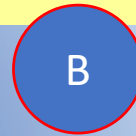


# EMFs e DIGITALE

## CERVELLO e COSCIENZA



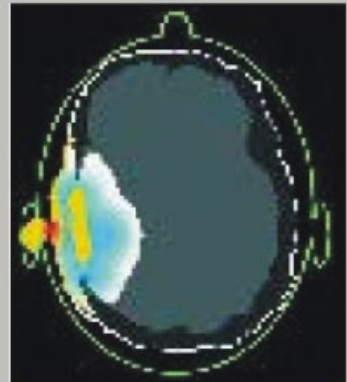
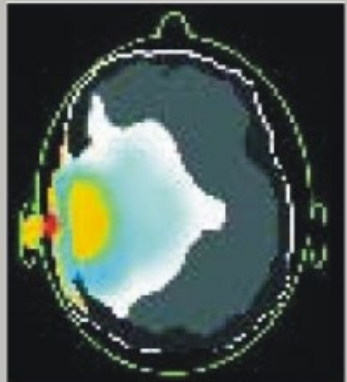
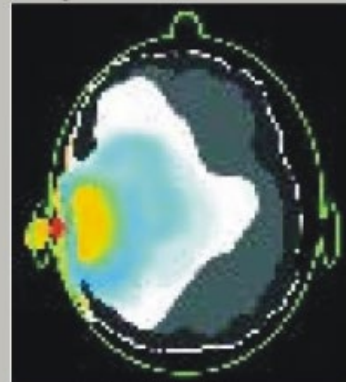
GLOSSARIO



Cervello	↔	Coscienza
Reti Neurali		Inconscio
Connettoma		Anima

Gandhi C. M. (1996 vol.44, p1884-1897) :  
Absorption des rayonnements électromagnétiques dans la tête et le cou humain pour les téléphones mobiles de 835MHz /1900MHz

Degré de pénétration des Radiations du Portable dans le Cerveau

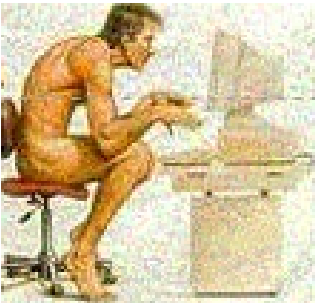
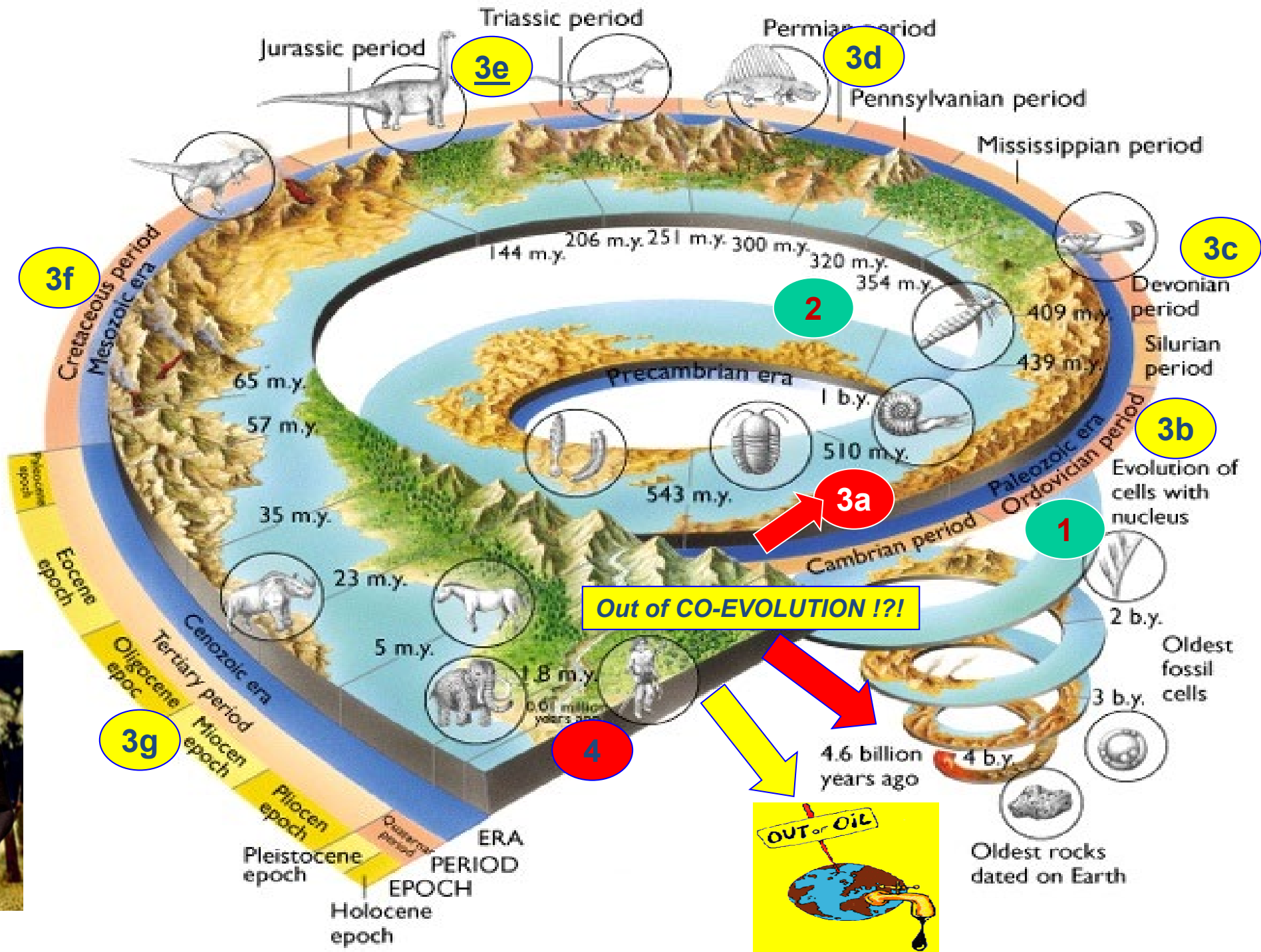


Enfant de 5 ans  
Taux d'absorption: 4,49W/kg

Enfant de 10 ans  
Taux d'absorption: 3,21W/kg

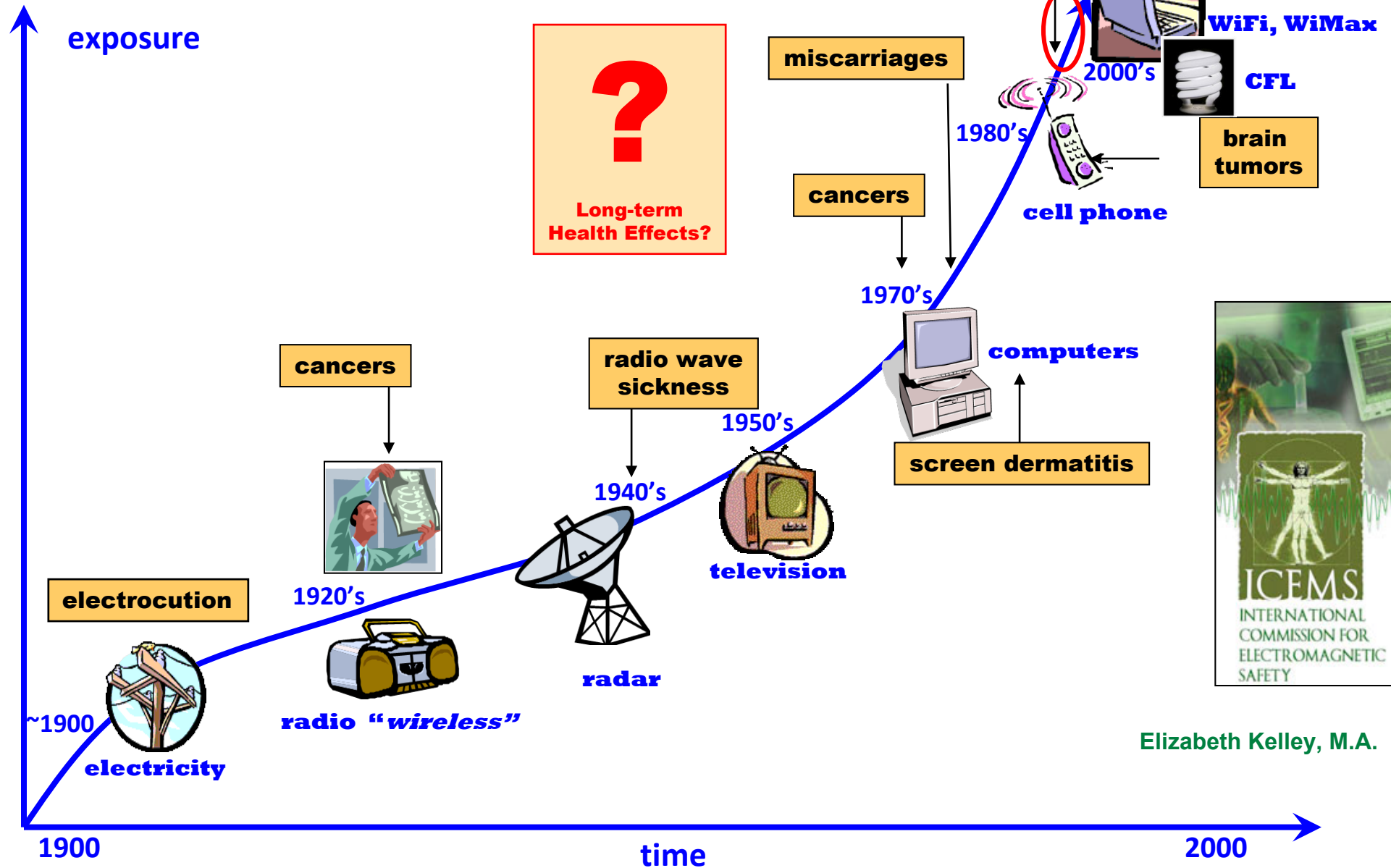
Adulte  
Taux d'absorption: 2,93W/kg



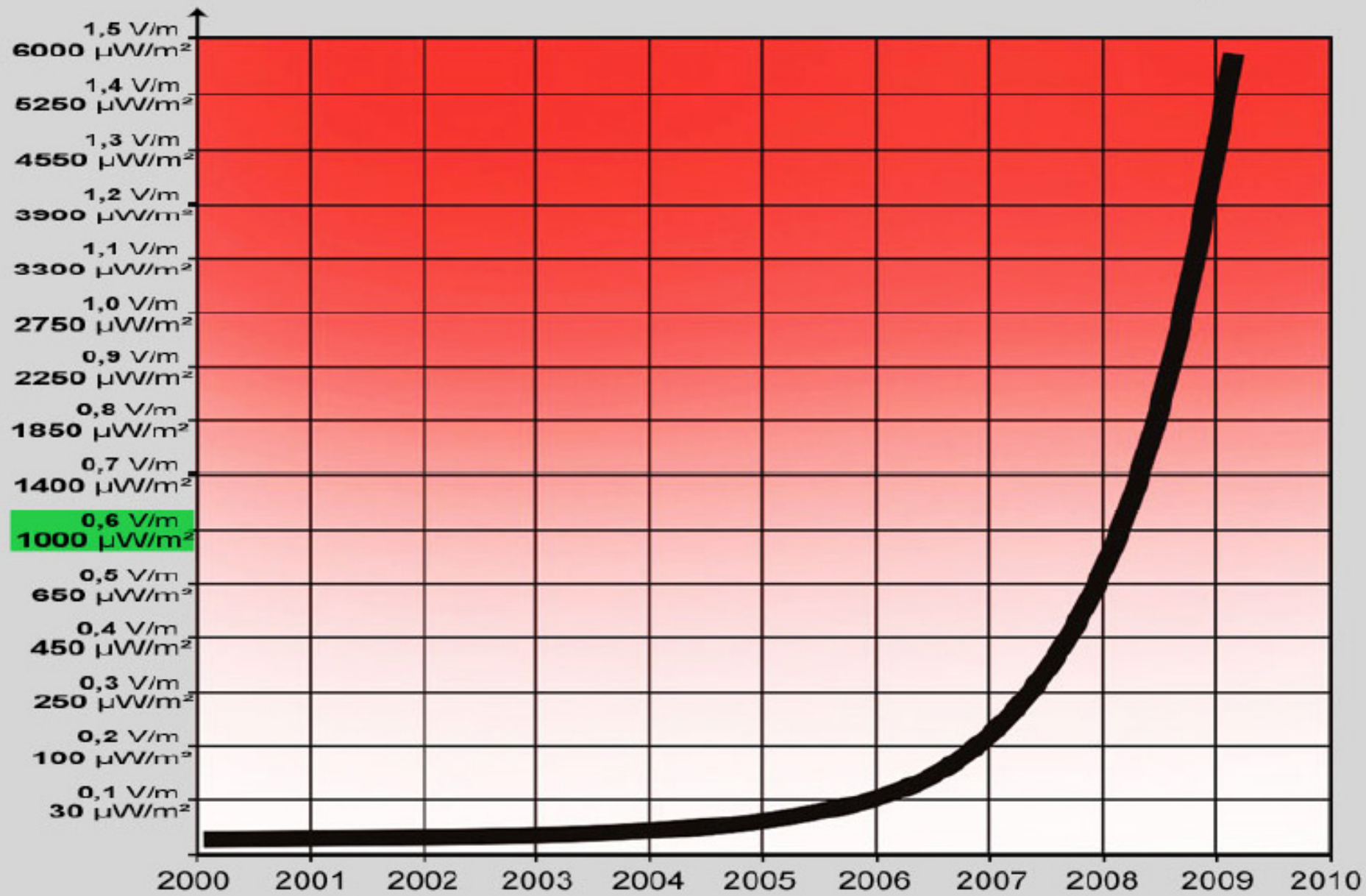


# Technological Advances

Extremely Low Frequency (ELF) to Radio Frequency (RF)

