the Karolinska is her study, with Anders Ahlbom, linking EMFs to childhood leukemia (see *MWN,* S/O92, p.1). Together they were instrumental in convincing skeptics that this association —first proposed by Nancy Wertheimer in 1979— had to be taken seriously. Years later her work was a cornerstone of IARC's designation of ELF EMFs as possible human carcinogens (see *MWN,* J/A01, p.1).

Add one more dollop of irony: The no-research trend was set off three years ago in an editorial by David Savitz, "When Enough Is Enough." Like Feychting, Savitz's career was jump-started by his own EMF–childhood leukemia epidemiological study, the first to replicate Wertheimer's (see *MWN,* N/D86, p.1).

A thread that connects some of those in the stop-research movement is ICNIRP, the International Commission on Non-Ionizing Radiation Protection. Feychting is its current vice-chair. Kheifets and Savitz are scientific advisors to the commission.

The calls to stop EMF research are largely academic, at least in the U.S. As Sobel noted, "It's just about impossible to raise research money to test new ideas, unless you have industry support."

September 26, 2013

Swedish Journalist Raises Possible Conflict of Interest

Mona Nilsson, the Swedish journalist who pointed out Anders Ahlbom's incomplete disclosure of potential conflicts of interest (COI) which led to his withdrawal from an IARC study panel two years ago, is now asking the editors at the *American Journal of Epidemiology* whether Maria Feychting neglected to disclose her own potential conflicts in her COI statement for her new commenary. (At the end of the paper: Feychting wrote: "Conflict of interest: none declared.")

Nilsson is circulating a COI statement filed by Feychting in a Norwegian matter last year in which she stated:

> "I am co-investigator of the study 'EMF and childhood leukemia survival –a pooled analysis' (principal investigator is Joachim Schüz, Danish Cancer Society). The study is funded by the Electric Power Research Institute (EPRI)."

EPRI is the electric utility industry group where Leeka Kheifets used to work full time and now consults with on a regular basis. Over the years, few organizations have done more to derail and obfuscate EMF research than EPRI. (Schüz now works at IARC.)

October 3, 2013

Feychting Responds

An editor at Oxford University of Press, the publisher of the *American Journal of Epidemiology,* has responded to Mona Nilsson with a statement from Maria Feychting in which she calls EPRI an "independent nonprofit organization."

Here is Feychting's full description of her association with EPRI:

> "I have not received any funding directly from industry. I received funding from the Danish Cancer Society in 2009 for 3 months' salary for a research assistant to provide data to a study on ELF magnetic fields and survival after leukemia diagnosis, where Dr Joachim Schüz was principal investigator (while he worked in Denmark, he is now head of the Section for Environment and Radiation at IARC). The Danish Cancer Society received funds for this study from EPRI (Electric Power Research Institute, an independent, nonprofit organization)."

If she truly believes that EPRI is "independent" of the electric utility industry, Feychting must be drinking the Kool-Aid at the Karolinska. We wonder whether Schüz at IARC and the others at the Danish Cancer Society think so too.

Maria Feychting, breast cancer, male breast cancer, Sam Milham, Maria Blettner, Sven Schmiedel, Gene Sobel, Richard Stevens, Leeka Kheifets, David Savitz, Nancy Wertheimer, childhood leukemia, EPRI, Mona Nilsson,

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