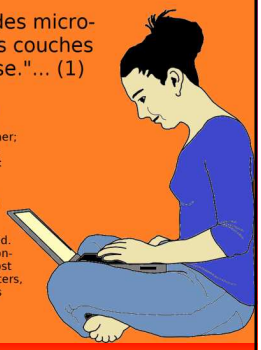
Among women **exposed to microwaves**
47% had **miscarriages before the 7th week of pregnancy**

"Parmi les femmes exposées à des micro-ondes, 47,7% ont eu des fausses couches avant la 7e semaine de grossesse."... (1)

Professor John R Goldsmith, International / Advisor Consultant for R.F. Communication, Epidemiology and Communications Sciences Advisor to the World Health Organisation, Military and University Advisor, Researcher; wrote concerning the low level exposure of microwave irradiation (below thermal level) incident upon women:

"Of the microwave-exposed women, 47.7% had miscarriages prior to the 7th week of pregnancy...."(1)

The level of irradiation incident upon the women was stated, as from, five microwatts per centimetre squared. This level of irradiation may seem meaningless to a non-scientist; however, when I say that it is below what most schoolgirls will receive in a classroom of wi-fi transmitters, from the age of approximately five years upwards, this level becomes more meaningful.



https://grossessequebec.wordpress.com/

Mutation Research 704 (2010) 115–122

Contents lists available at ScienceDirect

Mutation Research/Reviews in Mutation Research

journal homepage: www.elsevier.com/locate/reviewsmr
Community address: www.elsevier.com/locate/mutres

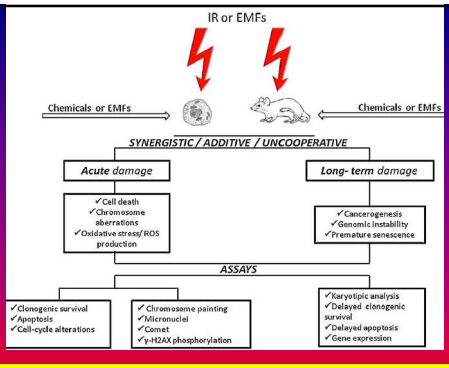
Review

Cooperative biological effects between ionizing radiation and other physical and chemical agents

Lorenzo Manti *, Annalisa D'Arco

Exposure to ionizing radiation (IR), at environmentally and therapeutically relevant doses or as a result of diagnostics or accidents, causes cyto- and genotoxic damage. However, exposure to IR alone is a rare event as it occurs in spatial and temporal combination with several physico-chemical agents. Some of these are of known noxiousness, as is the case with chemical compounds at high dose, hence additive/synergistic effects can be expected or have been demonstrated. Conversely, the cellular toxicity of other

.. recent **data on the interaction between ELF EMFs and chemicals show delayed chromosomal instability arising in human fibroblasts** [67].
Suggestions of **long-lasting inhibition of DNA repair by UMTS/GSM signals** were made based on the observed persistence of the **reduction in 53BP1/γ-H2AX colocalized foci** [97].
Hence, **RF may epigenetically modulate genomic instability inducible by chronical chemical exposure and/or IR ...** Therefore, it is of interest **to investigate the long-term cooperative effects arising from combined exposure scenarios (Fig. 1).**



Very little data are currently available on the **cumulative effects of exposure to multiple hazardous agents that have either similar or different mechanisms of action on DNA**.. In addition to known mutagens, **presumptive DNA-damaging agents, such as EMFs fields, ought to be also considered since they may influence cellular responses to IR or chemicals, for instance by sublethal stress generation**

Nerve Cell Damage in Mammalian Brain after Exposure to Microwaves from GSM Mobile Phones

Leif G. Salford,[1] Arne E. Brun,[2] Jacob L. Eberhardt,[3] Lars Malmgren,[4] and Bertil R. R. Persson[3]