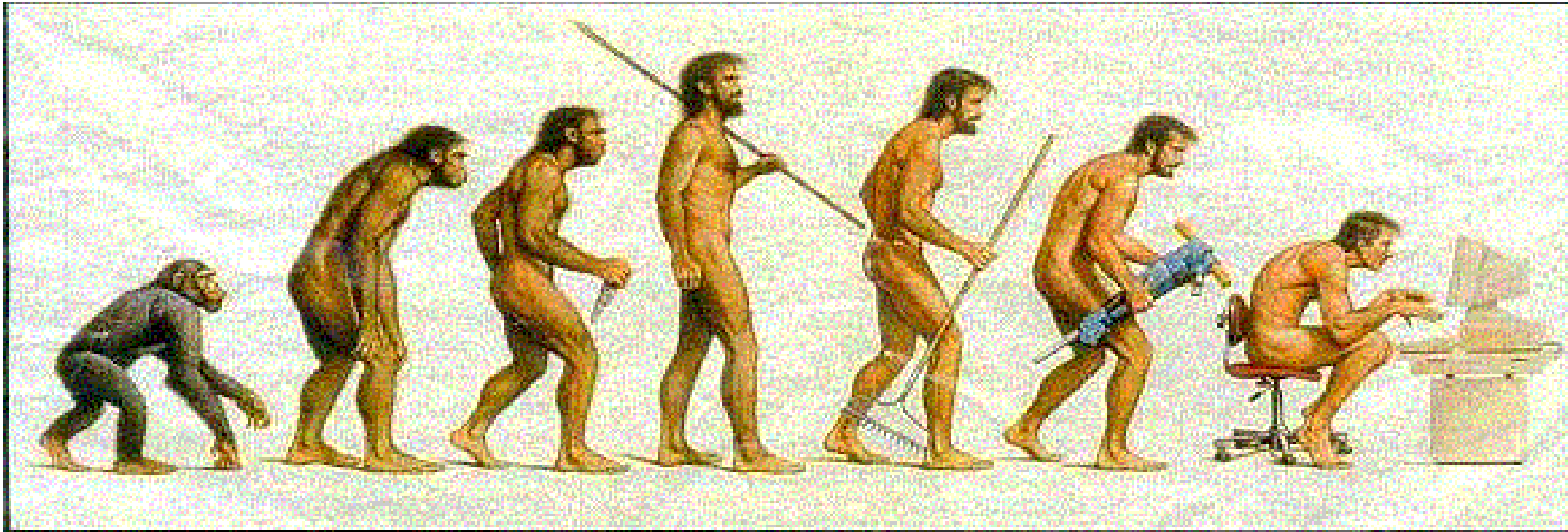


 Valeur moyenne constatée en milieu urbain de l'irradiation artificielle HF micro-onde de 900 MHz - 2,5 GHz



# HOMINIDAE

The Human Story

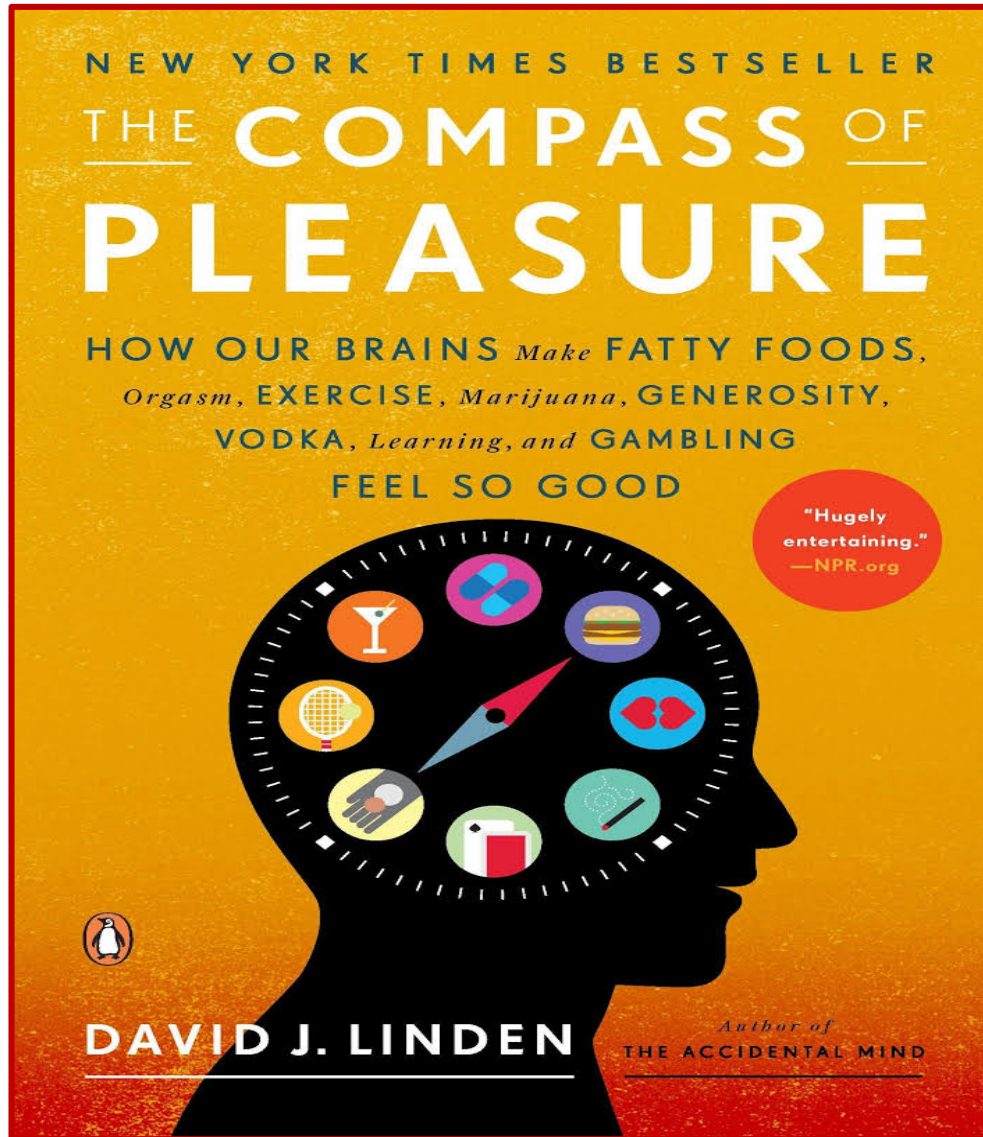


**Irgendwo lief irgendetwas falsch...**

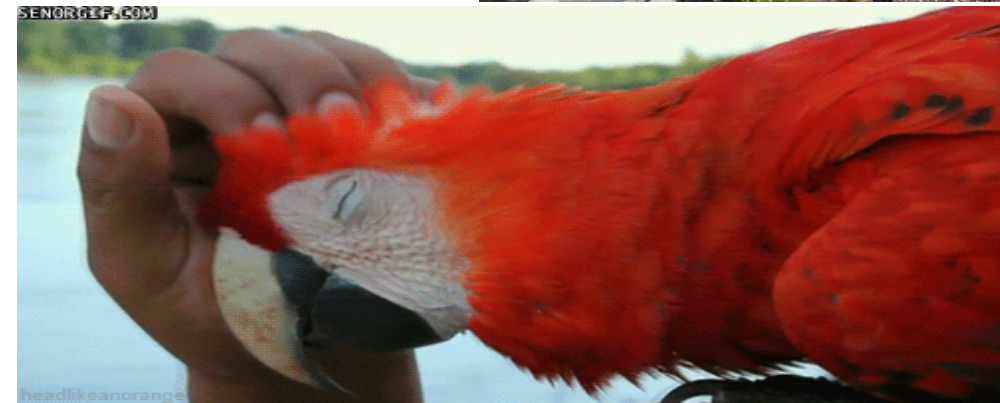
GLI UMANI SONO DIVENTATI **INFORMIVORI – III RIVOLUZIONE INDUSTRIALE**



# David J Linden - *The Compass of Pleasure* (*La bussola del piacere*)



Motivatore chiave delle nostre vite il **piacere** è fondamentale per **l'apprendimento**, poiché **per poter sopravvivere e trasmettere i nostri geni alle generazioni future** abbiamo bisogno di **trovare gratificanti il cibo, l'acqua, il sesso... e l'amore.**





(La ricerca cerca di dare a tutto questo..) una **interpretazione in chiave biologica e interculturale**: si cerca di capire come **la gran parte delle esperienze che nella vita consideriamo trascendentali** (siano esse **vizi illeciti, riti socialmente accettati, pratiche sociali come l'esercizio fisico, la preghiera meditativa e persino il fare beneficenza**) **attivino nel cervello un circuito del piacere anatomicamente e biochimicamente ben definito.**

**Lo shopping, l'orgasmo, il crack, la meditazione, l'esercizio fisico, l'apprendimento, i cibi calorici, la vodka, il gioco d'azzardo, la preghiera, la marijuana, ballare fino allo sfinimento e giocare su Internet, tutto questo produce segnali neuronali che convergono su un piccolo gruppo di aree cerebrali interconnesse, conosciuto come circuito del piacere prosencefalico mediale.** E' proprio qui, in questi piccoli ammassi di neuroni, infatti, che il piacere viene percepito.

Questo circuito può essere **stimolato anche da attivatori artificiali come la cocaina, la nicotina, l'eroina o l'alcol (e lo smartphone) poiché l'evoluzione ci ha resi in grado di trarre piacere da un ampio ventaglio di esperienze** che vanno appunto dal *crack* alla *cannabis*, dalla meditazione alla masturbazione, da un bicchiere di buon Bordeaux a una succulenta fetta di carne grigliata.

