

PLEASE SEE RELATED MAPS:

AUTISM
TINNITUS
INSOMNIA
MELATONIN
EEG AND EMF
EMF AND THINKING
MEMORY PROBLEMS
ALZHEIMER'S DISEASE
EMF AND THE IMMUNE SYSTEM
EMF AND THE NERVOUS SYSTEM

INDEX (PDF) OF ALL MAPS
RELATED TO EMF AND THE BRAIN

EMF AND THE BRAIN:

Cognitive, processing problems
Mood and behavior problems
Benign tumors
Malignant tumors
Tinnitus and sensory problems
Memory difficulties
Neurodevelopmental problems
Neuroinflammatory problems
Blood flow alternations
Melatonin and sleep problems



[MW genotoxic, rat brains](#)

[Oxidative DNA damage](#)

[Genetic differences, apoptosis](#)

[EMF alters brain development](#)

[Up and down-regulation of genes](#)

[Genotoxic effects on mouse brain, RF](#)

[Decreased hippocampal neurogenesis](#)

[Prenatal exposure harms brain develop.](#)

[Cell death, ferromagnetic transduction](#)

[mRNA expression, long term RF exposure](#)

[Reduced Purkinje cells, increased granule cells](#)

Blood flow and barrier

[Mix of effects](#)

[Prefrontal blood flow](#)

[Reduced local blood flow](#)

[Blood-brain barrier leakage](#)

[Heart rate variability changes](#)

[Disrupted cerebral blood flow](#)

[Cell Phones, blood-brain barrier](#)

[Albumin leakage, barrier breach](#)

[Video presentation: Dr. Leif Salford](#)

[Focal barrier disruption, pulsed HF EMF](#)

[RF, changed local blood flow, temperature](#)

[Autistic Spectrum](#) [THE BIOINITIATIVE 2012](#)

[Neurology and Behavior](#)

[Brain Tumors, Dr. Hardell](#)

[Melatonin, Alzheimer's Disease](#)

[Changes in brain activity](#) **Metabolic functions**

[Brain histology, biomarkers](#)

[Changes in brain metabolism](#)

[ELF changes neurotransmitters](#)

[Disturbance in calcium metabolism](#)

[EMF/RF and brain glucose metabolism](#)

[EMF/MF and brain glucose metabolism](#)

[Occupational radar, melatonin, serotonin](#)

★ [MW, effects on brain energy metabolism](#)

★ [MW, enzymatic changes in hippocampus](#)

[Mobile phone, pulsed EMF, neurotransmitters](#)

[EMF/RF alteration in expression of 143 proteins](#)



Glia **Neural architecture**

[Receptor changes](#)

[Hippocampal cell loss](#)

[Hippocampal neurogenesis](#)

[Hippocampal neuron density](#)

[Brain weight affected, young](#)

★ [Rates, cerebellar morphology](#)

[RF, structural hippocampal changes](#)

[MW exposure impairs synaptic plasticity](#)

[Whole body exposure, rat, adult neurogenesis](#)

Genetic effects

BRAIN TISSUE DEHYDRATION

Pain response changes **Neuroprocessing**

[Gender related changes](#)

[Ion channel transduction](#)

[Calcium channels, apoptosis](#)

[Increased excitation/facilitation](#)

[Serotonin receptor deformation](#)

★ [Nonlinear sensory transduction](#)

[Decreased cytochrome c oxidase](#)

[Change in motor evoked potentials](#)

[Induction of stochastic resonance](#)

[Attentional changes, gender, W-Fi](#)

[Upregulation calcium channel function](#)

[Audio: Brain changes from electronics](#)

[Electrical fields, polarization of neurons](#)

[Dirty electricity, stress, neurotransmitters](#)

[Osmolarity affects threshold field effects](#)

["Undeniable effects", EMF "maestro" to neurons](#)

[4G, cell phones, 30 minutes, neuroprocessing](#)

Central nervous system diseases

MULTIPLE BRAIN EFFECTS OF EMF

Epilepsy

[Parkinson's disease](#)

[Increased dementia](#)

[Alzheimer's disease](#)

[Increased beta-amyloid](#)

[Extensive neurodegeneration](#)

[CFAP expression altered, gliosis](#)

[Neurotoxicity, inflammation, EMF](#)

[EMF one factor, rise neurodegeneration](#)

Neurosensory systems

[Tinnitus and EHS](#)

[Tinnitus, mobile phone use](#)

[Change in hearing threshold](#)

★ [Mobile phone use, tinnitus](#)

