

# 4G/5G Microwave Technology

## Embrace or Reject?



Russell S. Witte, PhD  
Feb 23, 2022  
Pennsylvania for Safetech

# 5G Wireless Infrastructure in Arizona



- “Smart” cities require small cells every ~500 ft (3 homes)
- Internet of Things (IoT) monitors everything and everybody 24/7
- 4G/5G adds harmful pulsed microwave radiation to our neighborhoods

# Wait! Is 5G Microwave Technology Really “New”?

Popular Science  
in 1947 by  
Martin Mann

“Invisible network will handle phone rails, telegrams, television, FM and AIM broadcasts, complete newspapers—even carry your mail.”

## The Microwaves Are

Invisible network will handle phone calls, telegrams, television, FM and AM broadcasts, complete newspapers—even carry your mail.

By Martin Mann

PSM photos by Robert F. Smith

COMMUNICATIONS are being revolutionized faster than you think. The humming wires beside the highways already are rivaled by new systems, capable of transmitting more spoken or written words and more still or moving pictures from coast to coast. The difference between these new systems and those of the past is as great as that between oxcarts and stratoliners. Radio relay systems, coaxial cables, and other improvements in communications systems soon will bring you not only better, faster services such as you already know, but also completely new kinds of service.

Your radio program now comes to you in waves a fifth of a mile long. Your son's television program, and his telegrams and long-distance phone calls—even his mail—will come to him in waves only two or three inches long. Telegrams are now flying between New York and Philadelphia in these microwaves; phone calls will be made in microwaves next year between New York and Boston; and television shows are being sent this way now from New York to Schenectady and Philadelphia.

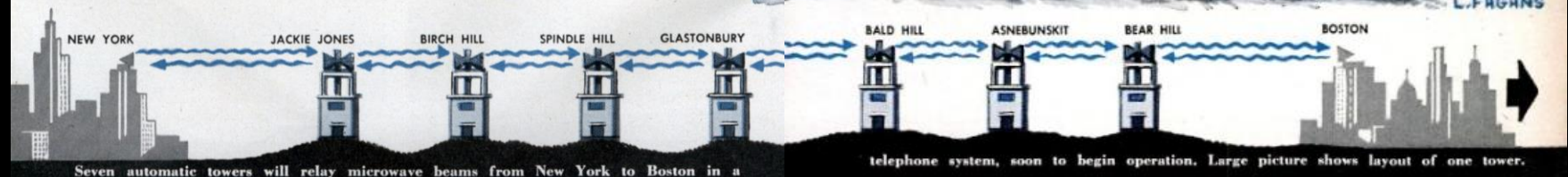
These microwave relays use invisible beams in the air instead of wires. No poles support them. The poles and wires are replaced by steel or concrete towers every 30 miles or so. On these towers are antennas that catch the microwaves, shunt them down to repeater equipment to be amplified, then send them on to the next station.

These relay stations are as automatic as

electric refrigerators—designed to operate with only occasional human supervision. If a tube fails, its duplicate is standing by, ready to switch into operation immediately without interrupting service—and at the same time to flash a trouble signal to the nearest testboard. A furnace heats each tower building in winter and in the summer it is cooled by air-conditioning devices for the machinery's benefit. Banks of batteries and current from the local utility companies supply the power. In some stations, a gasoline generator automatically starts itself and takes over the job of charging the batteries if the utility lines fail.

You will not notice any difference when your phone calls begin to go through these radio relays. On a call from New York to Boston, for example, your voice will travel as usual from the handset through the switchboard into a trunk line for Boston. That trunk line now is a thick copper, rubber, and lead cable buried in a ditch along the Atlantic coastline. When radio relay is used, however, the cable carrying your voice will end on the roof of the telephone building in lower Manhattan. There it will feed into a microwave transmitter, aimed at the first relay station atop Jackie Jones Mountain, N. Y., 35 miles away.

At Jackie Jones, a strange antenna that looks like a big square metal funnel will receive the beam. This antenna is a set of criss-crossing metal plates that focus microwaves into a narrow beam. From this lens, the beam will travel down into the tower to amplifiers, to be strengthened after its 35-mile trip. It will then go back up to a



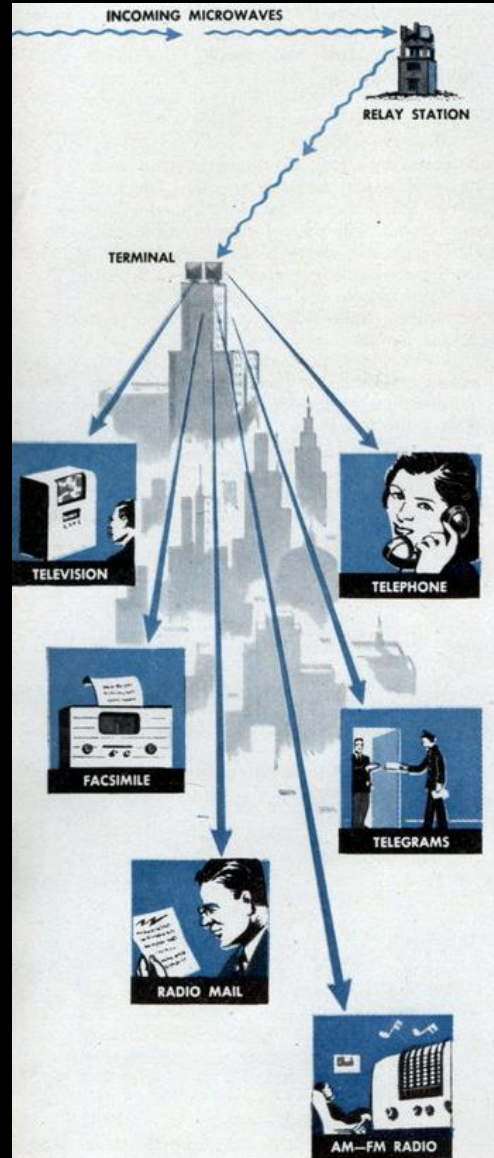
Seven automatic towers will relay microwave beams from New York to Boston in a

telephone system, soon to begin operation. Large picture shows layout of one tower.

# Wait! Is 5G Microwave Technology Really "New"?

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in 1947 by  
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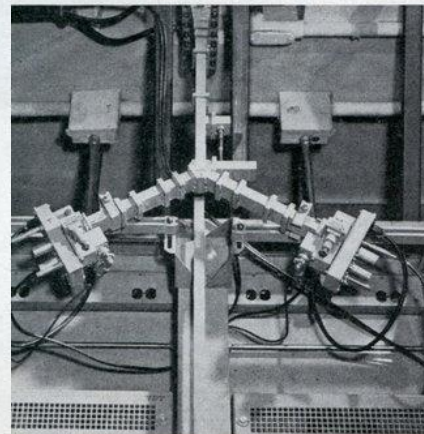
"Invisible network will handle phone rails, telegrams, television, FM and AIM broadcasts, complete newspapers—even carry your mail."



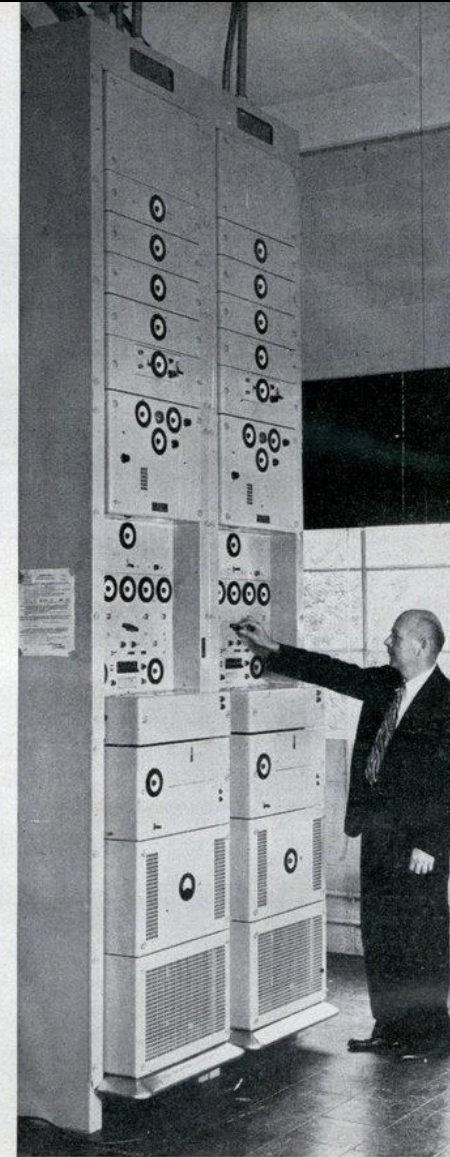
The microwave relays will serve as a trunk-line highway for all kinds of communications, as illustrated in the above drawing. Radio is used only to carry traffic to the city terminal; it is distributed from there to users on wires.



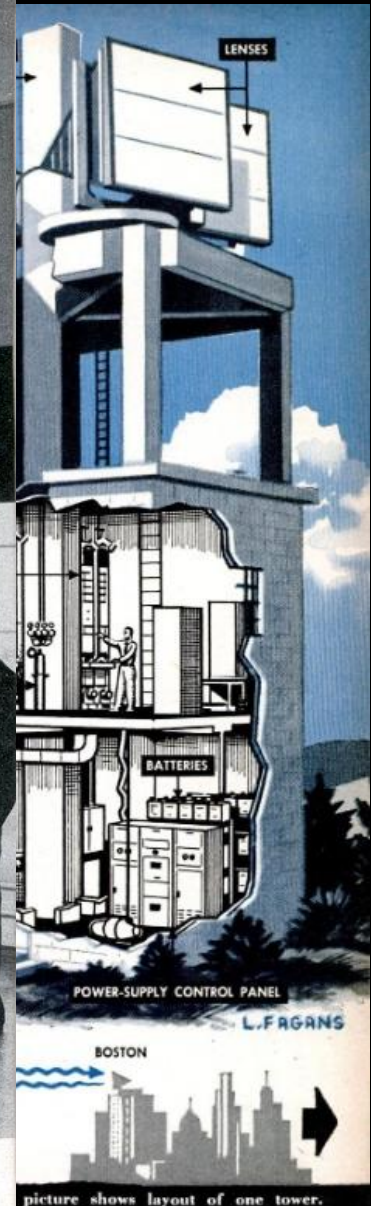
Hornlike metal lenses serve as antennas, one receiving, the other transmitting, microwaves. They focus the waves into narrow beams the way light is focused by glass lenses. The focused beams travel to and from the amplifiers below in the gracefully curving wave guides, which are hollow square copper pipes.



After passing through the roof, the wave guides come down behind the amplifiers and divide into Ys that split the beam into two channels. The Y shown is the receiving end; transmitting Y is near bottom of amplifier.



An engineer adjusts amplifying equipment on one of the two microwave channels from this relay tower to the terminal station. A similar pair of amplifying panels (out of picture to left) controls channels going the other way.



picture shows layout of one tower.











# Social Engineering via Science & Technology in 1930s



- “Technocracy is the science of **social engineering**, the scientific operation of the entire social mechanism to produce and distribute goods and services to the entire population...”
- “There will be no place for politics, politicians, finance or financiers...”
- “Technocracy will distribute by means of a certificate of distribution available to every citizen from birth to death.”
- Concept was **largely rejected** by society post WWII

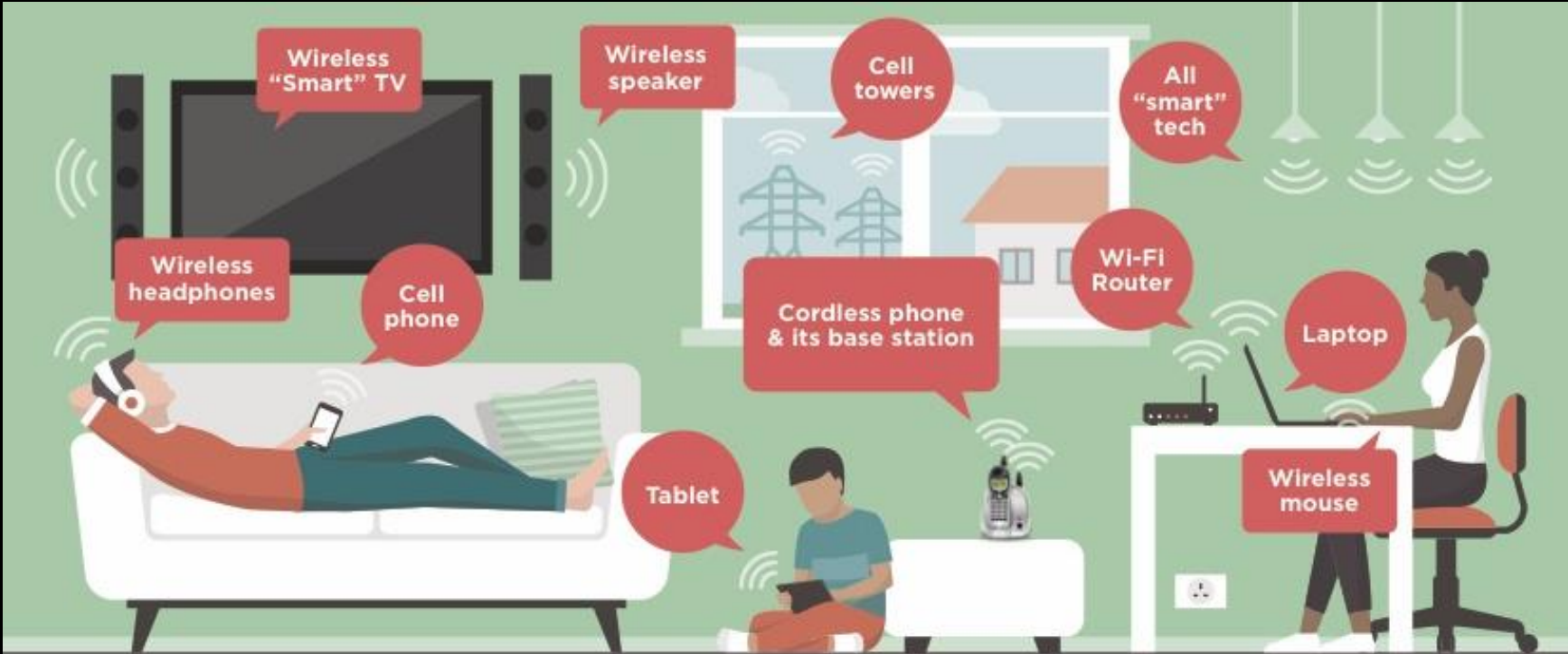
**The Technocrat (1938)**

# What is 4G/5G?

|  |   |  |
|--|---|--|
|  <p>2008<br/><b>4G</b></p>  |  <p>2020?<br/><b>5G</b></p> <p><small>CNN/MONEY</small></p>  |  |
|   <p>Texting    Internet access</p>  <p>Video</p> |   <p>Texting    Internet access</p>   <p>Ultra HD &amp; 3-D video    Smart home</p> |  |
| <p><b>4G Frequencies</b></p>   | <p><b>5G Frequencies</b></p>  |  |
| <p><b>LTE 4G</b><br/>Upto 2.5 Ghz</p>  | <p><b>IoT 5G</b><br/>Upto 95 Ghz</p>  |  |

Connecting everything to a grid 24/7

# Smart Cities and Internet of Things (IoT)



Wireless MP3 player



Wearable wireless including "smart" watches, fitness wristbands & ear buds



Virtual reality with smartphone  
Wireless game console/headset/controller



Wireless keyboard



Wireless printer



All items with Bluetooth

Learn more at [www.ehtrust.org](http://www.ehtrust.org)

# Medical Privacy and Internet of Bodies (IoB)

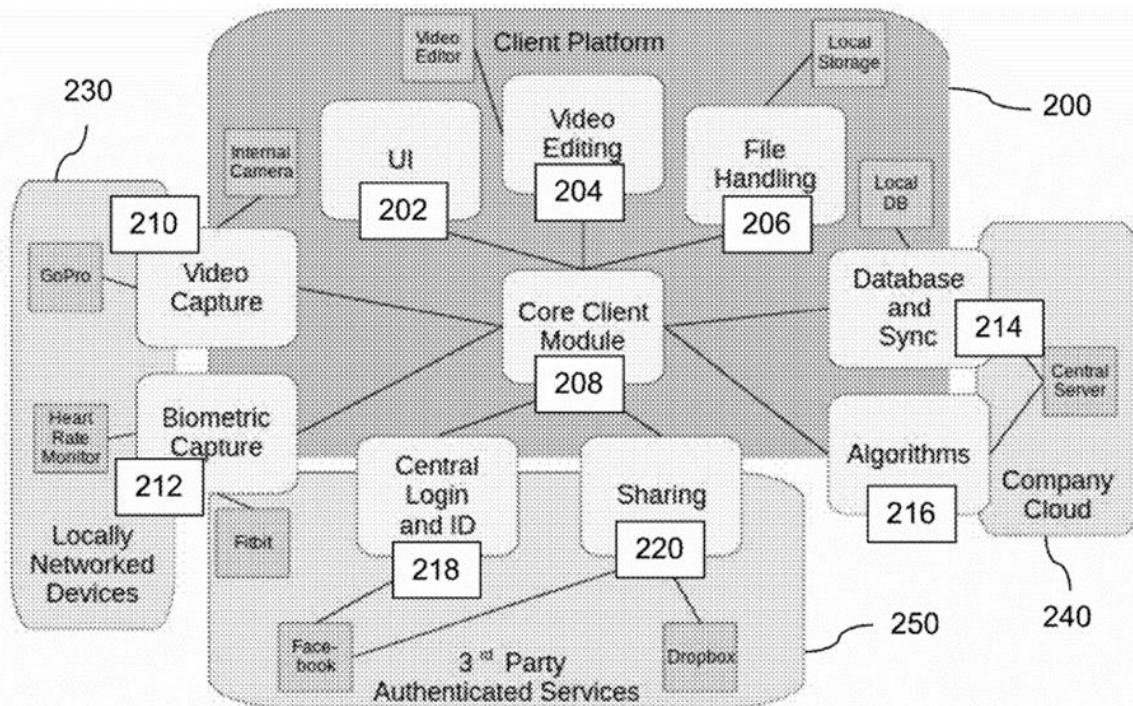
(54) **SYSTEM AND METHOD FOR TESTING FOR COVID-19**

(71) Applicant: **Richard A. Rothschild**, London (GB)