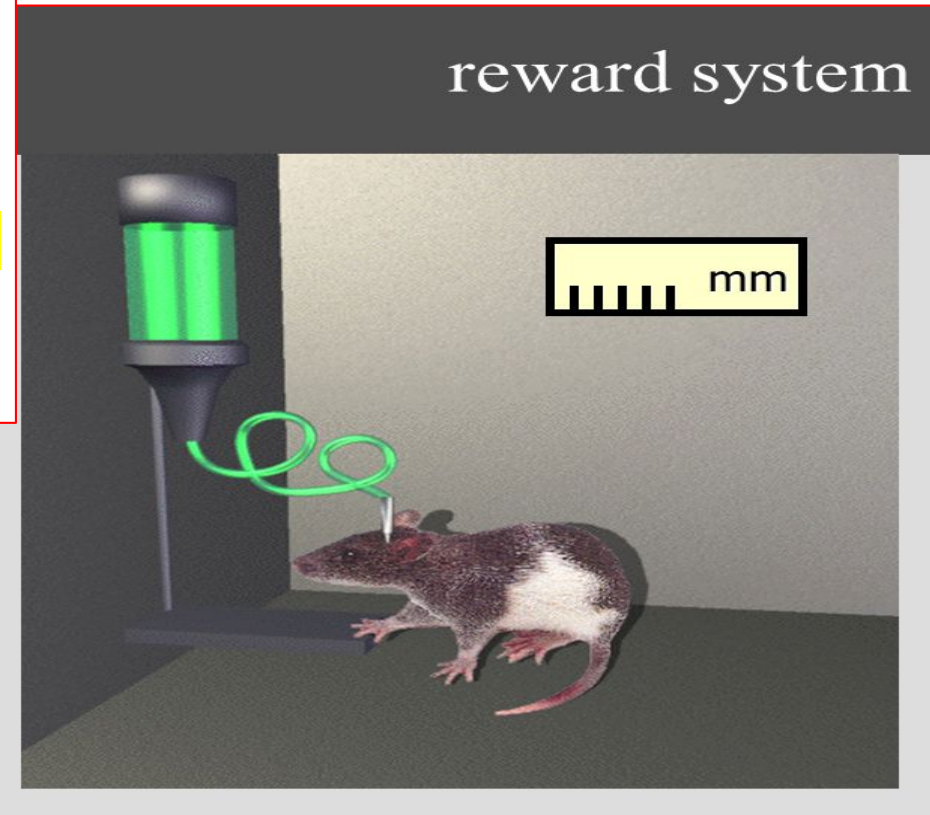


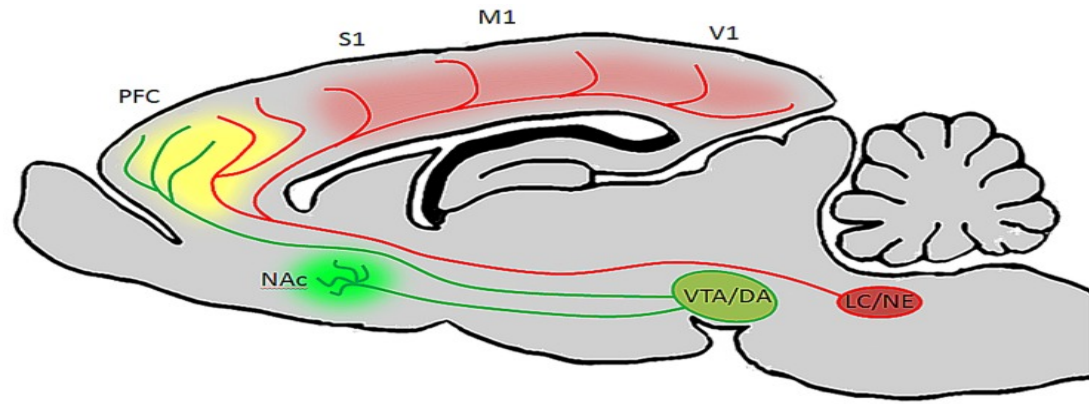


I maschi di ratto auto-stimolati ignoravano le femmine in calore e pur di raggiungere la leva arrivavano ad attraversare griglie che rilasciavano dolorose scosse elettriche. Le femmine di ratto abbandonavano i cuccioli in età da allattamento per poter continuare a premere la leva. Alcuni ratti arrivavano persino ad auto-stimolarsi 2000 volte ogni ora per ventiquattr'ore consecutive rinunciando a qualsiasi altra attività. Alla fine, risultò necessario scollegare i ratti dall'apparato per evitare che morissero di fame: tutto il loro mondo si era ridotto alla pressione di una leva!!

*Premendo la leva,  
il ratto si auto-  
somministra minuscole  
scariche elettriche che  
attivano una specifica  
area di cervello*

("rinforzo positivo")





## ***Circuito del piacere*** in un cervello di ratto

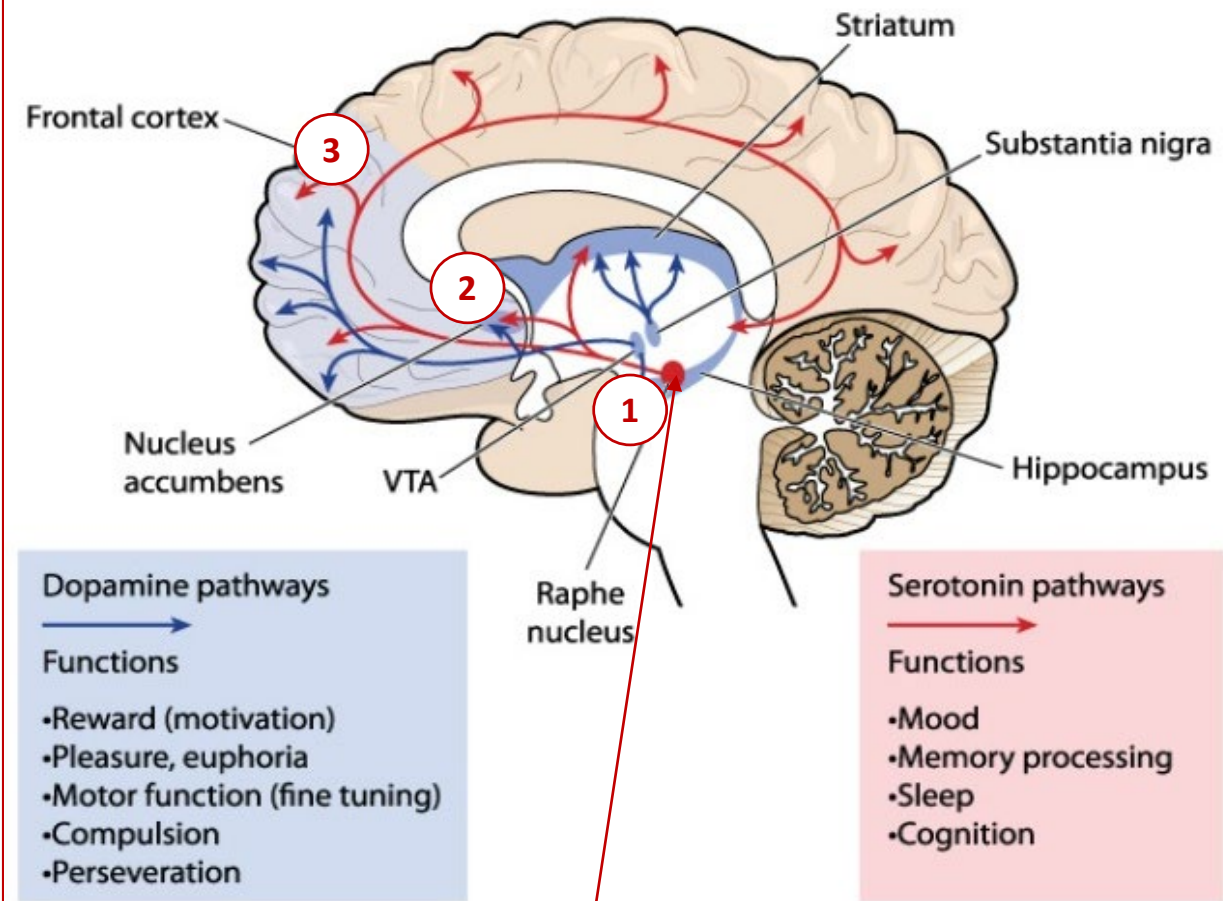
Quando i neuroni sono attivi in una regione chiamata **Area Tegmentale Ventrale**, dai loro corpi cellulari partono brevi impulsi elettrici (*spike*), che corrono attraverso lunghe e sottili fibre deputate al trasporto di informazioni, gli assoni. Queste fibre dispongono di strutture specializzate alle estremità, gli *assoni terminali* in una regione un po' più distante, il **nucleus accumbens**. Quando gli impulsi elettrici raggiungono gli assoni terminali, scatenano il rilascio della **dopamina** immagazzinata al loro interno .. **I neuroni dell'ATV proiettano assoni dopaminergici anche verso l'amigdala e la corteccia cingolata anteriore dove risiedono i centri emotivi, lo striato dorsale, l'ippocampo e la corteccia prefrontale..**

# Inseguendo la Dopamina

## Chasing Dopamine

- **La dipendenza e la mania** - per il telefonino o altro - dipendono da una complessa interazione di sostanze chimiche del cervello, *in primis* la **dopamina**, un neurotrasmettitore responsabile della **motivazione e del comportamento alla ricerca di ricompense**, ed essenziale per il cambiamento **neuroplastico** (che consente il **formarsi di un'abitudine o di una dipendenza**).
- **Ogni volta che il tuo telefono suona, e lo controlli per vedere un testo, un mi piace o un messaggio, il tuo cervello ti premia con una dose di dopamina.**
- **Col passare del tempo, la dopamina viene rilasciata sempre più precocemente e ogni telefonata provoca un'impennata della dopamina.**  
La dopamina che precede l'azione **motiva l'utente creando la necessità e l'urgenza di agire. Si determina così la necessità di controllare e utilizzare il telefono sempre di più per ottenere la stessa risposta cerebrale.** Questo comportamento di **ricerca della ricompensa** fa perdere interesse in altre attività...

## Il Sistema di ricompensa del cervello (la via della **dopamina**)



**1 Area tegmentale ventrale** - nel mesencefalo: produce dopamina e fa parte di una delle quattro principali vie della dopamina nel cervello - **attivata da droghe tra cui nicotina, alcol e oppioidi** (es.: eroina).

**2 Nucleo accumbens** - Una piccola regione del **proencefalo** dalle antiche origini evolutive, che aiuta a regolare le **pulsioni di sopravvivenza come il cibo e la sete**, attivato da droghe come cocaina, anfetamina, cannabinoidi (es. Cannabis) e oppiacei

**3 Corteccia prefrontale** - Parte del lobo frontale che è **coinvolta in molte funzioni cognitive**, tra cui memoria, linguaggio, pianificazione e processi decisionali



Apple says that iPhone users unlock their phones 80 times a day. Even worse, research firm Dscout found that we tap, type and swipe our smartphones more than 2,600 times a day, on average. The majority of us check in front of our kids, during meetings, while we eat and while we should be sleeping.

<https://www.thebestbrainpossible.com/phone-mental-health-depression-anxiety-addiction/>

Apple afferma che **gli utenti di iPhone sbloccano i loro telefoni 80 volte al giorno.**

Ancora peggio, la società di ricerca Dscout ha scoperto che, **in media, picchiettiamo, digitiamo e facciamo scorrere i nostri smartphone 2.600 volte al giorno.**

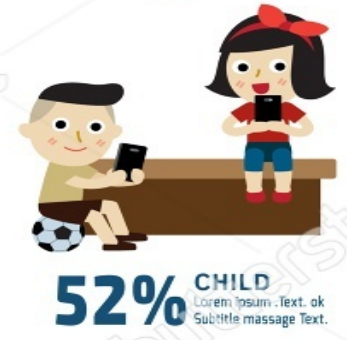
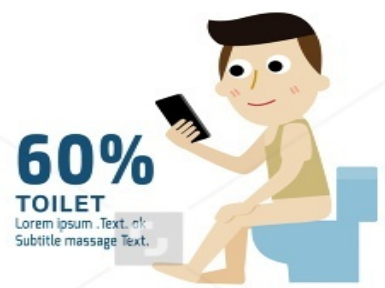
La maggior parte di noi li controlla **di fronte ai bambini, durante le riunioni, mentre mangiamo e mentre dovremmo dormire.**



# SMARTPHONE ADDICTION

INFOGRAPHIC : ELEMENTS  
Lorem ipsum .Text. Subtitle message here. ok. dolor sit. Text. Subtitle message here. ok. dolor sit. Lorem ipsum . message. Lorem ipsum .Text. Subtitle message here. ok. message. Lorem ipsum .Text. Subtitle message

How are you ..



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terstock.com

Encouraging self-absorption/Narcissism

Diminishing the ability to concentrate and think deeply or creatively

Isolation from family and friends

Disturbing sleep

Increasing stress

Fueling anxiety

Exacerbating attention deficit disorders

Increasing loneliness and depression



# GRANNY







A: [forum@apel-pediatri.it](mailto:forum@apel-pediatri.it)

Oggetto: [forum] Padri e Videogiochi

Mi è stato chiesto di parlare ai genitori di bambini di una seconda elementare riguardo agli effetti di esposizione a videogiochi e filmati violenti.

Il problema principale è che buona parte di questi bambini giocano a questi giochi col padre e che addirittura vengono derisi se mostrano paura guardando GRANNY (una nonna che uccide i nipotini in svariati modi).

Avete materiale da condividere?

Suggerimenti su come approcciare l'argomento con una platea del genere?

