

Hormonageddon

How chemical and electromagnetic influences
weakened the human character in three
generations

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This Book is dedicated to my Daughter Ava Sol

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Preface

Have you been wondering how many people became more docile, defeatist and irritable recently?

Males, for instance, increasingly conduct themselves as if they were suffering from plummeting testosterone levels, including depression, passive aggression and negative attitude to life. And that is what has been happening. Testosterone levels in men were declining about 1% per year for over 50 years and more recently up to 2 % per year.

Measured by testosterone, a man is now "half the man" his grandfather was. And many think: 'thank God.'

Likewise, women are not the women their mothers were.

What's more, all other markers of reproductive health - and with them the expected behavioral and social disturbances - are moving in the same direction at roughly the same rate: estrogen levels in women, infertility, miscarriages, genital malformation, cancer of the reproductive organs.

This factbook will elucidate how all of these biological changes are consistent with the well-established multi-generational effects of endocrine disrupting chemicals and, more recently, electromagnetic fields as used in wireless technology.

The same disruption of sex hormones that is pushing humanity, at the current progression, towards borderline infertility or '*a median sperm count of zero by 2045*', can incidentally also induce people to just not care, to accept increasingly authoritarian government actions and to jump up and insist these actions are not authoritarian at all.

This is a book about testosterone and estrogen that does neither tell men to "man up" or women to act this way or another, nor does it complain about male toxicity - whatever that means. Rather it aims to have a positive impact on a reset event.

The hormonal havoc results in well-meaning, but shortsighted, empathy-driven political decisions that will cause destruction and suffering further down the line.

Most who subscribe to current day extreme progressivism and radical "wokeness" ideologies, are not just indoctrinated, but they are biologically inclined to it, they truly feel it in their core.

So, it is appropriate to try to understand where they are coming from.

None of the political and social problems of these decisive times in history can be solved without a regeneration of healthy hormone balances especially in gonadal (sex) hormones.

Precautions can be taken to prevent endocrine disrupting chemicals and sources of radiation for the rebuilding of civilization.

Introduction

When people read the title of the Forbes story: '*You are not the man your father was*',¹ a few years ago, many affected men thought with regards to themselves and women thought with regards to men: 'Thank God (or rather, thank heavens)!' What they don't know is testosterone alone does not cause aggression in men, rather to the contrary.

So, what does this really mean, when measured by testosterone levels, an average man is now $\frac{3}{4}$ the man his father was and half the man his grandfather was? And when likewise, women are not the women their mothers were? Aren't we all just more peaceful and tolerant now and everyone sings kumbaya? No.

Testosterone levels have declined from 1999 to 2016 in adolescent and young adult men (AYA), according to results presented at the 2020 American Urological Association. Mean total testosterone decreased from 605.39 ng/dL in 2000 to 451.22 ng/dL in 2016.² **A decline of 25 % in 16 years, or 1.5 % per year.**

65-year-old finish men in 2012 had 37% less serum testosterone than 65-year-old finish men in 1983.³ **A decrease of 1.27% per year].**

Meanwhile, sperm concentration and total sperm count declined between 1973 and 2011 by **50–60%** in Western countries.⁴ At the current trajectory, males will have a median sperm count of 0 by 2045.⁵

In all of this, it is important to note that foetal (in utero) testosterone is more decisive for male and female development and the integrity of a society than are current testosterone levels in adults.

A study by Stefano Parmigiani et al, 2003 concluded that "exposure to very low doses of endocrine disrupting chemicals during fetal life permanently alters brain development and behavior in animals and humans".⁶

Endocrine Disrupting Chemicals can cause a progressive decrease in sperm counts over multiple generations—a phenomenon that environmental scientist Pete Myers refers to as a "**male fertility death spiral.**"⁷

Studies on the causes for declining testosterone levels in men are conducted prevailingly in non-western countries, again along the

line of the vicious cycles of already low testosterone inhibiting the drive to find out what is going wrong with the instincts to create prosperity and a future for their own family.

Dr. Shanna Swan insists the decline in sperm counts is serious: even though she does not speak of a direct path to extinction:

*“If you follow the curve from the 2017 sperm-decline meta-analysis, it predicts that by 2045 we will have a median sperm count of zero. It is speculative to extrapolate, but there is also no evidence that it is tapering off. This means that most couples may have to use assisted reproduction.”*⁸

Well, invitro fertilization can only help in cases of loss of sperm mobility and numbers: it will mean kicking the can down the road, but only for a short time, because of higher rates of birth defects in IVF babies (see page 26).

Men lack testosterone, women lack estrogen. **Women behave more like men, but that does not make them feel better:**

Common symptoms of low estrogen in women include: fatigue, depression and mood swings.

A tragic accident? Social engineering?

There are now hundreds of endocrine disrupting chemicals in food, drinking water and household goods, so it is impossible to differentiate what substance did what exactly. But as it happens, we are not only approaching borderline male infertility by 2045, but more dramatic is the fact that all other markers of reproductive health - and with them the expected behavioral and social trends - have been moving in the same direction at about the same rate, around 1% per year, and in the last decade accelerating to up to 2 % per year: not only falling testosterone levels in men and falling estrogen levels in women but miscarriages, genital malformation - including micropenis – cancer of the reproductive organs, all moving towards a scenario as in the movie “Children of Men”.

A French study showed that sperm count has been decreasing 1.9% per year. And that was up to 2005.⁹ We don't even know the current rate.

Coincidentally, the males of this society react to this “selection process” just as it is expected of low testosterone males: by shrugging their (feeble) shoulders in the face of their genetic extinction.

In recent years, average men have become the open target of social developments of politics, media and corporations.

Men (prevailingly - but not exclusively - in the West) are being brainwashed without evidence to believe that they are humanly inferior from birth, “male toxicity, believe all women, systemic sexism, systemic racism, neo-colonialism...”.

And the more they are accused without evidence, the more try to appease their accusers and make concessions that they will help to fight male toxicity and that they will “do better”, even if (and especially if) they have never done or said anything racist, sexist or homophobic or malicious in their life.

At the same token, women are indoctrinated to believe all men are somehow morally deficient, and those women who don't go along with it, are then targeted as well and they are told that they are responsible for everyone's and everything's problem in the world.

Most average people are in favor of tolerance and acceptance.

The point here is not whether people accept alternative personal identities, lifestyles and other cultures, this has happened increasingly in the past decades in the West and also beyond for the first time in history. The big challenge for humanity is how the scales have flipped so abruptly, how it is possible that average people suddenly are targeted and willing to apologize for simply being straight or 'cisgender.' (See for instance: Government funded feminists suggest banning heterosexual relationships, and no one protests).¹⁰

While all of the exposure to authoritarian ideology has an obvious influence on normal men and women - especially on susceptible young people - there is an underlining biological foundation to all of this, and I will demonstrate that without drastic bio-chemical, endocrine and cerebral changes, which have accumulated over decades, normal people would never accept the premises of current political and social doctrine.

Feminism does not cause boys getting born with micropenis. Radical progressivism indoctrination does not cause under developed testicles at birth that produce low testosterone (hypogonadism). Internet censorship of “politically incorrect” media does not cause various forms of genital malformation (now at 2.7% of newborn boys and girls).

The transformation cannot have happened in terms of genetic evolution in 2 to 3 generations in different cultures, neither via natural selection nor by naturally induced epigenetic changes.

Imagine trying to convince your grandfather that people born today should pay reparations for crimes committed hundreds of years ago, while currently committed crime should be decriminalized, as

in California.¹¹ Or imagine your grandmother being told that women who want to raise children, are just weak and abused by the patriarchy.

I remember my great grandfather, a gentle, soft-spoken rock of a man, at almost hundred, in the 1980s, sitting in front of his house, playing his mouth organ after feeding his sheep. If someone had told him his great grandkids had to pay reparations for two hundred years ago and they had to be taught gender reassignment ideology in kindergarten, he would not have had it.

He had gone to defend the Swiss border in two World Wars, his grandparents were of the generation who began instating constitutional governments, democracy, equal rights for all humans, the end of privileges for nobility, separation of state and church, the abolishment of the concept of inherited sin or original sin. Things were far from perfect still at the turn of the millennium, obviously, but they were better than at any other time or place in history.

Even if he had been locked up, tortured and brainwashed in a socialist reeducation camp, he could not have accepted that original sin should be reintroduced.

Whether people like it or not, hormonal and behavioral differences in species and genders have developed over millions of years, and they had good reasons to be the way they used to be a few decades ago. Humans have changed their social behavior and lowered reactive aggression over hundreds of millennia, including the process of “self-domestication”. More recently, aggressive, antisocial individuals were removed from the gene pool in the pacification process in the Middle Ages and the Renaissance (by harsh punishment of violent crime), which decreased interpersonal violence and aggression by a factor of up to 50 within 800 years. In nature, major genetic shifts occur every 10,000 years; in modern humans these changes take place every 400 years, and they always go through solid biologicals selection processes insuring sustainable changes.

To allow (either recklessly or intentionally) artificial chemical and radiological influences to alter human biology – even if they make people more mellow and less confrontational – will certainly lead to a fantastic genetic selection event and population reduction in the coming decade(s).

Solar History (2018) pointed out what I call a 'glitch' in the relationship between solar- /geomagnetic activity and human excitability.

In the Modern Grand Solar Maximum, roughly the past century, the pattern of violence and solar activity seems to be interrupted sharply after the 1950s. After two world wars, solar and geomagnetic activity kept increasing to record levels in the 1960s and remained high only to drop off in the late 1990s. But interpersonal violence already leveled off precipitously after the 1950s. On the other side of the spectrum, following the historical pattern, since the early 2000s, we should be seeing an increase not only in peacefulness, but rationality and invention.

In *Solar Behavior* (2020) I had proposed a hypothesis of what could have contributed to this inconsistency, which I defend unaltered to this day. But what I had underestimated is the impact that artificial chemical and electromagnetic influences could have had on hormone balances and thus on human behavior. This book may provide a missing piece in this 'glitch'.

Endocrine disrupting pesticides like atrazine were introduced in the late 1950s, and hundreds of ED chemicals such as DDT have been used proficiently since, such as phthalate plasticizers, flame-retardants, cosmetics etc. with accumulative, multi-generational effects. This was then topped off in the 2000s with the expansion of electromagnetic frequencies in wireless radiation in the microwave spectrum, which now turn out to have endocrine disrupting effects as well, by some unfortunate mishap.

Much great work has been done on the effects of endocrine disrupting chemicals and their detrimental influence on fertility as for instance in the new book '*Countdown*' by Dr. S. Swan. See also '*Spermageddon*' the title of a 2019 book by Niels Christian Geelmuyden.¹² The title *Hormonageddon* is inspired by the former title. Little will be added from my part to the analysis and solving of the chemically induced fertility part of the problem. However, as for the causes of this hormonal downward spiral, Swan specializes on Endocrine Disrupting Chemicals, EDCs and does not include electromagnetic contributors. The present book will add a wealth of recent studies on the electromagnetic endocrine disrupting effects (particularly in male testosterone) of mobile phone- and Wi-fi radiation, and of course I will discuss the cerebral and behavioral ramifications of solar and geomagnetic activity.

We will focus on the behavioral and social ramifications of low testosterone in men as well as estrogen disturbances in women,

which proceed downwards hand in hand at the same rate as fertility.

As at the current trajectory, we are facing borderline infertility in 24 years from now on and will then slowly go extinct, in this book, the main objective is to find out why most people just don't care and even celebrate (for the first time in history) their genetic extinction. When you hear, for instance: 'if we don't stop greenhouse gases, then Earth will heat up 2 degrees in a hundred years! Think about the children!' Then you know, these people are either uninformed or haven't thought things through, or they are full of it. For if we don't fix the infertility abyss, then there will be no one around to care for rising sea levels or drowning polar bears. And as nature is going to fix itself, there would be no point worrying about anything in these final hours. And if we don't fix the crisis of sex hormones, there will be no fixing the infertility crises, because there will be no one to even want to have children.

But many of us will not go anywhere, and we have an unprecedented chance to create prosperity and peace for the remaining population, not least also because we are entering a deep solar minimum, which is almost certainly merging into a new Grand Solar Minimum.

In the historic context, we see that the Greek and the Roman empires saw a similar decline of family values, plummeting birth rates, increasing oikophobia (hatred of the homeland), obviously without the thousands of endocrine disrupting chemicals of modern societies. However, the ancient Greeks and Romans elite suffered from lead poisoning ¹³, and lead is also an endocrine disrupting chemical, disturbing testosterone in men and estrogen in women (see p. 108).

I will postulate that without these endocrine disrupting chemical and radiological influences to human biology, few people would still watch TV or believe anything a politician or a (social) media mogul has to say.

And I will further propose that it is the same hormonal disruptions, that further push people to react to the before said defensively, to jump up and say these ideologies and government actions are not totalitarian at all, and those who think so, should be censored and punished.

Societies that are still concerned about the recent detrimental influences on their testosterone levels are prevalingly Middle

Eastern/ Islamic nations (Saudi Arabia, Iran, Turkey etc.), industrialized, non- western countries, mostly Islamic or Persian. They have growing infertility problems, similar as in the West, but they are behind in the process of feminizing of men and masculinizing of women or the 'coming apart' of the nuclear family. "A steady and significant decline in the fertility rate has been observed in Qatar during the past fifty years." ¹⁴ It appears that even though they are facing growing problems in reproductive health as well, the men and women in these regions still have enough gonadal hormones to care about the future of their families and societies (we don't have exact recent data on testosterone levels for every nation, cultural and genetic differences certainly also play a significant role).

Thus, much of the research on the relationship between testosterone and mobile/wireless radiation of the past few years is conducted in institutions in these Middle Eastern regions. If things continue the way they are going, the rest of humanity is going to owe the institutions in these countries a big favor.

The nuclear family has always been the backbone of any society in history, even in totalitarian collectivist states, where the extended family was made obsolete.

Today's societies are the first to give up on this most archaic social instinct of having children and investing large amounts of personal resources and energy in raising them.

It would have been every totalitarian collectivist state's dream to dismantle the family completely, and to force women to hand over their anonymous babies, to be raised in state run nursing homes from infancy on. The abolishment of the family was proposed by Marx and Engels, ¹⁵ even by Plato. But no communist leader has seriously tried to implement it.

The modern-day inclination to destroy the nuclear family from within is unprecedented and it strongly coincides with the biological endocrinal disruption in the population.

A global conspiracy? Not necessarily. Kind of. It might as well be global stupidity. History has shown that well-informed bureaucrats and industrialists are also lazy and careless, much like the rest of us. They often managed to convince themselves to tolerate a certain degree of public health risks, if they believe it will serve the 'greater good' of society, even when they themselves are exposed to these hazards.

This phenomenon is demonstrated in countless environmental health scandals like asbestos, lead or arsenic pollution.

More recently, low testosterone in men is also implicated in the virus crisis.

“For men, low testosterone means high a risk of severe COVID-19.”¹⁶ And low zinc levels are associated with low testosterone in men and with severity of covid infections, and electromagnetic fields can disrupt zinc metabolism. “In animal experiments, exposure to an electromagnetic field led to a significant decrease in zinc levels in lung and liver tissues.”

Further, Wi-Fi router radiation has caused lung tissue changes in rats. ¹⁷

The main contention of this book is this: none of the social and political problems of these defining times can be solved without a regeneration of healthy hormone balances especially in gonadal (sex) hormones. No education or rational argument in social discourse will convince the masses of the destructiveness of current authoritarian/ collectivist political tendencies. Most who assign to current day extreme multiculturalism, anti-family sentiments and “wokeness” ideologies, are not just indoctrinated, but they are biologically inclined to it, they truly feel it in every cell of their body. Keep that in mind when you talk to them.

There are many things you can do to prevent endocrine disrupting chemicals and radiation in your personal life, in case you are interested in you or your children being involved in rebuilding civilization.

Chapter 1

Testosterogeddon

Men lack testosterone, women have too much in gestation, but lack estrogen.

What is happening to men's testosterone is simultaneously happening to women's estradiol (the main component of estrogen) levels.

The two problems are closely related and have largely the same root causes. We are concentrating on testosterone throughout this book for the reason that men's plummeting testosterone levels are more decisive in the societal disintegration we are witnessing, and much more data is available to demonstrate the direct effects on society. The book could almost be called '*Testosterogeddon*' but more precisely '*Gonadal-Hormonageddon*', which I found didn't sound right, somehow.