US 20200279585A1

(19) **United States**

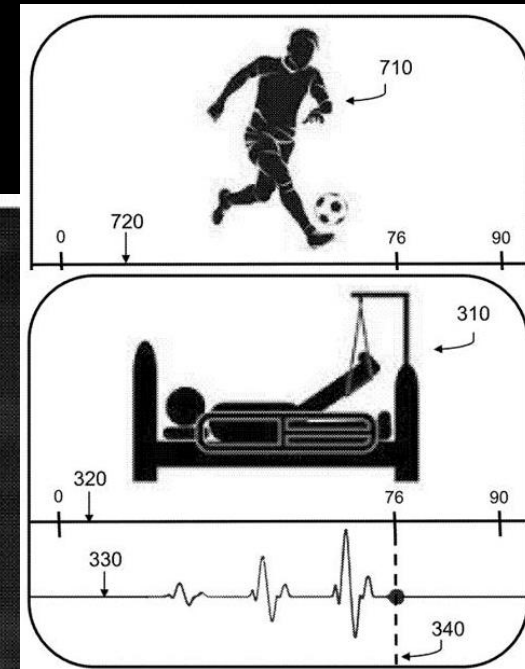
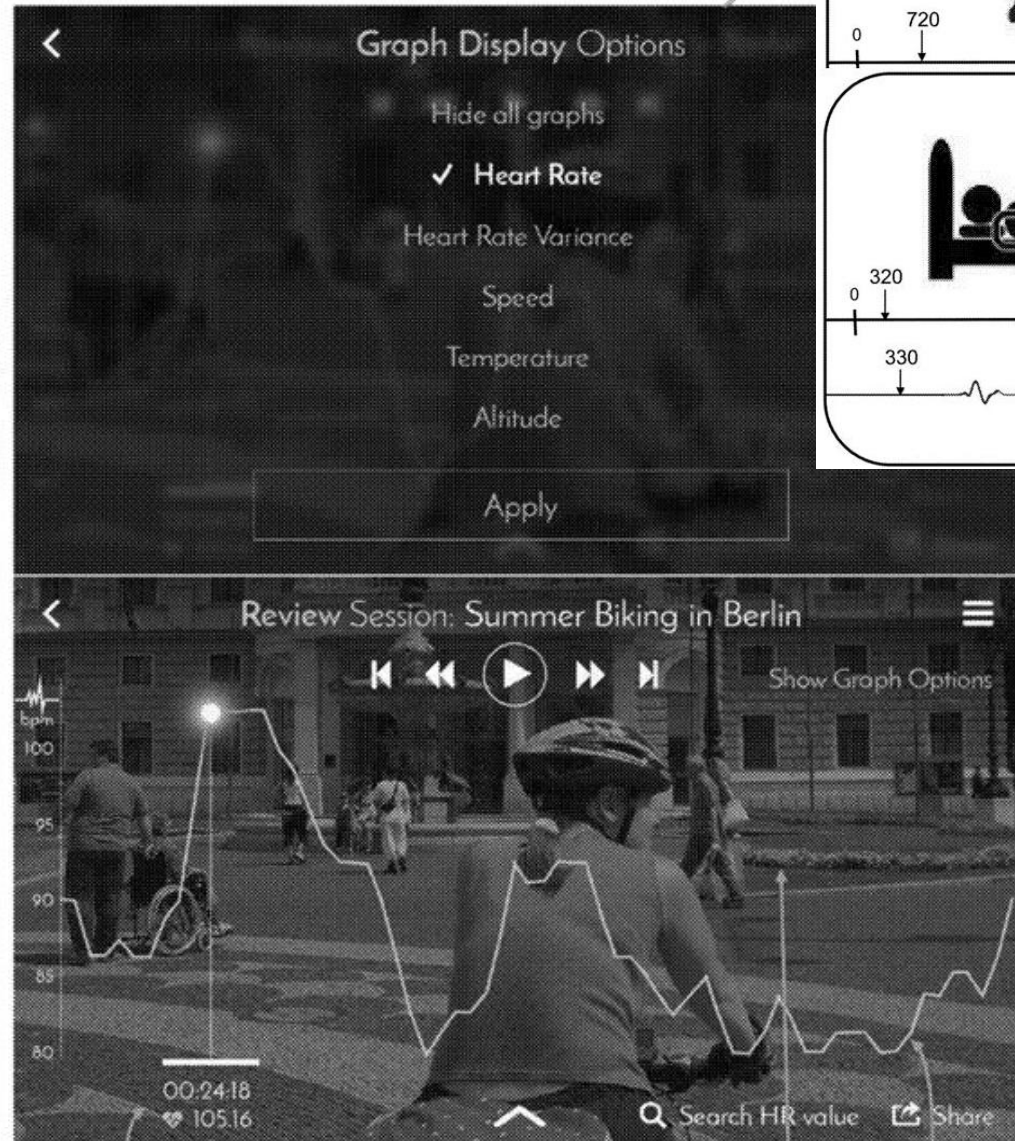
(12) **Patent Application Publication** (10) Pub. No.: **US 2020/0279585 A1**  
 Rothschild (43) Pub. Date: **Sep. 3, 2020**



GIIB 27/031

(2006.01)

and take corresponding actions.





# Everything and Everybody Connected to a Grid 24/7

Lumi “Smart”  
Wifi Diapers



➤ Is such a Utopia inevitable? Do we even have a say?

# Marketing has a Powerful Effect on Human Perception

No child was too young for tobacco marketers



- Can we “trust” ads when it comes to *public safety*?
- How to separate facts from fiction, truth from propaganda?

# Once upon a time, Smoking was Good for Your Health!



## TASTE ISN'T THE ONLY REASON I SMOKE

"People are always telling me that smoking causes low birth weight. Talk about a win-win-win! An easy labor, a slim baby, and the Full Flavor of Winstons!"

**Winston**  
when you're smoking for two



SURGEON GENERAL'S WARNING: Smoking Causes Lung Cancer, Heart Disease, and May Complicate Pregnancy. May Result in Fetal Death. Quitting Now Greatly Reduces Serious Risks to Your Health.

**"I'm going to grow a hundred years old!"**

...and possibly she may—for the amazing strides of medical science have added years to life expectancy

- It's a fact—a warm, wonderful fact—that this five-year-old child, or your own child, has a life expectancy almost a whole decade longer than was her mother's, and a good 18 to 20 years longer than that of her grandmother. Not only the expectation of a longer life, but of a life by far healthier. Thank your doctor and thousands like him... taking everybody... that you and yours may enjoy a longer, better life.

According to a recent Nationwide survey:

## More Doctors smoke Camels than any other cigarette!

NOT ONE but three outstanding independent research organizations conducted this survey. And they asked not just a few thousand, but 113,597, doctors from coast to coast to name the cigarette they themselves preferred to smoke.

Answers came in by the thousands... from general physicians, diagnosticians, surgeons, nose and throat specialists too. The most-named brand was Camel.

If you are not now smoking Camels, try them. Let your "T-Zone" tell you (see right).

© A. S. Brown & Sons Co., Winston-Salem, N. C.

**CAMELS** *Castler*  
Tobaccos



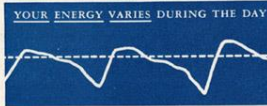
# Indeed, Science was "Settled"

THE SATURDAY EVENING POST

July 7, 1934

## A FACT!

SCIENCE ADVANCES NEW DATA THAT MAY COMPLETELY CHANGE YOUR IDEAS OF CIGARETTES!



### Experience of Camel Smokers Confirmed

Here's a basic discovery that throws new light on our past knowledge about cigarettes. It embodies an "energizing effect" ... a quick restoration of the flow of natural body energy ... a delightful relief from fatigue and irritability. Thus an ex-

perience long known to Camel smokers has received full scientific confirmation. You do "get a lift with a Camel," and it is a pleasure that you can repeat as often as you like—all day long. For Camels never get on your nerves.

CAMELS can literally relieve fatigue and irritability

Are you irritable ... cross and fussy when tired? Then light a Camel. As you enjoy its cool, rich flavor, you will quickly feel your flow of natural energy being restored. That "done-in" feeling drops away. Your pep and cheerfulness come flooding back. You are once again able to face the "next move" with a smile!

#### EFFECT IS NATURAL

The effect is produced by Camels in a wholly natural and utterly delightful way.

So, whenever you feel run-down, tired and irritable, just light a Camel.

You can smoke just as many of these delightful Camels as you want. You can increase your flow of energy over and over again. And you need never worry about your nerves. For remember: Camel's costlier tobaccos never get on your nerves.



**CAMEL'S COSTLIER TOBACCOS NEVER GET ON YOUR NERVES!**



Camels are made from finer, MORE EXPENSIVE TOBACCOS—Turkish and Domestic—than any other popular brand.

KNOW THIS FEELING? The feeling of being too "all in" to respond to the gaiety of the crowd? That's one of the many times to light a Camel and enjoy its rich flavor while your flow of healthful energy is restored. You'll like Camels—a matchless blend of costlier tobaccos!

Copyright, 1934, R. J. Reynolds Tobacco Company

"Get a LIFT with a Camel!"

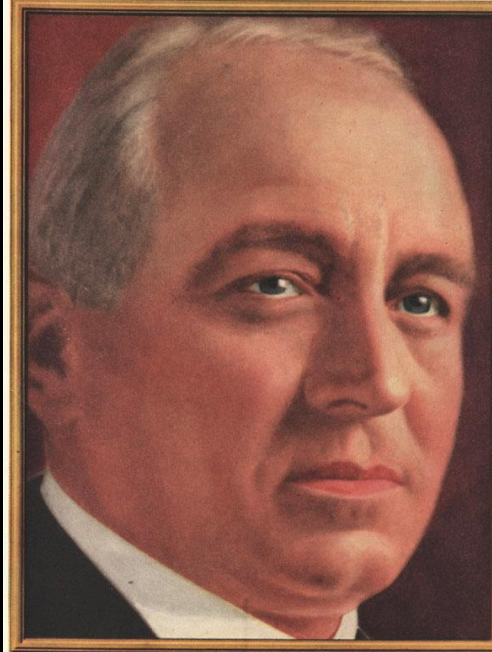
## "CLEAR EVIDENCE"

Says

**L. J. HOROWITZ**

Chairman of the Board  
Thompson-Starrett Co., Inc.

Builders of the new Waldorf-Astoria Hotel, the Woolworth Building, the Paramount Building, the Equitable Building, New York; the General Motors Building in Detroit; the Palmer House in Chicago.



"When modern enterprise joins hands with sure-footed experience, success becomes a certainty. The fusion of these two important factors has given Thompson-Starrett over a billion dollars worth of activity in thirty years. It is interesting to note the application of this same principle in your business. Its clear evidence is your use of the Ultra Violet Ray in the 'Toasting' of the LUCKY STRIKE tobaccos."

Everyone knows that sunshine mellows—that's why TOASTING includes the use of the Ultra Violet Ray. LUCKY STRIKE—the finest cigarette you ever smoked, made of the finest tobaccos—the Cream of the Crop—THEN—"IT'S TOASTED." Everyone knows that heat purifies and so TOASTING removes harmful irritants that cause throat irritation and coughing. No wonder 20,679 physicians have stated LUCKIES to be less irritating!



## "It's toasted"

Your Throat Protection—against irritation—against cough

Consistent with its policy of laying the facts before the public, The American Tobacco Company has invited Mr. L. J. Horowitz to review the reports of the distinguished men who have witnessed LUCKY STRIKE'S famous Toasting Process. The statement of Mr. Horowitz appears on this page.

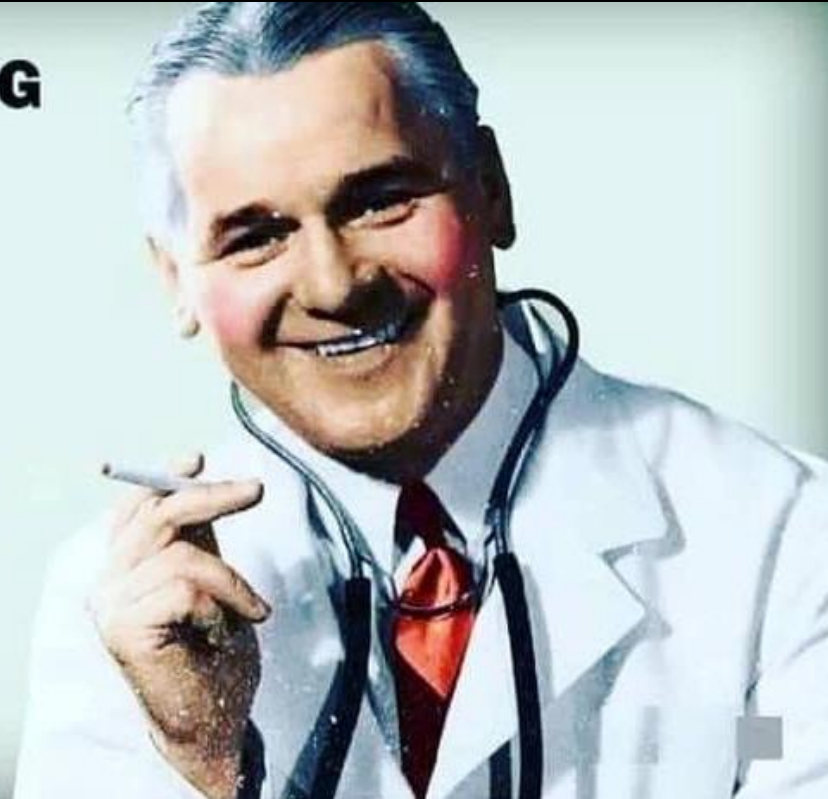
© 1934, The American Tobacco Co., Mfrs.

# Indeed, Science was “Settled”

**“CIGARETTE SMOKING  
DOES NOT CAUSE  
CANCER”**

**-CDC (CENTER FOR  
DISEASE CONTROL)**

**1958**



# Public Responsibility: Inform, Engage, Enjoy!

- Weigh benefits, dangers, and alternatives to any “new” product
- Hunt for “reliable” sources, facts, and information
- Demand rigorous scientific discourse and public debate
- Engage local elected reps (“public servants”)

*“Freedom is hammered out on the anvil of discussion, dissent, and debate.” – H.H. Humphrey*

# Is Federal Telecom Law Really *our Friend*?

## FEDERAL PURPOSE, 1934:

“PROMOTING SAFETY OF LIFE AND PROPERTY”

*WHERE?*

**1934 ACT: P.1** of the pdf: “For the purpose of regulating interstate and foreign commerce in communication by wire and radio . . . a rapid, efficient, Nationwide, and world-wide wire and radio communication service with adequate facilities at reasonable charges, **FOR THE PURPOSE OF THE NATIONAL DEFENSE, FOR THE PURPOSE OF PROMOTING SAFETY OF LIFE AND PROPERTY**, through the use of wire and radio communication...”

**WIRELESS IS NOW USED CONTRARY TO THESE PURPOSES!**

## FEDERAL PURPOSE, 1996:

“PROMOTE THE SAFETY OF LIFE AND PROPERTY”

*WHERE?*

**1996 ACT: P.177** of the pdf: SEC. 332. [47 U.S.C. 332] MOBILE SERVICES.

“(a) In taking actions to manage the spectrum to be made available for use by the private mobile service, the Commission shall consider, consistent with section 1 of this Act, whether such actions will  
**(1) promote the safety of life and property;”**

**WIRELESS IS NOW USED CONTRARY TO THIS PURPOSE!**

Credit: Susan Clarke

# A Local Telecom Ordinance Must Align with our *Core Values*

- Remind public servants of their oath of office
- Demand disclosure of all conflicts of interest (\$\$\$)
- Identify local elected reps who will advocate for you
- Send notices/affidavits to those responsible for inflicting harm

[Arizona State Constitution, Title 2, Article 2, Section 2]. All political power is inherent in the people, and governments derive their just powers from the consent of the governed and are *established to protect and maintain individual rights.*

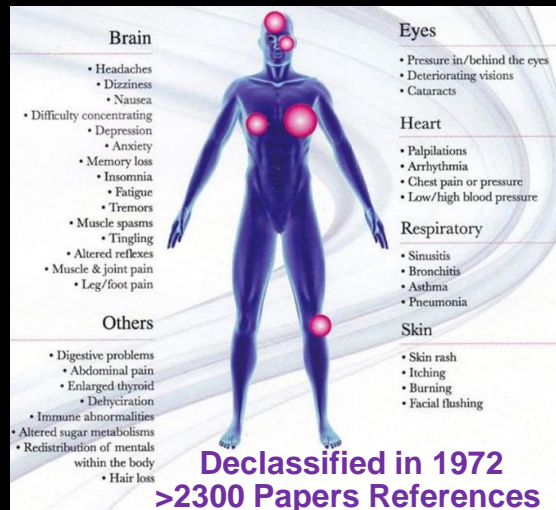
[Arizona State Constitution, Title 2, Article 2, Section 4]. *No person shall be deprived of life, liberty, or property without due process of law.*

[Arizona Revised Statutes, Article 4, #38-231. Officers and employees required to take loyalty Oath of Office] “[I] do solemnly swear that I will *support the Constitution of the United States and the Constitution and laws of the State of Arizona*, that I will bear true faith and allegiance to the same and defend them against all enemies, foreign and domestic...”



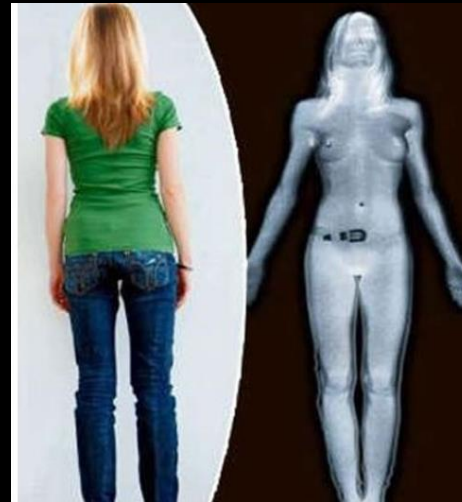
# Problems with Densely Placed 4G/5G Infrastructure

## Public Safety



US Naval Medical Research

## Privacy



Nude Photos: mm Waves

## Property Value



“Nuisance and Hazard”

- Public safety problem (physically harmful RF/MW radiation)
- Removes privacy & security, intercepts data, steals identities
- Reduces property values by >20% (HUD: “nuisance and hazard”)
- Increases liability to city (not insured for MW harms! “Exclusion 32”)

# Privacy Disappearing in our Neighborhoods

- Microwaves see through walls and clothes to track every move
- 24/7 surveillance, security flaws hack govt. and company data
- Pulsed microwaves from small cells add noise (audible and inaudible) to the quiet enjoyment of our streets



noisy streets



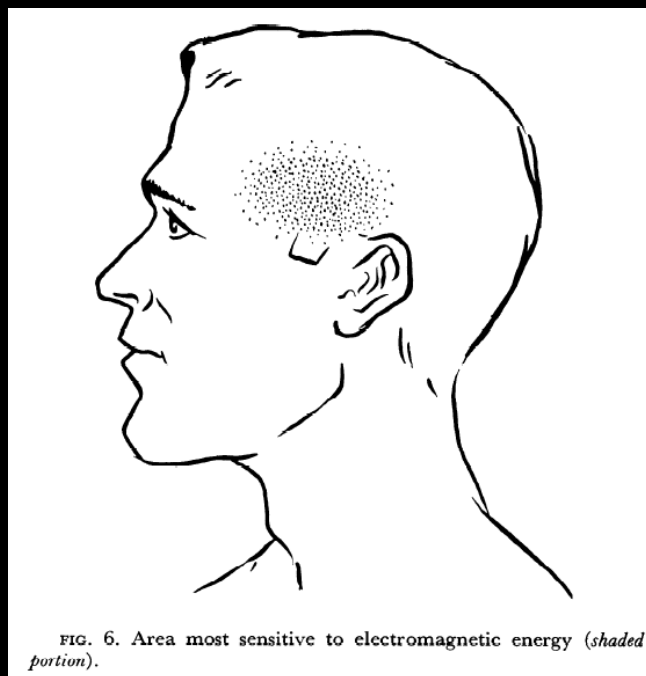
microwave hearing (Frey 1961, 1972)



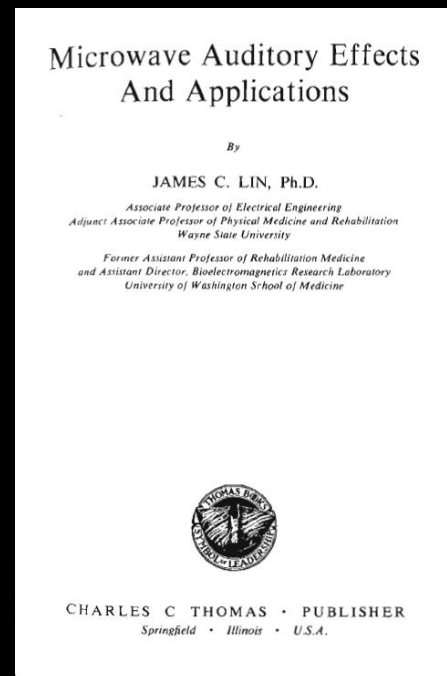
mm-wave imaging

➤ A wireless telecom ordinance must protect privacy

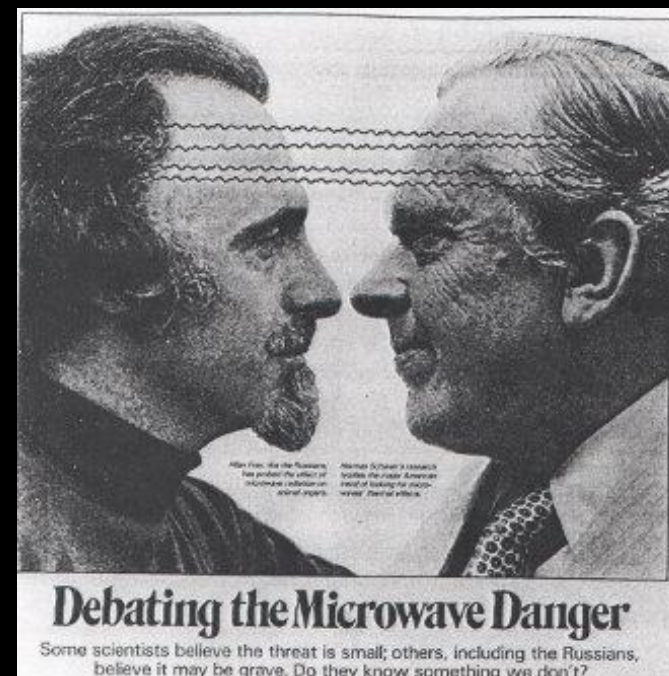
# Microwave Hearing



A. Frey 1961



J. Lin 1978



Frey vs. Schwann (1960)

→ Pulsed microwaves produce audible sounds in the head

- Voice to Skull (V2K)
- Synthetic Telepathy

# 5G Technology to "Govern Society"?

## WHAT'S THE AIM?

The system intends to monitor, rate and regulate the financial, social, moral and, possibly, political behavior of China's citizens – and also the country's companies – via a system of punishments and rewards. The stated aim is to "provide the trustworthy with benefits and discipline the untrustworthy."