Carissimo

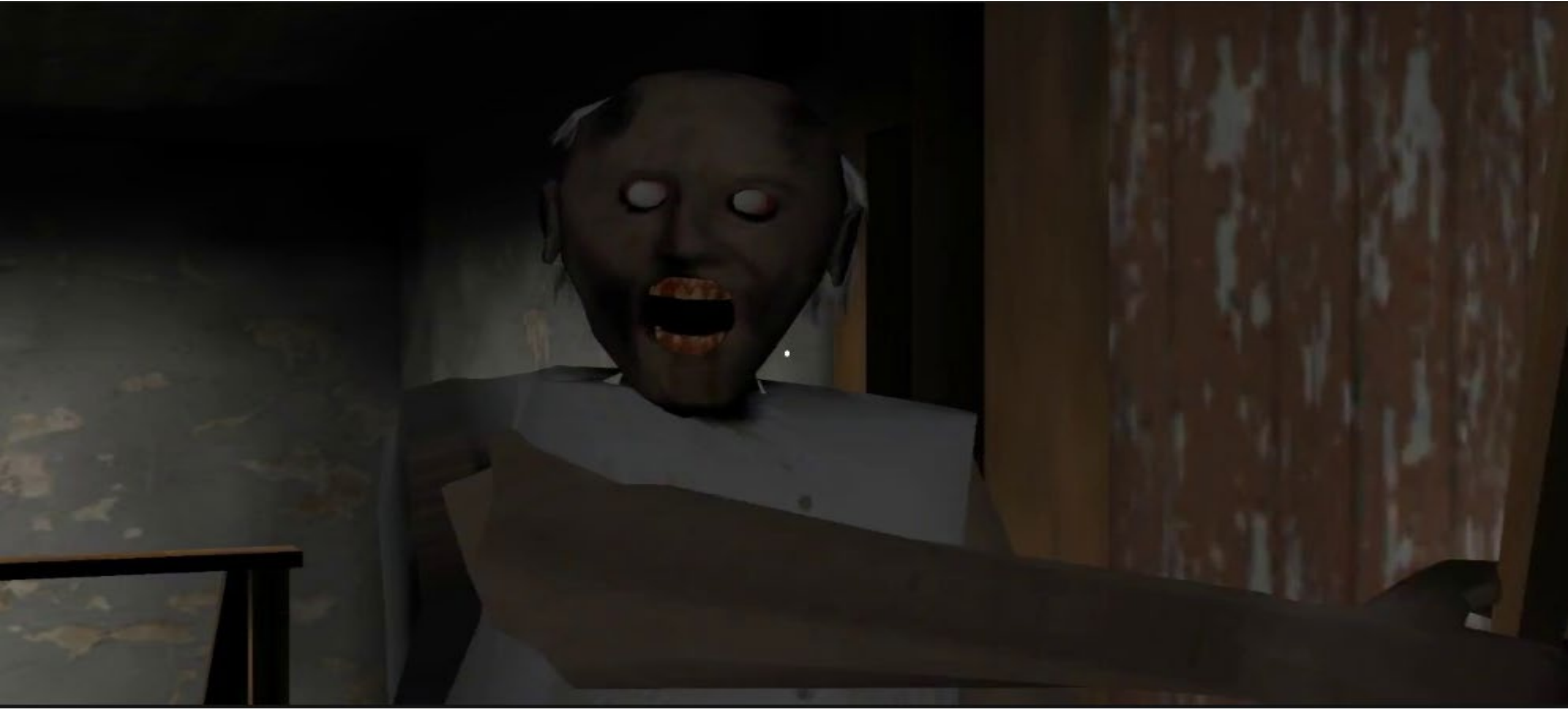
rimango sempre più stupito (ma forse non dovrei) leggere che bambini di SECONDA elementare vengono esposti a tali cose

... va beh ... segno dei tempi ...





OH NO! SHE IS COMING





### **challenging**

in 3,728 reviews

"I Love this game its really challenging and fun and that's what I like about a game"

### **addictive**

in 3,009 reviews

"I love it,it's fun and addicting I passed it 13 times"

### **good graphics**

in 1,263 reviews

"this is a great time killer, great graphics, and just a(n) fun and amazing game!!!"

### **scariest game**

in 725 reviews

"darker and granny faster and all that also this has been the scariest game I have played"

### **great time killer**

in 630 reviews

"Good very addictive great time killer I think this is the scary game"



# BioInitiative 2012

A Rationale for Biologically-based Exposure Standards  
for Low-Intensity Electromagnetic Radiation

## BIOINITIATIVE 2012 - CONCLUSIONS Table 1-1

(Genetics and Neurological Effects Updated March 2014)

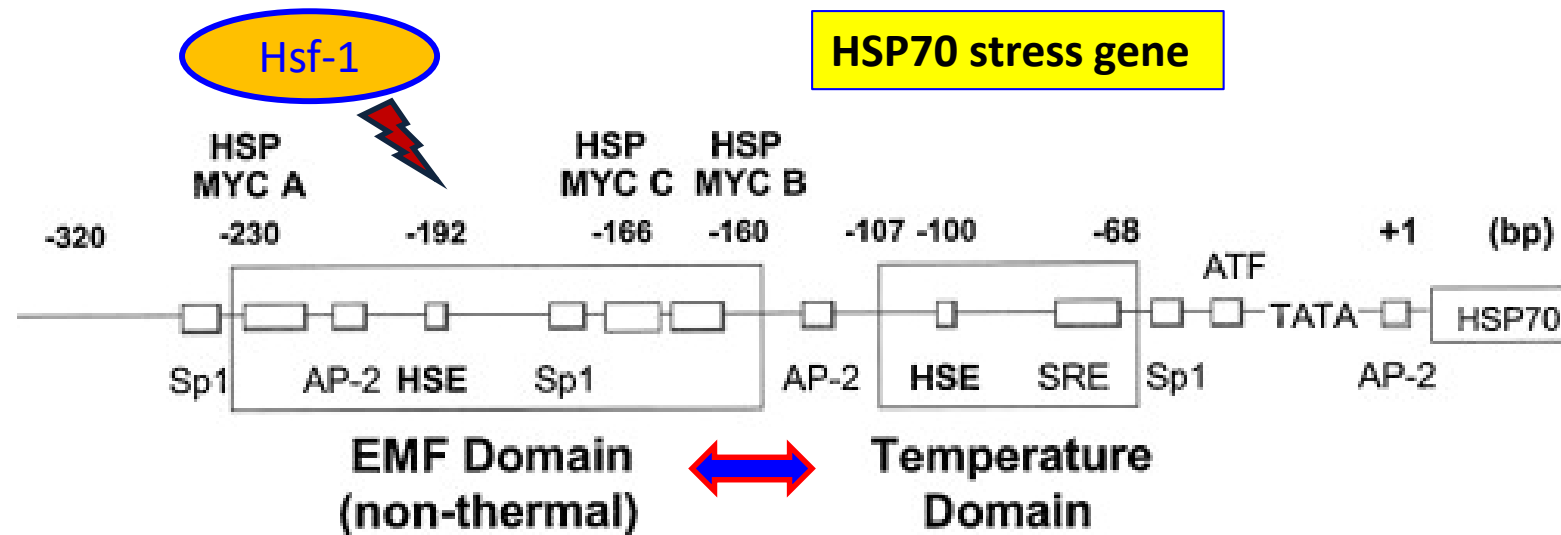
<http://www.bioinitiative.org/>

### BIOEFFECTS ARE CLEARLY ESTABLISHED

Bioeffects are clearly established and occur at very low levels of exposure to electromagnetic fields and radiofrequency radiation. Bioeffects can occur in the first few minutes at levels associated with cell and cordless phone use. Bioeffects can also occur from just minutes of exposure to mobile phone masts (cell towers), WI-FI, and wireless utility 'smart' meters that produce whole-body exposure. Chronic base station level exposures can result in illness.

Overall, more than 1800 or so new studies report abnormal gene transcription (Section 5); genotoxicity and single-and double-strand DNA damage (Section 6); stress proteins because of the fractal RF-antenna like nature of DNA (Section 7); chromatin condensation and loss of DNA repair capacity in human stem cells (Sections 6 and 15); reduction in free-radical scavengers - particularly melatonin (Sections 5, 9, 13, 14, 15, 16 and 17); neurotoxicity in humans and animals (Section 9); carcinogenicity in humans (Sections 11, 12, 13, 14, 15, 16 and 17); serious impacts on human and animal sperm morphology and function (Section 18); effects on offspring behavior (Section 18, 19 and 20); and effects on brain and cranial bone development in the offspring of animals that are exposed to cell phone radiation during pregnancy (Sections 5 and 18). This is only a snapshot of the evidence presented in the BioInitiative 2012 updated report.

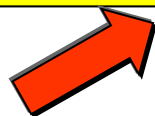
**Specific DNA sequences on the promoter of the HSP70 stress gene are responsive to EMF...**



Synthesis of this stress protein is initiated in a region of the promoter where a transcription factor known as **Heat Shock Factor 1 (HSF-1)** binds to a **Heat Shock Element (HSE)**.

The EMF sensitive region on HSP70 promoter is upstream from the thermal domain of the promoter and is not sensitive to increased temperature. The binding of **HSF-1** to **HSE** occurs at **-192** in the **HSP70 promoter** relative to the transcription initiation site.

The EMF domain contains three nCTCTn myc-binding sites -230, -166 and -160 relative to the transcription initiation site and upstream of the binding sites for the heat shock (nGAAn) and serum responsive elements.... The electromagnetic response elements (EMREs) have also been identified on the c-myc promoter and are also responsive to EMF



Lennart Hardell · Michael Carlberg  
Kjell Hansson Mild

## Pooled analysis of two case–control studies on use of cellular and cordless telephones and the risk for malignant brain tumours diagnosed in 1997–2003

**Abstract Objectives:** To study the use of cellular and cordless telephones and the risk for malignant brain tumours. **Methods:** Two case–control studies on malignant brain tumours diagnosed during 1997–2003 included answers from 905 (90%) cases and 2,162 (89%) controls aged 20–80 years. We present pooled analysis of the results in the two studies. **Results:** Cumulative lifetime use for >2,000 h yielded for analogue cellular phones odds ratio (OR)=5.9, 95% confidence interval (CI)=2.5–14, digital cellular phones OR=3.7, 95% CI=1.7–7.7, and for cordless phones OR=2.3, 95% CI=1.5–3.6. Ipsilateral exposure increased the risk for malignant brain tumours; analogue OR=2.1, 95% CI=1.5–2.9, digital OR=1.8, 95% CI=1.4–2.4, and cordless OR=1.7, 95% CI=1.3–2.2.

**Increased risk was obtained for both cellular and cordless phones, highest in the group with >10 years latency period.**

For high-grade astrocytoma using >10 year latency period analogue phones yielded OR=2.7, 95% CI=1.8–4.2, digital phones OR=3.8, 95% CI=1.8–8.1, and cordless phones OR=2.2, 95% CI=1.3–3.9. In the multivariate analysis all phone types increased the risk. Regarding digital phones OR=3.7, 95% CI=1.5–9.1 and cordless phones OR=2.1, 95% CI=0.97–4.6 were calculated for malignant brain tumours for subjects with first use <20 years of age, higher than in older persons. **Conclusion:** Increased risk was obtained for both cellular and cordless phones, highest in the group with >10 years latency period.



INTERPHONE study includes more than 6600 cancers, and even a larger number of referents (controls), that were recruited between 1999 and 2004 in 13 countries (Australia, Canada, Denmark, Finland, France, Germany, Israel, Italy, Japan, New Zealand, Norway, United Kingdom of Great Britain and Northern Ireland, Sweden). This study has not yet revealed all the lessons we can take from it. The results concerning brain tumors (2708 gliomas and 2409 meningiomas), even if they do not show an overall increase in risk, nonetheless indicate clearly that those most exposed (at least 1640 hours of cumulative use) have a slightly increased risk of meningioma (OR of 1.15, not statistically significant) but mostly of glioma (OR of 1.40, statistically significant). This latter risk is greater in subjects who reported that their cancer had occurred on the side of head where they held their phones. We do not believe that this result just happened by chance and therefore can be ignored simply because it affects only a single group of individuals. On the contrary, the risk appears exactly in the group where it was most expected to be found, that is to say in heaviest, long-term (10 year) users, and on the temporal lobe nearest to the location where the phone is held

-The **Interphone Protocol** defines "**exposed**" those who use the phone "**at least once a week for at least six months**" (which means almost never!). Therefore, even if a risk exists, it is "diluted" because of the dominance, in the sample of subjects exposed to little or nothing...

- **Less than 5% of the subjects had completed 10 years of latency or continued use of phones, which means that more than 95% had an exposure time of the totally inadequate**, since in the majority of tumors in test time estimated latency is much higher (in some cases up to 30 years)..

-**Failure to identify the homo-lateral tumors**, that have developed on the side of the head habitually used to call, which is the only significantly irradiated during the use of phones, with consequent further "dilution" of risk ...