On sufficient request, I may write a sequel focusing on the female hormone crisis.

The two problems are not identical, obviously, but they have many converging effects on individuals and society. Lack of testosterone makes man tired, irritable and depressed - lack of estradiol, estrogen makes women tired, irritable and depressed and both irregularities can be affected by the same chemical and electromagnetic impulses. The changes that we are seeing obviously result from complicated and intricate interacting biological processes. For women, both too much or too little testosterone is associated with depression.

*"Low as well as high testosterone (T) levels are related to depression and well-being in women, T plasma levels correlate to depression in a parabolic curve: at about 0.4–0.6 ng/ml plasma free T, a minimum of depression is detected."*¹⁸

As Stephan Hammes et al 2019 notes: *"In fact, the concept of "male" and "female" hormones is an oversimplification of a complex developmental and biological network of steroid actions that directly impacts many organs."*¹⁹

It is sometimes claimed that plummeting male testosterone couldn't be caused by artificial influences, because women's testosterone

levels are not lowered. This is demonstrably false, as will be elaborated below, supported by hundreds of peer reviewed scientific papers.

When gonad cells are compromised, there is no reason why a particular chemical agent will not interfere with the individual very different gonad cells of men and women in very different or even contrary ways. It is not only to be expected, but empirically demonstrated that female hormone metabolism is affected differently than male hormone metabolism by the same agents.

What we are witnessing is a multigenerational degradation of gonad cells and gonadal hormone production and regulation.

We will get to known causes of this *Testosterogeddon* - which goes hand in hand with declining sperm counts - in Chapter 5. One of the well-established causes are endocrine disrupting chemicals (EDCs), whereas we have less long-term data on the effects of non-ionizing radiation from wireless communication. All we know is they have similar effects as the chemicals. I will demonstrate the testosterone- and estrogen disrupting effects of these electromagnetic fields, the ones that are known so far, with the aid of some 50 + specific peer-reviewed animal and human studies.

Studies on rats showed that exposure to mobile radiation for 60 min for 3 months cut their serum testosterone levels in half.²⁰

And then there are possible natural, environmental contributors, of our changing solar system, including discrepancies in the relationship between sunspots and the solar radio flux as are witnessed since the turn of the millennium.

Reinsurance companies

The health risks and the associated grave implications for society-of Endocrine Disrupting Chemicals on the one hand and electromagnetic fields on the other - are also grounds of concern for the global insurance industry. However, I take it they are more worried about the massive money losses in reliability claims in the near future than about the ongoing collapse of society.

The world's largest reinsurance company, Swiss RE declared in their 2013 *Emerging risk insights* "SONAR report" that out of the 7 highest insurance risk topics, 3 are casualty-related topics and were assessed as having the highest impact within 4 -10 years. These are: **"endocrine disrupting chemicals "**, **"unforeseen consequences of electromagnetic fields"** and **"unforeseen consequences of nanotechnology "**.²¹

The former two problems are connected in this book. They not only keep insurance moguls up at night, be it for different reasons.

“The topics “prolonged power blackout”, “run-away inflation and surging bond yields” and “big data” were assessed as being of highest concern as they could have a high impact on the entire insurance industry and might occur within a short period of time.” “Further topics assessed as potentially having a high impact are three casualty topics; these are characterised by their long latency periods: “endocrine disrupting chemicals”, “unforeseen consequences of nanotechnology” and “unforeseen consequences of electromagnetic fields”.²²

The basics of gonadal hormones (sex hormones)

“A gonad, sex gland, or reproductive gland is a mixed gland that produces the gametes (sex cells) and sex hormones of an organism. In the female of the species the reproductive cells are the egg cells, and in the male the reproductive cells are the sperm. The male gonad, the testicle, produces sperm in the form of spermatozoa. The female gonad, the ovary, produces egg cells. Both of these gametes are haploid cells.”²³

Testosterone is not only produced by the gonads (by the Leydig cells in testes in men and by the ovaries in women), but small quantities are also produced by the adrenal glands in both sexes. It is an androgen, meaning that it stimulates the development of male characteristics.²⁴

The hypothalamus and pituitary gland control how much testosterone the testes produce and secrete. The hypothalamus sends a signal to the pituitary gland to release gonadotrophic substances (follicle stimulating hormone and luteinizing hormone).²⁵

The actual prevalence of hypogonadism (lack of function in testis) has been estimated to be 39% in men aged 45 years or older presenting to primary care offices in the United States.²⁶

There is a high incidence of hyperandrogenism in female partners of infertile couples, meaning the affected women have very high levels of plasma testosterone.²⁷

Men are more directly feminized by these inputs than women are masculinized. And in both cases, correcting low sex hormone levels with artificial replacement therapies further shuts down natural hormone production and can even exacerbate the vicious downward spiral of sex-hormone imbalance (see also p. 37).

In this book, as we are going to focus on testosterone in men more than on estrogen in women, I will postulate that a large portion of the current irritation and confusion of women is influenced by the

general lack of resilience and assertiveness of men, which activates archaic survival instincts in some women, many then look for the state to protect and provide and this can make some women react more hostile towards men, ironically especially towards less dominant men.

The history of estrogen treatment for women

Women's health is influenced by a healthy testosterone balance. L. Carcaillon et al showed there is a relationship between circulating levels of Free Testosterone and frailty in older women. *"This relation seems to be modulated by BMI. The relevance and the nature of the association of FT levels and frailty are sex-specific, suggesting that different biological mechanisms may be involved."*

"They further demonstrated an implication of testosterone in the frailty syndrome in women, confirming the association of testosterone with frailty in men, they suggest a differential association of testosterone with frailty by sex." ²⁸

Psychologist Cordelia Fine writes in *Testosterone Rex* (winner of the Royal Society's science book prize for 2017) testosterone has been blamed for the financial crash of 2007-08, yet studies show that -although women have lower levels than men - they can have a higher appetite for risk – even when it comes to financial decisions. ²⁹

These are the basics of female sex hormone metabolism:

"Estradiol (E2), also spelled oestradiol, is an estrogen steroid hormone and the major female sex hormone. It is involved in the regulation of the estrous and menstrual female reproductive cycles. Estradiol is responsible for the development of female secondary sexual characteristics such as the breasts, widening of the hips, and a female-associated pattern of fat distribution and is important in the development and maintenance of female reproductive tissues such as the mammary glands, uterus, and vagina during puberty, adulthood, and pregnancy. It also has important effects in many other tissues including bone, fat, skin, liver, and the brain. "

³⁰

Women's common symptoms of low estrogen are:

Depression, fatigue, shifts in mood

an increase in urinary tract infection (UTIs) due to a thinning of the urethra

irregular or absent periods

hot flashes

breast tenderness

headaches or accentuation of pre-existing migraines

trouble concentrating

Compare these individual symptoms also to current societal trends.

Estrogen is an active neuroprotectant and is presently investigated as a potential therapy against Alzheimer's disease for women. ³¹

The birth control pill was introduced 18. August 1960.

As female infertility increases, so do miscarriages. In Swedish women ages 18 to 42, between 2003 and 2012, the incidence of recurring **miscarriages increased by 74%**. That's an increase of 8% per year. The authors called it a "fairly rapid" increase. I call it a **FARELY RAPID** increase! ³²

Estrogen deficiency and mental health

"Poor mental health can result from low estrogen levels. Since estrogen is believed to help with your neurotransmitters, low levels are associated with a risk of psychosis, schizophrenia, and worsened symptoms of bipolar disorder." ³³

"Some women's vulnerability to anxiety and mood disorders may be explained by their estrogen levels, according to new research by Harvard and Emory University neuroscientists." ³⁴

Estrogen deficiency is implicated in the incidence of schizophrenia.

"There is mounting evidence from clinical, epidemiological and basic research that estradiol, the main component of estrogens, exerts protective effects in schizophrenia and related psychoses." ³⁵

Transdermal estradiol significantly reduced psychopathological symptoms in women with schizophrenia and *"may provide a new adjunctive therapeutic option for severe mental illness."* ³⁶

Estrogen also has direct effects on neuronal function that may play an important role not only in the preservation of neurons but in repair of neurons damaged by Alzheimer Disease process. ³⁷

Similarly as for men and testosterone, in Wuhan, China in 2020, women with low estrogen levels tended to have more severe COVID-19 than women with higher levels of the hormone. ³⁸

Researchers at the University of St Andrews in Fife, UK, have found that women's facial attractiveness is directly related to their oestrogen levels.³⁹ and vice versa, "women with higher estradiol (the major female sex hormone) concentrations exhibit stronger preferences for the faces of men with higher testosterone concentrations. Women's testosterone preference and estradiol curves track one another across days of the cycle."⁴⁰

And then there is this: "Feminist activist women are masculinized in terms of digit-ratio (2D:D4) and social dominance." The feminist activist sample had a significantly smaller (i.e., masculinized) 2D:4D digit ratio than the general female samples. The size of this difference corresponds approximately to a 30% difference in prenatal testosterone/estradiol ratio, which was the index found to have the strongest association with 2D:4D.⁴¹

We'll take a detailed look at prenatal testosterone exposure and the 2D:4D digit ratio on page 74.

The use of estrogen prescriptions and menopausal hormone therapy (MHT) has fluctuated over the decades:

"In 1942, the US Food and Drug Administration (FDA) approved marketing of equine estrogens (CEE) for the treatment of menopausal symptoms."⁴²

Menopausal hormone therapy (MHT) has been used mostly in western countries, with about 600 million woman-years of use since 1970.

"Use increased rapidly during the 1990s, halved abruptly in the early 2000s, and stabilized during the 2010s with about 12 million current users. Most users begin MHT at around the time of the menopause and can continue for several years."⁴³

Mobile phone and Wi-Fi radiation can disrupt estrogen levels in female rodents in a similar drastic way as it can disrupt testosterone in male rodents. Studies showed long-term exposure to electromagnetic radiation from mobile phones and Wi-Fi devices decreases plasma prolactin, progesterone, and estrogen levels but increases uterine oxidative stress in pregnant rats and their offspring.⁴⁴

In a different study, exposure to Wi-Fi EMR at 900, 1800, and 2450 MHz, induced progressive reduction in sex steroid hormones (reduction in serum estrogen, progesterone, plasma TAS, vitamin C), and imbalance in oxidative/antioxidative stress parameters in pregnant rats.⁴⁵

Mobile phone waves were also reported to affect the ovaries and increase follicular atresia and cause changes in sex hormone concentration leading to a reduction in fertility rates in female rats.⁴⁶ More data on EMF estrogen disruption is presented in Chapter 6.5.

The nuclear family

Never has any state managed to dismantle the nuclear family. Marx and even Plato strongly promoted this, and totalitarian, socialist regimes have tried without much success. People today in the West are the first generation to increasingly abandon not only the nuclear family, but the wish of having children altogether. Not only is infertility rampant, but they are the first generation to be content with their ethnic group going literally extinct. This novel trend is strongly coincident in time and place with estrogen disruption in western women. See an extended discussion on abolishing the family on page 84.

Chapter 2

Overall decline in male testosterone over time

Low testosterone can directly affect fertility by causing decreased sperm production and indirectly affect fertility by reducing a man's sex drive and causing erectile dysfunction.

However, men with low testosterone levels, called hypogonadism in medical terms and commonly known as low T, can still have enough of the hormone for sperm production."⁴⁷

Michigan University declared "*Low total testosterone in men is widespread, and it is linked to chronic disease.*"⁴⁸

As far as fertility/ sperm production is concerned, we must assume that things may be further advanced than is known. Statistics based on data from infertility clinics may be skewed. Men and women who don't plan of having a baby are usually not interested in their fertility status and are less likely to participate in volunteer fertility studies, either.

2.1. Rates of Overall decline in testosterone over time

"Several studies from the US and Nordic countries have shown a significant decline in serum testosterone among men from the 1970s to the early 2000s."⁴⁹

For reference, let's keep in mind that between 1973 and 2011, sperm concentration and total sperm count declined by **50–60%** in western countries.⁵⁰

As mentioned above, at the current trajectory, male fertility will be at practically 0 by 2045.⁵¹

And that is only the one aspect of the crisis that people are talking about (and only few people are talking about it). But all other parameters of reproductive health and biologically influenced behavior are spiraling downward at about the same rate (these are largely ignored).

Travon et al estimated an average population-Level Decline in Serum Testosterone Levels in American Men (age-matched trend 1987-2002) of **-1.3% per year**.⁵²

Even in Finland, where men are ‘comparatively less affected by testicular cancer and other reproductive health problems, a significant secular trend in testosterone (total and free) levels was observed with lower levels in more recently born age-matched men. Serum testosterone level decreased in men aged 60–69 years from 21.9nmol/l (men born 1913–1922) to 13.8nmol/l (men born 1942–1951).

That’s a decrease of 37 % in 29 years or 1.27% per year.

This means 65-year-old Finish men in 2012 had 37% less serum testosterone than 65-year-old Finnish men in 1983.

Men born more recently have also been shown to have a higher risk of testicular cancer compared with men born in previous decades. ⁵³

The decline began already somewhere in the 1950s-1960s. A man born in 1970 had about 20 percent less testosterone at age 35 than a man of his father's generation at the same age.

In Denmark, men born after the 1930s-40s have lower testosterone levels in the blood than their fathers and grandfathers had in the same age. **A 30 to 40- year-old man today has a level corresponding to that of a 70-year-old then.** ⁵⁴

A 2020 study investigated total testosterone (TT) levels for US men from 1999 to 2016.

Mean total testosterone in young men decreased from 605.39 ng/dL in 2000 to 451.22 ng/dL in 2016. **A decline of 25 % in 16 years, or 1.6 % per year in the US.** ⁵⁵ TT is also lowered with progressively higher body mass index.

Soum Lokeshwar, MD, MBA, incoming urology resident at Yale School of Medicine, New Haven, Connecticut, says

"Testosterone deficiency has a prevalence of 10%-40% among adult males, and 20% among Adolescent and Young Adult men aged 15-39 years." The authors hypothesized that serum total testosterone levels will further decline in AYA men. ⁵⁶

In all of this, we can keep in mind the standard for normal testosterone levels has been corrected, obfuscating the steepness of the slope of the trend.

Dr. Laurie Blanscet commented: *“normal” Testosterone levels for men are determined by testing the blood of a randomly picked group of men—men who are now having lower Testosterone levels than they should. The result is that Testosterone levels that are actually low have been labeled as “normal”. This results in men suffering needlessly from low Testosterone but being told that they are normal and nothing is wrong with them. You need optimal Testosterone levels, not “normal”.* ⁵⁷

Fertility and testosterone

Meanwhile, all parameters of reproductive health are declining at approximately the same rate: sperm count, sperm quality, serum testosterone, male fertility, female estradiol levels, female fertility, genital malformation, including micro penis, cancer of the reproductive organs...

All have been worsening about 1% per year for the last four decades and in the last decade accelerating to around 2% per year.

The best recorded metrics over the past 50 years are sperm- count and quality, which also give us a reliable estimate on where testosterone counts used to be before the 1970s.

In other mammalian animal studies, the two are shown to be strongly correlated as well. "*Testosterone concentrations showed a clear correlation ($r = 0.73$) with sperm quality of mink males*"⁵⁸

2.2. Decline in sperm counts

A systematic analysis of the Global Burden of Disease Study in 2017 was conducted including 195 countries and territories.

The results showed that the total fertility rate in all the countries globally declined by **49 % between 1950 and 2017**.⁵⁹

A comprehensive meta-regression analysis reported a significant decline in sperm counts (as measured by sperm concentration (SC) and total sperm count (TSC) between 1973 and 2011, driven by a **50–60%** decline among men unselected by fertility from North America, Europe, Australia and New Zealand.

