# Reducing EMFs in Your Life, Home and Bedroom to Make Your Bedroom a Sleep Sanctuary

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The discussion and steps below might not seem to apply to the general public. This paper is for people who feel, or even wonder about, if technology, devices and EMFs might be interfering with their sleep.

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Here is a link to thousands of studies presenting extensive evidence of the damaging health effects from human-made electromagnetic fields (EMFs). This link sorts those health effects into 12 categories.

https://www.americansforresponsibletech.org/scientific-studies

The paper below focuses on the fact that EMFs can interfere with sleep, and steps you can take to reduce EMFs in your bedroom to make your bedroom a sleep sanctuary.

There is evidence that EMFs cause the pineal gland to shut down secretion of melatonin, the hormone that helps us feel sleepy.

> Halgamuge, M.N.(2013). Pineal melatonin level disruption in humans due to electromagnetic fields and ICNIRP limits. *Radiat Prot Dosimetry,* May;154(4):405-16

Because we want the paper below to focus on solutions, it does not list numerous other studies that present evidence that EMFs interfere with sleep. We invite you to do your own research, typing in keywords "EMFs and sleep."

With any of the steps below, if you want more information, type in keywords from the some of the description of that step.

## Steps You can Take to Reduce EMFs in Your Life, Home and Bedroom to Make Your Bedroom a Sleep Sanctuary

If any of these ideas seem unusual to you, try any of them and evaluate for yourself if this helps you sleep better. Taking steps to support good sleep will help you feel healthier and stronger in your life.

- Never hold your cellphone next to your ear (close to your brain). Use speakerphone instead.
- If you use a headset, use a wired one, not Bluetooth.
- Do not use Bluetooth earbuds

- Connect your computer to the Internet using an ethernet cable rather than wi-fi router.

- Bluetooth devices transmit EMF that can interfere with health and sleep, so eliminate them wherever possible. Get a mouse and keyboard that have wired connection to your computer.

- Stop using your phone, computer or other electrical devices **one hour** before bed.

- Using your phone actively at bedtime for talking, texting, email and being online can interfere with sleep. Therefore, use your phone only as an audio player to listen to the sleep recording.

- If you do not have to be able to receive calls at night, turn your phone off. If you are going to be using your phone as an audio player to play the Sleep Easy recording, turn your phone on Airplane Mode so it is not connecting to wi-fi or cell towers. With the Sleep Easy app, download the sleep recordings, rather than streaming them. Then you can listen to the recordings when your phone is on Airplane Mode.

- The bluish-white light of screens on electrical devices blocks the brain's production of melatonin. On www.sleepeasymethod.com, you will find a link to glasses that block that particular frequency of blue light, but allow other light in, so you can see well and function without interfering with your brain's production of sleep-inducing melatonin. You will also find a link to blue-blocking filters you can put on your computer screen.

- Online video news uses graphics and other aspects of media to deliberately increase the intensity of the message, sensationalizing it to increase fear beyond the already fearful content of the story. If you feel that you must watch online video news and have to watch it after work hours, watch the evening news, not the late-night news close to bedtime. Do not watch online video news while in your bed. Do not look at any devices while in bed, except your phone briefly if you are using it for a sleep-supporting function.

- If you do not have to be able to receive calls at night, turn off your wi-fi router before bed. If you are skeptical this might have a beneficial effect, go online and search with the keywords "wi-fi interferes with sleep." Gather information and from that make your own decision. Still, don't just believe what other people say. As an experiment, turn off your router at night for a week and evaluate for yourself if this helps improve your sleep.

  If you find this helpful, then instead of unplugging your wi-fi router and plugging it back in in the morning, get an electronic timer you plug your router into and then plug the timer into the wall outlet.

- Many electric clocks produce strong magnetic fields and research has shown exposure to high magnetic fields can disturb sleep. Get rid of your electric alarm clock and get a battery operated one.

- Do not use an electric blanket or waterbed (which has an electric heater).

- Make sure that the area around your bed and on the other side of the wall from your bed is free of motorized equipment and electrical devices such as a refrigerator, freezer, electrical meter, entertainment center, or electrical baseboard heating. The magnetic fields from these devices drop away quickly so distance makes a difference.