The Chinese government considers the system an important tool to steer China's economy and to govern society. There is still much speculation about how the final system will actually function. Details in this chart are based on pilot schemes and plausible expert expectations.

## CHINA'S SOCIAL CREDIT SYSTEM

It's been dubbed the most ambitious experiment in digital social control ever undertaken. The Chinese government plans to launch its Social Credit System nationally by 2020.

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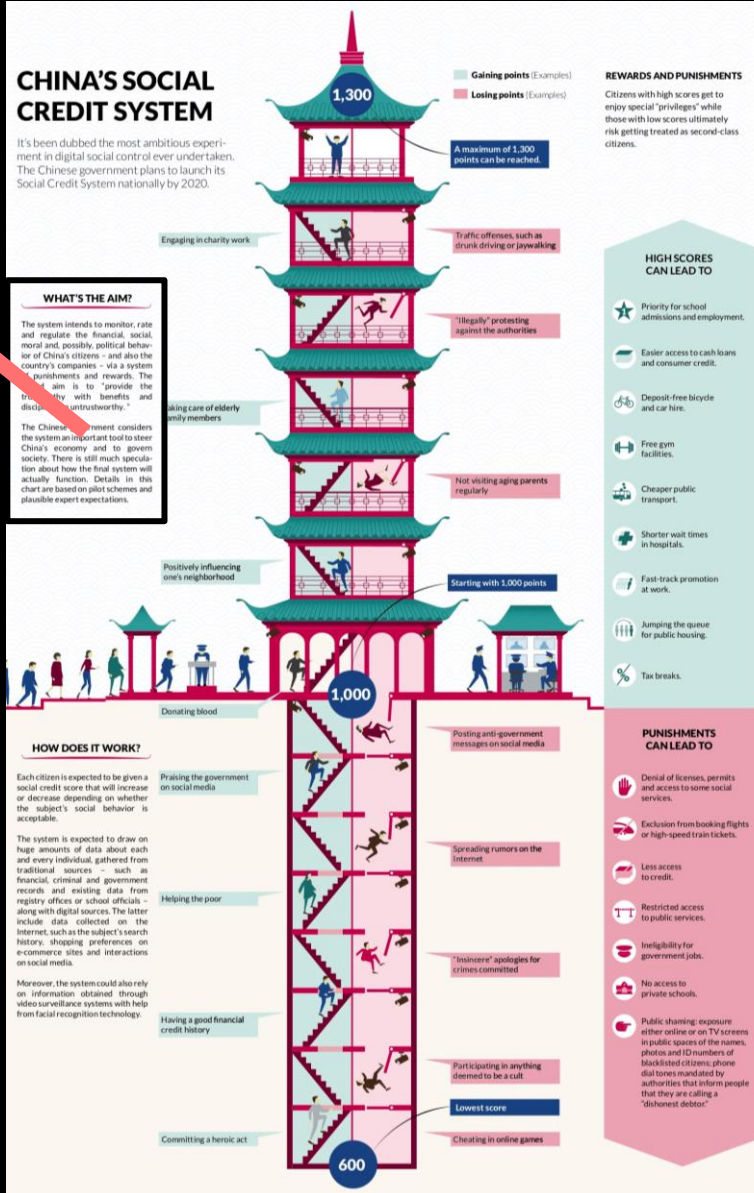
The Chinese government considers the system an important tool to steer China's economy and to govern society. There is still much speculation about how the final system will actually function. Details in this chart are based on pilot schemes and plausible expert expectations.

### HOW DOES IT WORK?

Each citizen is expected to be given a social credit score that will increase or decrease depending on whether the subject's social behavior is acceptable.

The system is expected to draw on huge amounts of data about each and every individual, gathered from traditional sources – such as financial, criminal and government records and existing data from registry offices or school officials – along with digital sources. The latter include data collected on the Internet, such as the subject's search history, shopping preferences on e-commerce sites and interactions on social media.

Moreover, the system could also rely on information obtained through video surveillance systems with help from facial recognition technology.



## HIGH SCORES CAN LEAD TO

- ★ Priority for school admissions and employment.
- 💰 Easier access to cash loans and consumer credit.
- 🚲 Deposit-free bicycle and car hire.
- 🏊 Free gym facilities.
- 🚇 Cheaper public transport.
- 🏥 Shorter wait times in hospitals.
- 🏢 Fast-track promotion at work.
- 🏠 Jumping the queue for public housing.
- 📉 Tax breaks.

## PUNISHMENTS CAN LEAD TO

- 🚫 Denial of licenses, permits and access to some social services.
- ✈️ Exclusion from booking flights or high-speed train tickets.
- 🏠 Less access to credit.
- 🚫 Restricted access to public services.
- 🏢 Ineligibility for government jobs.
- 🏠 No access to private schools.
- 👉 Public shaming: exposure either online or on TV screens in public spaces of the names, photos and ID numbers of blacklisted citizens; phone dial tones mandated by authorities that inform people that they are calling a "dishonest debtor."

# A Glimpse of a 5G World in China



... with social crediting and social engineering

➤ **Our City Council Has Duty to Protect Privacy**

# A Glimpse of a 5G Smart City in China



... with social crediting and social engineering

- A wireless telecom ordinance must protect privacy

# Property values Plummet near Cell Towers



Tucson Blvd and Mabel



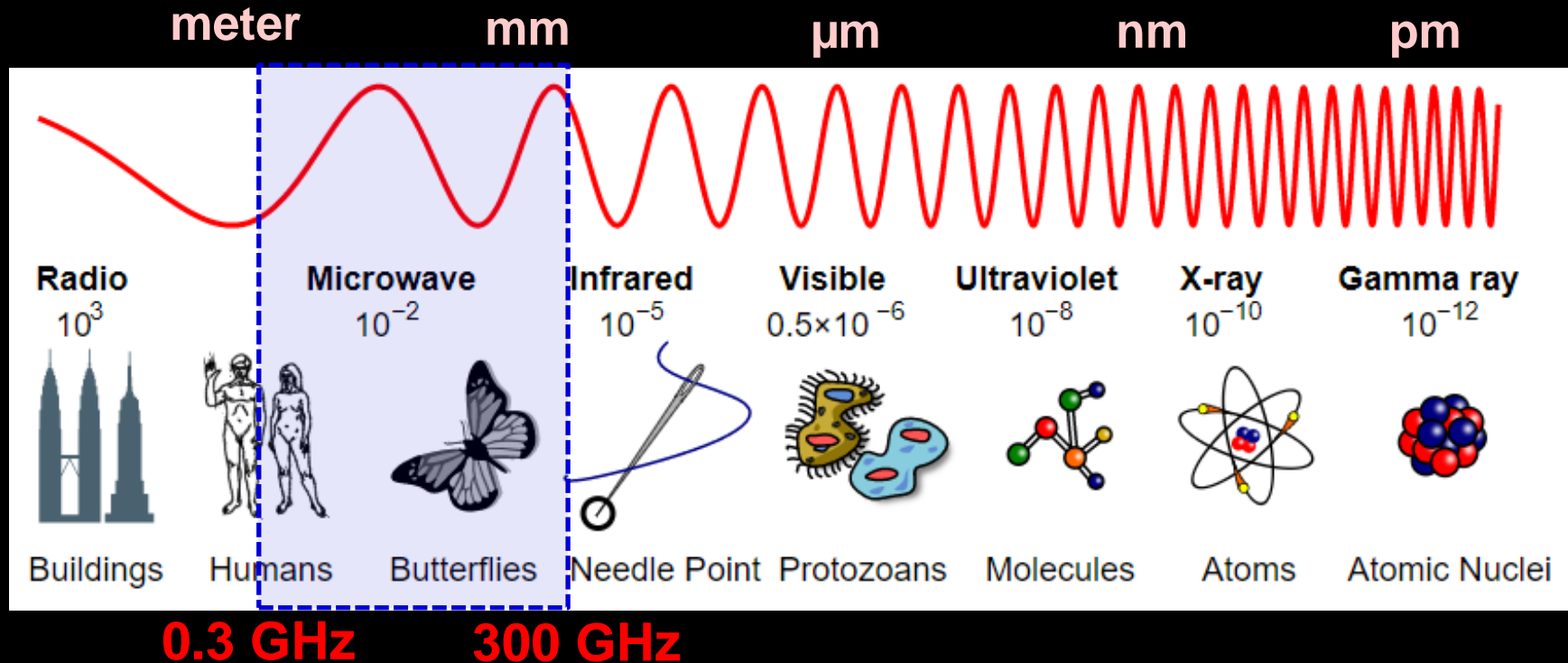
Oak Flower in Tucson “Ugly” 5G data boxes in Houston



- 20% price drop for properties near WTFs (Realtor Magazine)
- Sellers must disclose “neighborhood noise, nuisance or other problems from cell towers.”
- HUD refers to cell towers as “Hazard and Nuisance”

➤ The local wireless telecom ordinance must preserve property value

# 4G/5G Requires Pulsed Microwave Radiation



- Microwave radiation on Earth is almost entirely man-made (>1930)
- Microwave absorption changes the *structure* and *size* of molecules
- H<sub>2</sub>O molecules and biological tissue strongly absorb microwave radiation



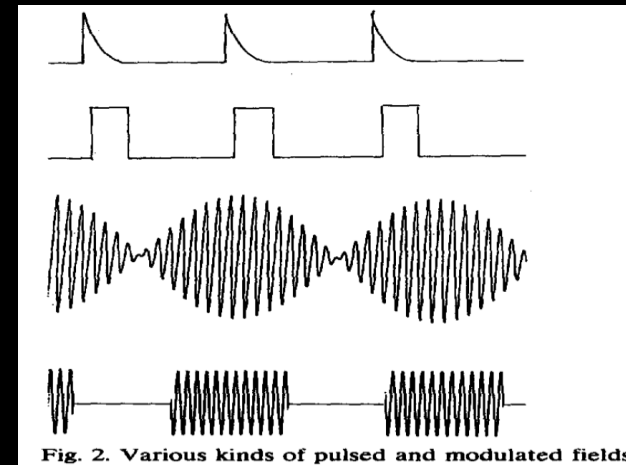
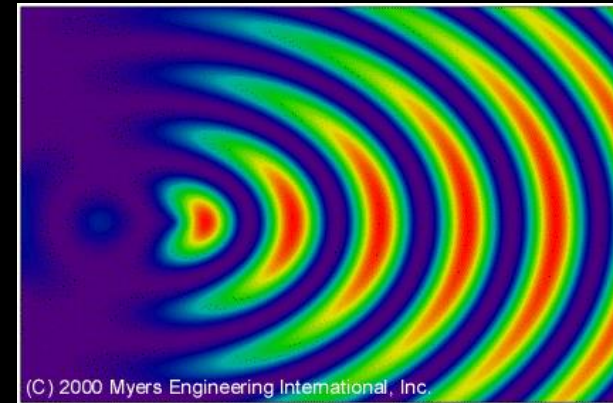
# Electromagnetic Radiation and Wave Properties

## Properties of Waves

1. Frequency (rate)
2. Amplitude (power)
3. Intensity (power density)
4. Pulse (beats)
5. Modulation (information)
6. Spatial radiation pattern
7. Polarity (orientation)

**All properties affect biological systems!**

## Sample Radiation Pattern



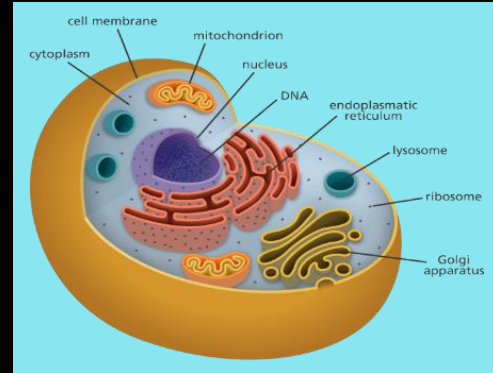
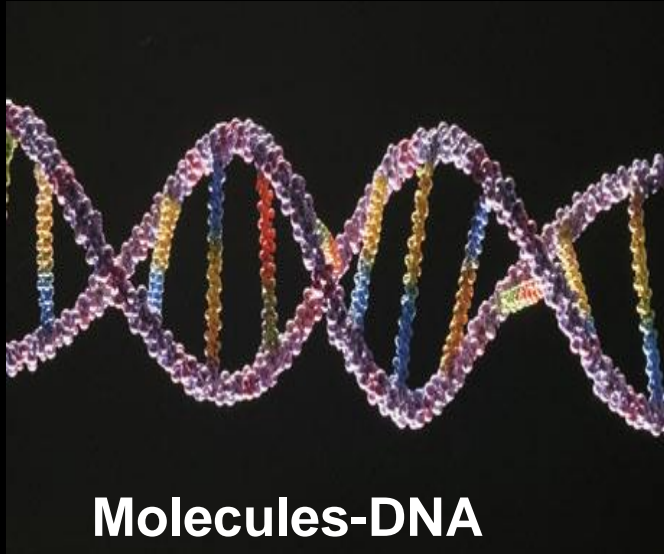
# Cell Towers are Microwave Factories...



[Video in Link](#)

... that generate invisible microwave pollution and noise

# Microwave Radiation Affects Living Systems at All Scales



- >20,000 peer-reviewed & govt. studies (searchable database)
- Cells sensitive to microwave *intensity* and *pulsing*
- Effects are cumulative (*dose dependent*)

# Biological Effects of Microwaves Known for 100 Years

## Favorite Peer-reviewed and Government Studies (from >20,000)

### Works Cited (click on link to open in browser)

- [1] **Army** (Friedman 2006, 20 pages): **Bioeffects of Selected Non Lethal Weapons** <https://tinyurl.com/udbk8j>
- [2] **Army** (Adams and Williams 1976, 35 pages): **Biological Effects of Electromagnetic Radiation and Microwaves-- Eurasian Communist Countries** <https://tinyurl.com/tuclavh>
- [3] **Naval Medical Research Institute** (Z Glaser, 1971, 106 pages). Bibliography of >2000 papers **Reporting Biological Phenomena ("Effect") and Clinical Manifestations Attributed to Microwave and Radio-Frequency Radiation** <https://apps.dtic.mil/docs/citations/AD0750271>
- [4] **Naval Medical Research Institute** (Z Glaser and Brown, 1976, 172 pages). **Bibliography of biological phenomena {Effects'}** and clinical manifestations attributed to microwave and radio-frequency radiation: compilation and integration of report and seven supplements. <https://ehtrust.org/wp-content/uploads/Naval-MRI-Glaser-Report-1976.pdf>
- [5] **Airforce** (Bolen, 1994, 32 Pages, House Report). Radiofrequency/Microwave Radiation Effects and Safety Standards: A Review <https://apps.dtic.mil/dtic/tr/fulltext/u2/a282886.pdf>
- [6] **NASA** (I.R. Petrov 1970, 229 pp). Influence of **Microwave I** [https://www.orsaa.org/uploads/6/7/7/9/67791943/influence\\_of\\_microv](https://www.orsaa.org/uploads/6/7/7/9/67791943/influence_of_microv)
- [7] **NASA** (Raines 1981, 125 pages). Electromagnetic field **inter** theories. <https://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19>
- [8] **CIA** (Vrachebnoye 1977/2012, 4 pages). **Biological effects c** <https://tinyurl.com/wfokpt5>
- [9] **CIA** (Guo, 1977, 68 pages) Translations on USSR Science a **Nonionizing Electromagnetic Radiation** <https://www.cia.gov/library/readingroom/docs/CIA-RDP88B01>
- [10] **EPA** (Elder and Cahill, 1984, 278 pages) **Biological Effect:** <https://tinyurl.com/reofn8v>
- [11] **DOD** (1978, Burner, 46 pages). Biological Effects of Microwave Power. International Power Institute. <https://www.worldcat.org/title/biological-effects-of-microwaves>
- [12] **Ford Foundation** (Bergman, 1965, 82 pages). "Effect of Microwaves on The Central Nervous System." [https://www.usa-anti-communist.com/pdf/Effect\\_of\\_Microwaves\\_on\\_The\\_Central\\_Nervous\\_System\\_Ford\\_1965.pdf](https://www.usa-anti-communist.com/pdf/Effect_of_Microwaves_on_The_Central_Nervous_System_Ford_1965.pdf)
- [13] **WHO** (Warsaw, 1973). Biologic Effects and Health Hazards of Microwave Radiation. Compilation of papers from international conference in Warsaw on Health Effects of Microwaves. Top 60 scientists report findings of low-level microwave exposure on human and animals. <https://www.emfoff.com/symposium/>
- [14] **NIH** (National Toxicology Program, 2018) Cell Phone Radiofrequency Radiation Study. **Largest study (\$30 Million) ever on biological effects of cell phone radiation.** Toxicology and **carcinogenesis** studies in B6C3F1/N mice exposed to whole-body radio frequency radiation at a frequency (1,900 MHz) and modulations (GSM and CDMA) used by cell phones [https://ntp.niehs.nih.gov/ntp/htdocs/lt\\_rpts/tr596\\_508.pdf](https://ntp.niehs.nih.gov/ntp/htdocs/lt_rpts/tr596_508.pdf)
- [15] **NIH** (National Toxicology Program, 2018) Toxicology and **carcinogenesis** studies in Sprague Dawley SD rats exposed to whole-body radio frequency radiation at a frequency (900 MHz) and modulations (GSM and CDMA) used by cell phones [https://ntp.niehs.nih.gov/ntp/about\\_ntp/trpanel/2018/march/tr595peerdraft.pdf](https://ntp.niehs.nih.gov/ntp/about_ntp/trpanel/2018/march/tr595peerdraft.pdf)
- [16] **NIH** (National Toxicology Program, 2020) **Genotoxicity** of cell phone radiofrequency radiation in male and female rats and mice following subchronic exposure. <https://onlinelibrary.wiley.com/doi/epdf/10.1002/em.22343>
- [17] **Ramazinni Institute** (2018). World's **largest animal study on cell tower radiation confirms cancer link** <https://ehtrust.org/worlds-largest-animal-study-on-cell-tower-radiation-confirms-cancer-link/>
- [18] **Toxicology Letters** (2020). **Adverse health effects** of 5G mobile networking technology under real-life conditions. <https://www.sciencedirect.com/science/article/abs/pii/S037842742030028X>
- [19] **EBM** (2021) **Genetic effects of non-ionizing electromagnetic fields.** (Review) Microwaves cause DNA damage. <https://pubmed.ncbi.nlm.nih.gov/33539186/>
- [20] **IEEE** (2015) The **Human Body and mm-Wave Wireless Communication Systems:** Interactions and Implications <https://arxiv.org/ftp/arxiv/papers/1503/1503.05944.pdf>
- [21] **NIH** (1974, McRee, 7 pages). **Biological Effects of Microwave Radiation.** <https://www.tandfonline.com/doi/pdf/10.1080/00022470.1974.10469899>



First Mobile Phone  
(Ericsson, 1956)

Link to Two-Page PDF  
with Clickable Links

# RF/MW Radiation Harms People, Animals, Plants, and Insects, including Pollinators



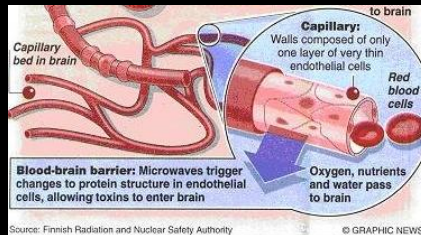
➤ Selection of 123 peer-reviewed publications

➤ 2016 UNESCO and IUCN 15-year study (Report)

# Myth: Microwaves Only Damage Tissue from "Heat"

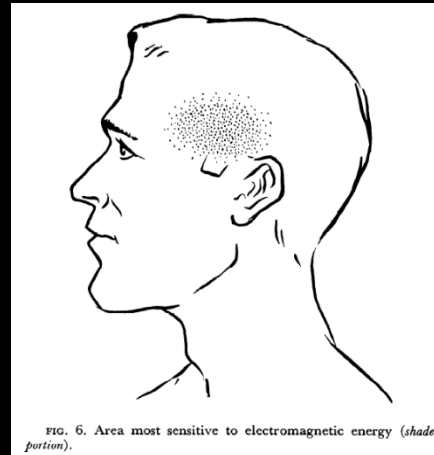
## How else do microwaves affect living systems?

