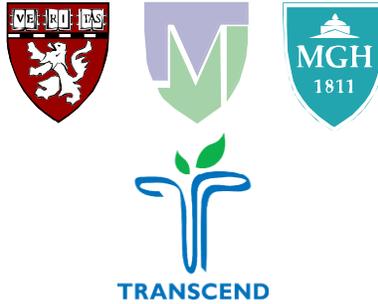


HARVARD MEDICAL SCHOOL



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c/o Russel MacDonald at [admin-assistant@rsc-src.ca](mailto:admin-assistant@rsc-src.ca)

TO: Dr. Paul Demers  
FROM: Martha R. Herbert, PhD, MD  
RE: Possible link between autism and low level exposure to Electromagnetic Frequencies (EMF) and Radiofrequency Radiation (RFR)  
DATE: October 25, 2013

I am a pediatric neurologist and neuroscientist on the faculty of Harvard Medical School and on staff at the Massachusetts General hospital. I am board Certified in Neurology with Special Competency in Child Neurology, and Subspecialty Certification in Neurodevelopmental Disorders.

I have an extensive history of research and clinical practice in neurodevelopmental disorders, particularly autism spectrum disorders. I have published papers in imaging brain research, in physiological abnormalities in autism spectrum disorders, and in environmental influences on neurodevelopmental disorders such as autism and on brain development and function.

Based upon by now thousands of papers, it has become clear that although Autism Spectrum Disorders/Conditions (ASD/ASCs) are defined behaviorally, they also involve multileveled disturbances of underlying molecular, cellular, organ system and brain/nervous system biology. They particularly involve disturbances in the electrophysiology of the central and autonomic system nervous systems. Based upon these aspects of the science of ASCs, I became interested in the mechanisms by which Electromagnetic Frequencies (EMF) and Radiofrequency Radiation (RFR) might contribute to the development or worsening of ASCs.

In 2012 I conducted an extensive review of the literature pertinent to a potential link between ASD/ASCs and EMF/RFR. While this potential link has not received much specific research attention, there are striking parallels between the pathophysiological problems now extensively documented ASCs and the pathophysiological consequences of EMF/RFR exposures that have also been extensively documented. My review, which documented these parallels, had over 550 citations, was recently published in two parts in the journal *Pathophysiology* under the title **Autism and EMF? Plausibility of a Pathophysiological Link** (<http://www.ncbi.nlm.nih.gov/pubmed/24095003> and <http://www.ncbi.nlm.nih.gov/pubmed/24113318>).

We now know that there are a large array of EMF/RFR effects that have nothing to do with thermal impacts. The set of parallels between ASD/ASCs and EMF/RFRs I have documented provides one of many rationales for updating regulation to incorporate a serious respect for these non-thermal impacts and for protecting the population and other living beings regarding these other aspects of exposures. A further rationale is the enormous increase in the use of wireless technologies in the population, especially including pregnant women, infants and children, as well as the genotoxicity now known to be associated with EMF/RFR exposures.

Based on these pathophysiological parallels and health concerns, along with dramatic increases in reported ASD/ASCs that are coincident in time with, among other things, the deployment of wireless technologies, we need aggressive investigation of potential ASD/ASC-EMF/RFR links. The evidence is sufficient to warrant new public exposure standards benchmarked to low intensity (non-thermal) exposure levels now known to be biologically disruptive, and for public health advocacy of strong, interim precautionary practices to reduce unnecessary exposures to EMF/RFR in daily life (such as baby monitors next to baby heads which could cause harm to baby brain development, plugged in laptops directly on the laps of pregnant women which could impact the fetus, hours of cell phone use in children given that children are now known to be more vulnerable, multiple EMF/RFR-emitting devices left running or plugged in all night in bedrooms, and cell phones in pants pockets of men which is now associated with causation of mutations in sperm cells and reduction in sperm count).

Sincerely,

A handwritten signature in black ink, appearing to be 'MH', with a long horizontal flourish extending to the right.

Martha Herbert, PhD, MD