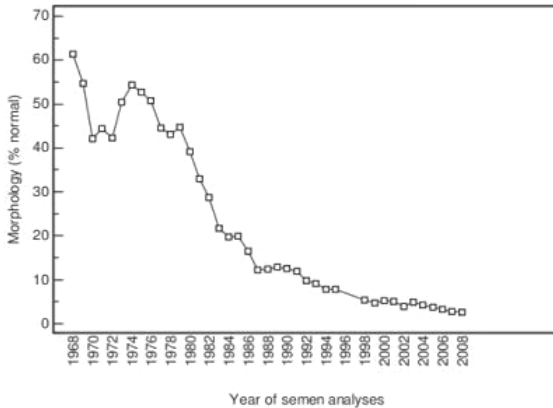
Between 1973 and 2011, mean Total Sperm Count declined on average by 1.6% per year, an overall decline of 59.3%.⁶⁰

This species- threatening decline in fertility is best summarized in S. Swan's "*Count Down*" 2020. What hadn't been mentioned there is that sperm counts dropped so fast the World Health organization had to lower the definition of "Normal" sperm numbers within 10 years. In 2010, the WHO said "Over 15 million sperm per milliliter is considered normal."⁶¹ Older definitions state 20 million. "⁶² By the old definition, possibly half the male population would already be declared sub-fertile today.

In 2000, earlier findings of a sperm decline from 1934-1996 were reexamined and confirmed the declines in sperm density in the United States (approximately 1.5%/year) and Europe/Australia (approximately 3%/year) were somewhat greater than the average

decline reported by Carlsen et al 1992 (approximately 1%/ year). *“However, we found no decline in sperm density in non-Western countries, for which data were very limited.”*⁶³ But since then, most non-Western countries have been catching up fast.

Overview of declining sperm morphology values over years



Menkveld et al., 1986; Menkveld, 2009

Fig. 1 Overall declining sperm morphology values over years between 1969 and 2008. Menkveld, Roelof. (2010). Clinical significance of the low normal sperm morphology value as proposed in the fifth edition of the WHO Laboratory Manual for the Examination and Processing of Human Semen. Asian journal of andrology. 12. 47-58. 10.1038/aja.2009.14. https://www.researchgate.net/publication/41174359_Clinical_significance_of_the_low_normal_sperm_morphology_value_as_proposed_in_the_fifth_edition_of_the_WHO_Laboratory_Manual_for_the_Examination_and_Processing_of_Human_Semen/citation/download

Invitro fertilization is no solution against spermageddon.

So, if male fertility is going down the drain, but female fertility is only weakened, and not gone completely, why not just make all babies in a test tube?

Well, this “Plan B” will only kick the can down the road for some time because of increased birth defects, including of the reproductive system. Something is happening in the natural process of conception, that is not understood and cannot be bypassed in a test-tube without an increase in birth defects. We don’t have to go into speculations on the exact mechanisms, whether some form of “sperm war” is going on (see below). But the outcome is undisputed and will lead to even more infertility after more invitro fertilization. Along the same lines, older men (45+)

have not only lower fertility, but a higher risk of fathering children with birth defects.⁶⁴ This further demonstrates that conception is not just a sperm cell delivering half the genome like in a two-piece puzzle.

“Babies born after fertility treatment run an increased risk of genetic disorders.”⁶⁵

“Overall, the total body of data points to the conclusion that ICSI conceived children are at a higher absolute risk of the following conditions: 1) multiple gestation and its associated sequelae, 2) congenital defects (in particular genitourinary defects), and 3) epigenetic syndromes (such as Beckwith Wiedemann).”⁶⁶

The risk of the latter is increased 4 times in people born after IVF.⁶⁷

Single birth IVF babies have double the risk of heart defects as do naturally conceived babies. **Heart defects are increase four-fold in IVF twins.**⁶⁸

A 2007 study found “birth defects were significantly increased for infants born after IVF, compared with naturally conceived infants (9.0 percent vs. 6.6 percent), even after controlling for maternal factors. Specifically, IVF infants had greater rates of malformations of the eye (0.3 percent vs. 0.2 percent), heart (5.0 percent vs. 3.0 percent) and genitourinary system (1.5 percent vs. 1.0 percent).

“Overall, IVF infants' odds of having birth defects were 1.25 times greater than those of naturally conceived infants with similar maternal characteristics.”⁶⁹

Further, IVF babies with birth defects show an increased cancer risk.⁷⁰

The concept of sperm competition after insemination is controversial. Evidence is lacking that natural selection continues in the womb as in a “Sperm War” where the sperm cells are supposed to be ‘swimming a race’ and the fittest of 250 million gets to fertilize the egg.

However, *“an average human ejaculate contains some 250 million sperm. But a key question remains unanswered: ‘Why so many?’ In fact, studies show that pregnancy rates tend to decline once a man’s ejaculate contains less than 100 million sperm.”⁷¹*

A study by Barbara Luke and her team suggests that epigenetic modifications – changes to the chemical structure of DNA that do not change the sequence of the genes themselves – might occur when an embryo is grown in the lab, contributing to birth defects and cancer risk in children conceived via IVF.⁷²

Lu et al 2013 say “the mechanism(s) leading to these changes have not been elucidated.”⁷³

Fiction

What we are witnessing resembles the first part of the plot of the dystopian novel *Handmaid's Tale* (1985): which is this: due to environmental pollution and radiation, almost all women are infertile.

But in the novel, a totalitarian regime takes over, changes the nation into a military dictatorship and forces selected women to reproduce.

In contrast to today's reality: due to environmental pollution and radiation, more and more people are becoming infertile, but almost everyone is giggling into their extinction, while demanding more lockdowns and less freedom.

The self-proclaimed 'climate activists' of Extinction Rebellion and feminists alike wear costumes adapted from the *Handmaid's Tale*, they act like a medieval end-of-the-world cult - much like the Flagellants during and after the climate collapse at the time of the Black Death in the mid 14th century, as documented in my free E-book: *Black Death and Abrupt Earth Changes in the 14th century*.

⁷⁴ Apparently, the climate activists are unknowingly up to something when they wear costumes from the *Handmaid's Tale*, their message is: CO2 will kill all of us because you have too many children.

In reality, the next Grand Solar Minimum will do a bit of what the man-made- climate change lobby predicts, and by that time, the remaining population will be largely infertile, and it's going to be a minority who will almost literally have to 'replenish' or 'fill' the Earth, as ridiculous as it may sound.

And for the feminist protesters in western countries, they were protesting against Mike Pence from Argentina to the US, the UK and Ireland, their costume was dubbed "one of the most powerful current feminist symbols of protest". ⁷⁵ Apparently, they are protesting the fact that women in the West are more privileged than anyone anywhere at any time in history. Oh no wait, they thought Pence was going to force them to have children.

2.3. Testosterone decline isn't a necessary part of aging

"From the 1970s onwards, several authors reported an age-associated decline of serum testosterone levels beginning in the fourth or fifth decades of life. Other studies found that the decline

in testosterone with age might be more related to comorbidities that develop in many aging men. “⁷⁶

To date, the American Urology Association (AUA) identifies low blood testosterone (Low-T) as less than 300 nanograms per deciliter (ng/dL).⁷⁷

In a study of men over 40 years of age who self-report very good or excellent health, serum T, DHT and E₂ displayed no decrease associated with age. It was concluded the age-related decline in blood T accompanying non-specific symptoms in older men may be due to accumulating age-related co-morbidities rather than a symptomatic androgen deficiency state.⁷⁸

“A decline in testosterone levels as men grow older is likely the result -- not the cause -- of deteriorating general health, say Australian scientists, whose new study finds that **age, in itself, has no effect on testosterone levels in healthy older men.**”⁷⁹

"Declining testosterone levels are not an inevitable part of the aging process, as many people think," said study co-author Gary Wittert, MD, professor of medicine at the University of Adelaide, Australia.

"Testosterone changes are largely explained by smoking behavior and changes in health status, particularly obesity and depression."

Interestingly, unmarried men in the study had greater testosterone reductions than did married men. Wittert attributed this finding to past research showing that married men tend to be healthier and happier than unmarried men.⁸⁰

Chapter 3

Testosterone alone does not cause aggression

The common simplified association that has long been made, is this: men have more testosterone than women, men are more aggressive than women - and aggressive men have more testosterone than non-aggressive ones – ergo: testosterone causes aggression...

Even for female criminals, 'testosterone is related to criminal violence and aggressive dominance in prison among women, similarly as has been reported among men.'⁸¹

But things are much more complex than this. Rather, research shows testosterone does not induce aggression.

A study at the University of Zurich and Royal Holloway London refutes the preconception that testosterone causes aggressive, egocentric, and risky behavior.

“Early research had shown the castration of male rodents evidently led to a reduction in combativeness among the animals. This led to the growing prejudice over decades that testosterone causes aggressive, risky, and egocentric behavior.”

It was proven the same effect does not occur in humans, where the hormone increases the sensitivity for status, instead. Here, “pro-social behavior is what secures status, and not aggression.”

“Moreover, the study shows that the popular wisdom that the hormone causes aggression is apparently deeply entrenched: during the experiments, those test subjects who believed they had received the testosterone compound and not the placebo, stood out with their conspicuously unfair offers.”⁸²

The main findings of the Zurich study even manifested in testosterone administration to women:

*“The sublingual administration of a single dose of testosterone in women causes a substantial **increase in fair bargaining behavior**, thereby reducing bargaining conflicts and increasing the efficiency of social interactions. However, subjects who believed that they received testosterone - regardless of whether they actually received it or not - behaved much more unfairly than those who believed that they were treated with placebo.”⁸³*

Further, castration of rapists does not work to prevent reoffending.

"Therapists who treat rapists and child molesters are united in the view that castration is useless and probably counterproductive in preventing future sexual assaults."

"There's a high degree of folklore about what castration does and doesn't do," said John Money, emeritus professor of medical psychology and pediatrics at Johns Hopkins School of Medicine. Rape crisis workers say that violence, not sex, is the real problem, which castration fails to address. *"This misfocuses the issue and feeds into the myths about rape,"* said Denise Snyder, executive director of the D.C. Rape Crisis Center. *"Sexual assault is a crime of violence and aggression . . . not the product of an uncontrollable sex drive."* ⁸⁴

K. Simpson (2020) explains androgen and estrogen receptors are also found along neurotransmitter pathways. As such, testosterone is able to modulate levels of various neurotransmitters that show evidence of mediating effects on aggressive behavior. However, there is a critical time period early in life, usually within the first few days after birth, during which testosterone exposure is essential to elicit aggression in adulthood.

"Testosterone is only one of a myriad of factors that influence aggression and the effects of previous experience and environmental stimuli have at times been found to correlate more strongly." ⁸⁵

Likewise, testosterone administration does not affect men's aggressive mood. T increases *energetic* mood but not aggressiveness or ultimatum game rejections. While testosterone affected subjective ratings of feeling energetic and interested, the evidence produced in clinical trials by Carlo Cueva et al 2017 strongly suggested that testosterone had no effect on ultimatum game rejections or on aggressive mood. ⁸⁶ Further, endogenous testosterone modulates prefrontal–amygdala connectivity during social emotional behavior. ⁸⁷

"Therapeutic increases of androgen levels in deficient males or females do not increase aggression." ⁸⁸

Why are some men more aggressive when they are drunk? Well, not only long-term heavy drinking (more than 15 drinks a week for men) decreases testosterone, but already a few drinks can shut down testosterone levels within 30 minutes. ⁸⁹ So, drunk men who are aggressive and antisocial are not "testosterone driven" but the opposite.

Dominance in men

Indeed, often dominance is expressed non-aggressively. Allan Mazur et al, found: "*T not only affects behavior but also responds to it. The act of competing for dominant status affects male T levels in two ways. First, T rises in the face of a challenge, as if it were an anticipatory response to impending competition. Second, after the competition, T rises in winners and declines in losers. Thus, there is a reciprocity between T and dominance behavior, each affecting the other.*"⁹⁰

Similar patterns are observed even in animals: Autumnal territorial aggression is independent of plasma testosterone in mockingbirds. "*Current observations contribute to a growing body of work in temperate passerines indicating that the role of androgens in mediating aggressive challenge may be restricted to the breeding season.*"⁹¹

Chapter 4

Symptoms of testosterone deficiency

4.1. List of symptoms in men as reported in the literature

Compare these symptoms in affected individuals to broader societal trends of recent decades:

- Increased frequency of anxiety
- Mood swings, depression, ⁹² low self-perception and perceived quality of life
- quality of life and sexual life in young hypogonadotropic hypogonadism⁹³
- fatigue, lethargy
- decreased virility
- memory loss,
- irritability, crankiness, ⁹⁴ anger
- lack of sex drive
- lack of focus.
- decrease in body hair and skin alterations,
- “Listlessness, hopelessness and suicidal thoughts”
- obesity, enlarged breasts, a decrease in lean body mass with associated decreases in muscle volume and strength and decreased bone mineral density resulting in osteoporosis

Depression and mood swings

Men with borderline testosterone levels have higher rates of depression and depressive symptoms than the general population. *“Over half of men referred for borderline testosterone levels have depression. Men seeking management for borderline testosterone have a very high rate of depression, depressive symptoms, obesity and physical inactivity.”* ⁹⁵

“Low testosterone levels are frequently encountered in obese men who do not otherwise have a recognizable hypothalamic-pituitary-

*testicular (HPT) axis pathology. Moderate obesity predominantly decreases total testosterone.”*⁹⁶

For men with below average testosterone, more testosterone means less depression, as expected. But for those with above average testosterone, more testosterone results in more depression.

“For those with above average testosterone, the relationship disappears when controls for antisocial and risk behaviors and the absence of protective factors such as marriage and steady employment are in the equation.”⁹⁷

Michael Zitzmann further outlines testosterone deficiency influences a wide array of clinical pictures such as various traits of anxiety, from unfocused fear to phobic anxiousness and open panic syndromes.

*“The steroid modulates pro-active and re-active dimensions of aggression, which has to be seen within the context of gaining or maintaining status. This may also include other strategies impacting the social position: **heroic or parochial altruism and non-aggressive paths of assertiveness, such as posture and social vigilance.***

*Testosterone is believed to support maintenance of psychological features representing positive and negative affects within a balance, which is perceived as ‘good mood’ and an enjoyable quality of life.”*⁹⁸

The cells in the male brain are equipped with testosterone receptors. When a man has lower-than-normal testosterone levels, these receptors are, quite literally, left “high and dry.”⁹⁹

Research by Tsujimura (2013) further supports the notion that men with low T are more likely to face **depression, irritability, or a lack of focus.**¹⁰⁰ In a 2010 study, American researchers found that 40% of obese male participants had low testosterone. For obese men with diabetes, this number was 50%.¹⁰¹

Cognition

Both testosterone levels and cognitive functions - particularly memory - decline with age.¹⁰²

Testosterone has a strong modulatory influence on language-specific gray and white matter structures as well as functional connectivity.¹⁰³

Different reports suggest that testosterone may be important in protecting neurons from A β , the peptide suspected of killing neurons in Alzheimer's disease.¹⁰⁴

Low testosterone levels have not only been observed in patients with Alzheimer's disease (AD) but also with mild cognitive impairment (MCI).

Chemical castration studies in men with prostate cancer suggest low endogenous levels of testosterone may be related to reduced cognitive ability.¹⁰⁵

Opioid use, some congenital conditions (medical conditions people are born with), loss of or harm to the testicles, diabetes, and obesity can also be reasons for the symptoms associated with testosterone deficiency.¹⁰⁶

*"Additional reported symptoms of late-onset hypogonadism (diminished testicular function) are easily recognized and include diminished sexual desire and erectile quality, particularly in nocturnal erections, changes in mood with concomitant decreases in intellectual activity and spatial orientation, fatigue, depression and anger, a decrease in lean body mass with associated decreases in muscle volume and strength, a decrease in body hair and skin alterations, and decreased bone mineral density resulting in osteoporosis."*¹⁰⁷

Healthy older men with moderate increases in serum T and/or its metabolites demonstrated significant improvements in verbal and spatial memory.¹⁰⁸

Falter et al found prenatal testosterone, but not current testosterone plays a substantial role for determining cognitive performance.

Sixty-nine subjects were assessed with cognitive tasks of mental rotation, targeting, figure-disembedding and perceptual discrimination.

As we'll see below (p. 74), second-to-fourth finger length ratio (2D:4D) is a putative index of prenatal testosterone exposure.

In the study, the person's sex was found to be the exclusive predictor for the ability of mental rotation, while 2D:4D ratio was found to be the sole predictor of targeting abilities and figure-disembedding performance.

The researchers concluded: *"These findings suggest a substantial role for **prenatal** testosterone but **not current testosterone** in determining cognitive performance."*¹⁰⁹

Another study on the relationship between serum total testosterone level and fluid intelligence revealed there was no significant difference between IQs of men and women, but an inverse curvilinear relationship between IQ and T in women and men.