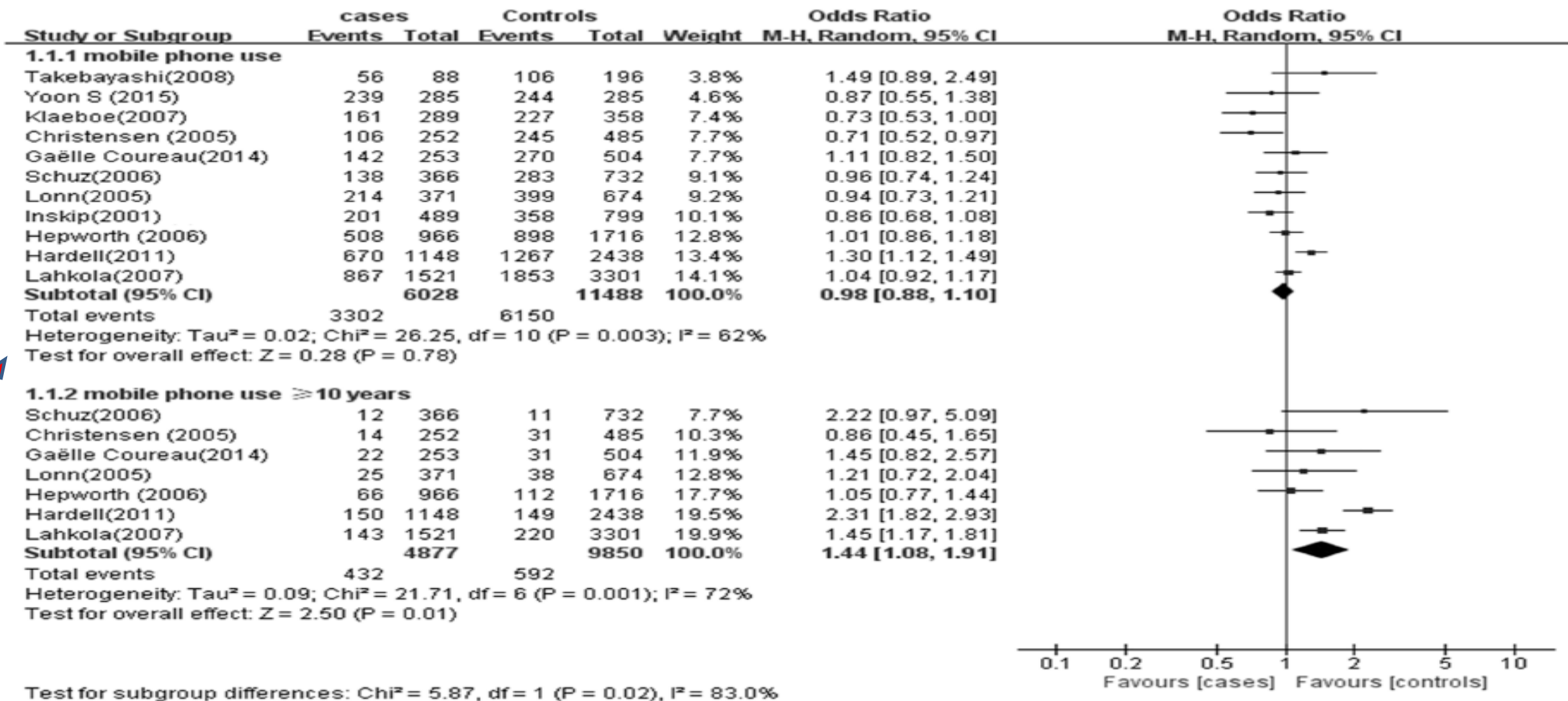
# Mobile phone use and glioma risk: A systematic review and meta-analysis

Ming Yang<sup>1</sup>✉, WenWen Guo<sup>2</sup>✉, ChunSheng Yang<sup>3</sup>✉, JianQin Tang<sup>4</sup>, Qian Huang<sup>2</sup>, ShouXin Feng<sup>1</sup>\*, AiJun Jiang<sup>1</sup>, XiFeng Xu<sup>1</sup>, Guan Jiang<sup>4</sup>\*

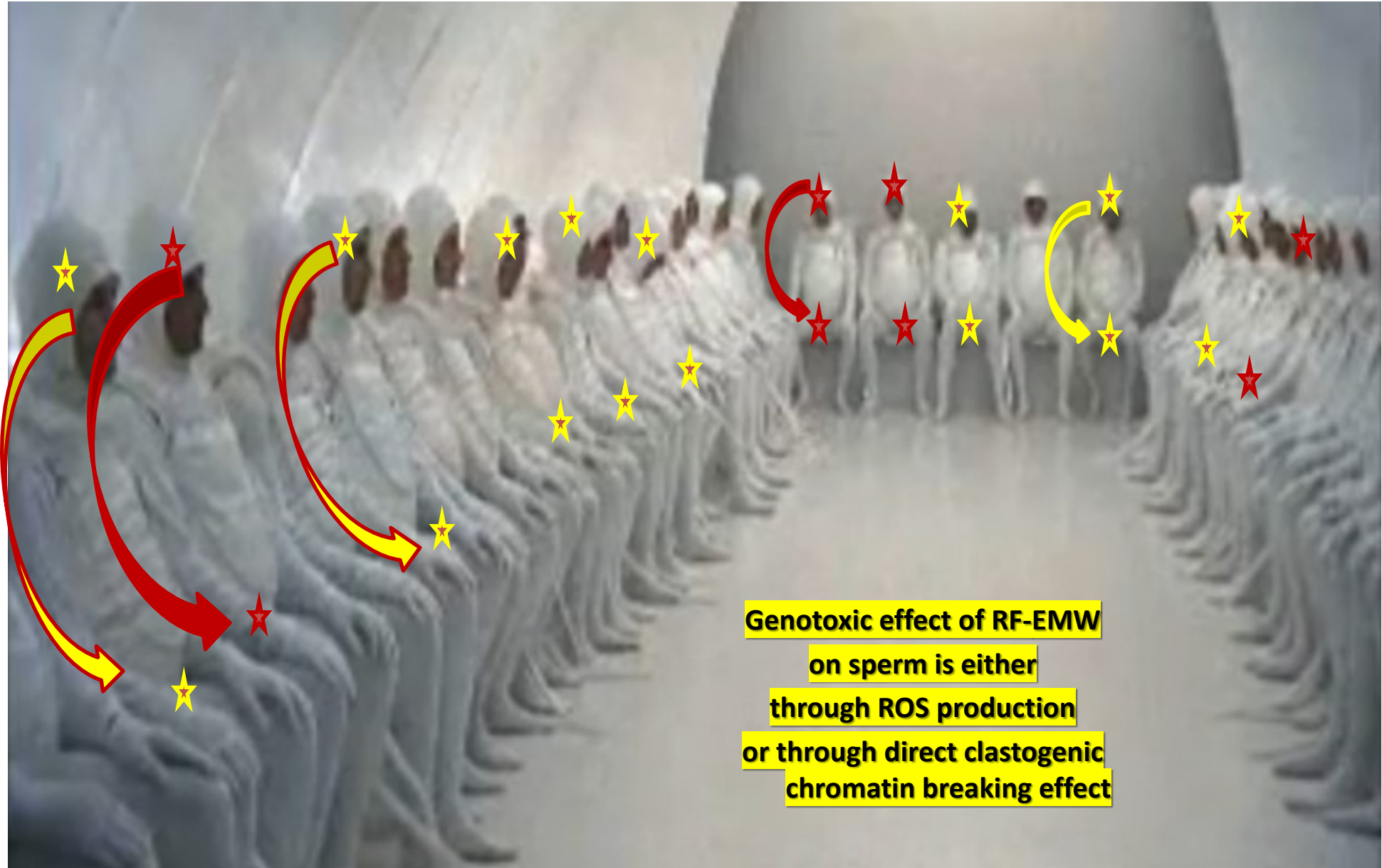
## Results

There was a significant positive association between long-term mobile phone use (minimum, 10 years) and glioma (OR = 1.44, 95% CI = 1.08–1.91). And there was a significant positive association between long-term ipsilateral mobile phone use and the risk of glioma (OR = 1.46, 95% CI = 1.12–1.92). Long-term mobile phone use was associated with 2.22 times greater odds of low-grade glioma occurrence (OR = 2.22, 95% CI = 1.69–2.92). Mobile phone use of any duration was not associated with the odds of high-grade glioma (OR = 0.81, 95% CI = 0.72–0.92). Contralateral mobile phone use was not associated with glioma regardless of the duration of use. Similarly, this association was not observed when the analysis was limited to high-grade glioma.

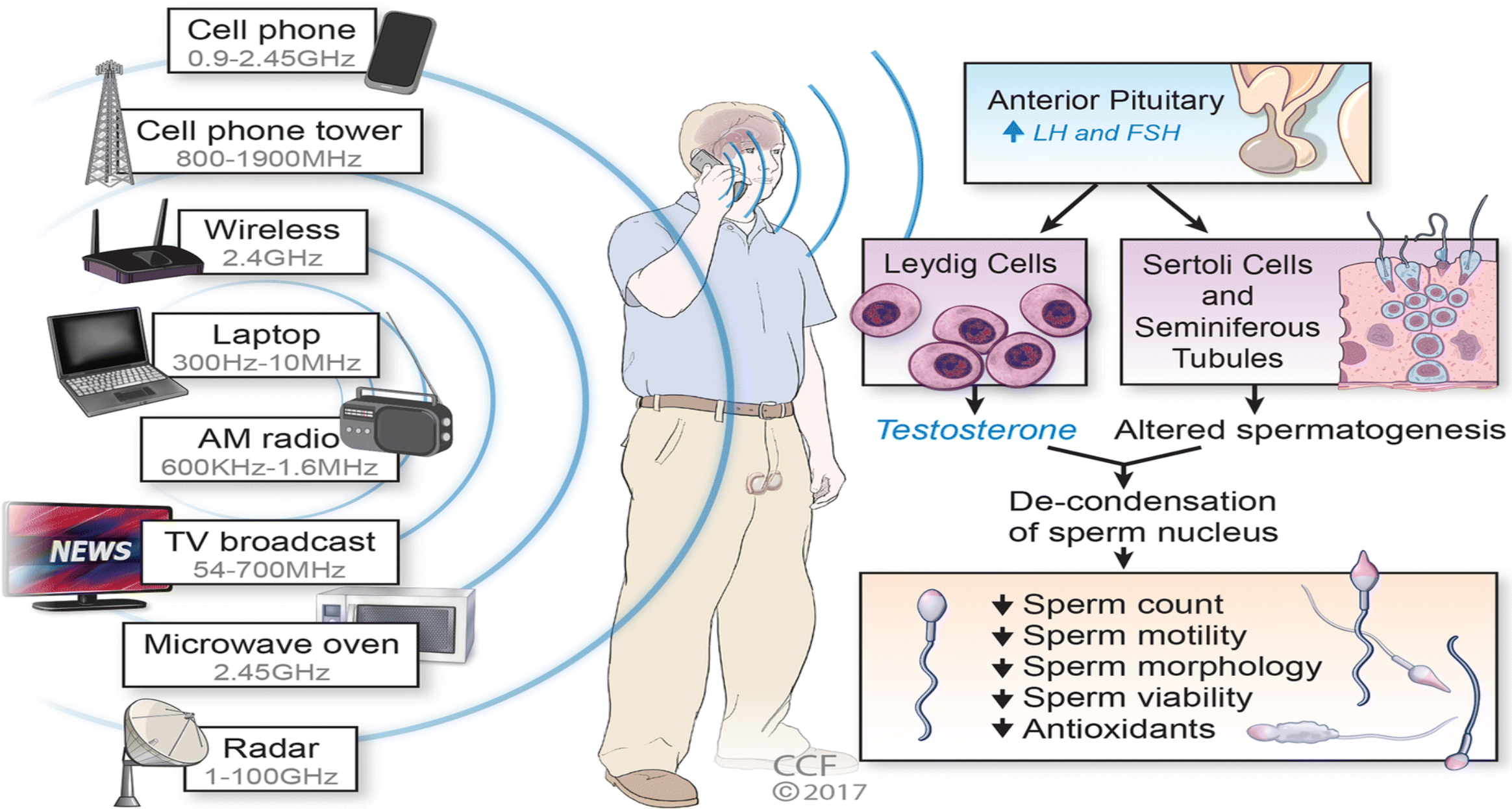
**C'è un'associazione significativa tra uso a lungo termine di telefoni cellulari (minimo, 10 anni) e glioma (OR = 1,44, IC 95% = 1,08-1,91). .. E una significativa associazione positiva tra uso a lungo termine di telefoni cellulari e rischio di glioma omolaterale (OR = 1,46, IC 95% = 1,12-1,92)**



**Fig 3. Mobile phone use and the risk of glioma.**



**Genotoxic effect of RF-EMW  
on sperm is either  
through ROS production  
or through direct clastogenic  
chromatin breaking effect**



Diagrammatic representation of **various source of RF EMF exposure effect on brain and testicular** organ and deleterious outcome

## FETAL AND NEONATAL EFFECTS OF EMF

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Fetal (*in-utero*) and early childhood exposures to cell phone radiation and wireless technologies in general may be a risk factor for hyperactivity, learning disorders and behavioral problems in school.