### Make Brain "Leaky"



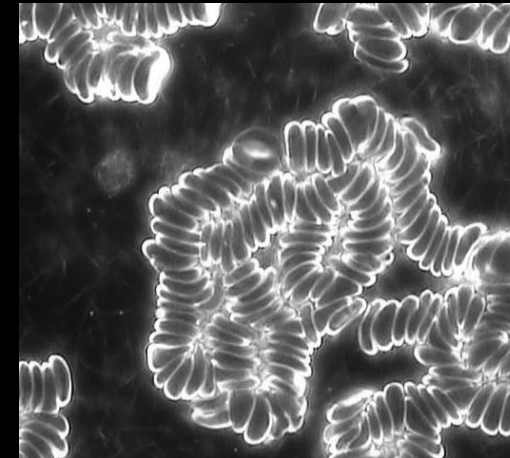
BBB opening (1992)

### Produces Audible Noise



"Microwave Auditory Effect" (1961)

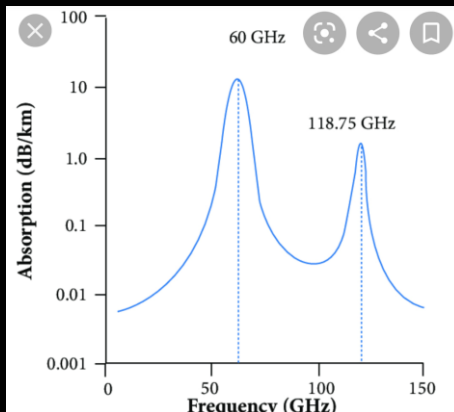
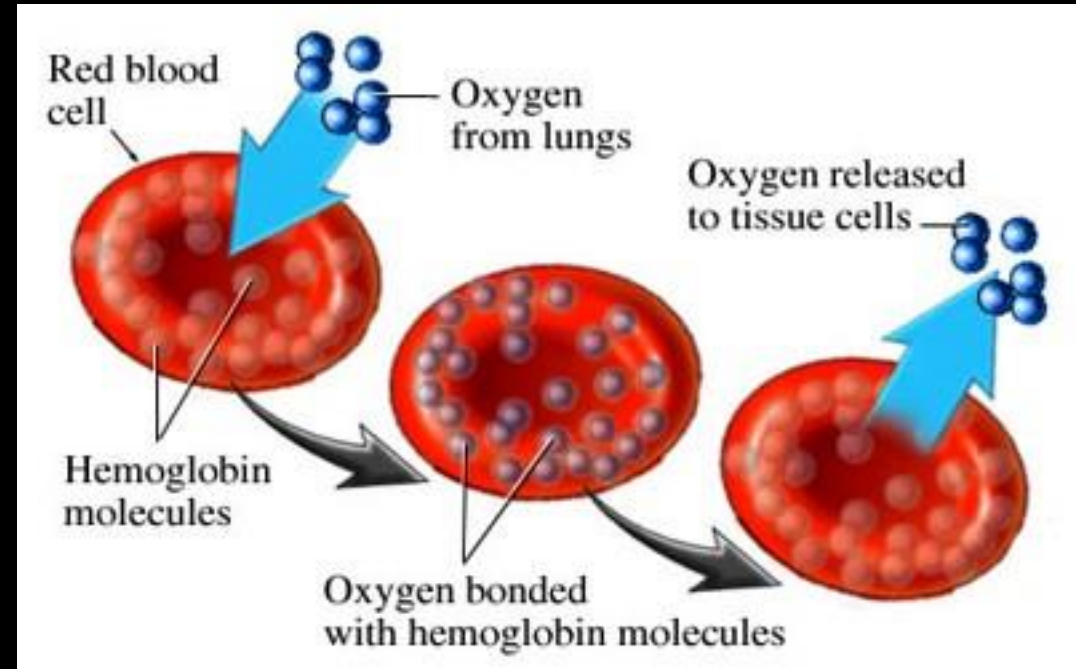
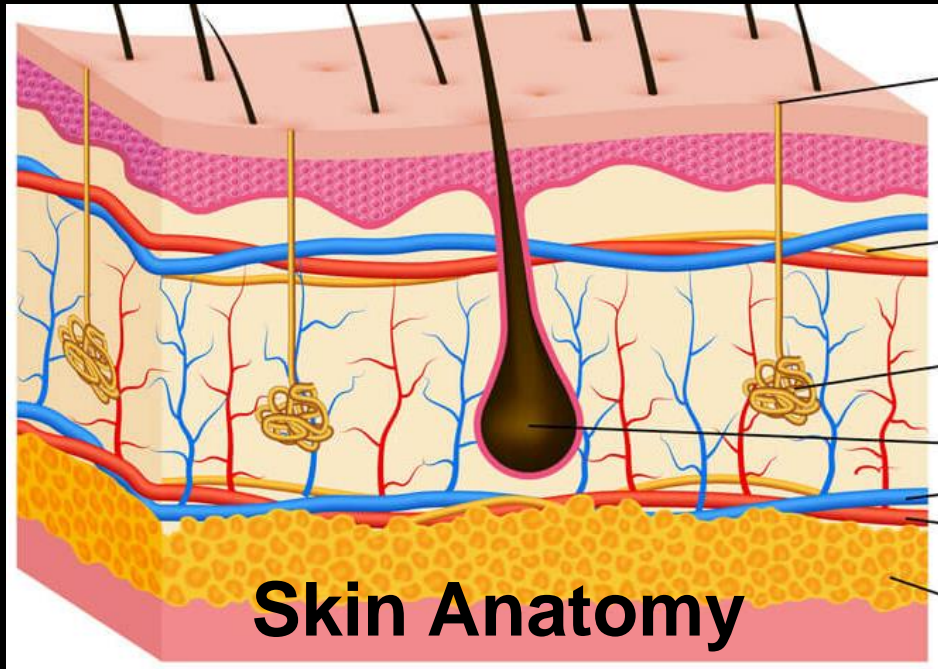
### Render Cells "Sticky"



"Pearl Effect" (1927) and Rouleaux

- Deform molecules like DNA (linked to clinical disease)
- Produce *inaudible* noise, disrupts biocommunication
- Cause stress response and hormone release (e.g., insulin, cortisol)
- Suppress the immune system
- Alter normal brain signaling (EEG) and human behavior

# 60 GHz, OTARD, and Oxygen Deprivation




- Oxygen molecule strongly absorbed at 60 GHz
- Disrupts blood oxygen transfer to tissue (*Jamieson 2013*)
- Severe/ chronic disruption of oxygen is dangerous

# 2300+ Review Paper by U.S. Navy in 1972 Reports Harm from RF/MW radiation

AD 750271

# NMRI

**NAVAL MEDICAL RESEARCH INSTITUTE**



**2300 Papers Cited**

**BIBLIOGRAPHY OF REPORTED BIOLOGICAL PHENOMENA ('EFFECTS') AND CLINICAL MANIFESTATIONS ATTRIBUTED TO MICROWAVE AND RADIO-FREQUENCY RADIATION**

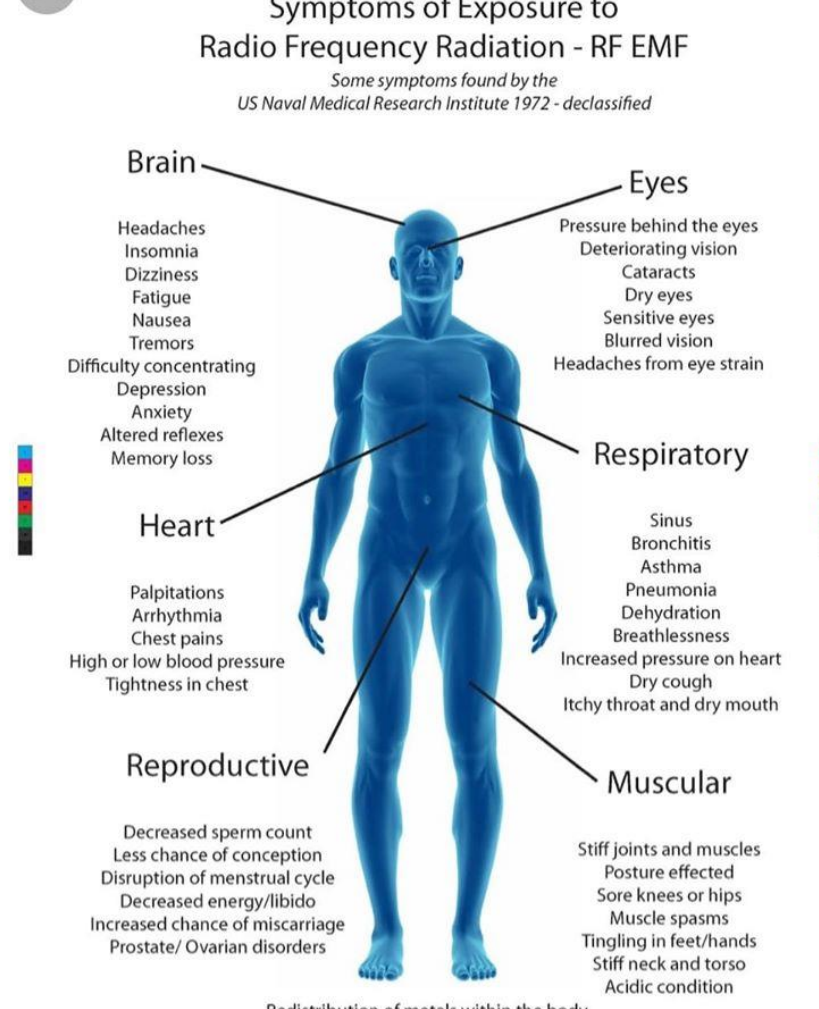
RESEARCH REPORT

MF12.524.015-0004B
REPORT NO. 2  
REVISED

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U.S. Department of Commerce  
Springfield, VA 22151

## Symptoms of Exposure to Radio Frequency Radiation - RF EMF

*Some symptoms found by the  
US Naval Medical Research Institute 1972 - declassified*



**Brain**

- Headaches
- Insomnia
- Dizziness
- Fatigue
- Nausea
- Tremors
- Difficulty concentrating
- Depression
- Anxiety
- Altered reflexes
- Memory loss

**Eyes**

- Pressure behind the eyes
- Deteriorating vision
- Cataracts
- Dry eyes
- Sensitive eyes
- Blurred vision
- Headaches from eye strain

**Heart**

- Palpitations
- Arrhythmia
- Chest pains
- High or low blood pressure
- Tightness in chest

**Respiratory**

- Sinus
- Bronchitis
- Asthma
- Pneumonia
- Dehydration
- Breathlessness
- Increased pressure on heart
- Dry cough
- Itchy throat and dry mouth

**Reproductive**

- Decreased sperm count
- Less chance of conception
- Disruption of menstrual cycle
- Decreased energy/libido
- Increased chance of miscarriage
- Prostate/ Ovarian disorders

**Muscular**

- Stiff joints and muscles
- Posture effected
- Sore knees or hips
- Muscle spasms
- Tingling in feet/hands
- Stiff neck and torso
- Acidic condition

Redistribution of metals within the body



# Top Scientists Convene at WHO conference (1973) and Conclude Microwave Radiation is Harmful

Biologic Effects and Health Hazards of Microwave Radiation

350 Pages of Study

Biologic Effects and Health Hazards of Microwave Radiation

World Health Organization

Conclusion b)

Note: This is not the actual book cover

Influence of Microwave Radiation on the Nervous System and Behavior

PHYSIOLOGIC STRESSORS ARE POTENT MEDIATORS OF THE NEUROLOGICAL RESPONSE TO MICROWAVE IRRADIATION

*Justesen, D. M. Levinson and L. R. Justesen*

Experimental Neuropsychology, Veterans Administration Hospital, Kansas City, Missouri, U.S.A.

Occupational Exposure and Public Aspects of Microwave Radiation

FINDINGS IN PERSONS EXPOSED TO MICROWAVES

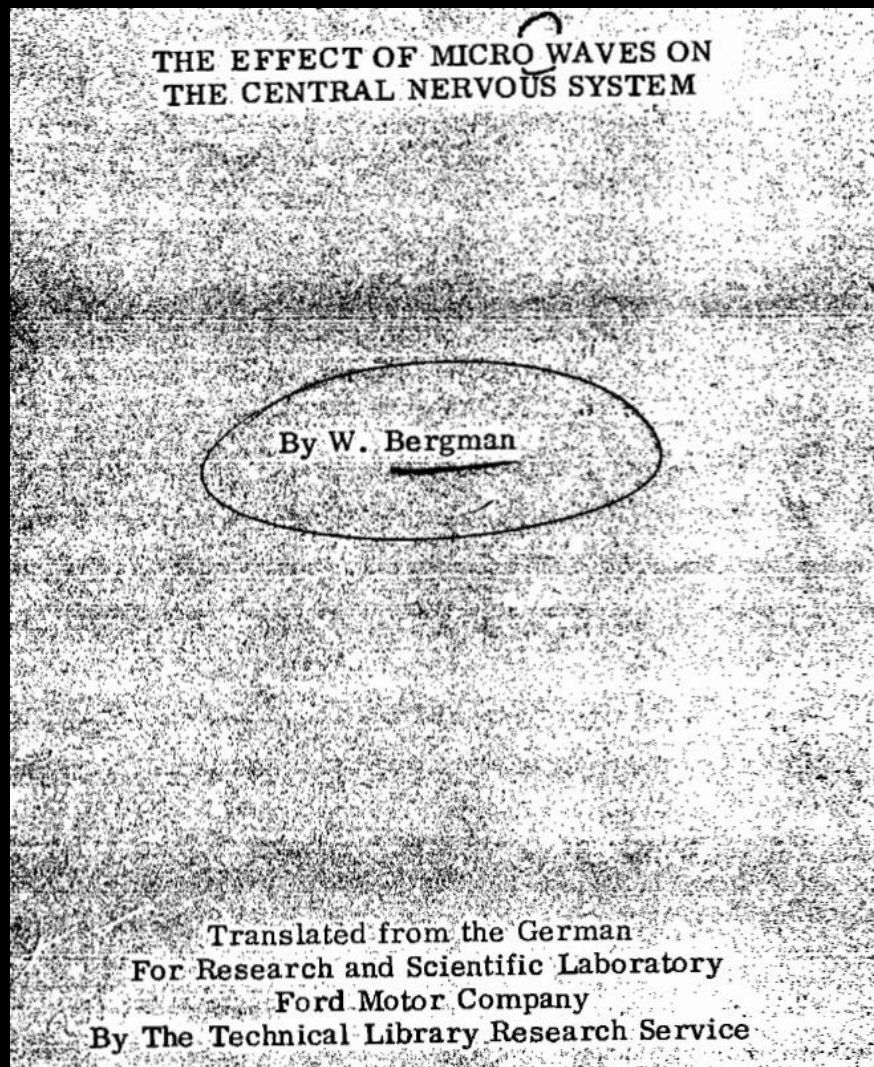
*E. Klimková-Deutschová*

(b) In addition to their heating effect in tissues microwaves interact with the electric dipole moment of biologic molecules. These interactions may be observed and interpreted in terms of the shape and size of the macromolecules and the nature of the structure of the water in the neighboring environment. Such parameters may be correlated with the incidence and treatment of certain diseases with which the molecules in question are associated. In this way it would be possible to find a direct link between a clinical condition and a structural abnormality at a molecular level as, for example, has been done in the case of sickle-cell anemia and hemoglobin.

Note: This is not the actual book cover

Institute for Postgraduate Study, Military Medical Academy, Warsaw, Poland

# Effects of RF/MW Radiation on Central Nervous System (Ford Foundation, 1965)



| <u>Contents</u>   |             |
|---|-------------|
|   | <u>Page</u> |
| Introduction  | 1           |
| I. Influencing the central nervous system by short waves as well as by high-frequency currents                              | 3           |
| 1. Influence on the motor and sensory nerves  | 3           |
| 2. Influence on circulation and respiration   | 12          |
| 3. Influence on the EEG   | 14          |
| 4. Influence on temperature control   | 16          |
| 5. Influence on the water balance   | 17          |
| 6. Influence on abduction phenomena   | 18          |
| 7. Influence on sleep   | 19          |
| 8. Influence on conscious awareness   | 20          |
| 9. General influence of the short electromagnetic waves on the central nervous system                                       | 22          |
| 10. Chemical-physical effects of short waves  | 25          |
| 11. Interpretation of the process with different forms of application of short waves  | 28          |
| 12. Dosage  | 29          |
| 13. Summary   | 34          |
| II. Electrical processes in the human body and its environment  | 36          |
| 1. Electrical phenomena in the human body as well as in its environment as a function of the emotional state                | 36          |
| 2. Electrical phenomena in the human body and its environment during muscular contractions                                  | 41          |
| 3. Amplification of electrical phenomena in the human body and its environment by artificial means                          | 44          |
| 4. Resonance phenomena in the transmission of nerve energy in the human body and its environment                            | 45          |
| 5. Physical characteristics of the energy generated by the human body as well as by various inorganic and organic compounds | 52          |
| 6. Summary  | 54          |
| III. Absorption of electromagnetic energy in ganglion cells   | 56          |
| 1. Relation of absorption to the emotional state of the person  | 56          |
| 2. Resonance absorption   | 56          |
| 3. Relation of absorption to the frequency of the high-frequency energy acting on the human body                            | 61          |
| 4. "Filtration" of the higher harmonic of the fundamental frequency influencing the ganglion cells                          | 63          |
| 5. Summary  | 64          |
| Bibliography  | 65          |

# Studies Continue to Indicate Harm to CNS due to MW Radiation....

Medical Hypotheses 127 (2019) 76–83

Contents lists available at ScienceDirect

**Medical Hypotheses**

journal homepage: [www.elsevier.com/locate/mehy](http://www.elsevier.com/locate/mehy)

Are rises in Electro-Magnetic Field in the human environment, interacting with multiple environmental pollutions, the tipping point for increases in neurological deaths in the Western World?

Colin Pritchard<sup>a,\*</sup>, Anne Silk<sup>a</sup>, Lars Hansen<sup>b</sup>

<sup>a</sup> Faculty of Health & Social Sciences, Bournemouth University, United Kingdom  
<sup>b</sup> Southern Health, Dept of Psychiatry, University of Southampton, United Kingdom

**ARTICLE INFO**

**Keyword:**  
Neurological  
Aetiology  
Electro-Magnetic-Fields  
Environmental epigenetic

**ABSTRACT**

Whilst humans evolved in the earth's Electro-Magnetic-Field (EMF) and sun-light, both being essential to life but too much sun and we burn. What happens if background EMF rise to critical levels, coinciding with increasing environmental pollutants?