It was concluded that T may be related to IQ, even in subjects exhibiting no sex difference in IQ tests; too low or too high T levels

may be disadvantageous for fluid intelligence, especially in women.
110

4.2. The vicious spiral of disruption of testosterone/estrogen

The vicious cycle can turn into a downward spiral for individuals and society, that can propagate itself:

Disruption of sex hormones → Depression and lack of motivation → acceptance of depression → Unwillingness to address root problem → oversensitivity → mental illness → unhealthy life style → more depression and insecurity → aversion against normal people → passive aggression → aversion against children → oikophobia (hatred of the homeland) → misanthropy (hatred of humans) → societies accept and even cherish the extinction of their gene line. →

low fertility, low sexual energy → sexual frustration → embracement of low fertility

Low testosterone in men can cause men not wanting to hear that their state of being is in parts a product of their low testosterone.

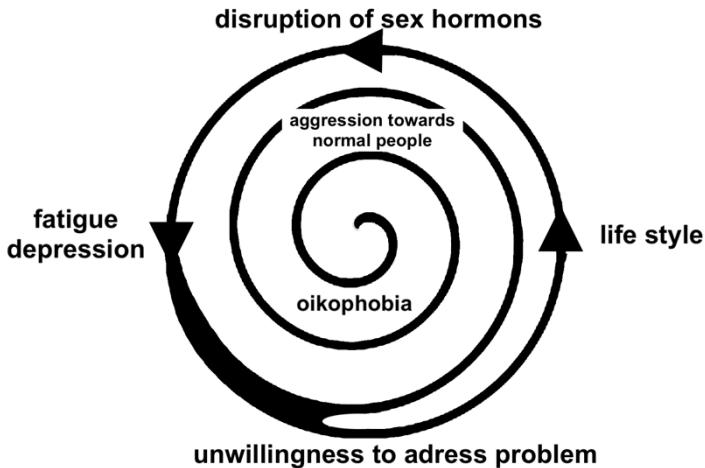


Fig. 2 the vicious spiral of sex hormones disruption

Testosterone replacement therapy (TRT) can accelerate the spiral.

Below we will look at the risks of common treatment for low testosterone which will further demonstrate this vicious spiral (Chapter 13). Testosterone replacement therapy is appropriate in many cases to help alleviate suffering, but as it turns out in practical use, testosterone replacement therapy often ends up doing more of the same. It promises to increase virility and libido, it can reduce depression and hair loss. Leading experts in the field say testosterone replacement therapy is a decision for life and most men will never get away from constant testosterone applications. It also causes an increased risk of heart attack and infertility by shutting down sperm production.

"The most common negative effect of TRT is testicular shrinkage and impotency" (this is then presumably corrected with Viagra).

In spite of such warnings, testosterone prescriptions show no signs of decline.

"In fact, TRT has increased tenfold in the last decade, and is growing steadily at 10 percent per month!" ¹¹¹

In short: it turns out that men (including some that don't even have low T levels) will do everything to feel better, feel manlier, to become more sexually active and more successful in business and have more muscles. But what many men end up choosing is to take serious health risks to become sexually more active, vain and infertile substance-dependents.

The only sustainable solutions against low gonadal hormone levels are: boosting natural T production, reducing additional endocrine disrupting agents in your personal life and in the long run, for the sake of your descendants, imposing legislation that will regulate and prevent exposure to ED agents to future generations. For details, see Chapter 15.

We have already seen that similar risks as for men and TRT apply for women and estrogen treatment:

"Estrogen treatment can improve or at least maintain current levels of cognitive functioning in postmenopausal women." However,

research has also shown that the negative emotional effects of psychosocial stress are magnified in normal postmenopausal women after estrogen treatment.¹¹²

Also, some women are administered testosterone to increase their libido.¹¹³

TRT as treatment for depression

“Depression, anxiety, decreased quality of life and symptoms of sexual dysfunction are the most common psychopathological conditions in young hypogonadal men.”

After 6 months of TRT, a team of Umit Aydoganet et al 2012 observed improvements in the above parameters, suggesting that low endogenous levels of testosterone might be related to the increased incidence of psychological symptoms.¹¹⁴

A meta-analysis of the data from seven studies showed a significant positive effect of TT therapy on depressed patients. The researchers concluded *“TT may have an antidepressant effect in depressed patients, especially those with hypogonadism or HIV/AIDS and elderly subpopulations.”*¹¹⁵

Chapter 5

Causes

As for the known causes of endocrine disruption in recent decades, we can distinguish between chemical and electromagnetic sources. For practical reasons, we call Endocrine Disrupters Endocrine Disrupting Agents and separate them into

1.) classic Endocrine Disrupting Chemicals (EDCs)

and we introduce and new term of

2.) Endocrine Disrupting Non- Ionizing Radiation (EDNR).

To my knowledge this is the first research project to systematically build a case for the strong contribution of electromagnetic sources to the current hormonal crisis.

Further below, we will also investigate the effects of natural variations in solar radio flux and its connection to solar and geomagnetic activity.

5.1. Endocrine Disrupting Chemicals (EDCs)

As stated above, the chemical part of the problem of fertility has been analyzed in depth for instance by S. Swan 2021; little could be added from my part: here we focus on EDC effects on testosterone and estrogen, the following is a summary of the current state of insight and some new scientific findings on the effects of EDCs not just on general fertility but specifically on testosterone function in men via pesticides, plastics, industrial- and household goods.

As a general rule, we can say chemicals that decrease fertility and sperm count also reduce testosterone in men and estrogen in women, at roughly the same rate.

As we have seen at the beginning, the world's largest reinsurance company Swiss Re categorized EDCs as one of the highest risk categories in a 4 to 10-year projection beginning 2013. They ranked it among the top 7 global risks for reinsurance companies to pay out a lot of money by liability claims in the coming years. In 2020, Christopher D. Kassotis pointed out that

*“Endocrine-disrupting chemicals (EDCs) substantially cost society as a result of increases in disease and disability but—unlike other toxicant classes such as carcinogens—have yet to be codified into regulations as a hazard category.”*¹¹⁶

According to a survey of the Danish Environmental Protection Agency;

*“Endocrine disruptors have for years been suspected to be a contributory cause of reproductive adverse effects, especially in boys and men.”*¹¹⁷

The multigenerational death spiral

Endocrine Disrupting Chemicals can cause a progressive decrease in sperm counts over multiple generations - a phenomenon that environmental scientist Pete Myers referred to as a **“male fertility death spiral.”**¹¹⁸ Frederick vom Saal, Curators' Distinguished Professor Emeritus of Biological Sciences at the University of Missouri used the same strong language: “We are in a death spiral of infertility in men.”¹¹⁹

Even when EDCs are removed from the environment, this death spiral can continue: In 2007, a relation was established between employment in agriculture of Spanish women during pregnancy and serum levels of organochlorine endocrine disruptor pesticides, including DDT and isomers (despite their being banned in Spain since 1977).¹²⁰

*“More than a dozen papers have now been published on “trans-generational epigenetic inheritance,” where exposure in a great-grandmother causes adverse effects in great-grandsons.”*¹²¹

Washington State University's Distinguished Professor of Molecular Biosciences, Patricia Hunt says: *“Things get progressively worse as subsequent generations are exposed. These large changes in human sperm count and concentration reveal that we are already well down the road.”*¹²²

In male mice as well, germline and reproductive tract effects intensify with successive generations of estrogenic exposure.

*“Transgenerational effects in mammals—presumably resulting from epigenetic changes to the germline—have been reported in numerous studies.”*¹²³ Not only pesticides but various other

environmental pollutants, including organochlorine pesticides, polychlorinated biphenyls, bisphenol A, phthalates, dioxins and furans have estrogenic and anti-androgenic activity and are thus considered as endocrine-disrupting chemicals (EDCs).¹²⁴ The mechanism by which Endocrine disrupting chemicals are known to

work is they are structurally similar to steroids or amine hormones and have the potential to mimic endocrine endpoints at the receptor level. *"However, more recently, epigenetic-induced alteration in gene expression has emerged as an alternative way in which environmental compounds may exert endocrine effects."*¹²⁵

Finally, in 2021, the EU proposes to add two new hazard classes to the EU CLP regulation to cover endocrine disruptors. In mid-October 2020, the EU released its Chemical Sustainability Strategy as a roadmap for how the EU wishes the chemical industry to move forward in the foreseeable future.¹²⁶

Unfortunately, as history has shown, whenever one EDC is banned, 3 others are introduced at the same time.

5.2. Genital malformation is associated with EDC exposure

The Danish Environmental Protection Agency reported in 2012 that **9% of Danish boys are now born with cryptorchidism (testicles undescended to the scrotum)**. Cryptorchidism is associated with an increased risk of low semen quality and testicular cancer.¹²⁷

The increase in genital malformation, including micropenis, is staggering: *"In 2000, in the United States, the incidence of micropenis was reported as 1.5 in 10 000 male children born between 1997 and 2000."* That was a prevalence of 0.015%.¹²⁸ In 2010; F. Paris referred to the condition as a fairly common occurrence, without giving a specific number.¹²⁹

In 2018, the Cleveland Clinic reported that "Micropenis is affecting an estimated 0.6 percent of males worldwide." ¹³⁰

Compare the two numbers. Given the measurement standards are consistent, even when comparing the US with the world, that would mean a **40-fold increase in these 18 years**.

An increasing trend of genital anomalies was reported in Scotland by Ahmed et al 2004, examining genital anomalies in single births (excluding multiple births). Prevalence in hypospadias and other genital anomalies increased over an 8-year period of time from 4.0 per 1,000 births (1988) to 5.9 per 1,000 births (1996).¹³¹ **An increase of 33% in 8 years, or 4% per year.**

Genital malformation and EDC exposure in diverse places of the world

Spain

A population-based case-control study was carried out on pregnant women and male children living in ten health districts of Andalusia classified as areas of high and low environmental exposure to pesticides according to agronomic criteria. Data were collected from computerized hospital records between 1998 and 2005. Prevalence rates and risk of miscarriage, low birth weight, hypospadias, cryptorchidism and micropenis were significantly greater in areas with higher use of pesticides in relation to those with lower use.¹³²

Brazil:

In Northeastern Brazil, 2710 male newborns were examined for genital malformations. It was found that 2.07% had genital malformation, including 0.85% cryptorchidism, 0.55% had hypospadias and 0.66% micropenis. All cases exhibited normal or subnormal testosterone production. More than 92% of these newborns presented foetal contamination by EDCs, as their mothers reported daily domestic use of pesticides (i.e., DDT) and other EDCs.

*“Most of these undervirilized male newborns presented additional EDC contamination, as 80.36% of the mothers and 58.63% of the fathers reported paid or unpaid work that entailed the use of pesticides and other EDCs before/during pregnancy for the mothers and around the time of fertilization for the fathers.”*¹³³

From the progression of recent decades, we must assume that the prevalence of micropenis has already reached around 1 percent of the male population by 2021(see below).

France:

Prenatal environmental risk factors were identified for genital malformations. Over a 16-month period, 1442 full-term newborn males were examined for the same genital malformations as in Brazil (above). Reported were **2.70% genital malformation**, including 1.25% cryptorchidism; 0.97% hypospadias; 0.35% micropenis; 0.14% of 46, XY disorders of sexual differentiation (DSD). There was a significant relationship between newborn cryptorchidism, hypospadias or micropenis and parental occupational exposure to pesticides.¹³⁴

Egypt:

Similarly, a study was conducted to determine normal penile length and prevalence of male genital anomalies in full-term neonates and whether they were influenced by prenatal parental exposure to

endocrine-disrupting chemicals. The results showed the prevalence of genital anomalies was **1.8 %** (of which 83.33 % were hypospadias). There was a **6 times higher rate** of anomalies in those exposed to endocrine disruptors (EDCs; 7.4 %) than in the non-exposed (1.2 %). Mean penile length showed a linear relationship **with free testosterone** and was lower in neonates exposed to EDCs.¹³⁵

5.3. Pesticides

What we just saw in the above data is often overlooked in the context of environmental toxins i.e., the fact that farmers are much more exposed to pesticides than the general population - who eat the produce - and especially the urban population. So, the notion that farmers and agricultural workers are always in 'nature' in the fresh air, away from city pollution and this should be a healthy lifestyle is not true today, it only applies to some extent to organic farmers.

Agricultural workers and gardeners are more often and more severely affected by EDC pesticides like atrazine than urban populations, and actually have higher rates of Genital Malformation in male offspring.¹³⁶ For instance, lowered total testosterone levels are associated to pesticides in the blood of Thai farmers.¹³⁷

Carmen Freire et al found an association between serum levels of organochlorine pesticides and sex hormones in adults living in a heavily contaminated agricultural area in Brazil. They concluded pesticides may have triggered *anti-androgenic effects in men and estrogenic effects in women* in these regions.¹³⁸ An elevation in serum PCB (chlorinated pesticides) levels is associated with a lower concentration of serum testosterone in Native American men (Mohawk adults 18–95 years of age who resided at Akwesasne).¹³⁹

And pesticide use in Sri Lanka is associated with suicide rates. A restriction on the import and sales of WHO Class I toxicity pesticides in 1995 and endosulfan in 1998, coincided with reductions in suicide in both men and women of all ages.¹⁴⁰

The same pesticides are also associated with cancer and a host of other diseases. In Spain, 81% of cases of breast cancer reported in the female population were observed in areas of high pesticide (EDC) contamination.¹⁴¹

Glyphosate

Prepubertal exposure to commercial formulation of the herbicide glyphosate alters testosterone levels and testicular morphology. Glyphosate is an herbicide widely used to kill weeds both in agricultural and non-agricultural landscapes. It causes an in vitro reduction in testosterone and estradiol synthesis, as a potent endocrine disruptor in vivo. A study on prepubertal Wistar rats showed that the herbicide significantly changed the progression of puberty and reduced the **testosterone** production.¹⁴²

Roundup, a major herbicide used worldwide, is a glyphosate-based pesticide with adjuvants. *“At lower nontoxic concentrations of Roundup and glyphosate (1ppm), the main endocrine disruption effect is a **testosterone decrease by 35%.**”*¹⁴³

Atrazine

Atrazine is one of the world’s most widely used pesticides, it was invented in 1958 in the Geigy laboratories, Basel Switzerland. The Headquarters of producer Syngenta are still in Basel, the pesticide is banned in this country and the EU.¹⁴⁴

In 2006, the EPA stated, *“the risks associated with the pesticide residues pose a reasonable certainty of no harm”*.

In 2007, the EPA said: *“The primary target of atrazine in humans and animals is the endocrine (hormonal) system. Studies thus far suggest that atrazine is an endocrine disruptor; an agent that has been shown to alter the natural hormonal system in animals.”*

*“Implications of possible endocrine disruption for children’s health are related to effects during pregnancy and during sexual development, though few studies are available.”*¹⁴⁵

But in fact, many studies are available, indeed.

For instance, the Berkley University reported: Pesticide atrazine can turn male frogs into females.

Atrazine wreaks havoc with the sex lives of adult male frogs, emasculating three-quarters of them and turning one in 10 into females, according to a new study by University of California, Berkeley, biologists.

“The 75 percent that are chemically castrated are essentially “dead” because of their inability to reproduce in the wild”, reports UC Berkeley’s Tyrone B. Hayes, professor of integrative biology.

*“These male frogs are **missing testosterone** and all the things that testosterone controls, including sperm. So, their fertility is as low as 10 percent in some cases, and that is only if we isolate those*

*animals and pair them with females,” he said. “In an environment where they are competing with unexposed animals, they have zero chance of reproducing.”*¹⁴⁶

Dr. Hayes conducted different trials in which ten percent of exposed genetic male frogs developed into functional females that copulated with unexposed males and produced viable eggs. *“Atrazine-exposed males suffered from **depressed testosterone**, decreased breeding gland size, demasculinized/feminized laryngeal development, suppressed mating behavior, reduced spermatogenesis, and decreased fertility.”*¹⁴⁷

Also in male rats, atrazine causes inhibition of testosterone production following peripubertal exposure.¹⁴⁸

A study by Rey et al found that neonatal caiman exposed in ovum to Atrazine altered the histoarchitecture of the testis and organization of the seminiferous tubules.¹⁴⁹

In order to justify the health risks of atrazine, a great economic benefit is presumed. But in reality, some cost–benefit studies have assumed that atrazine boosts corn yields by only 6%; an extensive review found a 3%–4% average yield increase; other research suggests only a 1%, or perhaps 0 %, yield effect. Italy and Germany both banned atrazine in 1991, with no decrease in corn yields or harvested area.¹⁵⁰ So, nobody can really explain why such a dangerous sterilizing chemical is still being used proficiently in the US and the third world.