- An article in *Scientific* American states that box springs act like an antenna that amplifies the intensity of the broadcast FM/TV radiation. If your mattress has metal springs or you have a box spring underneath it, get a mattress without springs and do not use a box spring underneath.

- If this next step seems too unusual, we invite you to try it for a week and evaluate for yourself if it helps you sleep better. Before bed, shut off the circuit breaker to your bedroom. Smoke or fire alarms should be battery powered, but double check, so they aren't affected by turning off the power. Also make sure your bedroom circuit breaker is not the one that gives power to your refrigerator or heater or anything else absolutely essential.

  Another step is before bed turn off all circuit breakers except the ones for the refrigerator and heater. You can purchase a switch that enables you to shut off circuit breakers from inside your home, without having to go out to the breaker box. Do an online search with keywords "demand switch to shut off circuit breakers."

- Get rid of compact fluorescent light bulbs in your home, but especially in your bedroom. Do online research with the terms, "compact fluorescent bulbs and dirty electricity."

- Behavior changes that support good sleep are usually called, "sleep hygiene." In the Sleep Easy app, you will find 38 sleep hygiene topics, with most containing information not found in usual presentations on sleep hygiene.

The telecom industry has been promoting 5G as having faster speeds and making many things (like the Internet of Things) possible. What they don't tell you is there have been thousands of studies with strong evidence about the damaging health effects of wireless radiation. There are thousands of doctors and other professionals stating that before 5G should be allowed to be rolled out, there should be studies conducted to prove 5G is safe.

At a congressional hearing, Senator Richard Blumenthal said to telecom executives, "I believe that Americans deserve to know what the health effects are. How much money has the industry committed to support independent research? Has any been completed… on the biological effects of this new technology?" Telecom executives replied, "There are no industry backed studies to my knowledge right now." Senator Blumenthal replied, "So we are flying blind here on health and safety."

For excellent information about 5G, go to www.SafeG.net

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Richard Shane, PhD, has been a behavioral sleep therapist for 25 years and developed a medication-free method, *Sleep Easy*. He serves nationally as a sleep consultant and work with several large medical groups serving over 300,000 patients. Sleep Easy is different from all other methods—no deep breathing, relaxing your entire body, visualization, meditation or hypnosis. When your head is on your pillow, you simply feel the body sensations that activate the neurological processes associated with sleep. Your mind and emotions become naturally quiet and calm and you fall asleep and back to sleep more quickly and easily and sleep more deeply—even in the midst of stress. Sleep Easy appeals to a culture that wants quick and easy results—most people sleep better their first night and say Sleep Easy feels like the way sleep naturally happens.

In a study published in the Journal of Sleep Disorders and Therapy, the Sleep Easy program was tested by police, firefighters, commercial airline pilots and the general public. 81.6% of the participants reported improved sleep, and the vast majority reported their sleep began to improve the first night or within the first few nights.

To be informed about the launch of the Sleep Easy app (this fall), go to www.sleepeasymethod.com.

www.sleepeasymethod.com/products contains links to products that will help you sleep better.

## Studies Presenting Evidence that Electromagnetic Frequencies Decrease Melatonin Production and Interfere with Sleep

Since the beginning of humanity, and up until the invention of artificial light, when it was dark, humans got ready for sleep and when daylight came, humans woke up. Our bodies are physiologically programmed to do so. Darkness signals the pineal gland to secrete melatonin, the hormone that signals the body to prepare for sleep. Light signals the pineal gland to stop secreting melatonin, and that signals the body to prepare for the day.

Many studies have proven that exposure to the bluish-white light of the screens of electronic devices decreases pineal secretion of melatonin. However, the focus of the document below is to present studies that have shown that exposure to electromagnetic frequencies (EMFs) also decrease pineal secretion of melatonin. In the study referenced below, *Pineal melatonin level disruption in humans due to electromagnetic fields and ICNIRP limits*, Malka N. Halgamuge, PhD theorizes, "The pineal gland is likely to sense EMFs as light." The pineal gland then reacts to EMFs by shutting down secretion of melatonin and the decrease in melatonin contributes to difficulty sleeping.

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Evidence that low frequency EMF exposure and temporally stable magnetic field exposures are associated with reduced nocturnal 6-hydroxymelatonin sulfate (6-OHMS) (melatonin) excretion in humans.

