

RADIOFREQUENCY RADIATION (RFR) AS A PROMOTER/ENABLER OF ADVERSE HEALTH EFFECTS

by

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This brief note addresses one example of RFR as a promoter/enabler of adverse health effects.

INHALED TOXINS IN BLOODSTREAM

About a year ago, an interesting study was published (See Appendix 1) showing how air pollutants can end up in the bloodstream, and cause damage. Once in the bloodstream, these toxins have a springboard for doing further damage to many organs and tissues. It is my contention that this damage can be greatly exacerbated by simultaneous exposure to RFR, as shown in the following argument.

DISRUPTION OF IMPERMEABLE BARRIERS IN HUMAN BODY

The human body has a number of barriers to protect some of the vital organs. These include the blood brain barrier, the blood testis barrier, the blood retinal barrier, and many others. Because of concerns about cell phone disruptions of the blood brain barrier (BBB), there have been a number of studies examining the effects of (mainly) RFR on the BBB specifically. The Environmental Health Trust (EHT) has summarized some of these studies, and excerpts from their summary are presented in Appendix 2. These studies conclude there is an increase in the permeability of the BBB from the RFR, potentially allowing molecules/particles from the bloodstream to cross the BBB and enter the brain that normally would have been blocked by the tight junctions of a healthy BBB.

It should be stated that other studies do not report such an effect. The parameter space in which these types of studies are conducted is very broad. These other studies may have been conducted in a region of parameter space where the BBB disruption does not occur, either inadvertently or by deliberate design!

SYNERGISTIC EFFECTS OF RFR AND INHALED TOXINS

Given that the EMF adverse health effects literature is replete with examples of 'manufactured' research to counter findings of serious EMF adverse health effects, it is reasonable to assume that the studies showing disruption of the BBB by RFR are credible. If we combine the results of the two phenomena above, some of the pollutants from the air will end up in the bloodstream, and some of these pollutants in the bloodstream may end up crossing the blood-brain barrier when it is subjected to RFR. Obviously, people living in more polluted areas would, on average, experience more pollutants ending up in the brain than those in less polluted areas.

RFR AS PROMOTER OF ADVERSE HEALTH EFFECTS

The main point here is that, in addition to any direct damage done by RFR to DNA and other components, the RFR acts as a promoter/enabler by weakening the tight junctions of a healthy BBB and allowing toxic molecules to enter the brain that would have ordinarily been blocked. This is why, in conducting RFR safety experiments, it is not only *important* to conduct experiments consisting of RFR in combination with other potentially toxic stimuli; it is *imperative* to conduct these combined experiments to get the full scope of the damage. Isolated RFR experiments in pristine environments would miss these synergistic effects, which could be major contributing factors to disease in an ever-increasing polluted world.

RFR EXPOSURE INCREASED BY SMALL CELL TOWERS

From some of the city/county maps I have seen of projected/existing small cell tower locations, they tend to be in high-density urban/near-urban business locations. For areas with which I am familiar, these are also heavily polluted areas, mainly from traffic. Additionally, these initial small cell towers are 4G (~1-2 GHz), but located in much greater proximity to the public than the larger cell towers.

Based on planning documents I have evaluated, average power fluxes to which passerby may be exposed could be on the order of a few hundred thousand microwatts/square meter from these small cell towers. The only limit the planners put on the power fluxes is the FCC limit, and they tend to advertise that public exposures will be 'only' a few percent of that limit. Using other wireless devices when in proximity to these closely-spaced small cell towers will only enhance the adverse health effects from the cell towers.

So, integrating the above, we are now being faced with 1) high full body power flux RFR with 2) penetration ability into the body being 3) placed in high air-pollution regions from 4) small cell towers. With enhanced BBB penetration of pollutants, we can expect substantial increases in neurodegenerative diseases of myriad types.

RFR DISRUPTION OF OTHER BARRIERS IN THE BODY

Unfortunately, the above effects may be the tip of the iceberg. Why would RFR selectively increase the permeability of only the BBB? Should we not expect the RFR to decrease the integrity of the tight junctions of the myriad other barriers in the body? So far, the main emphasis of the RFR research related to barriers has been on the BBB due to interest in cell phone adverse effects. However, now that potential exposures from small cell towers orders of magnitude greater than those experienced from the tall cell towers may become the norm, especially in highly populated/business areas, disruption of these other barriers may become a serious issue. With high power flux full body exposures from small cell towers, some/many of these other barriers will be assaulted in parallel, not just the BBB (as was the case for cell phone exposure).

SUMMARY

In summary, we have hundreds of pollutants in the air we breathe (indoors and outdoors), the water we drink, the food we eat, and the products we touch. Depending on a number of factors, some or most of these potential toxins can enter the bloodstream. Under full body high power flux RFR, these toxins can penetrate the various blood-organ barriers normally impermeable to them. Other types of barriers can be penetrated as well, and the protective compartmentalization of the body can become very dysfunctional. However, to display the full extent of these adverse effects in safety studies, where the RFR is functioning as a promoter/enabler, experiments are **required** to include these other toxic stimuli in combination with the RFR.

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APPENDIX 1 - INHALED GOLD NANOPARTICLES IN BLOODSTREAM

(<https://www.reuters.com/article/us-health-air-pollution/study-finds-how-polluting-nanoparticles-get-into-blood-and-damage-hearts-idUSKBN17S1J9>).

In experiments using harmless ultra-fine particles of gold, the scientists were able for the first time to track how such nanoparticles are breathed in, pass through the lungs and then gain access to the blood.

Most worryingly, the researchers said at a briefing in London, the nanoparticles tend to build up in damaged blood vessels of people who already suffer from coronary heart disease – the condition that causes heart attacks - and make it worse.

APPENDIX 2 - DISRUPTION OF BLOOD BRAIN BARRIER BY RFR

(<https://ehtrust.org/key-issues/the-environment-and-health/wireless-radiation-electromagnetic-fields-increases-toxic-body-burden/>),

Several studies (Poullietier de Gannes et al., 2017, Nittby 2009, Nittby 2008, Eberhardt 2008, Persson 2008, Salford 2003) have consistently reported increased blood-brain barrier permeability after exposure to EMF. In 2015, the well respected journal Brain Research published a study from Chinese scientists entitled Exposure to 900 MHz electromagnetic fields activates the mcp-1/ERK pathway and causes blood-brain barrier damage and cognitive impairment in rats. In this study, scientists confirmed the findings of Leif Salford and colleagues showing that exposure of rats to cell phone radiation causes leakage of the blood-brain barrier (BBB). Tang et al. also pointed out that activation of stress response pathway is involved in the effects, concluding, "Taken together, these results demonstrated that exposure to 900 MHz EMF radiation for 28 days can significantly impair spatial memory and damage BBB permeability in rat by activating the mcp-1/ERK pathway."