[1]Department of Neurosurgery, [2]Department of Neuropathology, [3]Department of Medical Radiation Physics, and [4]Department of Applied Electronics, Lund University, The Rausing Laboratory and Lund University Hospital, Lund, Sweden

The possible risks of radio-frequency electromagnetic fields for the human body is a growing concern for our society. We have previously shown that weak pulsed microwaves give rise to a significant leakage of albumin through the blood–brain barrier. In this study we investigated whether a pathologic leakage across the blood–brain barrier might be combined with damage to the neurons. Three groups each of eight rats were exposed for 2 hr to Global System for Mobile Communications (GSM) mobile phone electromagnetic fields of different strengths. We found highly significant ($p < 0.002$) evidence for neuronal damage in the cortex, hippocampus, and basal ganglia in the brains of exposed rats. *Key words:* blood–brain barrier, central nervous system, microwaves, mobile phones, neuronal damage, rats. *Environ Health Perspect* 111:881–883 (2003). doi:10.1289/ehp.6039 available via *http://dx.doi.org/* [Online 29 January 2003]

VOLUME 111 | NUMBER 7 | June 2003 • Environmental Health Perspectives

Three groups each of eight rats were exposed for 2 hr to Global System for Mobile Communications (GSM) mobile phone electromagnetic fields of different strengths.
We found highly significant (p< 0.002) evidence for neuronal damage in the cortex, hippocampus, and basal ganglia in the brains of exposed rats

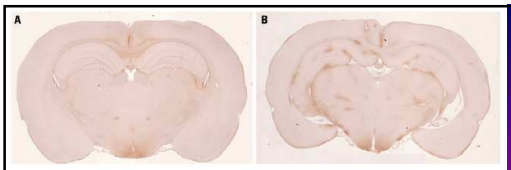


Figure 1. Cross-section of central parts of the brain of (*A*) an unexposed control rat and (*B*) an RF EMF-exposed rat, both stained for albumin, which appears brown. In (*A*), albumin is visible in the central inferior parts of the brain (the hypothalamus), which is a normal feature. In (*B*), albumin is visible in multiple small foci representing leakage from many vessels. Magnification, about ×3.

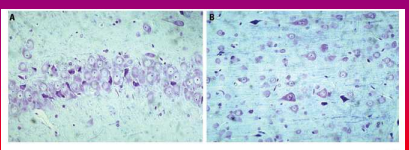


Figure 2. Photomicrograph of sections of brain from an RF EMF-exposed rat stained with cresyl violet. (*A*) Row of nerve cells in a section of the pyramidal cell band of the hippocampus; among the normal nerve cells (large cells) are interspersed black and shrunken nerve cells, so-called dark neurons. (*B*) The cortex, top left, of an RF EMF-exposed rat showing normal nerve cells (pale blue) intermingled with abnormal, black and shrunken "dark neurons" at all depths of the cortex, but least in the superficial upper layers. Magnification, ×160.

Int J Toxicol. 2015 Mar 5. pii: 1091581815574348. [Epub ahead of print]

Cognitive Impairment and Neurogenotoxic Effects in Rats Exposed to Low-Intensity Microwave Radiation.

Deshmukh PS[1], Nasare N[2], Megha K[1], Banerjee BD[3], Ahmed RS[1], Singh D[1], Abegaonkar MP[4], Tripathi AK[1], Mediratta PK[5].

The health hazard of microwave radiation (MWR) has become a recent subject of interest as a result of the enormous increase in mobile phone usage. The present study aimed **to investigate the effects of chronic low-intensity microwave exposure** on cognitive function, heat shock protein 70 (HSP70), and DNA damage in rat brain. Experiments were performed on male Fischer rats exposed to MWR for 180 days at 3 different frequencies, namely, 900, 1800 MHz, and 2450 MHz. Animals were divided into 4 groups: group I: sham exposed; group II: exposed to MWR at 900 MHz, specific absorption rate (SAR) 5.953×10^{-4} W/kg; group III: exposed to 1800 MHz, SAR 5.835×10^{-4} W/kg; and group IV: exposed to 2450 MHz, SAR 6.672×10^{-4} W/kg. **All the rats were tested for cognitive function at the end of the exposure period and were subsequently sacrificed to collect brain**. Level of HSP70 was estimated by enzyme-linked immunotarget assay and DNA damage was assessed using alkaline comet assay in all the groups.