Two of the authors can look back over 50 clinical years and appreciate the profound changes in human morbidity across a range of disparate conditions – autoimmune diseases, asthma, earlier cancer incidence and reduced male sperm counts. In particular have been increased autism, dyslexia, Attention Deficit Hyperactivity Disorder and neurological diseases, such as Amyotrophic Lateral Sclerosis, Multiple Sclerosis, Parkinson's Disease, Early Onset Dementia, Multiple System Atrophy and Progressive Supranuclear Palsy. What might have caused these changes- whilst genetic factors are taken as given, multiple environmental pollutants are associated with neurological disease although the mechanisms are unclear. The pace of increased neurological deaths far exceeds any Gompertzian explanation - that because people are living longer they are more likely to develop more age-related problems such as neurological disease.

Using WHO global mortality categories of Neurological Disease Deaths (NDD) and Alzheimer's and Dementia deaths (Alz), updated June 2018, together they constitute Total Neurological Mortality (TNM), to calculate mortality rates per million for people aged 55–74 and for the over-75's in twenty-one Western countries.

Recent increases in American people aged over-75's rose 49% from 1989 to 2015 but US neurological deaths increased five-fold. In 1989 based on Age-Standardised-Deaths-Rates America USA was 17th at 324 pm but rising to 539 pm became second highest.

Different environmental/occupational factors have been found to be associated with neuro-degenerative

"Based upon recent and new evidence, we hypothesise that a major contribution for the relative sudden upsurge in neurological morbidity in the Western world (1989-2015), is because of increased background EMF that has become the tipping point... The unprecedented neurological death rates, all within just 25 years, demand a re-examination of long-term EMF safety related to the increasing background EMF on human health."

Study Date: Mar 2019

# Studies Continue to Indicate Harm to CNS due to MW Radiation....

Contents lists available at ScienceDirect

Neurochemistry International

journal homepage: [www.elsevier.com/locate/neuint](http://www.elsevier.com/locate/neuint)

ELSEVIER

Check for updates

## Long-term exposure of 2450 MHz electromagnetic radiation induces stress and anxiety like behavior in rats

Sukesh Kumar Gupta<sup>a</sup>, Shishir Kumar Patel<sup>c</sup>, Munendra Singh Tomar<sup>d</sup>, Shio Kumar Singh<sup>c</sup>, Manoj Kumar Mesharam<sup>b</sup>, Sairam Krishnamurthy<sup>a,\*</sup>

<sup>a</sup> Neurotherapeutics Laboratory, Department of Pharmaceutical Engineering and Technology, Indian Institute of Technology (Banaras Hindu University), Varanasi, 221005, U.P., India  
<sup>b</sup> Department of Electronics Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi, 221005, U.P., India  
<sup>c</sup> Department of Zoology, Institute of Science, Banaras Hindu University, Varanasi, 221005, India  
<sup>d</sup> School of Biomedical Engineering, Indian Institute of Technology (Banaras Hindu University), Varanasi, 221005, U.P., India

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| ARTICLE INFO  | ABSTRACT   |
|---|--|
| <p><b>Keywords:</b><br/>Electromagnetic radiation<br/>Stress<br/>Anxiety<br/>Amygdala<br/>Glucocorticoid receptor<br/>Apoptosis</p> | <p>Long term exposure of electromagnetic radiations (EMR) from cell phones and Wi-Fi hold greater propensity to cause anxiety disorders. However, the studies investigating the effects of repeated exposure of EMR are limited. Therefore, we investigated the effects of repeated exposure of discrete frequencies of EMR in experimental animals. Male rats were exposed to EMR (900, 1800 and 2450 MHz) for 28 (1 h/day) days. Long term exposure of EMR (2450 MHz) induced anxiety like behavior. It deregulated the hypothalamic pituitary adrenal (HPA) axis in rats as observed by increase in plasma corticosterone levels apart from decreased corticotrophin releasing hormone-2 (CRH-2) and Glucocorticoid receptor (GR) expression in amygdala. Further, it impaired mitochondrial function and integrity. The expression of Bcl<sub>2</sub> showed significant decrease while Bax and ratio of Bax: Bcl<sub>2</sub> were increased in the mitochondria and vice versa in cytoplasm indicating altered regulation of apoptosis. EMR exposure caused release of cytochrome-c and expression of caspase-9 ensuing activation of apoptotic cell death. Additional set of experiments performed to estimate the pattern of cell death showed necrotic and apoptotic amygdalar cell death after EMR exposure. Histopathological studies also revealed a significant decrease in neuronal cells in amygdala. The above findings indicate that long-term exposure of EMR radiation (2450 MHz) acts as a stressor and induces anxiety-like behaviors with concomitant pathophysiological changes in EMR subjected rats.</p> |

Amygdala - A brain structure that processes many of our emotions such as fear.

"Long term exposure of MW (2450 MHz) induced anxiety like behavior... Further, it impaired mitochondrial function and integrity."

"Additional set of experiments performed to estimate the pattern of cell death showed necrotic and apoptotic amygdalar cell death after EMR exposure."

Study Date: Apr 2019

# Studies Continue to Indicate Harm to CNS due to MW Radiation....

Accepted: 23 May 2017

DOI: 10.1111/ane.12789

## ORIGINAL ARTICLE

WILEY

Acta  
Neurologica  
Scandinavica

## Controlled population-based comparative study of USA and international adult [55-74] neurological deaths 1989-2014

C. Pritchard<sup>1</sup> | E. Rosenorn-Lanng<sup>1</sup> | A. Silk<sup>1</sup> | L. Hansen<sup>2</sup>

<sup>1</sup>Faculty of Health and Social Sciences, Bournemouth University, Bournemouth, UK

<sup>2</sup>Southern Health, Southampton, UK

### Correspondence

C. Pritchard, Faculty of Health and Social Sciences, Bournemouth University, Bournemouth, UK.

Email: cpritchard@bournemouth.ac.uk

**Objectives:** A population-based controlled study to determine whether adult (55-74 years) neurological disease deaths are continuing to rise and are there significant differences between America and the twenty developed countries 1989-91 and 2012-14.

**Method:** Total Neurological Deaths (TND) rates contrasted against control Cancer and Circulatory Disease Deaths (CDD) extrapolated from WHO data. Confidence intervals compare USA and the other countries over the period. The Over-75's TND and population increases are examined as a context for the 55-74 outcomes.

**Results:** Male neurological deaths rose >10% in eleven countries, the other countries average rose 20% the USA 43% over the period. Female neurological deaths rose >10% in ten countries, averaging 14%, the USA up 68%. USA male and female neurological deaths increased significantly more than twelve and seventeen countries, respectively. USA over-75s population increased by 49%, other countries 56%. Other countries TND up 187% the USA rose fourfold. Male and female cancer and CDD fell in every country averaging 26% and 21%, respectively, and 64% and 67% for CDD. Male neurological rates rose significantly more than Cancer and CCD in every country; Female neurological deaths rose significantly more than cancer in 17 countries and every country for CDD. There was no significant correlation between increases in neurological deaths and decreases in control mortalities.

**Conclusions:** There are substantial increases in neurological deaths in most countries, significantly so in America. Rises in the 55-74 and over-75's rates are not primarily due to demographic changes and are a matter of concern warranting further investigation.

Conclusions: “There are substantial increase in neurological deaths in most countries, significantly so in America. Rises in the 55-74 and over-75's rates are not primarily due to demographic changes and are a matter of concern warranting further investigation.”

Study Date: Apr 2017

# Many Attempts Since 1970 to Improve Legislation to Protect Public Health & Safety from MW Radiation

THE CHALLENGE OF NONIONIZING RADIATION:

A PROPOSAL FOR LEGISLATION

KAREN A. MASSEY

Reprinted from

**Duke Law Journal**

Volume 1979, No. 1

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|  |   |
|--|---|
| I. INTRODUCTION .....  | 130   |
| II. BACKGROUND .....   |   |
| A. Description of Nonionizing Radiation as a Biologically Active Agent .....     | (i) Environmental Protection Agency (EPA) .....   |
| B. The Benefits of Nonionizing Radiation Use (Sources of Human Exposure) .....   | (b) Agencies with regulatory authority .....  |
| 1. Early Uses .....  | (i) Department of Health, Education and Welfare (HEW) .....                                     |
| 2. Spectrum Distribution of Uses .....   | (ii) Department of Labor (DOL)—Occupational Safety and Health Administration (OSHA) .....       |
| 3. Sources of Light-like Radiation .....   | (iii) Department of Defense (DOD) .....   |
| 4. Sources of Extra-low Frequency Radiation .....                                | (iv) Federal Communications Commission (FCC) .....  |
| 5. Sources of Radio Frequency and Microwave Radiation .....                      | (v) Other agencies with regulatory power .....  |
| 6. Future Uses .....   | (c) Other research—nonregulatory agencies and authorities .....                                 |
| C. Adverse Effects of Electromagnetic Radiation on Man and His Environment ..... | 2. State and Municipal Activities .....   |
| 1. Bioeffects .....  | III. THE NEED FOR LEGISLATION .....   |
| (a) Thermal effects and the American protection guidelines .....                 | A. Legislation for Prevention .....   |
| (b) Low-level ("nonthermal") effects .....                                       | 1. Timing .....   |
| (c) Uncertainties—parameters of nonionizing radiation .....                      | 2. The Logic of Prevention Policy .....   |
| (i) Power density .....  | B. Legislation for National Policy Directives .....   |
| (ii) Intensity and relative phase of all field components .....                  | C. Legislation for Research .....   |
| (iii) Specific frequency .....   | D. Legislation for Regulation .....   |
| (iv) Waveform characteristics .....  | 1. The Trouble with EPA .....   |
| (v) Exposure regimes .....   | 2. Clarification of Agency Roles .....  |
| (vi) Specific occupations .....  | 3. Reexamining the Federal Radiation Council Concept .....                                      |
| (vii) Level of control over exposed populations .....                            | 4. The Changing Picture .....   |
| (viii) Individual differences .....  | IV. FORMULATING A LEGISLATIVE RESPONSE .....  |
| (ix) Presence of other environmental stressors .....                             | A. Developing Policy and Strategy .....   |
| 2. Interference Effects .....  | 1. Health Protection—Setting Standards .....  |
| 3. Environmental Measurements .....  | (a) The definition of health .....  |
| 4. Present Governmental Activities in Nonionizing Radiation Protection .....     | (b) The benefits of nonionizing electromagnetic radiation (NEMR) and the need for a standard .. |
| 1. Federal Agencies .....  | 2. Welfare Policy .....   |
| (a) Agencies with coordination and oversight functions .....                     | (a) Determining the scope of the problem .....  |
| (i) Department of Commerce—The National Telecommunications and In-               | (b) Weighing the costs and benefits—the limits of economic analysis .....                       |
| formation Administration (NTIA) ....   | 3. Policy Implementation—Choosing Pollution Control Strategies .....                            |
| (EPA) .....  | (a) Control of government sources .....   |
| 132  | (b) Control of private broadcast sources .....  |
| 135  | 171   |
| 135  | 172   |
| 138  | 173   |
| 140  |   |
| 140  |   |
| 143  |   |
| 144  |   |
| 145  |   |
| 148  |   |
| 148  |   |
| 150  |   |
| 152  |   |
| 153  |   |
| 156  |   |
| 156  |   |
| 158  |   |
| 160  |   |
| 161  |   |
| 161  |   |
| 162  |   |
| 162  |   |
| 162  |   |
| 164  |   |
| 167  |   |
| 168  |   |
| 170  |   |
| 171  |   |
| 172  |   |
| 173  |   |

# Largest Study Ever (National Toxicology Program-NIH) Concluded RF/MW Radiation is Harmful



**“CLEAR EVIDENCE” CELL PHONE RADIATION CAUSED CANCER IN LANDMARK U.S. STUDY**

Environmental and Molecular Mutagenesis 

Research Article |  Open Access |  

Evaluation of the genotoxicity of cell phone radiofrequency radiation in male and female rats and mice following subchronic exposure

Stephanie L. Smith-Roe , Michael E. Wyde, Matthew D. Stout, John W. Winters, Cheryl A. Hobbs, Kim G. Shepard, Amanda S. Green, Grace E. Kissling, Keith R. Shockley, Raymond R. Tice ... See all authors 

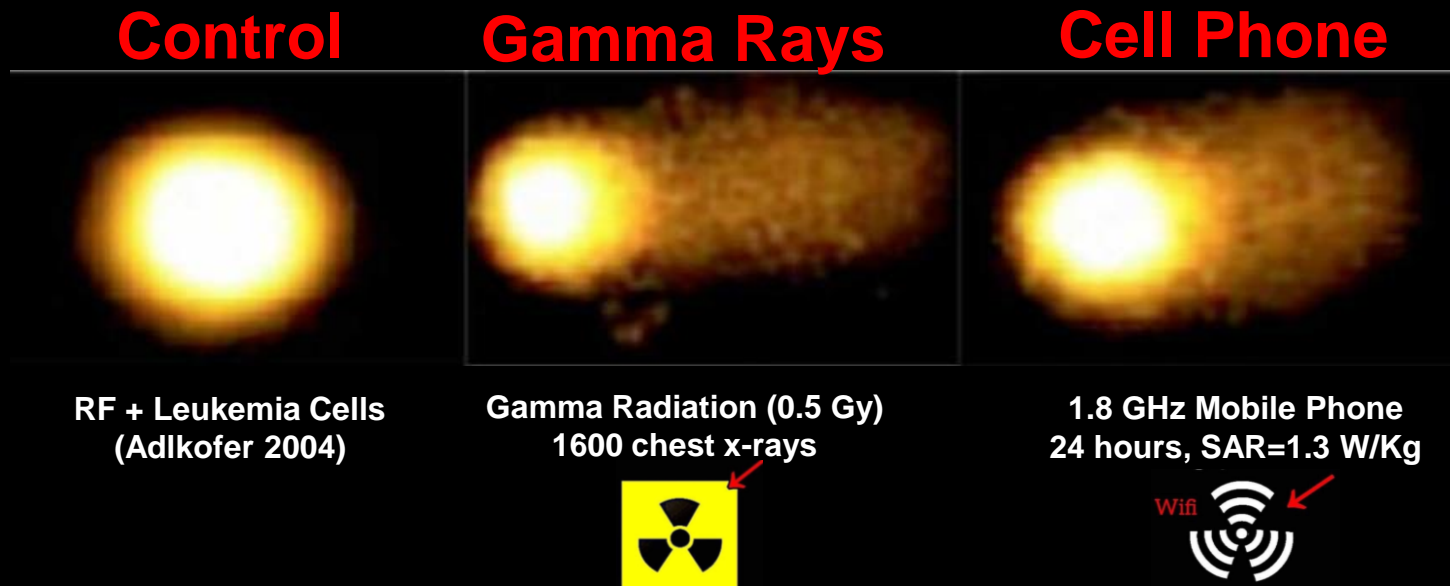
 **NTP**  
National Toxicology Program  
U.S. Department of Health and Human Services

SPRAGUE DAWLEY  
(HSD:SPRAGUE DAWLEY® SD®)  
RATS EXPOSED TO  
WHOLE-BODY RADIO  
FREQUENCY RADIATION AT A  
FREQUENCY (900 MHz)  
AND MODULATIONS  
(GSM AND CDMA)  
USED BY CELL PHONES

- **>10 yr, \$30 million study in mice & rats (gold standard)**
- **Nine types of cancer (brain, heart, prostate)**
- **Cardiac myopathy (enlarged heart)**
- **Genotoxicity (DNA damage)**

# Cell Phone Microwave Radiation Damages DNA

## European Commission's Reflex Study (2004)



- Comet assay measures DNA damage
- EC Reflex study: 24 hrs at 1.8 GHz (cell phone) damages DNA
- Replicated by others (e.g., National Toxicology Program in 2020)

National Toxicology Program (Smith-Roe et al., 2020)

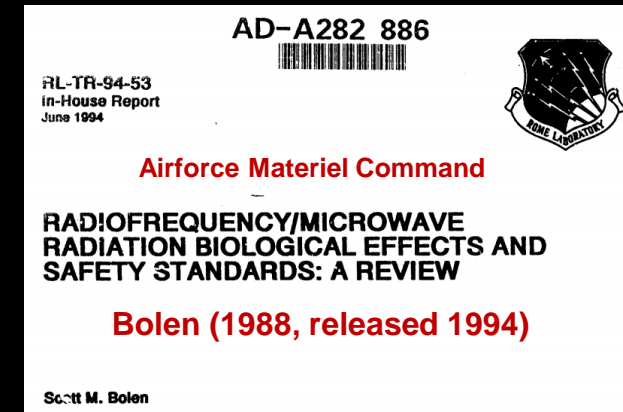
Genetic effects of non-ionizing electromagnetic fields. Review (2021)



# Biological Effects of Microwave Radiation: Airforce (1988)

## Carcinogenic Effects

- 1) Chromosomal Damage \*
- 2) Mutagenic Effects (DNA damage)
- 3) Lymphoblastoid Transformations (leukemia)
- 4) Oncogenic Effects (sugar, hormone imbalance)



The NIOSH Technical Report [8] summarizes the findings of several researchers. Chromosomal and mitotic anomalies have been observed in a variety of animal and human cells for varying exposures to RF/MW radiation. Pulsed and CW radiation ranging in frequency from 15 to 2950 MHz and power densities from 7 to 200 mW/cm<sup>2</sup> have caused abnormalities to occur in chromosomes. The reported affects include: linear shortening of the chromosomes, irregularities in the chromosomal envelope, abnormal bridges and stickiness, translocations, chromosomal breaks and gaps, chromatid breaks, acentric chromosomes, dicentric chromosomes, deletions, fragmentation, and ring chromosomes [8].

observed chromosomal anomalies that appeared in forms described as polyploidy, aneupl [8] M. J. Dwyer and D. B. Leeper, "Carcinogenic Properties of Non-ionizing Radiation; Volume II - Microwave and Radiofrequency Radiation", National Institute for Occupational Safety Technical Report, published by The U. S. Department of Health, Education & Welfare, NIOSH Contract Number 210-76-0145, Cincinnati, March 1978. [17].

# Role of Mitochondria in the Oxidative Stress Induced by Electromagnetic Fields: Focus on Reproductive Systems

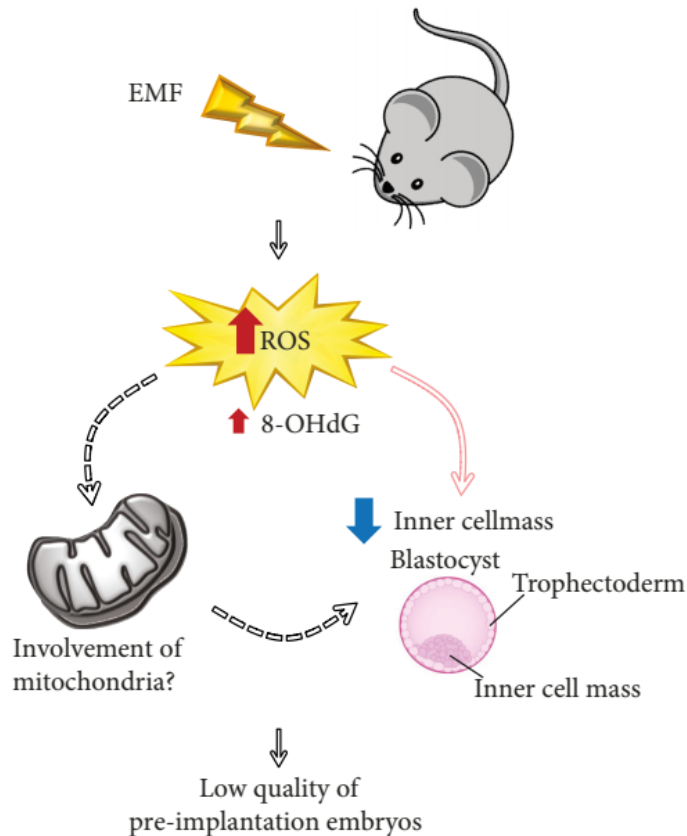


FIGURE 2: Involvement of oxidative stress and possible role of mitochondria-related pathways in embryos produced from females exposed to EMF. EMF: electromagnetic fields; ROS: reactive oxygen species; 8-OHdG: 8-hydroxy-2'-deoxyguanosine.