Its use was banned in the European Union in 2004, when the EU found groundwater levels exceeding the limits set by regulators, and Syngenta could not show that this could be prevented nor that these levels were safe.¹⁵¹

“As of 2001, atrazine was the most commonly detected pesticide contaminating drinking water in the U.S.”

*“The European Union (EU) allows the export of certain pesticides even though it bans their use on its own fields. It is allowing agrochemical companies to flood low- and middle-income countries (LMICs) and also the USA with substances deemed too dangerous for European agriculture.”*¹⁵²

By 2022, Switzerland plans to finally ban the export of five dangerous pesticides, including atrazine and paraquat.¹⁵³ The latter has been banned in Switzerland since 1989 but is still widely used in other countries, it’s also endocrine disrupting, of course.¹⁵⁴

DDT

The pesticide DDT was seen as a breakthrough miracle intervention in the prevention of malaria by killing off mosquitoes and Tsetse flies for half a century. But as it turned out in the 1970s, DDT has many health risks, it is not only implicated in having contributed to the polio epidemic ¹⁵⁵, but it reduces testosterone in serum and testis, as well. ¹⁵⁶

Also, officially *"more polio cases are now caused by the vaccine than by the wild virus."* ¹⁵⁷

As DDT is an endocrine disruptor, ¹⁵⁸ studies document decreases in semen quality among men with high exposures (generally from indoor residual spraying). ¹⁵⁹

There is also a strong link between pesticides (DDT), Alzheimer disease and decreased testosterone in these patients.

*"Reported elevated levels of DDE (similar to DDT) in patients with Alzheimer disease raises the strong possibility that the missing link is the **antitestosterone** effect of many pesticides causing increased β -amyloid production."* ¹⁶⁰

"Various studies have consistently demonstrated a higher risk for prostate cancer in agricultural populations than in the general population." ¹⁶¹

Results of a 2005 Lancet review on the health risks of DDT revealed white male workers showed increased risk of liver cancer and biliary tract cancer, but not white women or black men. ¹⁶²

Also in Italy, pesticides (in particular DDT) were associated with a statistically significant higher rate of prostate cancer among farmers (exposed to organochloride pesticides) in a multi-site case-control study carried out in five rural areas between 1990–92.

"Higher prevalence of cryptorchidism and hypospadias was found in areas with extensive farming and pesticide use and in sons of women working as gardeners." ¹⁶³

5.4. Plasticizers (Phthalates and others)

Phthalates are endocrine disrupting chemicals used in plastics, mostly as plasticizers where they are not molecularly bound to the main material, they can then leach out into food, toys, household goods, water and soil. As far as infertility is concerned, Dr. S. Swan has delivered the most comprehensive coverage on the detrimental effects, in particular, on sperm count/ quality.

Here, we again focus on the effects on testosterone, estrogen and the behavioral and social ramifications of these substances.

In general, occupational exposure load to phthalate esters is often higher than environmental exposure.¹⁶⁴

Decreased serum free testosterone was observed in workers exposed to high levels of phthalates. Pan et al, 2006, examined male workers at a Chinese factory producing different unfoamed phthalates (DBP) and (DEHP). The exposed workers had substantially elevated concentrations of phthalates. Free **testosterone** (fT) was significantly lower in exposed workers. FT was negatively correlated to phthalate concentrations.¹⁶⁵

It was also shown that “Prenatal phthalate exposure **causes Phthalate Syndrome** in males.”¹⁶⁶

The *phthalate syndrome* or “testicular dysgenesis syndrome” is a real thing, and it’s the only syndrome named after a specific synthetic chemical. Other chemically, environmentally caused syndromes are more generalized, such as *Multiple Chemical Sensitivity Syndrome* or *Toxic shock Syndrome*, for instance.

The symptoms of PhS are: the anogenital distance is shorter and the penis is smaller than expected for a boy of his size, testicles are less completely descended.

Phthalate esters also inhibit fetal testicular testosterone production in rats.

Kembra Howdeshell et al determined that exposure to certain phthalates during sexual differentiation causes reproductive tract malformations in male rats. In the trials, individual phthalates and the mixtures thereof also induced fetal mortality, due to pregnancy loss.

*“These data demonstrate that individual phthalates with a similar mechanism of action can elicit cumulative, dose additive effects on fetal testosterone production and pregnancy when administered as a mixture.”*¹⁶⁷ Similarly, S. Park et al found the plasticizer diethylhexyl phthalate induces malformations by decreasing fetal testosterone synthesis during sexual differentiation in the male rat.

¹⁶⁸

Phthalates cause estrogenic activity in females. 6 different types of Phthalates were tested, using a 72 h zebrafish embryo toxicity test. Four types were demonstrated to have estrogenic endocrine disrupting activity on intact organisms and two proved to be developmental toxins.¹⁶⁹ The phthalate called DEHP is a known reproductive toxicant and a carcinogen in rodent animal models. It prevents ovulation in adult female rats.¹⁷⁰

BPA is another chemical in everyday plastics. Significant positive associations between prenatal BPA and symptoms of depression and anxiety were observed among boys 10-12 years of age.¹⁷¹

A combination of stress and perinatal BPA exposure may increase sensitivity to stress in adults. ¹⁷²

Ultraviolet (UV) filters

Ultraviolet (UV) filters are used widely in **cosmetics, sunscreens, plastics, adhesives and other industrial products to protect human skin or products against direct exposure to deleterious UV radiation.**

“Exposure to UV filters induce various endocrine disrupting effects, as revealed by an increasing number of toxicological studies performed in recent years.” ED- UV filters include benzophenones, camphor derivatives and cinnamate derivatives. ¹⁷³

Heavy metals

Mercury has been shown to decrease luteinizing hormone. ¹⁷⁴ Lead and other heavy metals have been shown to decrease testosterone as well (see also page 108). Further, different heavy metals can have estrogen-mimicking effects on the body. ¹⁷⁵

Smoking

Don't smoke while pregnant and during breast feeding should be known to every future mother, or at least someone must tell her. It turns out future fathers should quit before conception, too. Exposure to maternal smoking is associated with reduced semen quality and reduced testis size in adulthood. ¹⁷⁶

If the mother smoked during pregnancy, later, a young man's sperm count is reduced by 40 %, if the father smoked at the time of conception, the son's sperm count is also reduced by 40%. Both is irreversible. If the young man smokes himself, his sperm count is reduced by 15%, but that is reversible. ¹⁷⁷

“The incidence of bilateral cryptorchidism is increased and the fertility potential is reduced in sons born to mothers who have smoked during pregnancy.” ¹⁷⁸

Differently, for testosterone in daughters, when women smoke during pregnancy, their daughters have higher testosterone and higher risk of becoming smokers themselves. *“Self-reported smoking in pregnancy has a direct effect. Smoking among daughters during adolescence was determined by maternal*

prenatal testosterone and self-reported maternal smoking during pregnancy and postnatally." ¹⁷⁹

"In utero exposure to constituents of cigarette smoke has been associated with earlier age of menarche (first menstruation) and - to a lesser extent - changes in the testosterone profile of the young women." ¹⁸⁰ A 2019 study found that women who smoked marijuana when they underwent infertility treatment with ART had more than double the miscarriage rate of those who didn't. ¹⁸¹

Pharmaceutical drugs

A 2017 Scientific Report article found that ibuprofen (a widely used over-the-counter mild analgesics) reduces steroidogenic enzymes, testosterone synthesis, and Leydig cell function in 8-to-9-week-gestation-age testicular tissue. ¹⁸²

In 2018, a study published in the journal Proceedings of the National Academy of Sciences of the United States of America showed Ibuprofen alters human testicular physiology to produce a state of compensated hypogonadism. ¹⁸³ *"Interested patients, such as men attempting to father children, may use acetaminophen as an alternative for mild pain."*

Here is a list of further prescription pharmaceutical drugs that can reduce T in men as a side effect: Ketoconazole (Extina, Nizoral, Ketoderm); Cimetidine (Tagamet); Spironolactone (Aldactone); Certain antidepressants; Opioids like morphine, codeine, hydrocodone (Vicodin), and oxycodone (OxyContin, Percocet). ¹⁸⁴

A CDC study 2016 reported that 1/6 children in the US now is diagnosed with Developmental Disabilities. ¹⁸⁵

German researcher Hans Tolzin pointed out that US boys are affected significantly more often by suspected vaccine side effects in connection with autism than girls. *"We also find this effect in the number of reports of serious vaccination side effects in the databases of the responsible authorities - for instance in the German Paul Ehrlich Institute (PEI) - where boys are also much more often affected than girls."*

"At this time, there are no responses from officials on this striking inequality. Some studies indicate that the male hormone testosterone and the female hormone estrogen react differently to environmental and medical toxins. " [translation mine]. ¹⁸⁶

Differently this time around, women have more severe side effects from the covid vaccine than men. ¹⁸⁷

“Soy Boys”

Some natural foods, such as soy, have endocrine disrupting properties as well, they are endocrine disrupting substances, but technically not EDCs.

Many young men are becoming vegetarian or vegan these days - as is promoted heavily by politicians, the media and the technocrat establishment – and they then resort to soy as protein substitution. This led to the derogative term of the “Soy Boy”.

However, cause and effect may be partly mix up here. The rapid increase in veganism and soy consumption might be partly *caused* by low testosterone, rather than vice versa. Hypogonadism - and subsequently low testosterone - can lead to depression, oversensitivity and irritability which may have contributed to the exorbitant increase in veganism in recent years.

When I turned vegetarian 30 years ago, most people, and especially other young men, were laughing at the idea. The past couple years that I've been eating meat again and coincidentally repaired my health, the same people are suddenly lecturing me on the evils of meat eating, as they see it in every TV show, political movement and youth culture pushed by celebrities. What's more, even people who eat meat themselves demand more government control to reduce meat consumption (for the climate, for justice).

More decisive for the testosterone levels of a young man than his own current soy consumption is his soy intake in childhood - which is determined by the parents - on the one hand, and the soy intake of the mother during pregnancy, on the other. I'm opposed to derogative and insulting terms for well-meaning, empathetic people, especially if these terms are not leading to problem solutions, but since the term 'Soy Boys' is being used, technically, it may be more accurately be called “sons-of-soy-mothers”.

“Endocrine disruption by dietary phyto-oestrogens has an impact on dimorphic sexual systems and behaviours. Because soya is a hormonally active diet, soya can be endocrine disrupting, particularly when exposure occurs during development.”

“Consumption by infants and small children is of particular concern because their hormone-sensitive organs, including the brain and reproductive system, are still undergoing sexual differentiation and maturation. Thus, their susceptibility to the endocrine-disrupting activities of soya phyto-oestrogens may be especially high.” ¹⁸⁸

“Early-life soy exposure was associated with less female-typical play behavior in girls at 42 months of age. Soy exposure was not

significantly associated with play behavior in boys at the same age.“¹⁸⁹

The "Grass eaters" of Japan

*"A particularly interesting example of low nationwide male fecundity is the emergence of "grass eaters" (soshokukei danshi) in the wake of the continuing 20-year-long Japanese economic impotency. These are men who are uninterested in sex or reproduction. They supposedly lack adequate testosterone."*¹⁹⁰

On Wikipedia, we read in connection to *Grass Eaters*: "Many women refuse men who do not have steady jobs (such as freeters and NEETs). Other women feel that self-proclaimed *sōshoku-kei danshi* (herbivore men) are weak and not masculine, while some men apparently are not attracted to "independent" women. In a 2011 poll of Japanese boys aged between 16 and 19, 36% described themselves as indifferent or averse towards having sex; the figure for girls in the same age group was at 59%."¹⁹¹

Chapter 6

Electromagnetic fields and testosterone/ estrogen

6.1. Endocrine Disrupting Non- Ionizing Radiation (EDNR).

Non- Ionizing radiation in the radio- and microwave frequency range is almost everywhere. The main sources are smart phones, Wi-Fi, modems, computers, tablets, microwave ovens, walkie talkies and cellphone towers and even baby phones. For the sake of simplicity, we hitherto refer to them as wireless radiation.

Long before any cellphones or radios operating in microwave frequencies were available to the public, it was known that microwave radiation decreases testosterone and inhibits testicular function.

*“The 1971/ 72 U.S. Office of Naval Medical Research study reported the following changes induced by microwave and radio waves related to testis or sperm: **Decreased testosterone** leading to lowered testis size; histological changes in testicular epithelial structure; gross testicular histological changes; decreased spermatogenesis.”*¹⁹²

Because rapidly dividing germ cells go through meiosis and mitosis, they are more sensitive to EMF in contrast to other slower-growing cell types.

Long-term exposure to EMF decreases sperm motility and fertilization.¹⁹³

Here a little **anecdote**: in the late 1990s, a funny colleague showed off his latest cellphone gadget, which was an earphone with a microphone, as is standard today. At the time, the increased risk of brain tumor from mobile phone users was rather speculative, but more people were still concerned than today, now, few people even care anymore. He was joking how with the cable speaker on his ear and the phone in his pocket, he won't get a brain tumor like the rest of us, but on the other hand, he might get testicular cancer instead. Little did he know, he was unwittingly foreseeing a public health disaster.

Ethics of testing

The following is how safety standards for wireless radiation are determined. To date, all a mobile phone or another microwave emitting device requires in order to pass regulations is this: the radiation doesn't raise the temperature of a human body too much (usually tested on a water filled dummy head). The rationale behind this is the consensus says that non-ionizing radiation up to a certain energy (or watt per surface area) – is safe for humans.

Some have made the comparison that authorities in Fukushima might as well declare the reactor as safe for humans, as long as that human doesn't heat up too much. The comparison is lacking, for nuclear radiation is ionizing radiation, but there is a point to it. It was back in the 80s when I last heard an old lady making the news for drying her little dog in a microwave, the dog was boiled inside and obviously died.

Now, only if you're crazy, you would put your baby in a microwave oven, even at a very low power output, even if a federal regulator bureaucrat ensured you the energy output was so little that your baby only warms up a little bit. But with wireless technology, this is exactly what we are doing.

To request that men expose their reproductive organs to mobile phone radiation as an experimental condition in order to analyze changes in testosterone levels is not an approved approach by the WHO or other health regulation organizations.¹⁹⁴ So, trust the WHO when they say there are no health risks.

Experiments on testosterone levels and mobile phone exposure are typically conducted on animals including rats and rabbits.

But human studies do exist and show a similar, consistent picture, i.e., mobile radiation disrupts sex hormone regulation, and reduces testosterone in men and estrogen in women.

Here are summaries of studies of recent years. We are beginning with ELF-MF exposure at 50 Hertz (Hz). This is the frequency of the generic power grid, and we've been living with this in increasing doses for a hundred years. The 50 Hz peak is visible in brain wave measurements, EEG, as a very distinct peak. EMF effects on human brain activity and the endocrine system are amplitude dependent.

Then we move to animal and human studies of wireless, mobile phone, Wi-Fi and other radio/ microwave radiation. These are distinguished by ELF emissions at a complex combination of

frequencies, including one below 10 Hertz; frequencies below 50 Hz are not considered at all in regulations by governments.

The following is a short selection of about 50 peer-reviewed studies that confirm more or less the same effects, so it might be a bit repetitive. But the basic content of the literature is crucial for the understanding of the premise of this book. If you want to skip the details, the short of it is this:

Wireless/ EMFs are disrupting not only fertility, but also testosterone and estrogen production/ function in humans and animals.

Thus, we introduce a new term: **Endocrine Disrupting Non-ionizing Radiation (EDNR).**

Mobile phone and Wi-fi technology are listed as RF- EMF (radio frequencies) in the literature, which is a bit misleading since they actually operate in the microwave and millimeter frequency spectrum.

Radio waves range from 1 Hz to 300 MHz, microwaves range from 300 MHz to 300 GHz.

In wireless communication, the term radio-frequency (RF) encompasses both microwaves and radio waves.

But wireless providers use frequencies from 700MHz to 3000 MHz and high-band 5G uses frequencies of 25–39 GHz or 39,000MHz.