The results showed **declined cognitive function, elevated HSP70 level, and DNA damage in the brain of microwave-exposed animals**. The results indicated that, chronic low-intensity microwave exposure in the frequency range of 900 to 2450 MHz may cause hazardous effects on the brain.

Alterations of cognitive function and 5HT system in rats after long term microwave exposure Physiol Behav. 2015 Mar 1;140:236-46

The increased use of **microwaves** raises concerns about its **impact on health including cognitive function in which neurotransmitter system** plays an important role…

We demonstrated that **chronic exposure to microwave** (2.856GHz, with the average power density of 5, 10, 20 and 30mW/cm(2)) could induce **dose-dependent deficit of spatial learning and memory in rats accompanied with inhibition of brain electrical activity, the degeneration of hippocampus neurons, and the disturbance of neurotransmitters, among which the increase of 5-HT** occurred as the main long-term change that the decrease of its metabolism partly contributed to.

Besides, **the variations of 5-HT1AR and 5-HT2CR expressions were also indicated**.

The results suggested that **in the long-term way, chronic microwave exposure could induce cognitive deficit** and **5-HT system may be involved in it**

..many studies indicate a relationship between NT MW exposure and **permeability of the brain–blood barrier** (Nittby et al. 2008), **cerebral blood flow** (Huber et al. 2005), **stress response** (Blank and Goodman 2004), and **neuronal damage** (Salford et al. 2003).

Nittby H, et al. ***Radiofrequency and extremely low-frequency electromagnetic field effects on the blood-brain barrier***. Electromagn Biol Med. 2008;27(2):103–126

Huber R, et al. ***Exposure to pulse-modulated radio frequency electromagnetic fields affects regional cerebral blood flow***. Eur J Neurosci. 2005;21(4):1000–1006

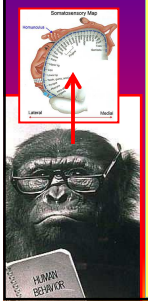
Blank M, Goodman R. ***Comment: a biological guide for electromagnetic safety: the stress response.*** Bioelectromagnetics. 2004;25(8):642–646

Salford LG, et al. ***Nerve cell damage in mammalian brain after exposure to microwaves from GSM mobile phones***. Environ Health Perspect. 2003;111:881–883

EPIGENOME ROADMAP
A *Nature* special issue
nature.com/epigenomeroadmap

Sperm carry not only DNA to the ovum but a wide variety of RNAs

GENETICS versus ***EPIGENETICS***



The *epigenetics revolution* hit in the early 2000s, when scientists began reporting **that environmental factors** — everything from *neglectful mothering* and *child abuse* to a *high-fat diet* and *air pollution* — can **influence the addition or removal of chemical tags on DNA** that turn genes on and off… particularly in the **very first stages of life (*fetal programming*)**

The idea of an environmentally responsive genome still stirs debate …

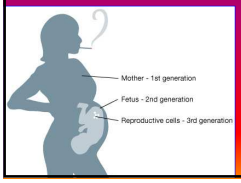
Yet the notion that epigenetic marks are transmitted across generations is even more provocative.