[Change in auditory cortex function](#)

[EHS and Exploding Head Syndrome](#)

[Mobile phones, audiologic disturbances](#)

Mood/behavior

[Anxiety](#)

[Depression](#)

[Behavior in rat](#)

★ [ELF, rates, anxiety](#)

[Depression, anxiety, ELF](#)

[False statements believed](#)

[Neuropsychiatric problems](#)

[Locomotor changes, MF, rat](#)

[Emotionality, locomotion, rats](#)

[Locomotor changes, MF, gerbils](#)

[Bavarian children, behavior problems](#)

[ELF, locomotor changes, male rats](#)

[Neurobehavioral problems, tower, Latvia](#)

[Behavioral changes, oxi. stress, zebrafish](#)

[Sleep-dependent performance, RF pulses](#)

★ [MW, anxiety and depression behavior, mice](#)

[Prenatal exposure, cellphones, devel., behavior](#)

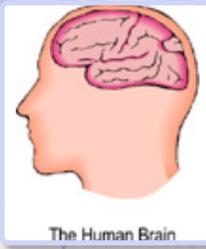
[MW, widespread psychiatric effects, depression](#)

FMRI:
DEFAULT MODE NETWORK
★ **HYPERCONNECTIVITY IN EHS**

HIGH QUALITY STUDIES
★ **INDICATE TUMOR RISK**

★ **APOPTOSIS, NOT AUTOPHAGY**
OF BRAINSTEM NEURONS

NON-IONIZING ELECTROMAGNETIC FIELDS: EFFECTS ON THE BRAIN



The Human Brain
Cognition

Tumors

[Glioma](#)

[Astrocytoma](#)

[New EU study](#)

[A Child's Brain](#)

[Acoustic neuroma](#)

[Glioma, temporal lobe](#)

★ [ELF, cancer promoter](#)

[Glioma, acoustic neuroma](#)

[MetaAnalysis re: mobile phones](#)

[Occupational powerline exposure](#)

[Electrical appliance use, adult brain tumors](#)

[25 year latency, brain tumors, cell phones](#)

[Study, number of cell phone contracts, tumors](#)

[Study, deceased mobile phone users, controls](#)

[Study on tumor promotion vs. tumor causation](#)

★ [Long term cell phone use increases tumor risk](#)

[CERENAT study, more risk in heavy, chronic users](#)

★ [Mobile phone, case studies, glioma, temporal lobe](#)

[Mobile phone use, intracranial tumors, meta-analysis](#)

★ [Mobile and cordless phone risks, glioma since 1965](#)

[Rising brain tumor rates in US, cell and cordless phones](#)

[Report on Tumors in Brain and CNS, Mobile Phone Use](#)

[Increased risk of tumors, 290%, after 10 years cellphone use.](#)

[Attention, memory](#)

[Impaired cognition](#)

[Attention, reaction time](#)

★ ["Digital Dementia"](#)

[Rumination, vulnerability](#)

[Executive function changes](#)

[Faster, less accurate learning](#)

[Wi-Fi and memory, cognitive tasks](#)

[Alteration of cognition, 5-HTP, MW](#)

[Children, cellphones, ADHD increase](#)

[Mobile phones, cognitive changes, youth](#)

[Cognitive neurogenotoxic, neurogenotoxic, MW](#)

★ [Low level MW, cognitive changes, DNA damage](#)

Oxidative damage

[Glial apoptosis](#)

[Mitochondrial DNA](#)

[Antioxidant depletion](#)

[Brain oxidative damage](#)

[Beware your cell phone](#)

[Oxidative damage, 900 MHz, rat](#)

[Oxidative damage, 950 MHz, rat](#)

[Cellphones, Wi-Fi, oxidative stress](#)

[Low intensity MW, oxi. stress, rat brain](#)

[Oxidative stress, cell signaling, brain, 3G](#)

[Oxidative stress, cerebellum ELF, mouse](#)

[Study review, brain effects, MW, oxidation](#)

[RF, oxidative stress, specific brain regions](#)

[Neurotoxicity, mitochondria, oxidation, brain](#)

[EMF, ringtone, vibration, each produce oxi. stress](#)

OVERVIEW OF NEUROLOGIC EFFECTS

DR. JOEL MOSKOWITZ: EMF AND BRAIN CANCER

Home: [Oscillatorium](#)
Newest version [this map](#)
Date of this update: 10-29-17

NTP:
DON'T BELIEVE THE HYPE

NMR, CELL PHONE
BRAIN RADIATION ABSORPTION