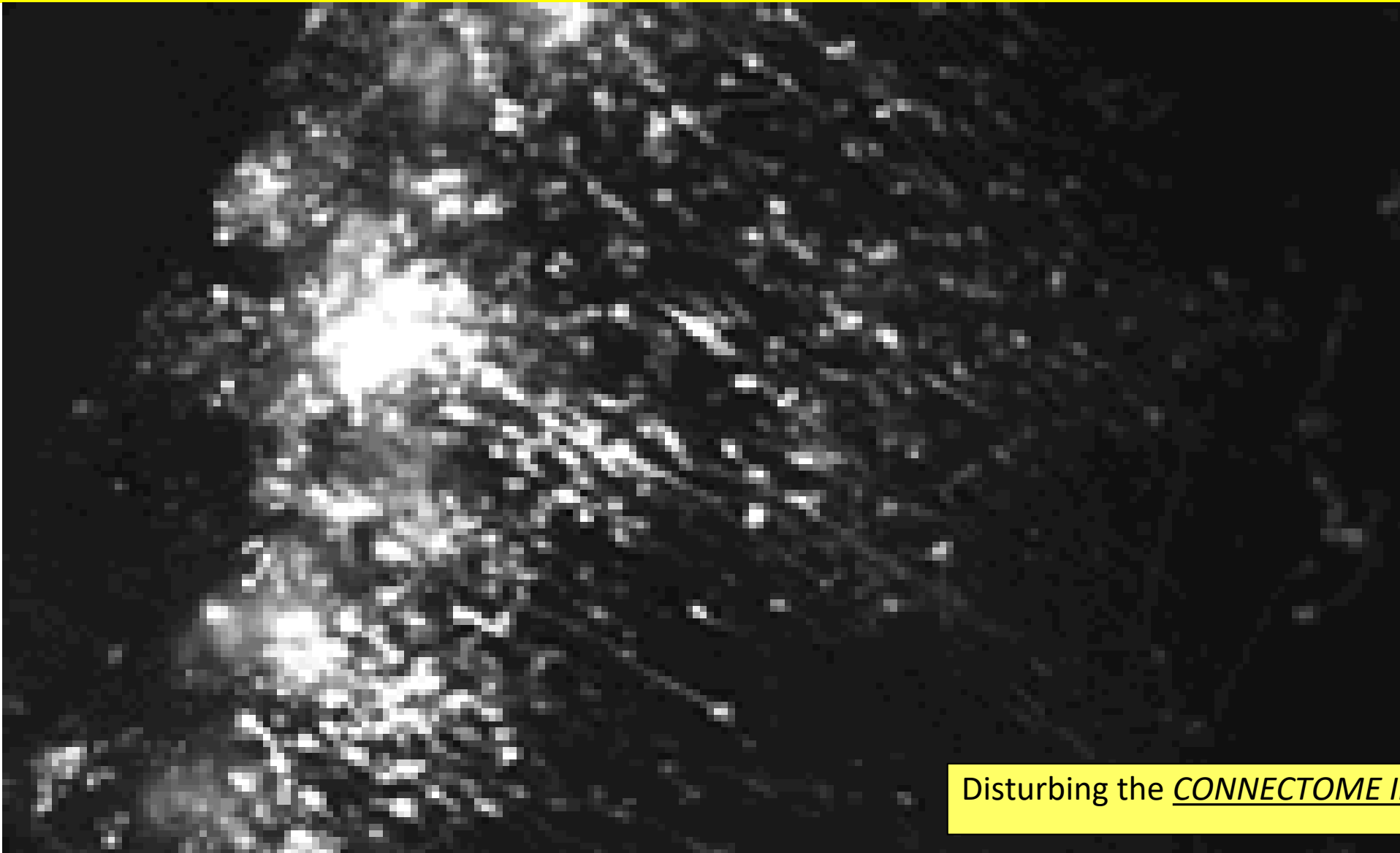
**Fetal Development Studies:** Effects on the developing fetus from *in-utero* exposure to cell phone radiation have been observed in both human and animal studies since 2006. Divan et al (2008) found that children born of mothers who used cell phones during pregnancy develop more behavioral problems by the time they have reached school age than children whose mothers did not use cell phones during pregnancy. Children whose mothers used cell phones during pregnancy had 25% more emotional problems, 35% more hyperactivity, 49% more conduct problems and 34% more peer problems (Divan et al., 2008).

Sources of fetal and neonatal exposures of concern include cell phone radiation (both paternal use of wireless devices worn on the body and maternal use of wireless phones during pregnancy). Exposure to whole-body RFR from base stations and WI-FI, use of wireless laptops, use of incubators for newborns with excessively high ELF-EMF levels resulting in altered heart rate variability and reduced melatonin levels in newborns, fetal exposures to MRI of the pregnant mother, and greater susceptibility to leukemia and asthma in the child where there have been maternal exposures to ELF-EMF.

A precautionary approach may provide the frame for decision-making where remediation actions have to be realized to prevent high exposures of children and pregnant woman.

(Bellieni and Pinto, 2012 – Section 19)

# Brain plasticity and modulation of its structure and its functions



Motility of neurons and in particular the formation of new connections (synapses) can be modified (perturbed) by exposure to environmental stressors

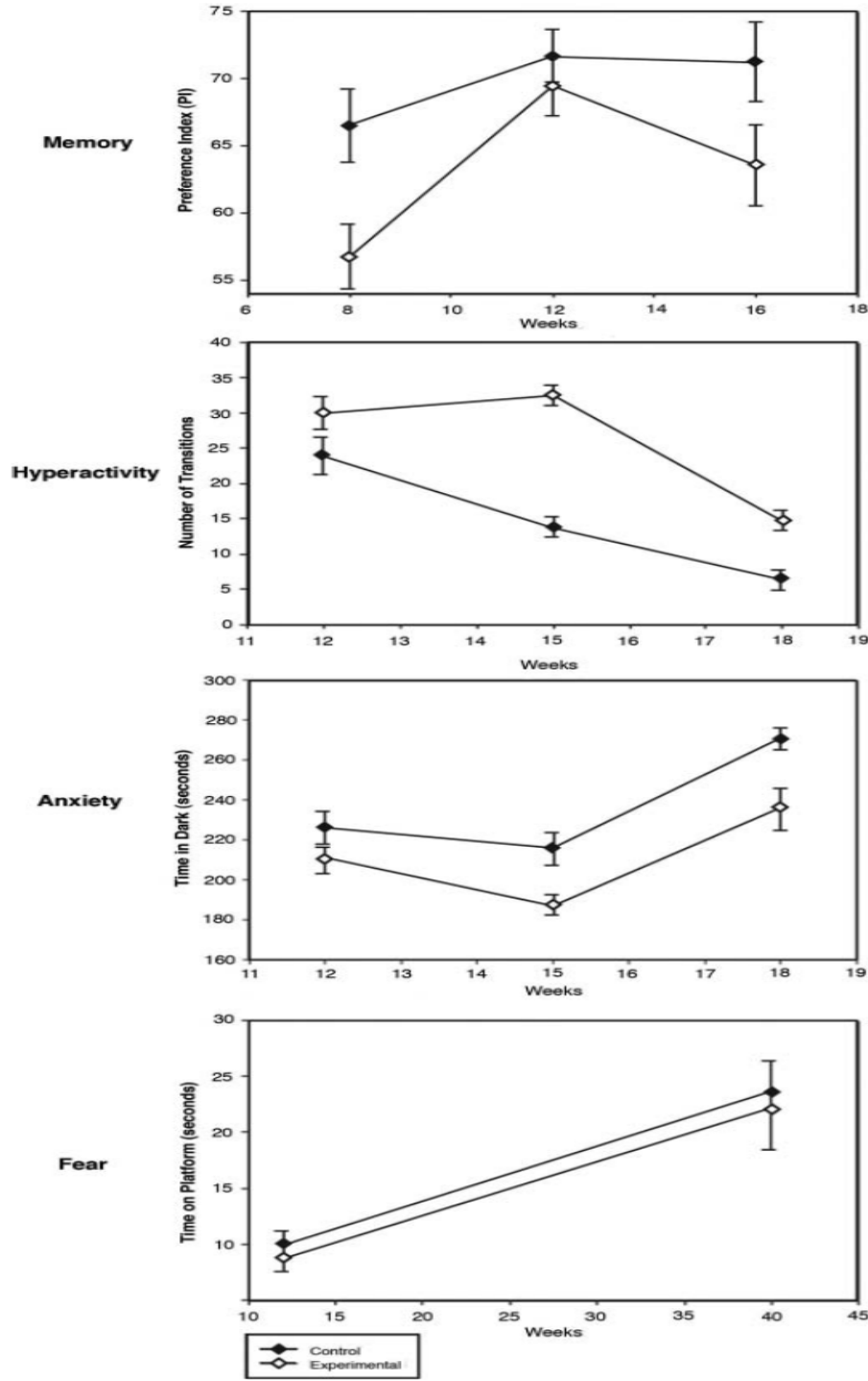
Disturbing the CONNECTOME INSTRUCTION

# Fetal Radiofrequency Radiation Exposure From 800-1900 Mhz-Rated Cellular Telephones Affects Neurodevelopment and Behavior in Mice

Tamir S. Aldad<sup>1,2</sup>, Geliang Gan<sup>2</sup>, Xiao-Bing Gao<sup>2,3</sup> & Hugh S. Taylor<sup>1,2,4</sup>

..a growing overload of electromagnetic radiations is adding to chemical toxic burden: here we demonstrate that the fetal exposure to 800–1900 Mhz-rated radio-frequency radiation from cellular telephones leads to behavioral and neurophysiological alterations that persist into adulthood.





Mice exposed during pregnancy had impaired memory, were hyperactive, and had increasing anxiety, indicating that in-utero exposure to radiofrequency is a potential cause of neurobehavioral disorders.

We further demonstrated impairment of glutamatergic synaptic transmission onto pyramidal cells in the prefrontal cortex associated with these behavioral changes

suggesting a mechanism by which in-utero cellular telephone radiation exposure may lead to the increased prevalence of neurobehavioral disorders.

[Child Dev.](#) 2018 Jan;89(1):129-136. doi: 10.1111/cdev.12824

## Electromagnetic Fields, Pulsed Radiofrequency Radiation, and Epigenetics: How Wireless Technologies May Affect Childhood Development

Cindy Sage  
*Sage Associates*

Ernesto Burgio  
*International Society of Doctors for Environment (ISDE)  
Scientific Office*

Mobile phones and other wireless devices that produce electromagnetic fields (EMF) and pulsed radiofrequency radiation (RFR) are widely documented to cause potentially harmful health impacts that can be detrimental to young people. New epigenetic studies are profiled in this review to account for some neurodevelopmental and neurobehavioral changes due to exposure to wireless technologies. Symptoms of retarded memory, learning, cognition, attention, and behavioral problems have been reported in numerous studies and are similarly manifested in autism and attention deficit hyperactivity disorders, as a result of EMF and RFR exposures where both epigenetic drivers and genetic (DNA) damage are likely contributors. Technology benefits can be realized by adopting wired devices for education to avoid health risk and promote academic achievement.