TABLE 1: Review of studies investigating the effect of RF and ELF-MF on mitochondria and redox balance.

| Reference | Radiation            | SAR                 | Exposure time       | Model             | Temperature      | Effect   |
|-----------|----------------------|---------------------|---------------------|-------------------|------------------|--|
| [157]     | RF 900 MHz           | 0.090 W/kg          | Long-term exposure  | Mice              | —                | Mitochondrial DNA damage   |
| [158]     | RF 900 MHz           | 2–5.7 W/kg          | Short-term exposure | Human spermatozoa | Constant         | No effect on mitochondria  |
| [67]      | RF 850 MHz           | 1.46 W/kg           | Short-term exposure | Human semen       | Room temperature | Loss in sperm motility and viability<br>Increased ROS production   |
| [133]     | RF 1.8 GHz           | 0.4–27.5 W/kg       | Short-term exposure | Human spermatozoa | Constant         | Mitochondrial ROS generation<br>Alterations of electron potential of mitochondrial membrane,<br>Oxidative DNA damage |
| [124]     | RF 900–1800 MHz      | —                   | Long-term exposure  | Rat               | Constant         | Lower sperm motility<br>Decreased GSH levels<br>Oxidative damage   |
| [140]     | RF 900 MHz           | 0.9 W/kg            | Long-term exposure  | Rat               | —                | Decreased antioxidant enzyme activity<br>Increased ROS production<br>Lipid peroxidation<br>Increased apoptosis       |
| [144]     | MW 10 GHz            | 0.014 W/kg          | Long-term exposure  | Rat               | —                | Spermatozoa cell cycle arrest<br>ROS production  |
| [145]     | RF 900–1800–1900 MHz | 0.9 W/kg            | Long-term exposure  | Rat               | —                | Decreased antioxidant defences<br>Lipid peroxidation   |
| [122]     | RF 900 MHz           | —                   | Long-term exposure  | Rat               | —                | Decreased sperm count<br>Decreased antioxidant defences<br>Lipid peroxidation  |
| [141]     | RF 900 MHz           | 0.66 W/kg           | Long-term exposure  | Rat               | —                | Decreased sperm viability<br>Increased ROS production<br>Increased apoptosis   |
| [156]     | RF 1800–1900 MHz     | —                   | Long-term exposure  | Human             | —                | Mitochondrial damage   |
| [154]     | RF 900 MHz pulsed    | 0.0516–0.0054 W/kg  | Long-term exposure  | Mice              | —                | Alterations of electron potential of mitochondrial membrane<br>DNA damage  |
| [146]     | RF 902.4 MHz         | 0.00516–0.0054 W/kg | Long-term exposure  | Mice              | —                | Decreased antioxidant defences<br>Lipid peroxidation<br>DNA damage<br>Decreased sperm count                          |
| [142]     | RF 900 MHz           | 0.0067 W/kg         | Long-term exposure  | Rat               | Constant         | Imbalance in total antioxidant capacity<br>Lipid peroxidation  |
| [155]     | RF 1800 MHz          | 0.15 W/kg           | Short-term exposure | Mouse germ cells  | —                | Increased ROS production<br>DNA fragmentation<br>Oxidative DNA damage  |
| [143]     | RF 1800 MHz          | 4 W/kg              | Short-term exposure | Mouse germ cells  | —                | Oxidative DNA damage<br>Increased autophagy  |

# Effects of RF/MW Radiation Exposure on the Immune System

## Research on the Effects of Wireless Radiation Exposure on the Immune System

Joel M. Moskowitz, Ph.D., School of Public Health, University of California, Berkeley

[Electromagnetic Radiation Safety](#), March 18, 2020

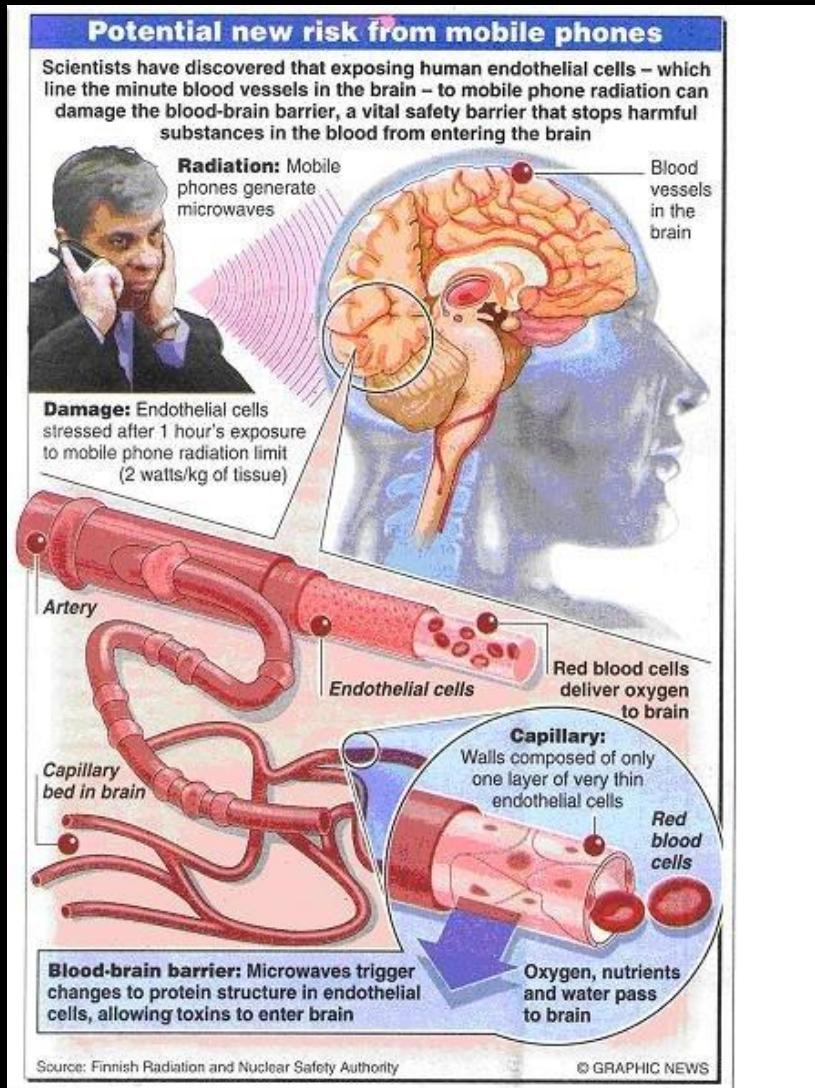
This compilation of research on the effects on the immune system from exposure to radio frequency radiation consists of excerpts from a research review published in 2013 by Dr. Stanislaw Szmigielski in a peer-reviewed journal and a list of references to studies published since 2000.

### Reaction of the immune system to low-level RF/MW exposures

Szmigielski S. Reaction of the immune system to low-level RF/MW exposures. *Science of the Total Environment*. 2013 Jun 1; 454-455:393-400. doi: 10.1016/j.scitotenv.2013.03.034.

- Cites dozens of peer-reviewed papers demonstrating *weak* RF/MW radiation *is an immune suppressor*
- *A danger to public safety especially during a pandemic?*

# Many studies report compromised Blood Brain Barrier (BBB) after microwave exposure



## Microwaves increase BBB permeability

Oscar, K.J., and Hawkins, T.D. 1977. Microwave alteration of the blood brain barrier system of rats. *Brain Res.* 126:281.

Preston, E., Vavasour, E.J., and Assenheim, H.M. 1979. Permeability of the blood-brain barrier to mannitol in the rat following 2450 MHz microwave irradiation. *Brain Res.* 174:109.

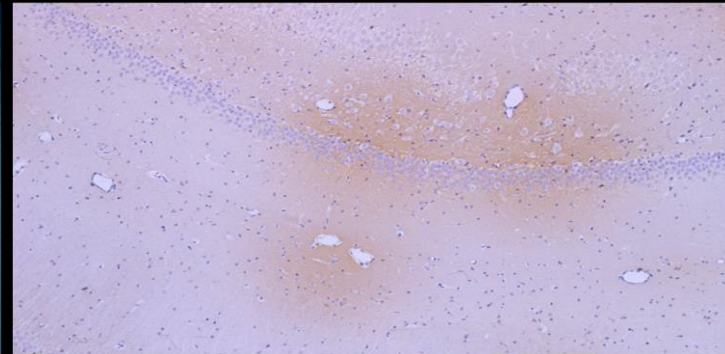
Frey, A.H. 1980. On microwave effects at the blood-brain barrier. *Bioelectromagnetics Soc. Newsl.* Nov. 1980.

# 4G/5G Cell Phone Radiation Opens Blood Brain Barrier in Rats ("Leaky Brain")

Control

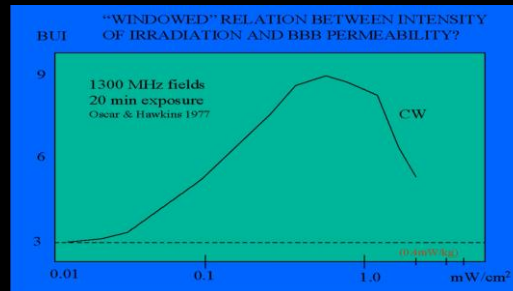


2 hours @  
0.9 GHz  
<8 mW/Kg



Dr Leif Salford

<https://youtu.be/OXcLmh5ZGBg>



Persson, B. R. R. & Salford, L. G. 1996, "Permeability of the blood-brain barrier in rats induced by continuous wave and pulse-modulated 915 MHz electromagnetic radiation exposure in TEM-cells.," CEC-XIII-244/6/-96 edn, A. Chiabrera & J. Juutilainen, eds., EU DG XIII, Brussel, pp. 66-72.

Persson, B. R. R., Salford, L. G., & Brun, A. 1997, "Blood-Brain Barrier permeability in rats exposed to electromagnetic fields used in wireless communication." *Wireless Networks*, vol. 3, pp. 455-461.

Salford, L. G., Brun, A., Eberhardt, J., Malmgren, L., & Persson, B. 1992, "Electromagnetic field-induced permeability of the blood-brain barrier shown by immunohistochemical methods," in *Interaction Mechanism of Low-Level Electromagnetic Fields in Living Systems*, B. Nordén & C. Ramel, eds., Oxford University Press, Oxford, pp. 251-258.

# More evidence that “subchronic” Pulsed MW Exposure Opens Blood Brain Barrier

Annals New York Academy of Sciences

## NEURAL FUNCTION AND BEHAVIOR: DEFINING THE RELATIONSHIP

Allan H. Frey, Sondra R. Feld, and Barbara Frey

1975

*Randomline, Inc.*

*Huntingdon Valley, Pennsylvania 19006*

The results of the brain permeability experiment indicate that illumination of a small mammal with low-power rf energy affects the brain barriers. It appears that pulsed energy is significantly more effective than cw energy. Because illumination of the animals was not confined exclusively to the brain, one cannot conclude with assurance that the effect observed in the brain was direct. Conceivably, it could have been secondary, a result of some mechanism initiated by the energy illuminating another part of the body. Conversely, the apparent influence of head position in determining the effects of the energy could possibly be explained by the facial bones concentrating energy in the brain.



did not know the exposure conditions, evaluated the sections.  
The first experimenter injected sodium pentobarbital into an animal (50 mg/kg, ip). The unconscious animal was laid on a block of energy absorber in the rf anechoic chamber. It was then exposed to actual or simulated rf illumination, as required by the experimental design. After a 30-min illumination, the experimenter removed the animal from the chamber. A small skin incision was made over the femoral vein, and 0.15 ml of 4% sodium fluorescein was injected into the vein. To verify that the

TABLE I  
EFFECTS OF RF ENERGY ON BRAIN FLUORESCENCE

| Head Positions        | Intensity of Fluorescence (mean)            |        |                                     |
|-----------------------|---|--------|-------------------------------------|
|                       | Pulsed (A)                                  | cw (B) | Sham (C)                            |
| I                     | 1.5   | 0.8    | 0.2                                 |
| II                    | 1.8   | 0.7    | 0                                   |
| III                   | 2.0   | 1.0    | 0.2                                 |
| IV                    | 2.2   | 0.7    | 0                                   |
| V                     | 0.2   | 0      | 0                                   |
| A vs B vs C p < 0.001 |   |        | A vs B p < 0.001                    |
| A vs C p < 0.001      |   |        | A (I, II, III, IV) vs (V) p < 0.001 |
| B vs C p < 0.005      |   |        | B (I, II, III, IV) vs (V) p < 0.005 |
| Head Positions        | Number of Sections that Fluoresced (median) |        |                                     |
|                       | Pulsed (D)                                  | cw (E) | Sham (F)*                           |
| I                     | 2.5   | 0.5    | 0                                   |
| II                    | 9.5   | 1.5    | 0                                   |
| III                   | 7.5   | 3.5    | 0                                   |
| IV                    | 1.5   | 0.5    | 0                                   |
| V                     | 0   | 0      | 0                                   |
| D vs E vs F p < 0.001 |   |        | D vs E p < 0.005                    |
| D vs F p < 0.001      |   |        | D (I, II, III, IV) vs (V) p < 0.001 |
| E vs F p < 0.005      |   |        | E (I, II, III, IV) vs (V) p < 0.005 |

# Prenatal Exposure to 900 MHz: Neuronal Cell Loss

Effects of prenatal exposure to a 900 MHz electromagnetic field on the dentate gyrus of rats: a stereological and histopathological study<sup>☆</sup>

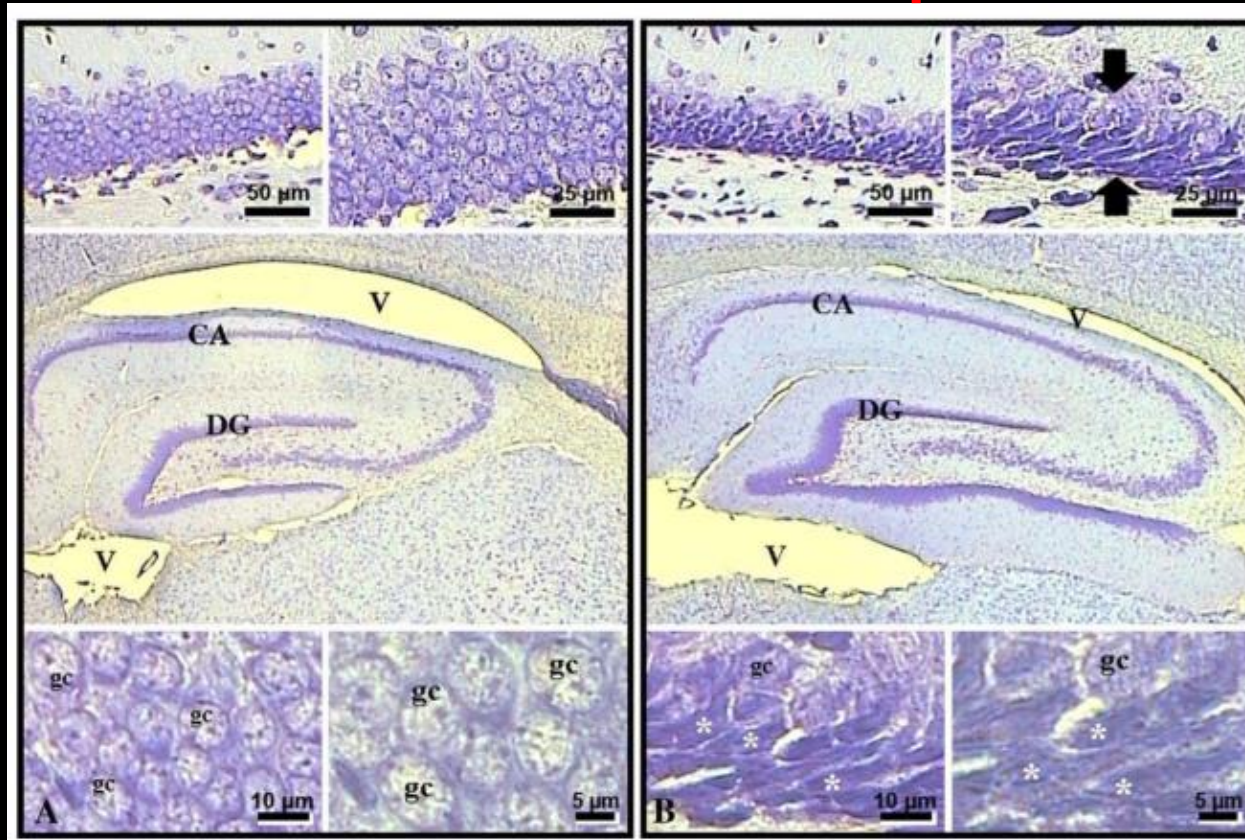
Brain Research

31 October 2008, Pages 224–229

Ersan Odaci<sup>a,\*</sup>, Orhan Bas<sup>b</sup>, Suleyman Kaplan<sup>c</sup>

**Control**

**Exposed**



**Does MW exposure inhibit granule cell neurogenesis?**

**Exposure:  
(900 MHz, CW, 2 W/kg,  
1 mW/cm<sup>2</sup>, 60 min/day)**

# Is Microwave Radiation a Causal Factor Contributing to Early-onset Alzheimer's Disease?

EXPERIMENTAL AND THERAPEUTIC MEDICINE 12: 1969-1972, 2016

## Microwaves and Alzheimer's disease (Review)

XIA ZHANG, WEN-JUAN HUANG and WEI-WEI CHEN

Department of Neurology, Xuzhou Central Hospital, Xuzhou, Jiangsu 221009, P.R. China

Received February 3, 2016; Accepted July 25, 2016

pockets. Notably, the data suggested that the hippocampus can be injured by long-term microwave exposure (52), which may result in the impairment of cognitive function due to neurotransmitter disruption. These results suggest that precautionary approach underlying the restrictive use of cell phones constitutes essential appropriate guidelines to follow although additional studies are needed.



# Symptoms vs. Cell Tower Proximity

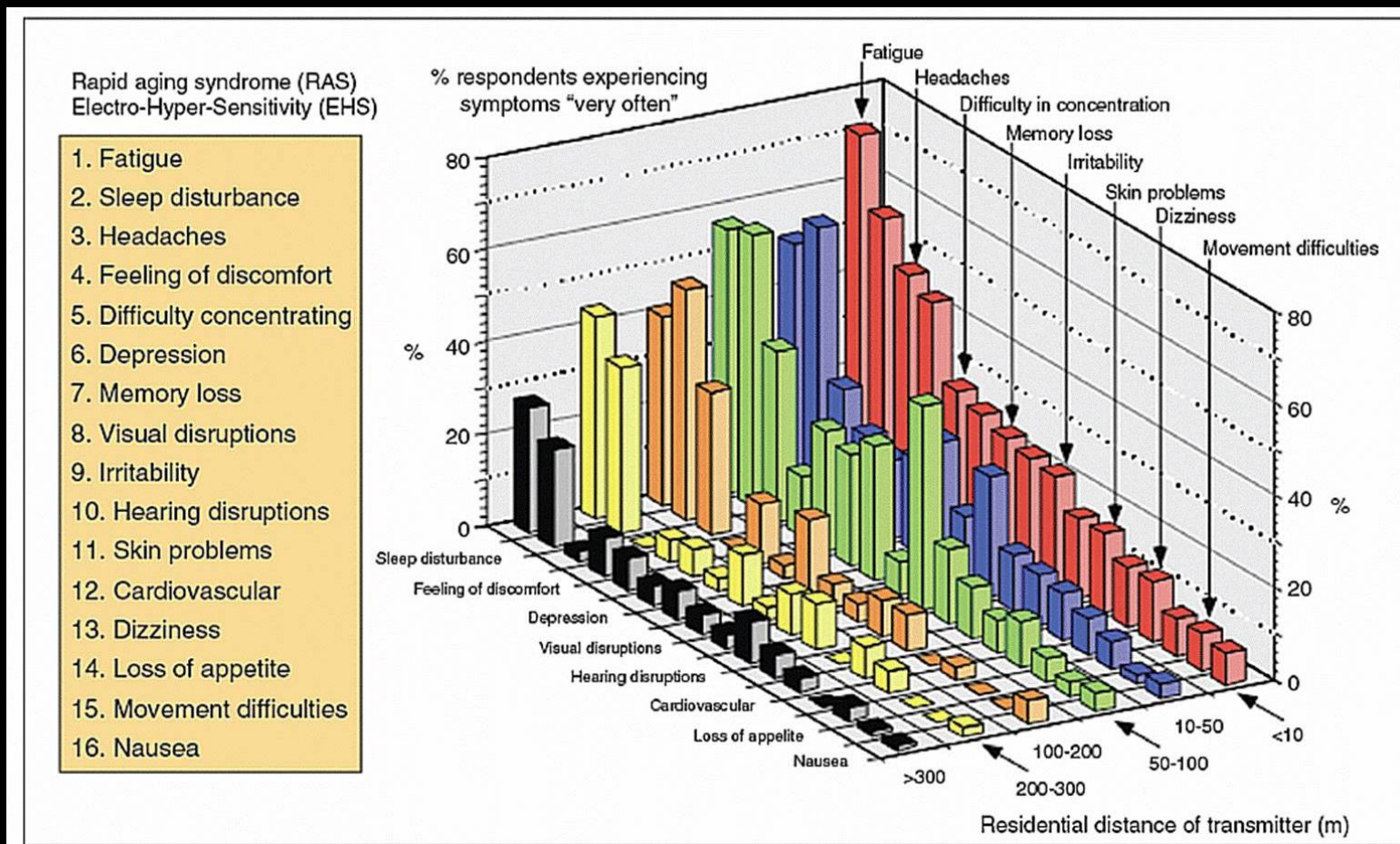


Figure 2. Symptoms experienced by people living near cellular phone base stations. Based on work by Santini et al. 2002, reproduced from Havas 2013.