But **the most amazing discoveries**, that impose a radical revision of the dominant models

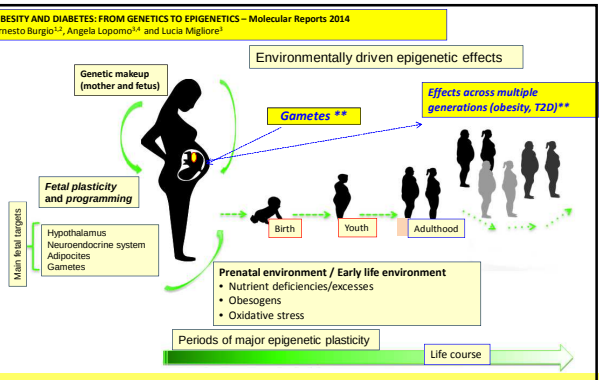
- both in the biomedical field
- and in evolutionary biology (neo-Darwinian model)

do concern the **transgenerational transmission of acquired characteristics by epigenetic adaptive, targeted modifications of the genome of the gametes**

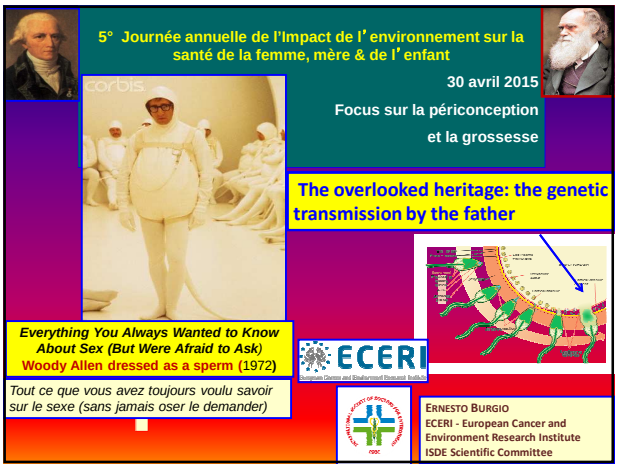
(probably transmitted to the gametes by ***microRNAs*** or ***exosomes***)

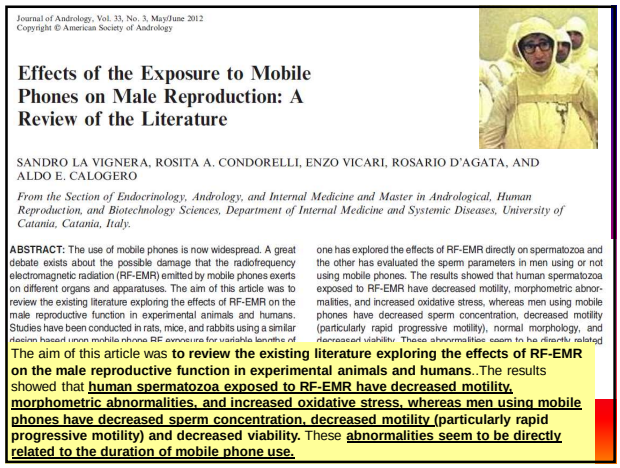


OBESITY AND DIABETES: FROM GENETICS TO EPIGENETICS – Molecular Reports 2014
Ernesto Burgio[1,2], Angela Lopomo[3,4] and Lucia Migliore[3]