Belyaev et al [2010] reported that **915 MHz microwave exposure** significantly affects human **stem cells**

**“The strongest microwave effects were always observed in stem cells.** This result may suggest both **significant imbalance in DSB repair, and severe stress response.**

Our findings that **stem cells are the most sensitive to microwave exposure, and react to more frequencies than do differentiated cells** may be important for **cancer risk assessment** and indicate that **stem cells are the most relevant cellular model for validating safe mobile communication signals.”**

Belyaev I, Markova E, Malmgren L. [2010] *Microwaves from Mobile Phones Inhibit 53BP1 Focus Formation in Human Stem Cells Stronger than in Differentiated Cells: Possible Mechanistic Link to Cancer Risk*. Environ Health Perspect. 118(3): 394–399

# SCIENTIFIC REPORTS

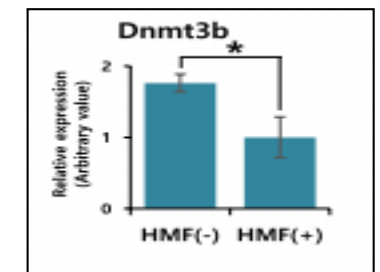
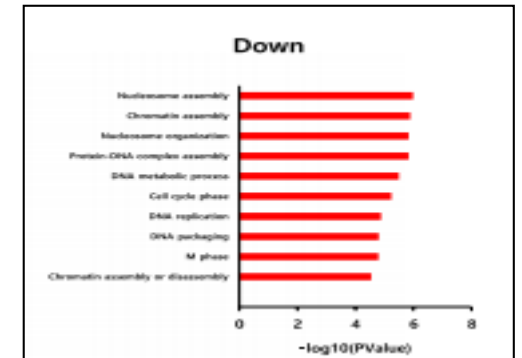
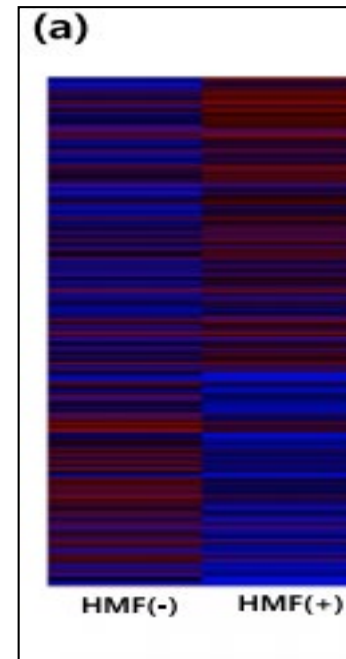
Published online: 04 February 2019

## Effects of a hypomagnetic field on DNA methylation during the differentiation of embryonic stem cells

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It has been reported that hypomagnetic fields (HMFs) have a negative influence on mammalian physiological functions. We previously reported that HMFs were detrimental to cell fate changes during reprogramming into pluripotency. These studies led us to investigate whether HMFs affect cell fate determination during direct differentiation. Here, we found that an HMF environment attenuates differentiation capacity and is detrimental to cell fate changes during the *in vitro* differentiation of embryonic stem cells (ESCs). Moreover, HMF conditions cause abnormal DNA methylation through the dysregulation of DNA methyltransferase3b (Dnmt3b) expression, eventually resulting in incomplete DNA methylation during differentiation. Taken together, these results suggest that an appropriate electromagnetic field (EMF) environment may be essential for favorable epigenetic remodeling during cell fate determination via differentiation.

...campi ipomagnetici (HMF) influenzano la determinazione del destino cellulare... interferendo sulla **differenziazione in vitro delle cellule staminali embrionali (ESC)**.  
 ...**attraverso la disregolazione dell'espressione di DNA metiltransferasi 3b (Dnmt3b)**, con conseguente **metilazione incompleta del DNA**



## BIOPHYSICS

## Weak magnetic fields alter stem cell-mediated growth

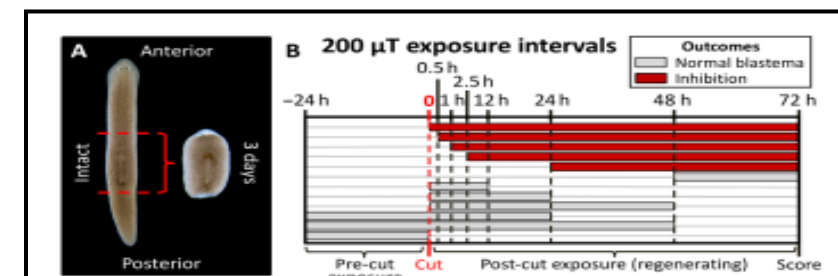
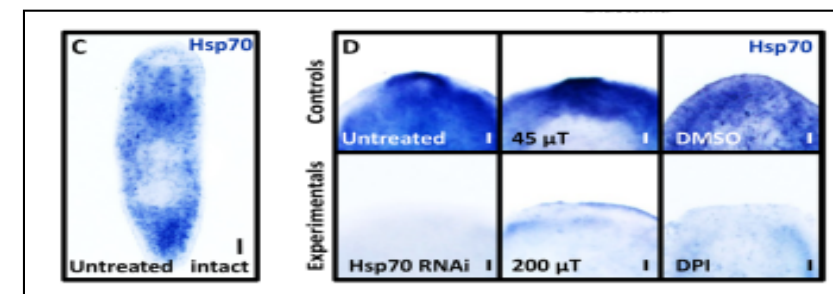
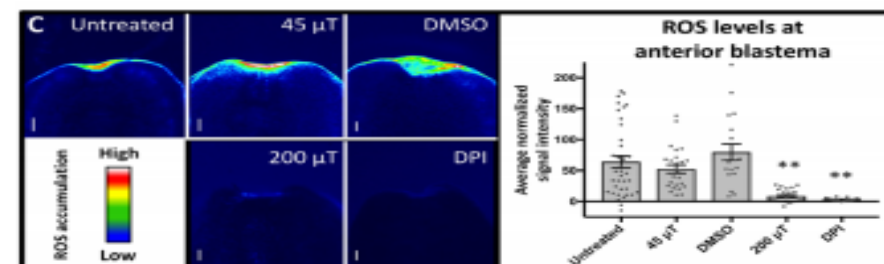
Alanna V. Van Huizen<sup>1</sup>, Jacob M. Morton<sup>1</sup>, Luke J. Kinsey<sup>1</sup>,  
Donald G. Von Kannon<sup>1</sup>, Marwa A. Saad<sup>1</sup>, Taylor R. Birkholz<sup>1</sup>, Jordan M. Czajka<sup>1</sup>,  
Julian Cyrus<sup>2</sup>, Frank S. Barnes<sup>2</sup>, Wendy S. Beane<sup>1\*</sup>

Biological systems are constantly exposed to electromagnetic fields (EMFs) in the form of natural geomagnetic fields and EMFs emitted from technology. While strong magnetic fields are known to change chemical reaction rates and free radical concentrations, the debate remains about whether static weak magnetic fields (WMFs; <1 mT) also produce biological effects. Using the planarian regeneration model, we show that WMFs altered stem cell proliferation and subsequent differentiation via changes in reactive oxygen species (ROS) accumulation and downstream heat shock protein 70 (Hsp70) expression. These data reveal that on the basis of field strength, WMF exposure can increase or decrease new tissue formation *in vivo*, suggesting WMFs as a potential therapeutic tool to manipulate mitotic activity.

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Campi magnetici statici deboli (WMF <1 mT) producono alterazioni della proliferazione delle cellule staminali e della successiva differenziazione attraverso cambiamenti nell'accumulo di specie reattive dell'ossigeno (ROS) e nell'espressione della proteina di shock termico 70 (Hsp70).

Questi dati rivelano che sulla base della forza del campo, l'esposizione al WMF può aumentare o diminuire la formazione di nuovo tessuto *in vivo*...

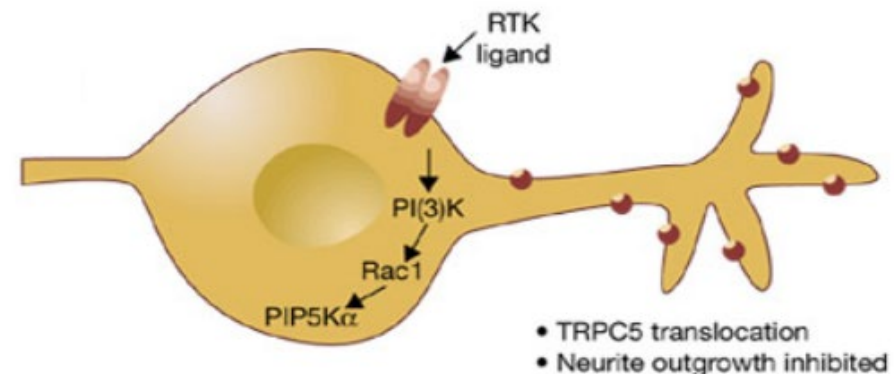


Chen C, Ma Q, Liu C, Deng P, Zhu G, Zhang L, He M, Lu Y, Duan W, Pei L, Li M, Yu Z, Zhou Z **Exposure to 1800 MHz radiofrequency radiation impairs neurite**

**outgrowth of Embryonic neural stem cells**. Sci Rep. 2014 May 29;4:5103

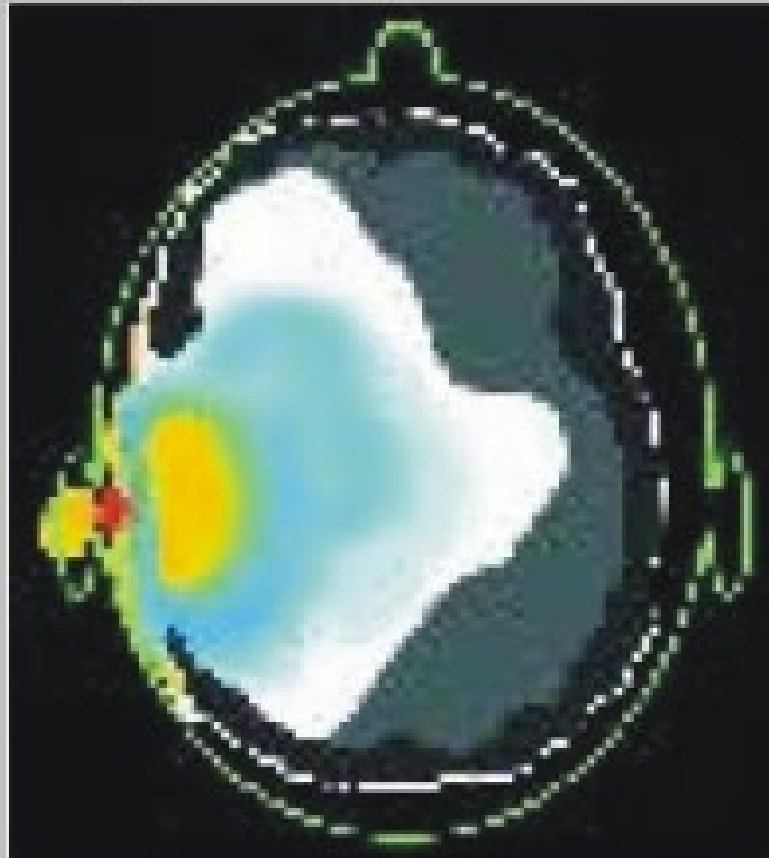
**A radiofrequency electromagnetic field (RF-EMF) of 1800 MHz is widely used in mobile communications. However, the effects of RF-EMFs on cell biology are unclear. Embryonic neural stem cells (eNSCs) play a critical role in brain development. Thus, detecting the effects of RF-EMF on eNSCs is important for exploring the effects of RF-EMF on brain development.** We exposed eNSCs to 1800 MHz RF-EMF at specific absorption rate (SAR) values of 1, 2, and 4 W/kg for 1, 2, and 3 days. We found that 1800 MHz RF-EMF exposure did not influence eNSC apoptosis, proliferation, cell cycle or the mRNA expressions of related genes. RF-EMF exposure also did not alter the ratio of eNSC differentiated neurons and astrocytes. However, **neurite outgrowth of eNSC differentiated neurons was inhibited after 4 W/kg RF-EMF exposure for 3 days. Additionally, the mRNA and protein expression of the proneural genes Ngn1 and NeuroD, which are crucial for neurite outgrowth, were decreased after RF-EMF exposure.** The expression of their inhibitor Hes1 was upregulated by RF-EMF exposure. These results together suggested that **1800 MHz RF-EMF exposure impairs neurite outgrowth of eNSCs.** More attention should be given to the potential adverse effects of RF-EMF exposure on brain development.