Thus, when we talk of wireless radiation we are almost exclusively talking about microwaves and millimeter waves. Millimeter waves used to be called high frequency microwaves.

Microwave ovens operate at a frequency of 2.45 GHz or 2,450 MHz, even though they use much higher amplitudes, its much the same as wireless/mobile radiation. Being dosed in radio frequency electromagnetic fields just sounds more reassuring than getting your brains microwaved 24/7. The same is true for body scanners at the airport etc. undergoing a millimeter-wave clothing penetration examination sounds more welcoming than “getting microwaved” at the airport.

The frequency of a microwave oven is close to that of the solar radio flux to Earth, which is strongly correlated with solar flares.

*“The 2,800 MHz, or 10.7 cm, responds to the same conditions that produce changes in the visible and X-ray wavelengths.”*¹⁹⁵ (See Chapter 12).

6.2. EMF general frequencies (not mobile radiation specific)

EMF 50 Hz, animal studies

- When adult male rats were exposed to a 50 Hz sinusoidal magnetic field at approximately 25 μ T (rms), testosterone levels were significantly decreased after 6 and 12 weeks of the exposure period. ¹⁹⁶

- Exposure of mice to EMF (50Hz) induced a significant reduction in sperm count, viability and progressive motility. EMF exposure caused abnormalities in sperm and a significant decrease in testosterone levels. ¹⁹⁷

- In adult mice that were exposed to EMF (50 Hz at 3 milliTesla) during the developmental period, there were several intercellular spaces and spermatogenic cells with condensed nuclei. ¹⁹⁸

- 50 Hz EMF caused testosterone disruption in the 2nd generation of rats.

In a 2014 study by Gharamaleki et al, pregnant rats were exposed to 3mT EMF, 50 Hz for 21 days. The male pups were kept until maturity, then their Total Antioxydant Capacity (TAC), MDA and testosterone levels were analyzed. TAC was significantly increased in pregnant rats.

In the male offspring in adulthood, TAC and the testosterone level was significantly decreased. Spermatogenic cells were disrupted. ¹⁹⁹

- EMFs were shown to include changes in serum levels of testosterone in rats. EMF exposure may cause profound changes in the vesicle seminal tissues. Therefore, exposure to EMF may result in pathological changes that lead to sub fertility and infertility. ²⁰⁰

- Long-term exposure to low frequency EMF significantly decreased the diameter of the seminiferous tubules and increased the number of seminiferous tubules per unit area of testes in male rats. In addition, low frequency EMF (1 microTesla, 50 Hz) significantly reduced sperm motility and testosterone levels. ²⁰¹

- Adult female rats were exposed to a 50 Hz sinusoidal magnetic field at approximately 25 microTesla for 18 weeks. A significant

reduction in absolute and relative ovarian weights in exposed rats was observed. The reduction in the levels of gonadotropins (FSH and LH) was significant after six weeks of exposure. The level of progesterone and estrogen was significantly decreased after 12 weeks of exposure. The level of estrogen was still significantly reduced at 12 weeks **after removing the field.** ²⁰²

- EMF (50 Hz) exposure causes profound changes in the genital organs of male rats. ²⁰³

- Exposure of mice to EMF (50 Hz) induced a significant reduction in sperm count, viability and progressive motility in comparison with control group. EMF caused abnormalities in sperm and a significant **decrease in testosterone** level. Date palm pollen (*Phoenix dactylifera*) had a protective effect ²⁰⁴ (See also p. 118).

- Electromagnetic field (EMF) exposure at 50 Hz for 42 consecutive days caused a significant decrease of Serum Testosterone in Rats. ²⁰⁵

EMF 50 Hz human studies

- In a human study on testicular tissue, it was found that the number of cells in the spermatogenesis cycle was reduced significantly after ELF exposure of 50 Hz. ²⁰⁶

- Male workers of an electric power plant with high EMF exposure and with walkie-talkies usage had statistically significantly lower levels of plasma testosterone and lower testosterone/estradiol (T/E2) ratio than colleagues with lower exposure. ²⁰⁷

6.3. Wireless/ EMF and testosterone

Children absorb more microwave radiation (MWR) than adults, and the *“fetus is in even greater danger than children from exposure to MWR.”*

MWR is a Class 2B (possible) carcinogen.

The legal exposure limits have remained unchanged for decades. Cellphone manuals warnings and the 20 cm rule for tablets/laptops violate the “normal operating position” regulation. ²⁰⁸

- M. Pall, 2016 found “Microwave frequency electromagnetic fields (EMFs) produce widespread **neuropsychiatric effects including depression.**”

26 studies show EMF associations with neuropsychiatric effects; 5 criteria show causality. "Microwave Electromagnetic Fields cause at least 13 different neuropsychiatric effects including depression in humans." ²⁰⁹

- Another representative analysis of 23 scientific studies on the effects of Wi-Fi radiation on animals as well as on humans confirmed degenerative changes in testes, reduced testosterone levels, increased apoptotic cells, and DNA damage. The authors concluded exposure to 2.45 GHz RF-EMR emitted by a Wi-Fi transmitter is hazardous on the male reproductive system. ²¹⁰

Wireless EMF / testosterone, animal studies

- Mice were exposed to RF-EMR from a mobile phone (Samsung Note 9) for 14 days. Serum levels of male sex hormones (follicle-stimulating hormone and **testosterone**) decreased significantly. The study shows that chronic exposure to RF-EMR from a cell phone causes impaired testicular function accompanied by a decrease in the value of sexual hormones. Sperm count was also decreased. ²¹¹

- Three-week old male mice were exposed to mobile phone (1800 MHz) radiation for 3 hours per day for 120 days in different operative modes.

*"Decreased seminiferous tubule diameter, sperm count, and viability along with increased germ cells apoptosis and a **decreased serum testosterone level**, was observed in the testes of all the mobile phone exposed mice."* The researchers concluded that long-term mobile phone radiation exposure induced oxidative stress leading to apoptosis of testicular cells and thus impairment of testicular function. ²¹²

- After being irradiated for 24 h at 1950 MHz, 3 W/kg radiation, cell proliferation in mice obviously decreased. Secretion capacity of testosterone was reduced. ²¹³

- EMFs created by mobile phones caused morphologic and histological changes by affecting germinal epithelium tissue of rats negatively. The cortisol levels in the EMF-exposed groups were significantly higher. ²¹⁴

- Mobile cell radiation exposure in male rats induced a significant decrease in serum FSH (follicle stimulating hormone), LH (luteinizing hormone), decreases in testosterone levels, epididymal sperm count and sperm quality. However, administration of vitamin D resulted in a significant recovery of all the above- mentioned parameters in the mobile radiation exposed rats' group. The authors confirm the harmful effect of mobile phone radiations on testicular function in male albino rats. In addition, they confirmed the protective effect of Vitamin D on the testicular functions via restoring steroidogenesis and spermatogenesis in exposed rats. ²¹⁵ (See also: remedies, p. 114).

- Adult male rats were exposed to 30 minutes per day, 5 days a week for 4 weeks to 900 MHz EMF. The diameter of the seminiferous tubules and the mean height of the germinal epithelium were significantly decreased in the EMF group. There was a significant decrease in serum total testosterone levels. It was concluded that testicular morphologic alterations may be due to hormonal changes. ²¹⁶

- Exposure to mobile phone radiation for 60 minutes per day for the total period of 3 months significantly decrease the serum testosterone level in Wistar Albino rats compared to their matched control. "Long-term exposure to mobile phone radiation leads to a reduction in serum testosterone levels. " ²¹⁷ Animals exposed for 60 min per day **had half the serum testosterone** levels of the unexposed (in ng /ml). This can be likened to radiological semi-castration.

- Rats exposed to 900 MHz EMF had decreased wet weight of testes and serum testosterone levels. ²¹⁸

- Rabbits were exposed to a period of simulated mobile phone radiation (950 MHz; 3 and 6 W) for 2 hours per day for 2 weeks. The results showed a decrease in the concentration of testosterone in both the 3 and 6 W groups. "*However, cortisol concentration as a marker of adrenal gland function was not affected.*" ²¹⁹

- Experiments showed that male Wistar rats, who had been exposed to microwave radiation (2.45 GHz for 2 hours/day for 60 days), had significant **decreases in testosterone** and melatonin. "*This finding emphasizes that reactive oxygen species (a potential inducer of cancer) are the primary cause of DNA damage.*"

However, pulsed electromagnetic field exposure (100 Hz, 2 hours/day for 60 days) relieved the effect of microwave exposure by inducing Faraday currents.²²⁰

- Exposure to 10 GHz fields decrease testosterone and caused shrinkage of the lumen of the seminiferous tubules and DNA strand breaks in rats. The **testosterone** level was found significantly decreased with the shrinkage of testicular size.²²¹

- 900 MHz RF-EMF **decreased testosterone**. Rats were exposed to 900 MHz RF-EMF for 1, 2, or 4 h/day over a period of 30 days. A significant decrease in serum testosterone levels in the LTE group was found compared to short and moderate time exposed (MTE) groups after 30 days RF-EMF exposure.²²²

- 1800MHz RF-EMF decreased testosterone in rats. Radiofrequency fields (RF) at 1800 MHz are known to affect melatonin (MEL) and testosterone in male rats. In this trial, RF exposure was 2 h/day for 32 days. The circadian rhythms of T and melatonin were disturbed after exposure to RF, with the effect being more pronounced on MEL than on testosterone.²²³

- Exposure to 1,800 MHz RF had adverse effects on testosterone synthesis, antioxidant levels, and clock gene expression in primary Leydig cells of mice. Pretreatment with CeO₂NPs (Cerium oxide nanoparticles) prevented the adverse effects on testosterone synthesis induced by RF exposure by regulating their antioxidant capacity and clock gene expression in vitro.²²⁴

- Microwave oven leakage decreased testosterone in rats. Test groups of rats were exposed to 2450 MHz produced by a microwave oven. Leakage of the microwave oven resulted in decreased testosterone production by testes in mature rats which may be due to the direct effect of microwave on Leydig cells or its indirect effect on pituitary and hypothalamus.²²⁵

- Germ Cell apoptosis in testes (cell death) in rats was induced by ELF-MF. "*Testosterone levels in rats significantly decreased after 6 and 12 weeks of ELF-MF exposure.*" It was concluded that "deprivation of gonadotropin or testosterone induces germ cell apoptosis."²²⁶

- Male mice were exposed to 1800 MHz RF at 208 microW/cm² power (wireless frequencies) for 32 days with 2 hours per day. "Microwave radiation induced reduced level in testicular sperm head count and serum testosterone, while the level of serum estradiol increased."²²⁷

- Male rabbits were exposed to MPs (800 MHz) in a standby position for 8 h daily for 12 weeks. Exposed rabbits showed altered sexual behavior, lack of ejaculation, increase biting/grasping during copulation. The researchers concluded that the pulsed radiofrequency emitted by a conventional MP, which was kept on a standby position, could affect the sexual behavior in the rabbit.²²⁸

Wireless EMF/ testosterone, human studies

- Long term exposure to base stations and mobile phones affects human hormone profiles. A study over a 6-year monitoring period with human volunteers revealed that high radio frequency radiation effects emitted either from mobile phones or from base stations (wi-fi routers) on the pituitary–adrenal axis represented in a **reduction** of adrenocorticotrophic hormone (ACTH), cortisol, thyroid hormones, prolactin in young females, and a **reduction in the testosterone level in both genders.**²²⁹

6.4. Mobile phone EMFs and additional hormone disruption

Playing hormone roulette

- After Wistar rats were exposed to mobile RF for 6 hours daily, for 4–8 weeks at RF900 MHz, enhanced plasma adrenocorticotrophic hormone (ACTH) and cortisol levels were found.

It was concluded that *“cell phone RF exposure induced significant hormonal and structural changes in adrenal gland and brain tissues. Therefore, the public should be aware and limit their exposure as much as possible.”*²³⁰

- Mobile phone radiation increases Thyroid Stimulating Hormone (TSH) in Humans. A higher than normal TSH level, low mean T4 and normal T3 concentrations in mobile users (students) were

observed. *"It seems that minor degrees of thyroid dysfunction with a compensatory rise in TSH may occur following excessive use of mobile phones."* ²³¹

- Short, medium, and long-term exposure to extremely low frequency electromagnetic field (ELF-EMF) (1 and 5 Hz radiation) on behavioral, hormonal, and metabolic changes in male Wistar rats were studied.

Plasma adrenocorticotrophic hormone (ACTH) concentration increased in both frequencies, whereas noradrenaline concentration showed an overall reduction. ²³²

- Wi-fi increased the extent of lipid peroxidation in the kidney and testis of rats. Wi-Fi- and mobile phone-induced EMR exposure to rats for 4-6 weeks caused oxidative damage by increasing the extent of lipid peroxidation and the iron level, while decreasing total antioxidant status, copper, and GSH values. *"Wi-Fi- and mobile phone-induced EMR may cause precocious puberty and oxidative kidney and testis injury in growing rats."* ²³³

6.5. Wireless EMF and sperm cells, fertility

Wireless EMF and sperm cells, fertility - human studies

- K. Kesari et al, 2018 noted that cell phones, laptops, Wi-Fi and microwave ovens are the most common sources of non-ionizing radiation.

"From currently available studies it is clear that radiofrequency electromagnetic fields (RF-EMF) have deleterious effects on sperm parameters (like sperm count, morphology, motility), they affect the endocrine system and produce genotoxicity, genomic instability and oxidative stress." ²³⁴

- Martin Pall 2018 cautions: "Wi-Fi is an important threat to human health". Established Wi-Fi effects include: apoptosis, Neuropsychological DNA impact; hormone change and Ca²⁺ overload.

"Each of these effects are also caused by exposures to other microwave frequency EMFs, with each such effect being documented in from 10 to 16 reviews. Both the lowered male fertility and lowered female fertility are associated with and

*presumably caused by the oxidative stress in the male and female reproductive organs. Spontaneous abortion is often caused by chromosomal mutations, so the germ line mutations may have a causal role. Lowered libido may be caused by lowered estrogen, progesterone and testosterone levels.”*²³⁵

- Sid- Salman (2019) found that a Wi-Fi router increased antibiotic resistance and motility of E Coli and increased metabolic activity and biofilm production in Staphylococcus Aureus and Staphylococcus Epidermis. *“The [Wi-Fi] exposed cells, as compared to the unexposed control, showed an increased metabolic activity and biofilm formation ability in Escherichia coli O157H7, Staphylococcus aureus and Staphylococcus epidermis.”*²³⁶

This should be carefully considered in a current virus crisis that also involves bacterial infections, when people are forced to wear masks in which bacteria and fungi can proliferate.

- “Many laptops show magnetic field readings higher than 200 milligauss (600 times more than the 0.3 milligauss level that is considered safe).”²³⁷

- In 2012, Avendaño et al showed that the use of laptop computers connected to internet through Wi-Fi decreases human sperm motility and increases sperm DNA fragmentation.²³⁸

- When human spermatozoa were exposed to mobile phones RF-EMR they have decreased motility, morphometric abnormalities, and increased oxidative stress. Further, men using mobile phones have decreased sperm concentration, decreased motility (particularly rapid progressive motility), normal morphology, and decreased viability. *“These abnormalities seem to be directly related to the duration of mobile phone use.”*²³⁹

- In an observational study at the Cleveland Clinic, Ohio, men undergoing infertility evaluation were analyzed for their active cell phone use. The laboratory values of mean sperm count, motility, viability, and normal morphology decreased in cell phone users as the duration of daily exposure to cell phones increased.²⁴⁰

Wireless/ EMF and sperm cells, fertility - animal studies

- Wistar rats were exposed to 60 Hz / 1 milliTesla EMF three times per day for 30 min, between the 13th day of gestation and the 21st postnatal day. Histomorphometric analysis showed that exposure to EMF can promote a delay in testicular development. ²⁴¹

- Rats exposed to Wi-Fi (2.45 GHz) for 1-hour and 7-hours showed a decrease in sperm parameters in a time dependent pattern. ²⁴²

- Wistar rats were exposed to EMF (60 Hz, 1 milliTesla) from day 13 of gestation to postnatal day 21 or 90, in three daily applications of 30 min.

