Free Radical Activity (Oxidative/Nitrosative Stress) and EMF

OXYGEN AND NITROGEN FREE RADICALS:

WHEN SUPEROXIDE -- AN OXYGEN-DERIVED FREE RADICAL -- MEETS NITRIC OXIDE (WHEN IT IS IN HIGH CONCENTRATIONS IN TISSUES), REACTIVE NITROGEN SPECIES ARE FORMED. THERE IS A CASCADE OF FREE RADICAL ACTIVITY AND CELL DAMAGE. WHICH EVOLES INTO A CYCLE, OR CYCLE OF CYCLES. ONCE THE CYCLE STARTS, IT DOESN'T STOP UNTIL THE STRESS IS REMOVED AND BALANCE IS RESTORED.

BIRDS, BEES, AND MANKIND: Destroying Nature by Electrosmog, Ulrich Warnke

Oxidative Stress, Microwave Exposure

Oxidative Stress, Microwave Exposure, Protection by Melatonin

BioInitiative 2014 Update: Free Radical Studies

Definitions

- Free radicals and your health
- Effects of reactive metabolites
- Oxidative and nitrosative stress

Dr. Pall:

- EMFs act via VGCCs
- NO/ONOO Cycle
- EMFs, Biological Harm
- EMF, Oxi. Stress, V.G. Ca++ Channels

EMF, Oxidative Stress, Neurodegeneration

Monochrome Red LED, Protection, Oxi. Stress

Home: Oscillatorium
Newest version this map
Date of this update: 05-07-16

See Other Maps:

- Melatonin
- DNA/RNA
- Methylation, Glutathione

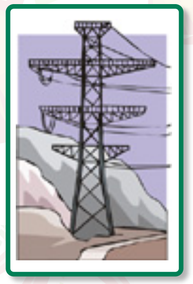
Vimeo:
RESONANCE
Magnetite, Cryptochrome, Melatonin, Free Radicals, EMF

Studies

- EMF, ROS, fetus
- ELF, reduced NO
- ELF-MF, caspase
- MW/RF, MDA, brain
- Modulated RF, redox. changes
- RF, new oxidant for living cells
- Cell phones, Wi-Fi, oxi. stress, brain
- Link between wireless, oxi. stress
- ELF-EMF, multiple ROS mechanisms
- ELF-EMF bio-effects, cell types, redox.
- ELF-EF, VEP, SSEP, lipid peroxidation
- MW, oxi. stress, prenatal, liver, brain
- MW, oxi. stress, lung, heart, testis, liver
- ELF-MF, oxi. stress, lipid peroxidation, rats
- ELF-EMF, catalase, iNOS, NO synthase
- RF, oxidative mechanisms of bio-effects
- Static MF, oxi. stress, glucose/insulin changes
- MW, circadian changes in antioxidant prod.
- MW, oxi. stress, inflammation, DNA damage
- ELF-MF, oxi. stress via MAPK-p38, ERK 1/2

NO/ONOO Cycle

- Dr. Pall's book
- A vicious cycle, chronic illness
- Dr. Pall before Portland Board of Educ.



Studies

- ELF, protein oxidation
- ELF, PCO, 3-NT, AOPP
- RF, ROS, neuronal cells
- MW/RF, MDA, NO, retina
- Modulated RF, oxidative stress
- MW, ROS, monocyte apoptosis
- MW/RF, MDA, NO, myocardium
- ELF, free radicals, DNA damage
- MW/RF, MDA, NO, renal tubules
- ELF, increased 8-OH-dG, TBARS
- MW/RF brain oxidation, rats, garlic
- MW/RF, rabbit liver, lipids, 8-OH-dG
- RF, oxi stress, different brain regions
- ELF, increased TBARS, H2O2, heart
- ELF-EMF, oxidative stress, cell death
- MW/RF, antioxidant decrease, sperm
- ELF, cortical neurons, increased ROS
- MW/RF human saliva oxidative stress
- ELF, increased MDA, NO3, NO2, NOx
- MW/RF, mitochondrial DNA, 8-OH-dG
- MW/RF, mobile phone, oxi stress to cells
- MW/RF, oxi stress to brain, liver, kidneys
- ELF, cells less tolerant of oxidative attacks
- MW/RF, mononuclear ROS and apoptosis
- ELF, cell specific RedOx and EMFs, cancer
- ELF, muscle mitochondria, redox, oxidation
- MW/RF, GSM base station, oxidative stress
- ELF, increased MDA, antioxidant decreases
- ELF, EMF bio-effects mechanism, oxi. stress
- MW, low level exposure, oxi stress, cognition
- MW/RF, ROS, rat pregnancy, liver antiox. stores
- ELF-EMF activates pathway, inhibits cell prolifer.
- ELF, DNA damage from reactive oxygen species
- ELF, NOS, potential for wound healing, bio-effects
- ELF-EMF, movement restraint vs. oxidative stress
- MW/RF oxi. stress, antioxidant defense, rat brain
- ELF, increased MDA, decreased melatonin activity
- ELF, increased MDA, lower antioxidants, adipocytes

"The existing scientific literature abundantly documents disruptions of the redox balance in organisms through reactive oxidative and nitrogenous species (ROS/RNS), causally connected to the exposure to electromagnetic fields of mobilradio [sic] and wireless communication."

Ulrich Warnke

"The basic mechanism of the [NO/ONOO] cycle is local and will be localized to different tissues in different individuals. The reason for this primarily local nature is that the three compounds involved, NO, superoxide and ONOO, have limited half lives in biological tissues... This allows for… a huge spectrum of illness."

Marin Pall

"Substances with an excess of electrons are indispensable for metabolism if humans and many animals want to remain healthy. Electromagnetic oscillations destroy this electron excess and form nitrosative-oxidative species (RNS/ROS). The situation is fatal to a person if anti-oxidants are also absent in the diet."

Ulrich Warnke

IMPORTANT FREE RADICALS AND BREAKDOWN PRODUCTS, WITH STUDY ABBREVIATIONS

From oxygen
Reactive oxygen species (ROS)
Superoxide (SO)
Hydroxyl radical
Peroxyl radical
Hydrogen peroxide
Singlet oxygen

From nitric oxide (NOx)
Reactive nitrogen species (RNS)
Peroxynitrite (NO2)
Nitrate (NO3)

From cell lipids
Malondialdehyde (MDA)

From protein
Advanced oxidation protein products (AOPP)
3-nitrotyrosine (3-NT)
Protein carbonyl (PCO)

From DNA
8-dehydroxy 2- hydroxyguanosine (80HdG)

From plasma
Thiobartituric acid reactive substances (TBARS)