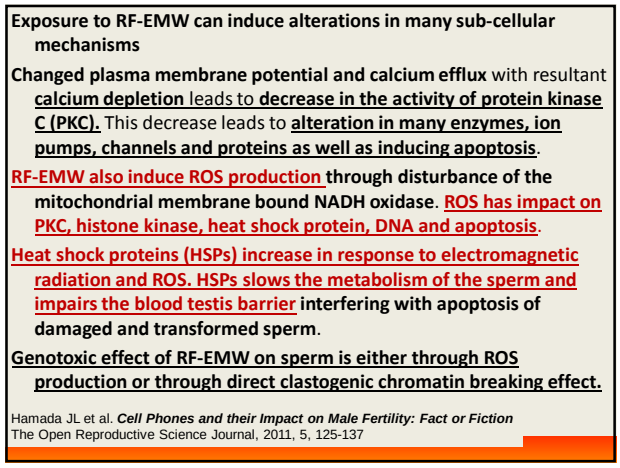


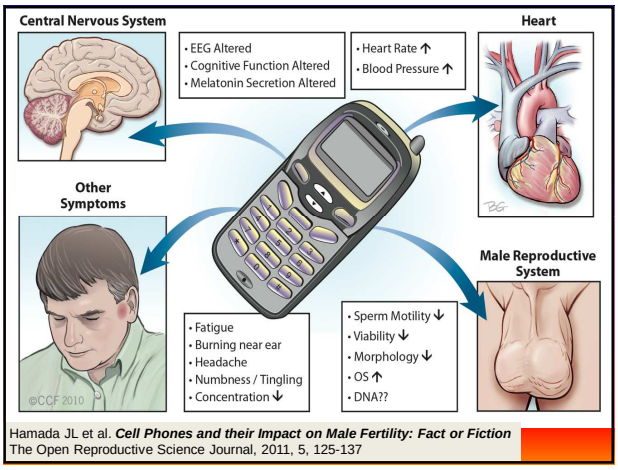
A **mother** could also transmit to the fetus the effects of environmental exposures during pregnancy. So to study the phenomenon of epigenetic, transgenerational transmission, researchers need to focus on **fathers** (on how their **sperm** acquires and loses epigenetic marks)

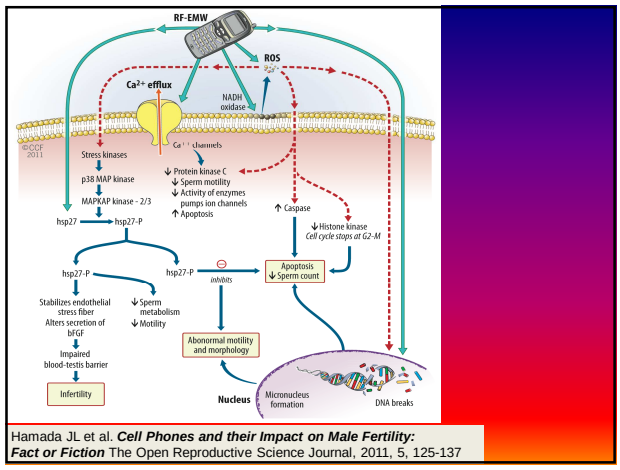

5° Journée annuelle de l'Impact de l'environnement sur la santé de la femme, mère & de l'enfant
30 avril 2015
Focus sur la périconception
et la grossesse
The overlooked heritage: the genetic transmission by the father
Everything You Always Wanted to Know About Sex (But Were Afraid to Ask)
Woody Allen dressed as a sperm (1972)
Tout ce que vous avez toujours voulu savoir sur le sexe (sans jamais oser le demander)
ECERI
Ernesto Burgio
ECERI - European Cancer and Environment Research Institute
ISDE Scientific Committee