Testicular degeneration was shown in a subset of animals exposed to EMF. It was concluded that exposure to 60 Hz EMF can disturb spermatogenesis and may produce subfertility or infertility. ²⁴³

- EMFs caused cell death in testicular germ cells in mice. ²⁴⁴

- An experimental group of rats were exposed to a magnetic field (0.8 mT) for 5 weeks, 3 hr per day. Experimental groups had more sperm malformation. Testosterone levels were also found to be altered ($p < .05$). Decreased spermatogenesis in testis' seminiferous tubules were observed. ²⁴⁵

- 950-MHz cell phone microwave exposure of rats led to decreased total sperm motility, diminished percentage of normal sperm morphology, reduced percentage of sperm viability (which is expected to increase the possibility of male factor infertility with varying degrees over time). ²⁴⁶

- Wi-Fi router radiation causes changes in lung tissues.

When rats were exposed to Wi-Fi router radiation for 6 and 24 h, at 25 cm distance, they showed marked histological and immunohistochemical changes in the lung tissues. The research team of R. Ibrahim et al concluded: "The exposure to such devices can cause bad effects on the lung tissue which increases with prolonged exposure time." ²⁴⁷

Wireless EMFs disrupt fertility in female animals:

- EMFs disturb estrous cycles in female mice.

Female mice post weaning were exposed to 20 kHz sawtooth electric and magnetic fields (EMF) with 6.25 microTesla peak intensity for 6 weeks. The EMF exposed groups had less estrous

cycles than the sham control group. Furthermore, in the EMF-exposed group, the duration of proestrous and metestrous stages of the estrous cycle was significantly increased.²⁴⁸

- Female mice were exposed to a Wi-Fi radio frequency of 2.5 GHz. The exposure group was placed 24 cm closer to the radiation source.

“No oocytes count was determined in the exposure group. In other words, the group underwent anovulation. “²⁴⁹

-In female mice, 2.45 GHz microwave irradiation-induced oxidative stress affects pregnancy or implantation [attachment of the fertilized egg or blastocyst to the wall of the uterus at the start of pregnancy]. Implantation sites were affected significantly. A low level of MW irradiation-induced oxidative stress not only suppresses implantation, but it may also lead to deformity of the embryo in case pregnancy continues.²⁵⁰

Chapter 7

Wireless/ EMF exposure: additional cerebral and cognitive effects (not restricted to endocrine disruptors)

7.1. Mobile phones emit ELF-MFs in the frequency of Alpha brain waves and the first mode Schumann resonance.

Here is a crucial novelty of this new millennium, which humans did not have to deal with in previous centuries:

Mobile phones emit ELF at 8.3 Hz, in the frequency of the Alpha brain waves and the first mode Schumann resonance (ELFs, Extremely Low Frequencies, range between 3 to 30 Hz.).

There is a very limited coverage in the literature about this specific frequency in mobile devices. Research focuses on the high frequencies (Microwaves) 2.4 GHz, 10 GHz, the 5G network and other frequencies as listed above. As far as the intensity of the magnetic field in the most widely used cellphone transmission system (GSM until 2020) is concerned, we have only limited information on the intensity of the combined emission cocktail, and we don't know the individual intensity of this 8.3 Hz ELF that is used today. An ETHZ study (Zurich Institute of Technology) of 2005 measured 217 Hz and 8.3 Hz fields between 8 microTesla and 75 microTesla emitted from mobile phones at 5 mm distance.²⁵¹

Other measurements revealed intensities of up to 94 MicroTesla.²⁵² One of the problems with this is that brainwave entrainment occurs from at least 100 NanoTesla upwards, and very possibly below that (100 nT= 0.1 MicroTesla)."²⁵³ *Brain-wave entrainment can be demonstrated electroencephalographically when subjects are in the vicinity of oscillations in the frequency range of approximately 3–20 Hz at intensities below 100 nT (nanotesla).*"²⁵⁴ The fields emitted by the cellphones were almost 100 times stronger.

So, this 8.3 Hz frequency is contained in the mobile phone emission cocktail. For reference, this happens at a magnetic flux about the strength of the Earth magnetic field and hundreds of times stronger than the magnetic field of the Earth's Schuman Resonance.

The combined field intensity of the different frequencies of a cellphone is ten to several tens of MicroTesla.

Thus, virtually everyone is carrying a powerful little “Schumann Resonance Generator” in their pockets, dosing them in 8.3 Hz, likely stimulating the alpha brainwaves to different degrees and possibly impeding the full activation of the beta and low gamma brainwave potential as in intense cognitive operations and consciousness.

No one can tell at this point whether this 8.3 Hz part of the spectrum is also one of the main contributors to the endocrine disrupting effects of mobile phones.

The iPhone 7 contained an official warning not to hold it closer than 5 mm to the body, it must not be held in direct contact to the ear or carried in pants pockets because of radiation danger. The vast majority of mobile phone users do just this. For other phones, the official distance is at least 1.5 cm (about 0.6 inches).²⁵⁵

But even if used correctly, radiofrequency radiation exposure from the iPhone 7 was measured 'over the legal safety limit and more than double what Apple reported to federal regulators from its own testing.'²⁵⁶

A 2011 study by D. Henshaw corroborated:

*“Mobile phones typically have three types of EMF emissions associated with them: in the GSM system: a 900 MHz radio frequency, a 217 Hz pulsing signal and an extremely **low frequency magnetic field (ELF MF) associated with the battery.** The ELF component has so far been ignored in all epidemiological studies of mobile phone exposure and cancer. During phone use, this ELF component exposes the whole brain to MFs ranging **from a few to tens of micro-tesla**, above the intensity of power frequency ELF-MFs that have been repeatedly associated with increased risk of brain tumours in adults.”²⁵⁷*

75µT (Microtesla, some mobile phones emit over 90 µT) is just below the confirmed intensity kneaded for brain wave entrainment in short term experiments.

For permanent, long-term exposure, brain wave entrainment at 75µT and far below is very probable, it has been observed with very low power settings down to one half of a milliwatt.²⁵⁸

Artificial electromagnetic frequencies applied to the skull can also change behavior therapeutically, but Transcranial Magnetic Stimulation at ELF's of 1-10 Hz to the head disrupts people's ability to make **moral judgements**. For this, the stimulation needs to be

directed at this TPJ region, which is located above and behind the right ear, not just nearby, and at frequencies of 1-10 Hz. Unfortunately, we saw that mobile phone use at the right ear not only has different health risks including hormonal disturbances, but - as far-fetched as it may sound - it may literally interfere with people's ability to make moral judgements. *"By disrupting brain activity in a particular region, neuroscientists can sway people's views of moral situations."* ²⁵⁹

That's well within the carrier frequency of 8.3 Hertz emitted by cellphones and smartphones at an amplitude high enough to be bioactive.

"When we judge an action as morally right or wrong, we rely on our capacity to infer the actor's mental states (e.g., beliefs, intentions)."

In additional experiments by L. Young et al, transcranial magnetic stimulation to the right temporoparietal junction RTPJ led participants to rely less on the actor's mental states. Thus, interfering with activity in the RTPJ disrupts the capacity to use mental states in moral judgment, especially in the case of attempted harms." ²⁶⁰

The right ear is where most people hold their phone or where the earphones - which serve as antennas via the cables up to the speakers - are placed. Beyond this, we don't know the exact frequency modulation cocktail of wireless routers and mobile towers, of which 5G frequencies might be just the latest of the unknown unknowns (another reason to use speaker mode or non-radiation airtube headphones (see Remedies, Chapter 15).

The legal limit for electro- magnetic field exposure above 50 Hz in Switzerland and most European countries, for example, is 100 microtesla, but for ELF's below 50 Hz, no limits are defined. For comparison, the natural Earth's magnetic field is 25 to 65 microteslas. ²⁶¹

10 Hz frequencies in WLAN (WIFI) affect humans

Dr. Rütger Wever (Max Planck Institute for Behavioral Physiology, Seewiesen and Erling-Andechs) examined the effect of the 10 Hz frequency in the range of the alpha waves of 8 to 13 Hz, (5 to 100 microvolts) on the human circadian rhythm.

He concluded: *"With the proof of an effect of 10 Hz fields on the circadian periodicity of humans, also the question of a possible effect of these fields on humans is broadly answered. For this question as well, the frequency of approx. 10 Hz is interesting: the particularly stable α Wave component of the electroencephalogram*

has a frequency of 10 Hz, further, the entire body surface of warm-blooded species mechanically vibrates in a frequency of about 10 Hz."

*"The Schumann waves make life on our planet possible, they influence our health profoundly." We could not live without Schumann resonances. The 10 Hz pulsation of the Wi-Fi is pulsed electromagnetic radiation, not a sinus wave and it disturbs all life processes, it is profoundly harmful to human health, because with it - analogous to the pain memory - a WLAN pulsation- stress memory with permanent long-term exposure can develop. This means that even if Wi-Fi is turned off, the effect of stress is still present!" [Translation mine].*²⁶²

Declining eye sight in children from screen devices.

Kristof Vandekerckhove, board member of the Swiss Society for Ophthalmology stated: "There are already clear indications that due to the lockdown and other COVID -19 measures, myopia [near-sightedness] worldwide has accelerated."²⁶³

The experts' single explanation that parents want to believe: children are looking at screens close up for longer periods of time than children did years ago.

It is true that children are looking more at screens than they used to look at books 20 years ago. However, children have spent hours in school reading and writing close up and then watched TV and played video games for decades, so something new is going on with eyesight.

What is new is the tablets and screens emit microwave EMFs, these are known to cause damage to eyesight in themselves.

Research found teenagers with the most frequent life-long smartphone use had three times the incidence of eye-related problems in comparison with teenagers whose life-long use was much more restricted.²⁶⁴

"The American Academy of Ophthalmology is concerned that too much screen time is now affecting children's vision, including myopia [near sightedness] and dry eye symptoms. Retinal phototoxicity from blue light is now established as a risk. Sleep and human circadian sleep disruption by blue light is considered essentially proven by health authorities. Increased screen time is now identified as a risk factor for dry eye syndrome and computer vision syndrome. Research has revealed damage to skin from radiation from digital screens as well."²⁶⁵

Dr. O. P. Gandhi's work showed that the eyes of a ten-year-old absorb five times more cell phone radiation than adult eyes, while five-year-old eyes absorb 12 times more. These absorption numbers were calculated already in 1996. ²⁶⁶

The Specific Absorption Rate (SAR) for a 10-year-old is up to 153% higher than the SAR for the Specific Anthropomorphic Mannequin (SAM) model. When electrical properties are considered, a child's head's absorption can be over two times greater, and absorption of the skull's bone marrow can be ten times greater than adults. Therefore, a new certification process is needed that incorporates different modes. ²⁶⁷

Already in 1988, long before cellphones and Wi-Fi, researchers with the University of Chicago determined microwave and ionizing radiation can induce cataracts. "Microwaves most commonly cause anterior and/or posterior subcapsular lenticular opacities in experimental animals and in human subjects." ²⁶⁸ In 2014, scientists reported oxidative stress in the eyes of rats that were exposed for only one hour per day to 2.45 GHz Wi-Fi radiation. Oxidative stress and thus ROS, are believed to be a principal cause of noncongenital cataract. ²⁶⁹

During sleep, melatonin stimulates testosterone production, and also acts as an aromatase inhibitor to prevent the conversion of testosterone to estrogen. ²⁷⁰ Exposure to microwave radiation from cellphones, WIFI, and other wireless devices also reduces melatonin levels, as does blue light from screens used after sunset. "Blue light is a circadian signal that tells your brain that it is daytime, and that melatonin is not needed. Exposure to artificial blue light before bed stops melatonin production at the very time when it is needed. " ²⁷¹

Chapter 8

Blurring gender lines

In Psychology Today, 2019 an article by Robert Hedaya, MD - a clinical professor of psychiatry at the Georgetown University School of Medicine - read:

“It is nothing short of astounding that after hundreds of thousands of years of human history, the fundamental facts of human gender are becoming blurry. “

“There are many likely causes of this, but one that I haven’t seen discussed is the influence of endocrine disrupting chemicals, EDC.”

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To study the biological and possible epigenetic influences on personal orientation is a very sensitive field.

In this book, the intention is not to question the identity or the perception of self of any human being and much less so to judge any form of identity or lifestyle choices.

Quite to the contrary, I hope that some biological facts from the literature can increase understanding and mindfulness in this topic. And it should further be understood that if scientific facts indicate any role of prenatal hormone exposure in the development of gender or sexual orientation, this must not be addressed lightly or carelessly.

Imagine someone suggested to you that the things you truly feel and believe, who you identify as, whom you are attracted to, whom you love or get along with, your personality – imagine someone told you all these things were affected by artificial chemical interventions in utero and in childhood. Who would want to know? This would be especially harsh for people who were marginalized and rejected by their family for their identity or orientation.

And on an individual level, it doesn’t matter what contributed to what. But for humanity as a whole, it will be a matter of survival at some point.

In the words of Dr. Hedaya:

“There will be less blame and judgment, less guilt and shame, more respect and compassion [in the dialogue around gender identity disorders]. Recognition of the likely link between EDC’s and gender

dysphoria might also motivate a change in some of our laws, which are too permissive of these chemicals' presence in our lives."²⁷³

8.1. Intersex Variation

In the context of gender reassignment and transgender people, conservatives sometimes site data that claim ambiguous genitalia or intersex variation are very rare conditions and therefore this would need no public discussion. But the prevalence has increase exponentially in recent years, it is a physiologically as well as psychologically very real experience for many young people tday.

A description of Intersex Variation:

"Intersex variation (IV) is a morphological and physiological anomaly where an individual is born with "congenital conditions in which development of chromosomal, gonadal, or anatomical sex is atypical".²⁷⁴

Today, Victoria Health Services say "Intersex variations are natural biological variations and occur in up to 1.7 per cent of all births."²⁷⁵

A much lower percentage of only 0.05 % was given in the late 1980s: An early study by Lilford and Dear (1987), suggested that one in 2,000 newborns had some form of external genital ambiguity.²⁷⁶

Here is an explanation of the biological mechanisms of fetal genital differentiation and its toxicological dysregulation by A.L. Rich:

Differentiation in male or female external genitalia in the fetus begins during the **seventh week** of gestation. Masculinization is initiated by testicular androgens (derived from the Greek term "andro" meaning male) in the fetus, defining the androgynous external genitalia into a recognizable form or sex **between 8 and 12 weeks** of gestation.

Abnormal hormone production, or action, can disrupt this process, resulting in incomplete masculinization. In the absence of the hormonal influence of dihydrotestosterone, a fetus will essentially develop into a female. External genitalia differentiation is therefore **strongly hormonally dependent.**"²⁷⁷

Or in other words, a fetus carrying the Y chromosome becomes a phenotypic male if the **testes** produce sufficient amounts of androgens at the right time during gestation; if endocrine-disrupting chemicals interfere with this process, the fetus will essentially develop into a female (the default gender, biologically speaking) or

develop ambiguous genitalia (that is, have elements of both male and female reproductive organs).²⁷⁸

*"Evidence supports the premise that at critical stages in fetal development exposure to exogenous chemicals known as endocrine-disrupting chemicals (EDCs) can disrupt reproductive organ differentiation and development in utero, leading to an IV condition."*²⁷⁹

This can also affect later development of secondary sex characteristics.

"Animal studies on fish and reptile embryos exhibited IV and sex reversal when exposed to EDCs. Occupational studies verified higher prevalence of offspring with IV in chemically exposed workers (male and female)."