Santini 2002 Havas 2013 Dode 2011

➤ Many more published epidemiologic studies [here](#) and [here](#)

# "Epidemiological Evidence for a Health Risk from Mobile Phone Base Stations"

VOL 16/NO 3, JUL/SEP 2010 • www.ijeh.com

Health Risks from Mobile Phone Base Stations • 265

**TABLE 1 Summary of Epidemiological Studies of Mobile Phone Base Station Health Effects**

| Publication (Year; Country)                 | Clinical Assessment | Study Design              | Base Station Details                              | Participants | EMF Measured | Key Findings  | Strengths  | Limitations  |
|---|---------------------|---------------------------|---|--------------|--------------|---|--|--|
| Navarro <sup>2</sup> (2003; Spain)          | Neuro-behavioral    | Survey-questionnaire      | GSM-DCS 1800 MHz                                  | 101          | Yes          | More symptoms with closer proximity to base station (< 150 m)                           | Detailed questionnaire, EMF measured, distances studied <sup>a</sup>                       | Low participation, self-estimated distances, subjects aware <sup>b</sup>   |
| Santini <sup>2</sup> (2003; France)         | Neuro-behavioral    | Survey-questionnaire      | n/s   | 530          | No           | More symptoms with closer proximity to base station (< 300 m)                           | Detailed questionnaire, distances & other EMF exposures assessed                           | As above, plus no EMF measurements, no base station details  |
| Eger <sup>7</sup> (2004; Germany)           | Cancer incidence    | Retrospective case review | GSM 935 MHz                                       | 967          | No           | 3 x risk of cancer after 5 yrs of exposure (< 400 m); early age of cancer diagnosis     | Maximum beam intensity calculated, reliable cancer data collection                         | Other environmental risk factors not assessed; analysis not adjusted for age and sex.  |
| Wolf & Wolf <sup>8</sup> (2004; Israel)     | Cancer incidence    | Retrospective case review | TDMA 850 MHz                                      | 1844         | Yes          | > 4 x risk of cancer after 3-7 yrs exposure (< 350 m); early age of cancer diagnosis    | Reliable cancer & demographic data, no other major environmental pollutant identified      | Not all environmental risk factors assessed; possible selection bias; no age, sex adjustment.  |
| Gadzicka <sup>4</sup> (2006; Poland)        | Neuro-behavioral    | Survey-questionnaire      | n/s   | 500          | No           | More headache with proximity < 150 m; nocebo unlikely <sup>c</sup>                      | Detailed questionnaire, distances & EMF studied, nocebo studied                            | Subjects aware, no base station details  |
| Hutter <sup>5</sup> (2006; Austria)         | Neuro-behavioral    | Cross-sectional           | 900 MHz   | 336          | Yes          | Headaches & impaired concentration at higher power density; nocebo unlikely             | Detailed questionnaire and testing, EMF measured, distances studied; nocebo effect studied | Subjects aware, low participation rate   |
| Meyer <sup>9</sup> (2006; Germany)          | Cancer incidence    | Retrospective case review | n/s   | 177,428      | No           | No increased cancer incidence in municipalities with or without base stations           | Wide population assessed (Bavaria)   | Observation period only 2 years, vague definitions of exposure, exposure onset unknown, distance to base station unknown   |
| Abdel-Rassoul <sup>6</sup> (2007; Egypt)    | Neuro-behavioral    | Cross-sectional           | n/s   | 165          | Yes          | More symptoms & lower cognitive performance if living under or < 10 m from base station | Detailed questionnaire and testing, EMF measured, distances studied, subjects unaware      | Exact base station details n/s, low number of participants   |
| Blettner <sup>10</sup> (2009; Germany)      | Neuro-behavioral    | Cross-sectional           | n/s   | 30,047       | No           | More health complaints closer to base station (< 500 m)                                 | Wide population assessed, detailed survey, nocebo effect assessed                          | EMF measurements not carried out (see phase II in Berg-Beckhoff et al., 2009; below)   |
| Berg-Beckhoff <sup>11</sup> (2009; Germany) | Neuro-behavioral    | Cross-sectional           | GSM 900 MHz<br>GSM 1800 MHz<br>UMTS 1920-1980 MHz | 1326         | Yes          | Health effects probably caused by stress and not by RF-EMF                              | Measured EMF emissions, standardized questionnaires  | Low participation, no detailed list of symptoms published, single "spot" measurement in one place in dwelling, no occupational exposure assessed, time lag from assessment of symptoms and EMF measurement |

n / s = not specified.

<sup>a</sup>"Distance" refers to distance between base station and subjects' households.

<sup>b</sup>"Subjects aware" refers to study participants being aware of the nature of the study.

<sup>c</sup>"Nocebo" effect unlikely because the majority of subjects in the study reported little or no concern for base station proximity.

# “Small” Cell towers deliver a Powerful Punch

Macro WTF

5G “Small” WTF



Vertical Distance off Ground:

200 ft.

35 ft.

Horizontal Distance Away:

2500 ft.

60 ft.

Power in 2<sup>nd</sup> Story Bedroom:

0.002

50,000 Too Much Power!

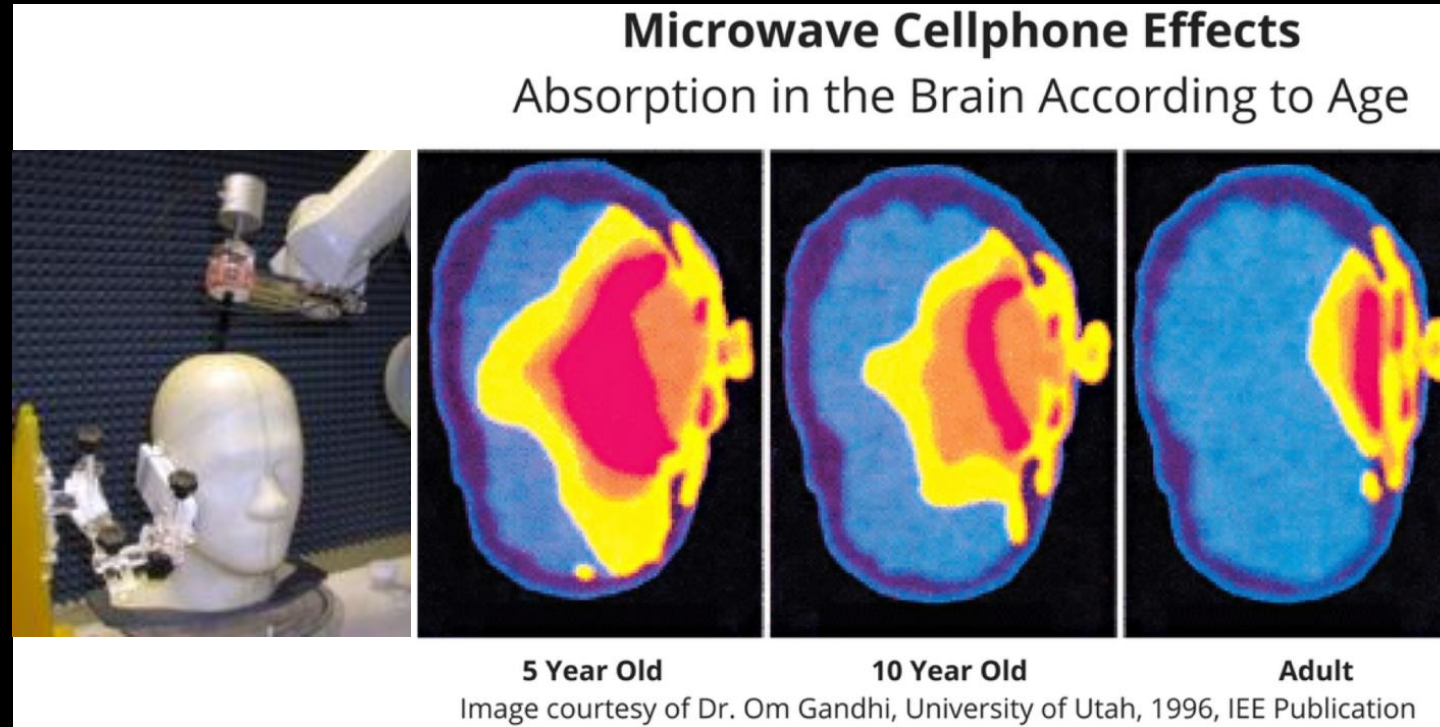
5 Bars on Cell Phone  
(-85 dBm)

25 million times more  
powerful! (>-15 dBm)

# Consequences of Too Much Microwave Power

| Power Output Scale | Consequences on Human Health<br>(based on thousands of published studies) | $\mu\text{W}/\text{m}^2$ |
|--------------------|---|--------------------------|
| 0.0005x            | EEG altered in humans; alters brain waves                                 | 0.000001                 |
| 1                  | <b>FIVE BARS ON CELL PHONE</b>  | 0.002                    |
| 15,000x            | Sleep disorders, weakness, fatigue, pain                                  | 30                       |
| 50,000x            | Human sensation   | 100                      |
| 500,000x           | Decreased cell growth, humans   | 1,000                    |
| 600,000x           | Childhood leukemia  | 1,200                    |
| 1,250,000x         | Impaired motor function, reaction time, memory, attention                 | 2,500                    |
| 3,750,000x         | Altered white blood cells, humans   | 7,500                    |
| 5,000,000x         | Headache, dizziness, fatigue, weakness, insomnia, humans                  | 10,000                   |
| 15,000,000x        | Microwave hearing   | 30,000                   |
| 25,000,000x        | Leukemia, skin, melanoma, bladder cancer                                  | 50,000                   |
| 50,000,000x        | Impaired memory, visual reaction time, humans                             | 100,000                  |
| 5,000,000,000x     | FCC Maximum Permissible RF-EMR Exposure Guidelines, General Pop.          | 10,000,000               |

# Children Most Vulnerable to RF/MW Radiation



- **Thinner skull and bone than adults**
- **↑ absorption in brain (3X)**
- **↑ absorption in bone marrow (10X)**

# Countries Banning/Restricting WIFI in schools

- France
- Israel
- Belgium
- Cyprus
- Rwanda
- Australia



The Councilor for Education Piergiorgio Balboni disconnects the Wi-Fi at Sant Agostino.  
Photo [Ciro Lazzarini cronachemaceratesi.it/](http://CiroLazzarini.cronachemaceratesi.it/)

## Chinese ministry bans smartphones in all schools

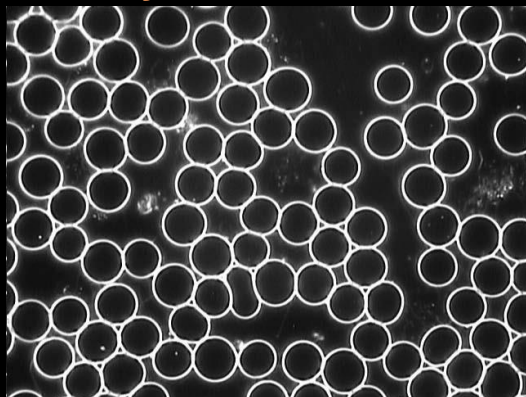
**“New measure, aimed at protecting students’ eyesight, making sure they focus on study and preventing them from becoming addicted to the internet and online games.”**

**– China Ministry of Education, Feb. 2, 2021**

# Tools for Assessment: Dark Field Phase Contrast Imaging

## Human Blood After *In Vivo* Exposure to Microwaves

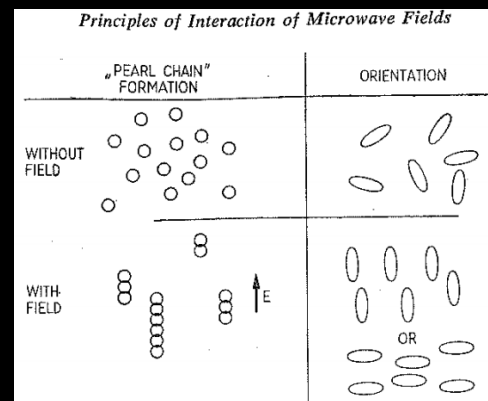
### Healthy Red Blood Cells



Dark Field  
Phase Contrast  
Imaging

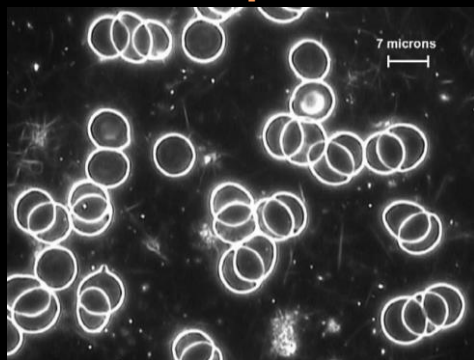
- Clean Plasma
- Round RBCs
- Separable

### Pearl Formation



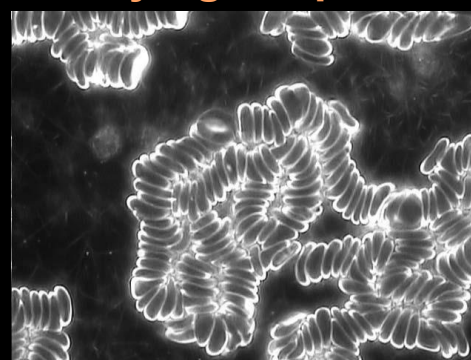
Schwan 1974

### Low Exposure



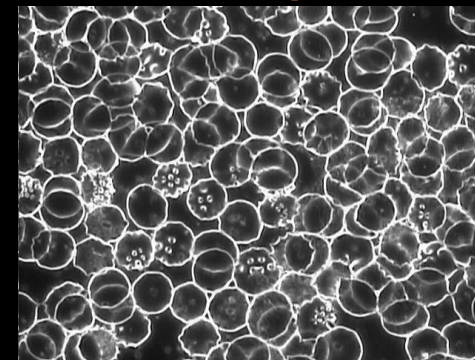
Healthy RBCs

### "Carrying" Exposure



"Rouleaux" Aggregates

### "Active" Exposure



Spikey RBCs (echinocytes)

Female  
75 yrs

Smart Phone Microwave Exposure

# Tools for Assessment: Measure Blood Composition

## Hormone, Insulin, & Blood Sugar Levels Modulated by MW Exposure

Dr Magda Havas, professor of environmental sciences in Canada, has directed several studies that have not only shown a connection between the increase in diabetes and EMF exposure, but also the effectiveness of filters on ELF electrical equipment that help to reduce the suffering and the symptoms of diabetics.

*"We can take a diabetic person and put them in an environment polluted by EMR and measure their sugar levels,"* she explained in an interview with Toronto magazine.

*"If we then put them in a clean environment, within half an hour their blood sugar level is invariably lower. **When someone is exposed to EM radiation they become a real barometer.**"*

Scientific publication Informa Health Care: Magda Havas  
["Electromagnetic Hypersensitivity: Biological Effects of Dirty Electricity with Emphasis on Diabetes and Multiple Sclerosis"](#)

### **Dirty Electricity Elevates Blood Sugar Among Electrically Sensitive Diabetics and May Explain Brittle Diabetes**

MAGDA HAVAS

Environmental & Resource Studies, Trent University, Peterborough, Ontario, Canada

*Transient electromagnetic fields (dirty electricity), in the kilohertz range on electrical wiring, may be contributing to elevated blood sugar levels among diabetics and pre-diabetics. By closely following plasma glucose levels in four Type 1 and Type 2 diabetics, we find that they responded directly to the amount of dirty electricity in their environment. In an electromagnetically clean environment, Type 1 diabetics require less insulin and Type 2 diabetics have lower levels of plasma glucose. Dirty electricity, generated by electronic equipment and wireless devices, is ubiquitous in the environment. Exercise on a treadmill, which produces dirty electricity, increases plasma glucose. These findings may explain why brittle diabetics have difficulty regulating blood sugar. Based on estimates of people who suffer from symptoms of electrical hypersensitivity (3–35%), as many as 5–60 million diabetics worldwide may be affected. Exposure to electromagnetic pollution in its various forms may account for higher plasma glucose levels and may contribute to the misdiagnosis of diabetes. Reducing exposure to electromagnetic pollution by avoidance or with specially designed GS filters may enable some diabetics to better regulate their blood sugar with less medication and borderline or pre-diabetics to remain non diabetic longer.*

**Keywords** Radio frequency; Transients; Dirty electricity; Power quality; Plasma glucose; Blood sugar; Insulin; GS filters; Electrohypersensitivity; Brittle diabetes; Type 3 diabetes; Type 2 diabetes; Type 1 diabetes.



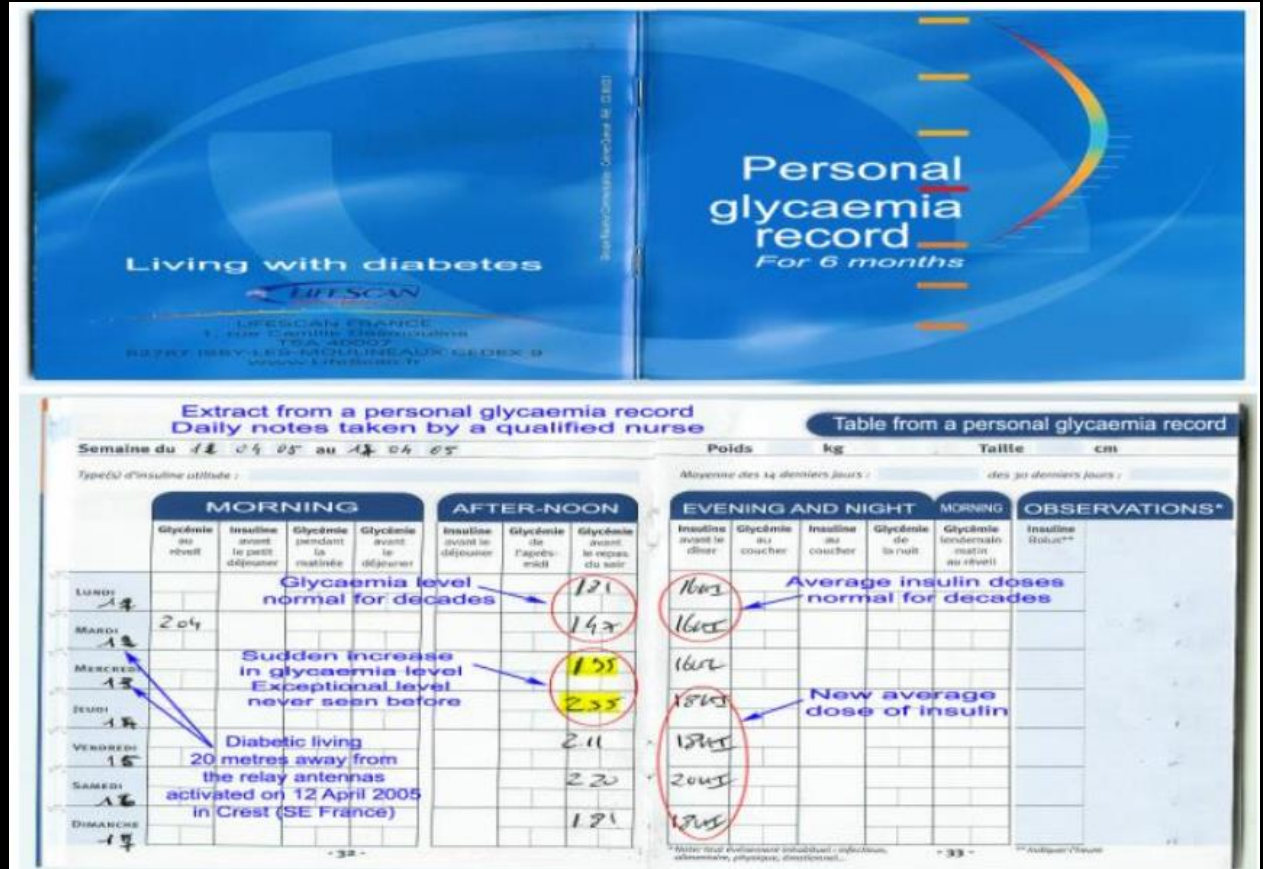
# Tools for Assessment: Measure Blood Composition

## Hormone, Insulin, & Blood Sugar Levels Modulated by MW Exposure

All the diabetics living near relay antennas can easily prove the damaging effects of exposure to artificial HF microwave radiation by observing the spectacular increase in blood sugar levels when they are close to a source of radiation, as can be seen from the reading noted in their personal glycaemia record.