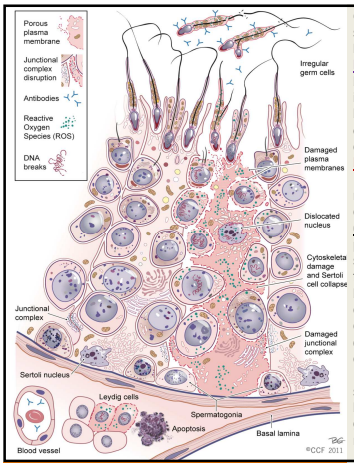

Journal of Andrology, Vol. 33, No. 3, May/June 2012
Copyright © American Society of Andrology
Effects of the Exposure to Mobile Phones on Male Reproduction: A Review of the Literature
SANDRO LA VIGNERA, ROSITA A. CONDORELLI, ENZO VICARI, ROSARIO D'AGATA, AND ALDO E. CALOGERO
From the Section of Endocrinology, Andrology, and Internal Medicine and Master in Andrological, Human Reproduction, and Biotechnology Sciences, Department of Internal Medicine and Systemic Diseases, University of Catania, Catania, Italy.
ABSTRACT: The use of mobile phones is now widespread. A great debate exists about the possible damage that the radiofrequency electromagnetic radiation (RF-EMR) emitted by mobile phones exerts on different organs and apparatuses. The aim of this article was to review the existing literature exploring the effects of RF-EMR on the male reproductive function in experimental animals and humans. Studies have been conducted in rats, mice, and rabbits using a similar
one has explored the effects of RF-EMR directly on spermatozoa and the other has evaluated the sperm parameters in men using or not using mobile phones. The results showed that human spermatozoa exposed to RF-EMR have decreased motility, morphometric abnormalities, and increased oxidative stress, whereas men using mobile phones have decreased sperm concentration, decreased motility (particularly rapid progressive motility), normal morphology, and
The aim of this article was to review the existing literature exploring the effects of RF-EMR on the male reproductive function in experimental animals and humans..The results showed that human spermatozoa exposed to RF-EMR have decreased motility, morphometric abnormalities, and increased oxidative stress, whereas men using mobile phones have decreased sperm concentration, decreased motility (particularly rapid progressive motility) and decreased viability. These abnormalities seem to be directly related to the duration of mobile phone use.


WI-FI PRODUCED BY YOUR PC
the radiated signal exceeds 13 V / m
"On ne nous dit pas tout"
L'AFSSET cache la vérité ?
Découvrez la réalité des mesures WiFi.
wi Fi
www.next-up.org
Dr. Fiorenzo Marinelli
Istituto di Genetica Molecolare
IGM-CNR Bologna


Exposure to RF-EMW can induce alterations in many sub-cellular mechanisms
Changed plasma membrane potential and calcium efflux with resultant calcium depletion leads to decrease in the activity of protein kinase C (PKC). This decrease leads to alteration in many enzymes, ion pumps, channels and proteins as well as inducing apoptosis.
RF-EMW also induce ROS production through disturbance of the mitochondrial membrane bound NADH oxidase. ROS has impact on PKC, histone kinase, heat shock protein, DNA and apoptosis.
Heat shock proteins (HSPs) increase in response to electromagnetic radiation and ROS. HSPs slows the metabolism of the sperm and impairs the blood testis barrier interfering with apoptosis of damaged and transformed sperm.
Genotoxic effect of RF-EMW on sperm is either through ROS production or through direct clastogenic chromatin breaking effect.
Hamada JL et al. Cell Phones and their Impact on Male Fertility: Fact or Fiction
The Open Reproductive Science Journal, 2011, 5, 125-137

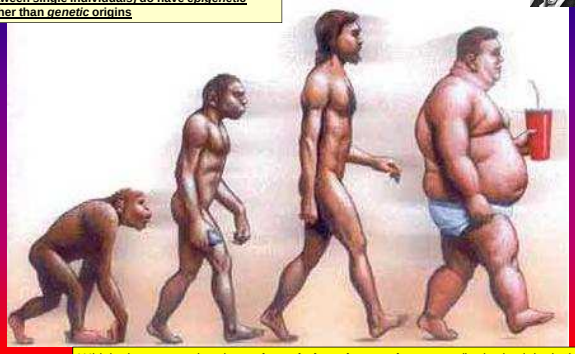

Central Nervous System
• EEG Altered
• Cognitive Function Altered
• Melatonin Secretion Altered
Heart
• Heart Rate ↑
• Blood Pressure ↑
Other Symptoms
• Fatigue
• Burning near ear
• Headache
• Numbness / Tingling
• Concentration ↓
Male Reproductive System
• Sperm Motility ↓
• Viability ↓
• Morphology ↓
• OS ↑
• DNA??
©CCF 2010
Hamada JL et al. Cell Phones and their Impact on Male Fertility: Fact or Fiction
The Open Reproductive Science Journal, 2011, 5, 125-137


