Health Physics

Another way EMFs might harm tissues

Though several studies have linked exposure to electromagnetic fields (EMFs) with an increased risk of developing any of several cancers, researchers have been hard-pressed to identify biologically plausible explanations for such associations. One possible mechanism gaining currency is the apparent ability of EMFs to modulate secretion of a brain hormone — melatonin — that regulates estrogen synthesis (SN: 7/3/93, p.10). In the Feb. 4 SCIENCE, Stanford University chemists describe witnessing another possible mechanism — the ability of weak EMFs to disrupt lipid membranes such as those that serve as the gatekeepers for chemicals seeking to enter or exit cells.

Harden M. McConnell and his coworkers created a simple membrane by floating molecules of fat-like lipids on the surface of water in a covered dish. Inside a glass pipette mounted vertically through the center of the surface film, the researchers inserted a wire that was connected to a power source. By running a current through the wire, they generated a weak electric-field gradient across the film's surface.

Under temperature and pressure conditions that might exist in living cells, they showed that even weak electric fields could induce a phase separation in the film — essentially a breakdown in the structure of this model barrier. If similar disruptions occur in real cells, McConnell says, they might alter receptors on a membrane surface and in so doing trigger an inappropriate cellular response.

The February HEALTH PHYSICS reviews many of the cellular, behavioral, immune system, and membrane effects seen in other EMF studies. "No mechanism has been identified that completely explains the link between EMFs and bioeffects," write William R. Hendee of the Medical College of Wisconsin in Milwaukee and John C. Boteler of SciCon Associates in Flagstaff, Ariz. However, they note, because most EMF effects appear to relate to a combination of field intensity and frequency, "less is not necessarily better." Argue the authors: Until the mechanisms and their relationship to cancer can be clarified, "prudent avoidance" of EMFs makes sense.

Identifying really hot research notes

Last fall, the National Archives center in Chicago notified Argonne (Ill.) National Laboratory that it had found World War II-era technical notebooks in open access that probably carried radioactive contamination.

Argonne Nat. Lab.

"Waffle-iron" radiation detector

Within 2 days, Argonne researchers fashioned what they believe is the first radiation detector designed to scan paper. Over the next 3 months, they used this device, which resembles an aluminum waffle iron, to assay 1,504 archived notebooks for radiation. One-third of the documents, found to contain low but detectable contamination, have been withdrawn from public access and replaced with duplicates. Argonne has just announced it will now make its unique instrument available to other centers that want to inspect their research stores for similarly "hot" papers.

Twenty years ago, Archie Bunker told Edith, "If you're going to have a change of life, you gotta do it right now. I'm going to give you thirty seconds."

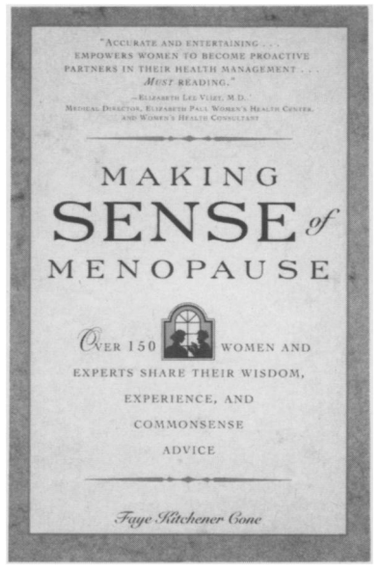
Of course things are not like that. Or are they? While writing *Making Sense of Menopause,* author Faye Cone conducted focus groups across the country. What she found was surprising.

One thing she learned is that many women in their early 40s still think the "m" word is light years away; that men still think that menopausal women are old hags; and that both men and women think that sexual pleasure dies after menopause. All of these statements have been promulgated for far too long—and are just plain wrong.

Making Sense of Menopause is the first prime-of-life guide that sets the record straight *and* gets you grinning at the same time. Cone wisely fills each chapter with the voices of over 150 people who pour their hearts out about the unexpected feelings, poignant struggles, and positive changes they made in mid-life. By interviewing hundreds of doctors, researchers, as well as midlife men and women, Cone finally gets honest answers to all of our questions—including the ones women and men are too embarrassed to ask. Some of what Cone discusses includes:

- what you can do about a hot flash in the middle of the night
- how to decide about hormone replacements
- which acupuncture, herbal, or homeopathic remedies work
- how men really feel about menopause
- how to calculate when menopause is likely to start
- how to handle menopause as it occurs, and for the rest of your life
- many nutrition and exercise techniques that work

—from Fireside



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