Disturbing the  
**CONNECTOME**  
**INSTRUCTION**

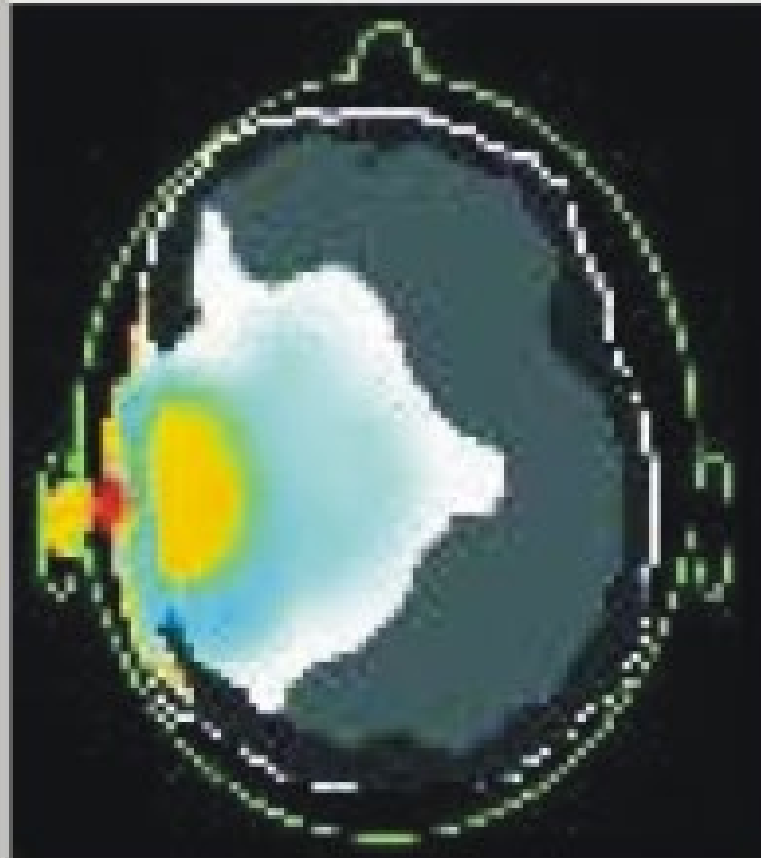


Gandhi O.P., Lazzi G., Furse C.M. (1996 vol.44, p1884-1897) :  
Absorption des rayonnements électromagnétiques dans la tête et  
le cou humain pour les téléphones mobiles de 835MHz /1900MHz

## Degré de pénétration des Radiations du Portable dans le Cerveau



Enfant de 5 ans  
Taux d'absorption: 4,49W/kg



Enfant de 10 ans  
Taux d'absorption: 3,21W/kg



Adulte  
Taux d'absorption: 2,93W/kg



**Open Letter to the Director of the IARC on the subject of the Monograph for the evaluation of carcinogenic risk to humans – Volume 102 – Non-ionizing radiation, part II: radiofrequency electromagnetic fields [includes mobile telephones, microwaves and radar]**

Dr. Christopher Wild  
Director  
International Agency for Research on Cancer  
150 cours Albert Thomas  
69372 Lyon Cedex  
France

Istanbul, May 23rd, 2011

Dear Dr Wild,

*We have learned, as we were about to send this correspondence, that you have made the decision to withdraw Dr. Alhborn from the Working Group. We warmly welcome this decision and will forward this information to all interested parties. Nevertheless, we wish to confirm the vigilance with which those in the international community who deal with population health will be following the work of those preparing the upcoming publication.*

A meeting will occur in Lyon from May 24-31 2011, at the Centre that you have the pleasure but also the immense responsibility of leading: the meeting of the IARC Monographs for the evaluation of carcinogenic risk to humans - volume 102: Non-Ionizing Radiation, Part II: Radiofrequency Electromagnetic Fields [including mobile phones, microwaves and radar]. This is a subject of importance both as a result of its scientific complexity but also for its potential significance with regard to the long-term risks to the health of human populations, especially that of the most vulnerable groups such as fetuses and children.



### **Women in Europe for a Common Future (WECF-fr)**

Dr Annie J. Sasco, MD, DrPH, Membre du Comité d'Expert-e-s WECF, médecin épidémiologiste du cancer, Directrice de recherche Inserm et ancienne directrice d'unité au CIRC, Fellow of the Collegium Ramazzini, Bordeaux, France

Anne Barre, Présidente de WECF France, Annemasse, France

Madeleine Madoré, Membre du Comité d'expert-e-s WECF, Pharmacienne, Paris, France

Anne-Corinne Zimmer, Membre du Comité d'Expert-e-s WECF, Auteure et journaliste scientifique, Bruxelles, Belgique

Elisabeth Ruffinengo, Juriste, Chargée de mission plaidoyer, WECF, Annemasse, France

### **Réseau Environnement Santé (RES)**

André Cicoella, Président RES, Paris, France

Dr Pierre Souvet, Cardiologue, Trésorier RES, Aix-en-Provence, France

### **Environmental Health Trust**

Devra Lee Davis, PhD, Author and Founder Environmental Trust Fund, Fellow of the Collegium Ramazzini, Washington DC and Jackson Hole, Wyoming, United States of America

### **International Society of Doctors for the Environment – France (ISDE France)**

Pr Dominique Belpomme, Président, PU-PH Cancérologue, Paris, France

Philippe Irigaray, Dr es Sciences, Paris, France

### **International Society of Doctors for the Environment – Italy (ISDE-Italia)**

Dr Ernesto Brugio, Pediatrician, President ISDE-Italy

### **Health Care without Harm (HCWH)**

Dr Gary Cohen, MD, President and co-founder, Boston, United States of America

Dr Anja Leetz, Executive Director HCWH-Europe, Brussels, Belgium

### **Health Environment Alliance (HEAL)**

Genon K. Jensen, Executive Director, France

Lisette van Vliet, Toxics Policy Advisor, Brussels, Belgium

### **Instituto de Alpha de Saúde Integral**

Maria Emilia Gadelha Serra, MD, Medical Director, Brazil

### **Health Caméra**

Nadia Collot, Presidente and founder HeathCam, film director, Paris, France

### **WEEP- The Canadian initiative to stop Wireless Electrical and Electromagnetic Pollution**

Martin Weatherall, Co-Director WEEP, Canada

Geneviève Ancel, Administratrice territoriale et co-fondatrice Dialogues en Humanité, Lyon, France  
Nicholas Ashford, JD, PhD, Professor of Technology and Policy, MIT, Fellow of the Collegium Ramazzini, Cambridge, United States of America  
Dr Bernard Asselain, Medical epidemiologist, MD, PhD, Institut Curie, Paris, France  
Pr Fahrat Ben Ayed, MD, Cancérologue, Président de l'Association Tunisienne de Lutte Contre le Cancer, Tunis, Tunisia  
Marie-Line Cal, Economiste de la santé, Maître de conférences des universités, Université Bordeaux Segalen, France  
Barry Castleman, PhD, Fellow of the Collegium Ramazzini, Washington DC, United States of America  
Pr Richard Clapp, Past president of Greater Boston Physicians for Social Responsibility, United States of America  
Catherine Gouhier, Centre de Recherche et d'Information Indépendantes sur les Rayonnements Electromagnétiques, France  
Pr Vyvyan Howard, MD, PhD, Past president International Society of Doctors for the Environment, University of Ulster, Northern Ireland  
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Pr Polyxeni Nicolopoulou-Stamati, MD, PhD, Environmental Pathology, University of Athens, Greece  
Clément Rossignol, PhD, Bordeaux University, France  
Elifsu Sabuncu, PhD, Paris, France  
Pr Paulo Saldiva, MD, PhD, Chairman of the National Center of Integrated Environmental Risk Assessment, National Research Council, Sao Paulo, Brazil  
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Pr Morando Soffritti, MD, PhD, Fellow Collegium Ramazzini, Carpi, Italy  
Pr Carlos Sonnenschein, MD, PhD, Tufts University School of Medicine, Boston, United States of America  
Pr Ana Soto, MD, PhD, Tufts University School of Medicine, Boston, United States of America  
Pr Charles Sultan, MD, PhD, Montpellier University, France

31 May 2011

## IARC CLASSIFIES RADIOFREQUENCY ELECTROMAGNETIC FIELDS AS POSSIBLY CARCINOGENIC TO HUMANS

Lyon, France, May 31, 2011 -- The WHO/International Agency for Research on Cancer (IARC) has classified radiofrequency electromagnetic fields as **possibly carcinogenic to humans (Group 2B)**, based on an increased risk for **glioma**, a malignant type of brain cancer<sup>1</sup>, associated with wireless phone use.

Over the last few years, there has been mounting concern about the possibility of adverse health effects resulting from exposure to radiofrequency electromagnetic fields, such as those emitted by wireless communication devices. The number of mobile phone subscriptions is estimated at **5 billion globally**.

From **May 24–31 2011, a Working Group of 31 scientists from 14 countries has been meeting at IARC in Lyon, France, to assess the potential carcinogenic hazards from exposure to radiofrequency electromagnetic fields**. These assessments will be published as Volume 102 of the *IARC Monographs*, which will be the fifth volume in this series to focus on physical agents,



**5G** sta molto semplicemente per **quinta generazione** e si intende l'insieme dei requisiti per un certo standard comunicativo.. Per raggiungere velocità così elevate è necessario utilizzare uno spettro di frequenza finora mai utilizzato. Il **5G sfrutta le onde radio tra 30 e 300 GHz, lo spettro di frequenza più elevato possibile, che nessuno Stato ha ancora assegnato.** Fino a qualche anno fa era impensabile utilizzare questo spettro per la comunicazione, mentre grazie alle ricerche in campo scientifico è stato dimostrato che le onde DI ALTISSIMA FREQUENZA possono essere utilizzate anche per la connessione.



Spot Vodafone - Una settimana di chiamate gratis



<https://www.youtube.com/watch?v=N4y2fb5bw5I>



Consigliato da SpotMania

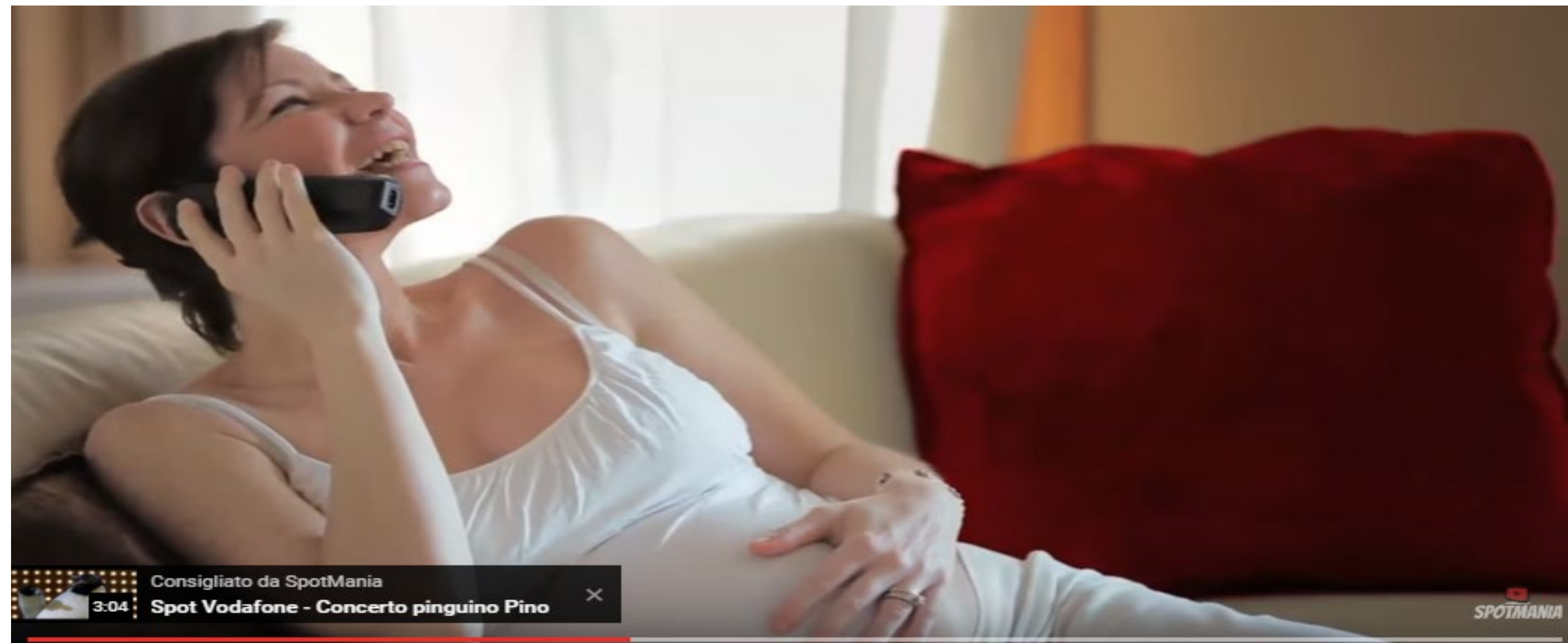
3:04

Spot Vodafone - Concerto pinguino Pino



SPOTMANIA

<https://www.youtube.com/watch?v=N4y2fb5bw5I>



Consigliato da SpotMania

3:04

Spot Vodafone - Concerto pinguino Pino



SPOTMANIA

<https://www.youtube.com/watch?v=N4y2fb5bw5I>





<https://www.youtube.com/watch?v=N4y2fb5bw5I>