RF-EMW
ROS
Ca2+ efflux
NADH oxidase
Stress kinases
p38 MAP kinase
MAPKAP kinase - 2/3
hsp27
hsp27-P
Protein kinase C
Sperm motility
Activity of enzymes pumps ion channels
Apoptosis
Caspase
Histone kinase
Cell cycle stops at G2-M
Apoptosis
Sperm count
inhibits
Stabilizes endothelial stress fiber
Alters secretion of bFGF
Impaired blood-testis barrier
Infertility
Sperm metabolism
Motility
Abnormal motility and morphology
Nucleus
Micronucleus formation
DNA breaks
Hamada JL et al. Cell Phones and their Impact on Male Fertility:
Fact or Fiction The Open Reproductive Science Journal, 2011, 5, 125-137



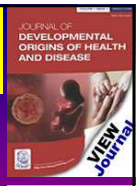
Cross sectional view of **testicular tissue** showing various effects of **cell phone RF-EMW** on cellular components of the testis. **In sperm: a) plasma membrane becomes leaky and porous** due to EMW induced electroporation,
b) **cytoplasmic mitochondria generate excess ROS** resulting in ***oxidative stress***
c) **nuclear DNA and chromatin undergo breaks and damage**.
In **Sertoli cells**: a) **damage to plasma membrane tight junctional complexes** compromises the **integrity of BTB (Blood testis Barrier)** and increases its permeability resulting in exposure of sperm antigens to immune system and formation of ASA (Antisperm ABs),
b) **damage to cytoskeleton** results in cell collapse with
c) production of excess **ROS**, and
d) **dislocation of nucleus** to a more central position.
In **Leydig cells**: a) plasma membrane sustains damage with
b) **excessive cytoplasmic ROS generation**, and c) **nuclear DNA damage resulting in apoptosis**.

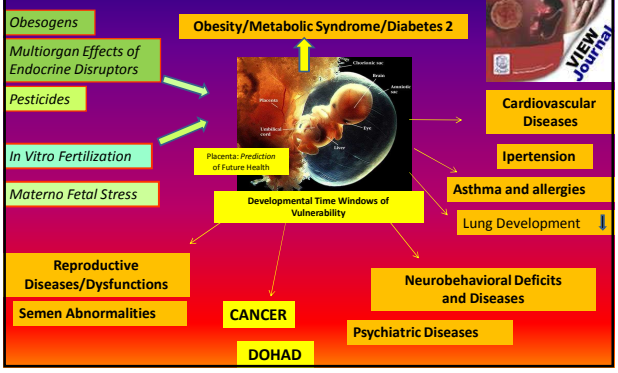
We can summarize all this by saying that the **main phenotypic (in particular behavioural) differences between *Homo sapiens* and the other primates (and between single individuals) do have *epigenetic* rather than *genetic* origins**



Which also means that the **main variations in our phenotype** (both physiological and pathological) have their origin in ***fetal programming*** and are **induced** by the altogether changing ***environment*** and **modulated** by the ***epigenome*** ...

Eventually, during the last years, the ***fetal programming mismatch theory*** has been transformed **from a theory essentially useful to explain the pathogenic mechanisms causing certain diseases of adulthood, into the key-model theory of the embryo-fetal origins of adult diseases (DOHA-Developmental Origins of Health and Diseases)**





A **new scientific truth** does not triumph by **convincing its opponents** and making them see the light, but rather because its **opponents eventually die,** and a **new generation grows up** that is familiar with it.
Max Planck (1858 - 1947)

Une **nouvelle vérité scientifique ne triomphe pas en convainquant** ses **adversaires** et en leur faisant voir la lumière, **mais plutôt parce que ses opposants meurent et qu'ils sont remplacés par une nouvelle génération** pour qui elle est familière
Max Planck (1858 - 1947)