From this it is possible to determine the exact date when a diabetic has been exposed to radiation.

In conclusion: the effect of EMF irradiation on a diabetic can be measured directly and immediately. The reading in the personal record provides definite proof, and shows that a diabetic exposed to artificial HF microwave radiation has to increase their dose of insulin significantly.



EMF: The facts revealed in the personal glycaemia record

# Tools for Assessment: Measure Blood Composition



## Hormone, Insulin, & Blood Sugar Levels Modulated by MW Exposure

INTERNATIONAL JOURNAL OF RADIATION BIOLOGY  
2018, VOL. 94, NO. 9, 850–857  
<https://doi.org/10.1080/09553002.2018.1490039>



ORIGINAL ARTICLE

Radiofrequency radiation emitted from Wi-Fi (2.4 GHz) causes impaired insulin secretion and increased oxidative stress in rat pancreatic islets

Ali Masoumi<sup>a</sup>, Narges Karbalaei<sup>a,b</sup> , S. M. J. Mortazavi<sup>c</sup>  and Mohammad Shabani<sup>d</sup>

2018




Association of Exposure to Radio-Frequency Electromagnetic Field Radiation (RF-EMFR) Generated by Mobile Phone Base Stations with Glycated Hemoglobin (HbA1c) and Risk of Type 2 Diabetes Mellitus

2015

Sultan Ayoub Meo<sup>1,\*</sup>, Yazeed Alsubaie<sup>1</sup>, Zaid Almubarak<sup>1</sup>, Hisham Alm Yazeed AlQasem<sup>1</sup> and Rana Muhammed Hasanato<sup>2</sup>

International Journal of  
Environmental Research and  
Public Health  
ISSN 1660-4601  
[www.mdpi.com/journal/ijerph](http://www.mdpi.com/journal/ijerph)



RF-EMFR ( $5.32 \pm 0.34$ ) ( $p = 0.007$ ). Moreover, students who were exposed to high RF-EMFR generated by MPBS had a significantly higher risk of type 2 diabetes mellitus ( $p = 0.016$ ) relative to their counterparts who were exposed to low RF-EMFR. It is concluded that exposure to high RF-EMFR generated by MPBS is associated with elevated levels of HbA1c and risk of type 2 diabetes mellitus.

# Simple Tips to Reduce Microwave Exposure



## TURN IT OFF WHEN NOT IN USE.

Avoid unnecessary radiation by powering off wireless devices, network equipment, and hotspots when not in use, like at bedtime.



## PRE-DOWNLOAD INSTEAD OF STREAMING.

Remember that when you wirelessly stream videos or music the radiation goes into your body. It is better to pre-download audio and video files and then watch or listen with wireless connections turned off.



## AIRPLANE MODE

Learn how to set your phone to Airplane Mode with antennas OFF. Airplane Mode turns off most of the wireless antennas.

## ANTENNAS OFF

Also be sure the Wi-Fi, Bluetooth, and Mobile Data antennas are OFF in the phone settings. Even with antennas off, you still can play music, take photos, and make videos.



## USE A PLUG-IN ETHERNET CORD.

It is super fast. Whenever possible connect your laptop, tablet, or computer with an ethernet cord (with Wi-Fi OFF, and Bluetooth OFF).

## CORDED PHONE

Corded phones do not emit wireless radiation.



## DISTANCE MATTERS.

Maximize the distance between people and wireless devices.



## WIRED (NOT WI-FI & NOT BLUETOOTH)

Use a wired mouse, speakers, printer, game system, keyboard, tv, etc.



## SPEAKERPHONE

Keep the phone away from your brain by using speakerphone.



## AVOID MAKING CALLS IN CARS

The cell phone works harder to get a signal through metal, so the radiation is stronger.

## TEXT INSTEAD OF TALK

Remember to hold the phone away from your body. Pics and video increase radiation.



## HEALTHY SLEEP

Remove electronics and wireless devices from around your bed. Do not sleep with your cell phone.



## MINIMIZE FACETIME AND SOCIAL MEDIA ON CELL PHONES.

When you use facetime or post images, your phone emits more radiation. Instead, do social media or video sharing on a computer connected to the Internet by ethernet cord (with Wi-Fi turned off).



## DO NOT SLEEP WITH YOUR PHONE

Use a battery-powered alarm clock, and power off the phone.



## REDUCE TIME

Reduce the time you spend on cell phone and wireless overall. Choose safer tech.



## BEWARE THE LOW SIGNAL

The weaker your signal strength, the stronger the radiation from your phone.



## DISTANCE IS YOUR FRIEND

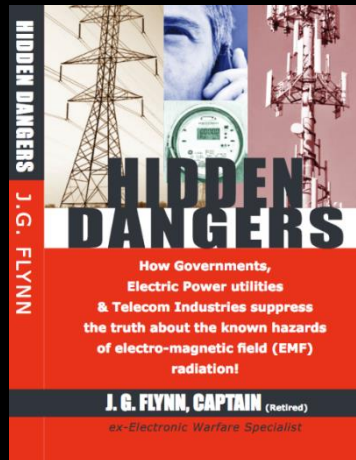
Phones should not be in your pocket, bra, or touching your body.

Here are some examples of recommendations made by the American Academy of Pediatrics, the Vienna Medical Association, and the Cyprus Medical Association.

# Harmful Effects of RF/MW Radiation

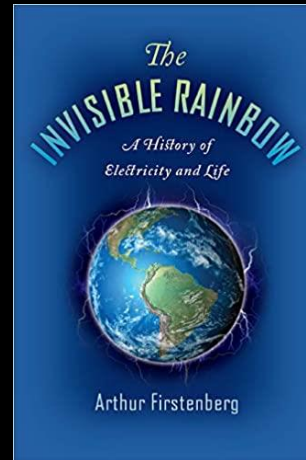
## Selection of *Popular* Books on Biological Effects of Microwaves and other EMFs on the Body

2019



Author: Retired captain in the military and MW expert

2020



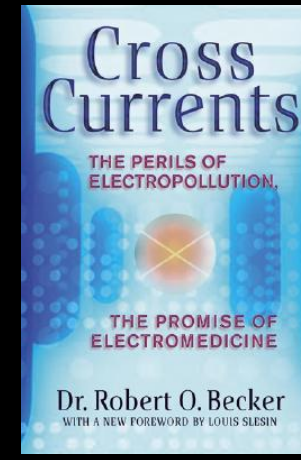
Author: Scientist on EMF and Journalist

1984



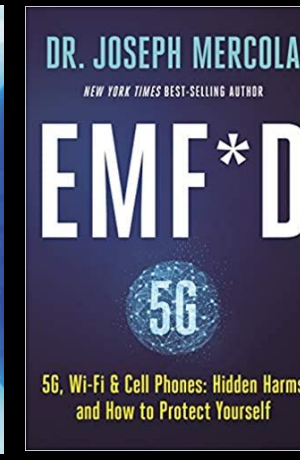
Features two pioneers on biological effects of MW radiation (Frey and Schwan)

1990



Pioneer Dr. Robert Becker MD, nominated twice for the Nobel Prize in Medicine

2020

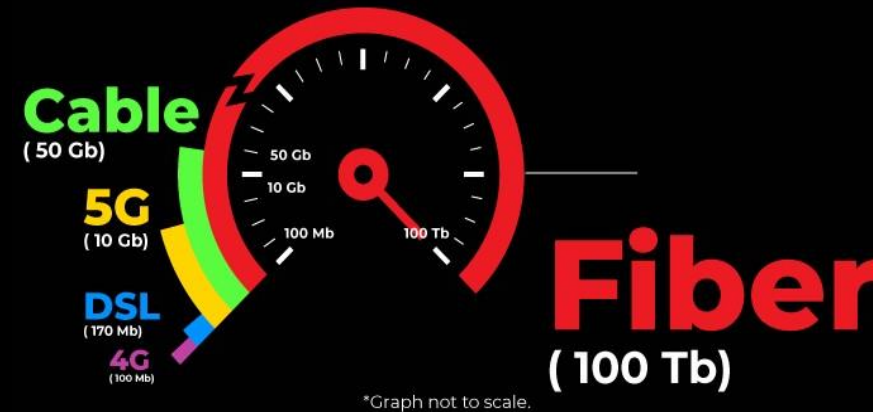


Author: Dr. Joseph Mercola, popular medical doctor

# Support Community Fiber to Premises (FTTP)



Chattanooga, TN



Fiber to Premises (FTTP): Fast, Safe, Secure

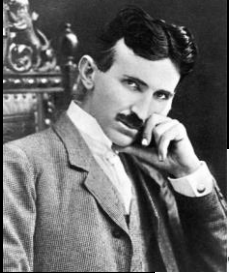


EPB's fiber optic network generated \$2.69 billion in economic benefits in the past decade, study shows

-- Chattanooga Times Free Press (Jan 22, 2021)

➤ Your city likely owns the underground fiber optic network !!!

# Rediscovering wireless technology from 1915 (no MW radiation required)

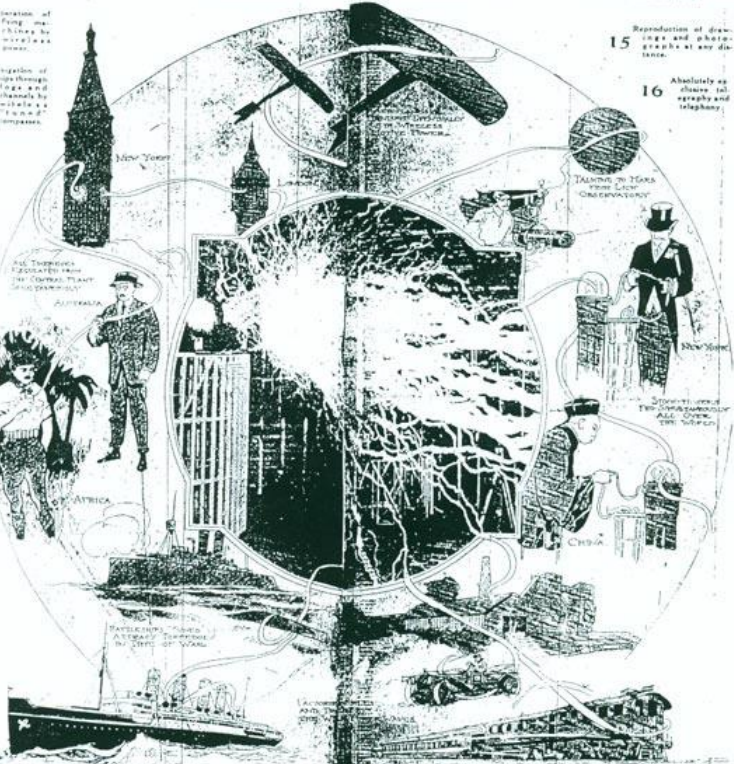


New York American, September 3, 1911

## Tesla's Wireless "World System" To Turn Earth into One Gigantic Dynamo

### The Wireless Wonders That Tesla's "World System" May Perform.

- 1. Universal telephony, making it possible to speak to any distance.
- 2. Universal system of musical transmission on atmospheric currents.
- 3. Universal twenty-four-hour day-light by wireless currents.
- 4. Universal transmission of typed or hand-written characters all over the world.
- 5. Every clock and watch in the world set and regulated by wireless at certain time each day.
- 6. Communication with Mars.
- 7. Operation of all manufacturing and transportation machinery.
- 8. A perfect government secret signal service by exclusive wireless waves.
- 9. Universal telephony, making it possible to speak to any distance.
- 10. A perfect government secret signal service by exclusive wireless waves.
- 11. Simultaneous operation of all stock-tickers throughout the world.
- 12. Universal system of musical transmission on atmospheric currents.
- 13. Invention and facilitation of wireless power.
- 14. The magnetizing of enemy's battleships to instant torpedoes.



15. Reproduction of drawings and photographs available at any distance.

16. Absolutely as shown in photographs and telephony.

### How Man May Derive His Power in the Ages Still to Come.

The power of the future will be derived from the wireless system of Tesla's "World System" which will turn the earth into one gigantic dynamo. This system will provide a continuous and unlimited source of energy for all the world's needs. It will be the most important discovery of the century, and will revolutionize the entire human race. The power of the future will be derived from the wireless system of Tesla's "World System" which will turn the earth into one gigantic dynamo. This system will provide a continuous and unlimited source of energy for all the world's needs. It will be the most important discovery of the century, and will revolutionize the entire human race.

## New York to Honolulu by Radio Phone

SEPTEMBER 29, 1915 marks another milestone in the history of Wireless. On that date, for the first time, the human voice was projected through free space over the immense distance of 4,900 miles. The further than this distance. Indeed, we do not doubt that if we had only the proper receiving apparatus, Mr. Vail's voice could have been clearly heard over twice the covered distance. Indeed we are not at all sure that the waves

November, 1915

THE ELECTRICAL EXPERIMENTER

321

## Wireless Telephony Now From Washington to Honolulu.

THE most wonderful feat in wireless telephony was accomplished on the night of Sept. 29 last, when the human voice was projected through the ether from Washington, D. C., to Honolulu, a distance of 4,900 miles!

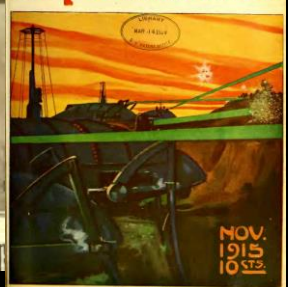
Dr. Lee de Forest said: "I am pleased to announce the successful outcome of experiments which have been carried on for the last few months by the American Telephone & Telegraph Company and the Western Electric Com-

pany. Signal Corps of the army, representatives of the technical and operating departments of the Navy Department and a few other interested parties. "After this successful demonstration, conversation originating in New York

Views From Left to Right: Dr. Lee de Forest in His Laboratory. Dr. de Forest Holding One of His New Regenerative Audion Bulbs of the Type Used in 4,900 Mile Radiophone Talk. Top Right: Shows Mr. Theo. N. Vail, Talking From New York to San Francisco by Wireless (via Arlington). Bottom Right: Progression From First de Forest Audion Detector at Right, to Latest Oscillation Tube Generator at Left.



The Electrical Experimenter



# Tucsonans' Wireless Telecom Facilities Ordinance

## Tucsonans' Wireless Telecommunications Facilities Ordinance

March 2021

### Proposed City of Tucson Municipal Wireless Telecommunications Facilities Code (WTF-Code)

We, the dedicated and informed residents and business owners of Tucson, submit this Wireless Telecommunications Facilities Ordinance with the purpose to promote and protect safety, privacy, life, and property, as well as a "sustainable community that embraces prosperity, equity, and a healthy environment" for the Tucson community (Plan for Tucson, 2013). Accordingly, the purpose of this ordinance is to:

- 1) Provide benefits to the City, its residents and general public from access to personal wireless services while *minimizing their detriments*;
- 2) Ensure *minimum power necessary* to provide personal wireless communications, thereby protecting public safety, privacy, and property values;
- 3) Permit placement, construction, modification, and operation of personal wireless facilities and other wireless infrastructure *only where needed*, thereby reducing adverse economic impacts and impacts on, safety, privacy, and/or aesthetics of nearby properties and the community as a whole;
- 4) Comply with applicable law, including the 1996 Telecom Act and Arizona HB2365.

In the interest of practicing cooperative federalism, the ordinance establishes more attentive and balanced Wireless Telecommunications Facility (hereinafter: WTF) development standards that provide sufficient wireless telecommunications service without violating the inalienable rights preserved by the Arizona and U.S. Constitutions to life and property of Tucson residents and businesses and to the quiet enjoyment of our streets.

## Participating Tucson & Pima County Residents

Russell Witte, PhD, UA professor, business owner

Robin Motzer, Habitat Restoration advocate, artist

Lisa Smith, PhD, EMF expert, business owner

Karen Roellig, real estate broker

Bradford Trojan, therapist, actor, musician

Melody Madden, business owner

Wendy Burkhard, business owner

Heidi Miller, RF-EMR public safety advocate

[Network of collaborators, including telecom experts](#)

Full ordinance at <https://www.wiretucson.org/aug-2-tucsonans-wtf-ordinance/>

Submitted to City of Tucson on March 24, 2021 (revised August 2021)

# Executing Notices and Affidavits as a Local Remedy

## Notice of Maladministration and Malfeasance

Notice to Agent is Notice to Principal and Notice to Principal is Notice to Agent

I, \_\_\_\_\_, one of the People (as seen in Arizona Constitution Bill of Rights Article 2 Section 2), come to you, Mayor of Tucson and members of the Tucson City Council, as trustees of the People, so you may provide due care and remember your Oath which binds you. I make the following informational statements and claims:

### Arizona State Constitution Article 2, Section 2: Political Power; Purpose of Government:

"All political power is inherent in the people, and governments derive their just powers from the consent of the governed and are established to protect and maintain individual rights."

All state, county, and municipal governments and instrumentalities thereof must fulfill the requirements of their office, including careful adherence to constitutional requirements.

### Arizona State Constitution Article 3 Section 1: Distribution of Powers

*"The powers of the government of the state of Arizona shall be divided into three separate departments, the legislative, the executive, and the judicial; and, except as provided in this constitution, such departments shall be separate and distinct, and no one of such departments shall exercise the powers properly belonging to either of the others."*

There shall be no commingling of power or decision-making without transparency. **All agents, participating in decision making, will be held accountable to the People, for all decisions that are commingled, detrimental to the People, or have caused damage or harm in any way to the People. This notice is given to allow for all exercise of power against the People to cease and desist immediately. We did not consent to be harmed!**

Please note that Maxim's of Law are universally accepted principles accepted by all.

**Maxim of Law-** Suppression of the truth is equivalent to the expression (or suggestion) of what is false.

- [AffidavitMommas.com](http://AffidavitMommas.com)
- [Dave Cares for You Dave Jose \(Youtube, Telegram\)](#)

- Legal documents accusing someone of afflicting harm
- Sent certified to person directly causing injury/harm (others sent copies)
- Accused must respond within 2 weeks to affidavit (or considered attestation of truth)



## Selected Links

- <https://affidavitmommas.com/> (Learn about notices/affidavits)
- <https://ehtrust.org/> (Environmental Health Trust)
- <https://emsafetyalliance.org/> (Tucson, Elizabeth Kelley)
- <https://wiretucson.org/> (Tucson)
- <https://bioinitiative.org/> (experts draw conclusions from 3000+ papers)
- Favorite scientific studies and links to 5G for starters
- Search engine (>35,000) to top scientific studies on EMF
- 390 Page 5G Commission Report (New Hampshire 2021)
- Cell Tower Map for Tucson (existing or planned)
- <https://scientists4wiredtech.com/thisworks/>
- <https://ourtownourchoice.org/wewantit/>
- <https://mystreetmychoice.com/>