J.B. Burch, J.B., Yost, M.G., Keefe, T.J., Pitrat, C.A. (1998). Nocturnal excretion of a urinary melatonin metabolite among electric utility workers. *Scand J Work Environ Health,* 24, 183-189.

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This study conducted on electric utility workers found that magnetic fields they were exposed to from their work on electrical equipment induced melatonin suppression.

J.B. Burch, J.B., Noonan, C.W., Yost, M.G. (2000). Melatonin metabolite levels in workers exposed to 60-Hz magnetic fields: work in substations and with 3-phase conductors. *J Occup Environ Med,* 42, 136-142.

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In the following study, more than one hundred experimental data of human and animal studies of changes in melatonin levels due to power-frequency electric and magnetic fields exposure were analyzed. The results show the significance of disruption of melatonin due to exposure to weak EMFs, which may possibly lead to long-term health effects in humans.

Halgamuge, M.N.(2013). Pineal melatonin level disruption in humans due to electromagnetic fields and ICNIRP limits. *Radiat Prot Dosimetry,* May;154(4):405-16

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An in vitro exposure facility was used for 12-h overnight exposures of primary pinealocyte cultures to 0.05 mT, 60 Hz, vertical AC and 0.06 μT, DC fields. Data from 10 experiments demonstrated an average 46% reduction in norepinephrine-induced production of melatonin in the pinealocytes.

Rosen, L.A., Barber, I., Lyle, D. 1998) A 0.5 G, 60 Hz magnetic field suppresses melatonin production in pinealocytes. *Bioelectromagnetics,* 19(2):123-127.

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The following study was conducted with participants using a cell phone more than 25 minutes a day. They had lower nighttime 6-OHMS (melatonin) concentration compared with those without cell phone use.

Burch, J.B., et al. (2002). Melatonin metabolite excretion among cellular telephone users, *Int J Radiat Biol,* 78, 1029-1036.

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The study below found that exposure to EMFs was associated with reduced: total sleep time (TST), sleep efficiency, stages 3 & 4 slow wave sleep (SWS), and slow-wave activity (SWA). The results suggest that commonly occurring low frequency electromagnetic fields may interfere with sleep.

Akerstedt T., Arnetz B., Ficca G., Paulsson L.E., Kallner A. (1999) A 50-Hz electromagnetic field impairs sleep. *J Sleep Res,* Mar;8(1):77-81.

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The study below showed that exposure to 60 Hz, magnetic fields at night resulted in less total sleep time, reduced sleep efficiency, increased time in lighter (stage II) sleep, decreased time in rapid eye movement (dreams). Study participants reported sleeping less well and feeling less rested in the morning.

Graham C., Cook M.R. (1999) Human sleep in 60 Hz magnetic fields. *Bioelectromagnetics,* 20(5):277-83.

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This study showed that exposure to extremely low electromagnetic fields causes an increase in free radicals in the bloodstream, causing oxidative stress. Melatonin is a powerful antioxidant. The other studies in this document show that EMFs decrease production of melatonin. That further increases the level of free radicals in the bloodstream, causing oxidative stress. Oxidative stress has been shown to contribute to sleep difficulties.

El-Helaly, M, Abu-Hashem E. (2010) Oxidative stress, melatonin level, and sleep insufficiency among electronic equipment repairers. *Indian J Occup Environ Med*, 14(3):66-70.

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The above studies present evidence of EMFs interfering with sleep. A related factor is the *amount of time* spent using electronic devices directly correlates with decrease in sleep duration. The study below includes this verbatim statement from the study's results section:

Compared to 2009, adolescents in 2015 were 16%–17% more likely to report sleeping less than 7 hour a night on most nights, with an increase in short sleep duration after 2011–2013. *New media screen time (electronic device use, social media, and reading news online) increased over this time period and was associated with increased odds of short sleep duration, with a clear exposure–response relationship for electronic devices after 2 or more hours of use per day.* Other activities associated with short sleep duration, such as homework time, working for pay, and TV watching, were relatively stable or reduced over this time period, making it unlikely that these activities caused the sudden increase in short sleep duration.

Twenge, J.M, Krizan, J, Hisler, G. (2017) Decreases in self-reported sleep duration among U.S. adolescents 2009–2015 and association with new media screen time. *Sleep Medicine*, 39:47-53.