Intersex individuals may have concurrent physical disorders requiring lifelong medical intervention and experience gender dysphoria. "²⁸⁰

The human rights organization Heinrich Böll Stiftung advised in 2013:

"Since intersex is heavily stigmatized in South Africa, it is difficult for intersex individuals to come out, organize and speak up on their own behalf." In an apparently racist remark, they claim that:

*"This applies especially – but not exclusively – to the black part of the population in rural areas, because everything that is included in LGBTI is generally considered to be a disease imported by the West that «by nature» does not exist among black individuals."*²⁸¹

K.G. Behrens (2020) reported:

*"Intersex infanticide or attempted infanticide has been reported from Uganda, Kenya and China. It is likely that the most vulnerable intersex infants are those born in rural communities, where births take place in private homes and out of sight of authorities."*²⁸²

8.2. Gender identity

*"Gender assignment in infants born with a difference in sexual development (DSD) remains one of the many difficult decisions faced by the multi-disciplinary treatment team as some of these children develop gender identity disorder (GID) when they become adults."*²⁸³

A study by Elisabeth Sievert and colleagues concluded that "claims that gender affirmation through transitioning socially [e.g. changes in name, pronoun, and clothing] is beneficial for children with

Gender Dysphoria (GD), could not be supported from the present results. Instead, the study highlights the importance of individual social support provided by peers and family, independent of exploring additional possibilities of gender transition during counseling.”²⁸⁴

Louis Gooren 2006, points out that prenatal androgenization does not decisively predispose to a male gender identity development.²⁸⁵

As researchers at the University of North Texas noted, EDCs like phthalates can interfere with the complex biochemical pathways of the brain, *“which could affect the way a person associates with his/her physiological sex or personifies his/her gender behaviorally.”*²⁸⁶ Also recall that exposure to already “very low doses of endocrine disrupting chemicals during fetal life permanently alters brain development and behavior in animals and humans.”²⁸⁷

Artificial testosterone and estrogen actually alter adult human brain structures. *“Magnetic resonance brain images demonstrated: Anti-androgen Cestrogen treatment **decreased brain volumes** of adult male-to-female subjects towards female proportions, while androgen treatment in female-to-male subjects **increased** total brain and hypothalamus volumes towards male proportions.”*

The authors suggest that “throughout life, gonadal hormones remain essential for maintaining aspects of sex-specific differences in the human brain.”²⁸⁸ Prenatal exposure to endocrine-disrupting chemicals can also influence the way boys play. Boys who were exposed in the womb to higher levels of a potent phthalate (DEHP), which can lower fetal testosterone levels, scored significantly lower on the “masculine scale” - in other words, they were more likely to play with dolls and less likely to play with trucks and guns.²⁸⁹

Similarly, a 2014 study from the Netherlands used the same play-behavior questionnaire and found that exposure to dioxins and PCBs was associated with more feminine behavior in boys, whereas in girls, exposure to these chemicals was associated with less feminine play behavior.²⁹⁰

It was suggested by Gerhard Winneke et al, 2014 that the way EDCs modify behavioral sexual dimorphism in children, is by interacting with the hypothalamic-pituitary-gonadal axis.²⁹¹

Sex hormones in prenatal life also play a role in the development of sexual orientation. For example, girls born with congenital adrenal hyperplasia (CAH) - which results in naturally increased levels of male sex hormones - show relatively high rates of same-sex attractions as adults.²⁹²

8.3. Digit ratio (2D:4D)

In males, the 2D:4D digit ratio is generally small (negative number = the ring finger is longer than the index finger). Contrarily, in females, the ratio is generally large (positive number = the index is longer than the ring finger). A low 2D:4D is an indicator of high prenatal testosterone (i.e., masculinization) in males or females.

Van Dongen et al report there is a wealth of studies supporting a link between 2D:4D ratio and prenatal exposure to testosterone and oestrogen. *"Furthermore, 2D:4D ratios appear to relate to several aspects of human sexual behaviour, which suggests that these characteristics are determined in early embryological stages and are not largely affected by factors later in life."* ²⁹³

A low second to fourth digit ratio (2D:4D) has been related not only to high testosterone levels but also to markers of high status.

Kobe et al had predicted that a low 2D:4D would be associated with high levels of egoism and altruism and low levels of common cooperativeness (i.e. contributing exactly one's fair share). However, they found the exact opposite: *"Participants with a low 2D:4D (more masculinized) were more likely to act cooperatively and less likely to act altruistically and egoistically."* ²⁹⁴

In a 2008 study, women with gender identity disorder (GID) were found to have a significantly more masculinized digit ratio. *"This finding was consistent with the prediction that a variance in prenatal hormone exposure contributes to a departure from a sex-typical gender identity in women."* But no evidence of an altered 2D:4D ratio in men with gender identity disorder was found. ²⁹⁵

Female Olympic athletes from Sweden were shown to have a significantly lower 2D:4D digit ratio than non-athletes. ²⁹⁶

Not only BPA (bisphenol A), but other BPs, which are promoted as safer alternatives to BPA, can have the same effect in prenatal exposure. In children at ages 4 and 6, it was shown that prenatal exposure to BPA alternatives of the mother was associated with offspring's higher 2D:4D digit ratio (more feminized). ²⁹⁷

Kirchengast et al 2020 showed age at menopause correlates significantly positively with the digit ratio. A more feminine digit ratio is associated with a higher age at menopause, while a low digit ratio, interpreted as a hint of a higher androgen exposure during prenatal phase, was associated with a lower age at menopause.

²⁹⁸

A Chinese study showed an association between high 2D:4D ratio and coronary artery disease (CAD) in both hands in men (males with less testosterone in utero had more CAD). There were no significant differences in mean 2D:4D between women with CAD and controls.²⁹⁹

In a sample of male patients of an infertility clinic, **there were negative associations between 2D:4D and testicular function.** Adult levels of testosterone may be related to aspects of 2D:4D in samples which contain men with compromised testicular function, but not in men from normative samples. The researchers concluded that *"Associations between 2D:4D and fertility-associated traits probably arise from early organisational effects of testosterone rather than from activational effects of current testosterone."*³⁰⁰

Chapter 9

Solar- and geomagnetic activity

9.1. The Glitch

To say it up front, the type of today's self-abandonment, self-criticism to the point of oikophobia and outright auto-racism as in the West did not happen at the end of previous Grand Solar Maxima in historic times and it is not a common symptom of a Grand Solar Minimum, either. Otherwise, we would not be here. Something new has happened in the past 50 years.

Not only the social and political trends in the context of Solar- and geomagnetic activity, but also the solar radio flux relationship, suggest male testosterone levels are generally higher in solar minima, and especially Grand Solar Minima (the bad-weather periods, which are also the periods of increased peace and rationality). On the other side of the spectrum, deaths from war, genocide, persecution etc. are highly concentrated in Grand Solar Maxima, and interpersonal violence, homicide and so on are highly concentrated in the solar maxima within the 11-year solar cycles. This was empirically demonstrated in detail in my book *Solar History* (2018). In grand solar maximum decades, there are 4.6 times more deaths from war and persecution than in the same time span in grand solar minimum. Or in other words. 78.2% of anthropogenic death were generated in grand solar maximum.

In the Modern Grand Solar Maximum of roughly the past century, the pattern of violence and solar activity seems to have been interrupted sharply after the 1950s. After two world wars, fascist and communist massacres, solar and geomagnetic activity kept increasing to record levels in the 1960s and remained high only to drop off in the early 2000s. But interpersonal violence, wars and genocides leveled off precipitously after the 1950s. As can be seen in Fig. 3, it is obvious that not all peaks of Grand Solar Maxima are punctuated by wars and persecution, but the second half of the 20th century was special, marking the phase of the highest prolonged

solar activity in the past 1500 years, when high social excitability, war and revolutions should have been anticipated.

In *Solar Behavior* (2020), I had proposed a hypothesis of what could have contributed to this deviation, which I defend unaltered. This hypothesis is based on evolutionary trends relating to solar- and geomagnetic activity, taking latitudinal differences into account.

What I had underestimated, was the gravity of the impact that artificial chemical and electromagnetic influences could have had on hormone balances and thus on human behavior in recent decades. After WWII, the continuing and increasing, unprecedented prolonged Modern Grand Solar Maximum, to a millennium high, should have predicted a further spree of violence and heightened human excitability between the 1950s to 2000, possibly amounting to WWIII.

Limited amounts of Endocrine Disrupting Chemicals had been around in pre-war decades, but the industrial use and production exploded in the late 1950s and 1960s.

The pesticide atrazine was introduced in 1958, and hundreds of Endocrine Disrupting chemicals such as DDT were used proficiently and increasing to this day, many with accumulative environmental effects and multi- generational defects to the endocrine system.

And since the late 1990s we can add to this an endless increase of sources of **endocrine disrupting non-ionizing radiation**, in mobile/ wireless technology, the full ramifications of which we do not even have a chance to comprehend, yet.

The (accidental or deliberate) chemical alteration of human nature and human interaction, did not only make humans more docile and behave in non-sustainable, non- future oriented ways; but on a more positive note, it can make unstable people less confrontational and less aggressive. This has certainly contributed to passivity, social disintegration, lack of foresight and an unsustainable economy. A population who wants to give everything to the “others”, shut down the industry which our lives depend on; all for climate change, for “justice”, for refugees, short-term altruism.

This will almost inevitably cause hundreds of millions to billions of victims in the future, but for the time being, the world was probably a less violent place for a couple decades than should have been expected at the height of this Grand Modern Maximum at the end

of the 20th century. It could be speculated it may have prevented WWII to take place between the 1950s and 2000.

Did those politicians, industrialists and lobbyists who covered up or downplayed the endocrine disrupting effects of EDCs and lobbied for more of the same (deliberately or by carelessness), do something good for humanity for a limited time span? Do we owe them a drink?

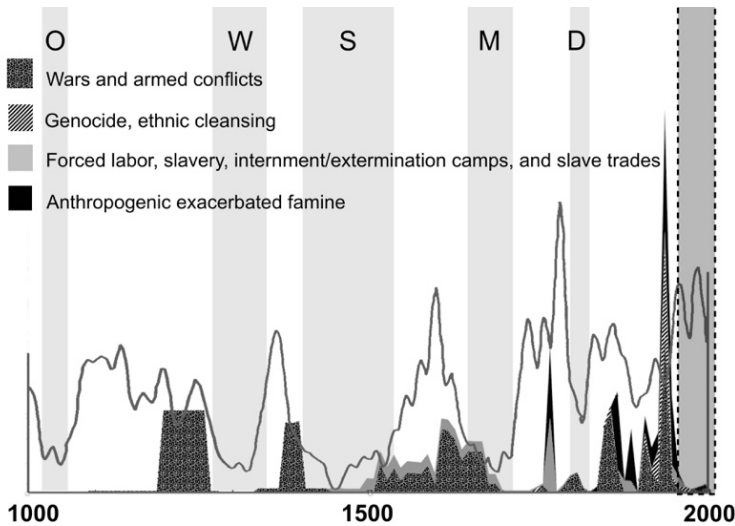


Fig. 3 Anthropogenic (man-made) deaths rates by decade (number of casualties per decade adjusted for world population in comparison to solar activity (14C, radiocarbon). The dark gray bar marks the post war era. Note the very low anthropogenic death rate, the “glitch” in the phase of the highest solar activity roughly 1950-2000, (highest in 1500 years). The 1780-1790 peak in solar activity was more pronounced, but of short duration. No exact data are available for interpersonal violence (violent crime) prior to 1800, therefore this was not included in the statistical analysis. However, historical and archeological examinations suggest that “blank spots” in wars and genocide during solar maximum were marked by increased interpersonal violence. Solar data: Muscheler et al 2007). Chart: Sacha Dobler, Solar History 2018.

My assertion that male testosterone levels are higher in Grand Solar Minimum – the times of peace and a harsher climate - is based on circumstantial evidence as well as on the Solar Radio Flux connection. In particular, the behavioral patterns indicate higher testosterone in males in periods of peace, rationality and invention. The wars and genocides, erupting primarily in solar maxima, are not typical for high testosterone masculinity, but rather the opposite.

We are going to look at Indicators of higher male testosterone levels in either Grand Solar Minimum or Grand Solar Maximum in Chapter 12.

Chapter 10

Accidental social engineering?

How were people in the past riled up so easily into following totalitarian leaders into wars and genocides, one might wonder? In times when average people were still subjected only to naturally induced hormonal effects?

Well, one important differentiation should be made: propaganda applied by totalitarian leaders traditionally aimed to rile up the masses against “the others”, against other nations or minority groups within the nation.

As the most severe outbursts of violence against “the others” were at the peaks of 11- years solar cycles and at Grand Solar Maxima, this was when totalitarian collectivist war mongers had the most success in starting wars and persecutions. Already Alexander Tchijevsky, a hundred years ago, pointed out that many despots and statesmen were puzzled how a certain war or radical intervention was strongly opposed by the public one year, only to be approved of a few years later. As it turned out, the approval to war by the public usually came at the peak of solar maxima.

Only since WWII, and particularly since around 2000, propaganda in the West is mostly directed against the self and against average people. Western countries and only western countries have to deindustrialize for climate change, have to pay reparations for the atrocities committed by their ancestors centuries ago, have to accept millions of refugees without a plan or an economy to accommodate them, have to apologize for “toxic masculinity”, whatever that means.

The “War on Terror” and the Iraq War (2003) was so far the last incident where westerners (in this case Americans) were incited to invade “the others”, the Patriot Act is today used mostly against domestic terrorists and US political dissidents. Later (and also illegal) NATO wars were waged under a low profile and were barely televised.

Neither Hitler, Stalin, Mao or emperor Nero would ever have managed to drive the people against their own interests and make them apologize for even existing, as we are witnessing it today.

Biochemical and Electromagnetic consolidation of propaganda?

Is TV propaganda? Sounds like a wild conspiracy theory? It could just be a silly accident. I will suggest that the way modern day TV, internet and cinema film propaganda can work more efficiently is this: Since EDCs have been disrupting gonadal hormones bio-chemically, newspapers, radio, cinema and TV became more effective tools for politicians to convince the people of what is good for them. And since the last two decades, the actual content of the ideologically charged programs is not even that important anymore. Today, TV sets are connected to the Wi-fi routers (in most western countries the two practically must be installed in the same room, which is mostly the living room, or the router is connected to the smart TV by another strong wireless signal). The computers, phones, tablets, routers connected to the TV, etc. emit microwave EMFs that can disrupt hormones, especially testosterone and estrogen, as we saw above. Further we saw that extremely low frequencies (ELF) also emitted in the wireless spectrum, can enhance alpha brain wave amplitude (which are associated with a semiconscious state of brain wave activation, it is the frequency range in the brain wave spectrum that is enhanced in a half-conscious state or while a person is falling asleep, as visualized in an electroencephalogram, EEG).

I propose that the endocrine imbalance - in particular low testosterone in men - is what makes people more susceptible to current ideologies in the first place.

Ideologies de jour include Increasingly totalitarian collectivist ideas targeting the interests of their own people, at that. Depression, inner confusion, hypersensitivity, lethargy, extreme self-criticism and oikophobia to the point of outright auto- racism. In this way, the propaganda can easily take hold.

I propose that without these endocrine disrupting chemical and radiological influences to human biology, few people would still watch TV or believe anything a politician or a (social) media mogul has to say.

And I will further propose that it is the same hormonal disruptions, that further push people to react to the before said defensively, to jump up and say these ideologies are not totalitarian at all, and those who think so, should be censored and punished.

As it happens, since the beginning of the lockdowns, when everyone is sitting at home, a few people have wondered what happened to their friends and families, and how they can just sit

there while they are losing everything they ever had. Lethargic and frightened, while they watch on TV how politicians keep breaking their own lockdown orders.

Did the chemically assisted reduction in testosterone help reduce wars and interpersonal violence in the post-war era?

This would mean that chemical social engineering (deliberate or accidental) would have had a positive aspect for a period of time. To be precise, if it was accidental, then it's technically not engineering.

We have seen that testosterone alone does not cause aggression. However, for outwards expression of collective violence, such as wars genocides and persecutions, a certain minimal testosterone threshold seems to be required. So, what we have been seeing in the last 5 decades in terms of low ethnocentrism, low future-orientedness, and lack of engagement in the general population, it all seems nice and heartwarming - not only to those who's hormones have been compromised already - but it all is leading straight towards a very likely massive population reduction event. A certain population decline would have been unavoidable in a Grand Solar Minimum and would have come along in the next decade(s) anyways, due to climate disruption and crop failure. But for the time being, this chemical and electromagnetic tempering with human behavior (accidental or deliberate) apparently made the world a more peaceful place with much lower reactive aggression.

Are people - especially men - "nicer" now than decades ago?

"Dr. Charles Ryan has a clinic in San Francisco at which he regularly relieves men of their testosterone. This "chemical castration", as it is sometimes known, is not a punishment, but a common treatment for prostate cancer. Testosterone doesn't cause the disease (currently the third most deadly cancer in the UK), but it fuels it, so oncologists use drugs to reduce the amount produced by the testicles."

"We do see increases in the empathy scores in many patients on the treatment". In his new book, *The Virility Paradox*, he argues that "the fact that reducing testosterone in these ageing men may lead to increased empathy, more emotional engagement in relationships and a softening of aggression could be something of a silver lining".³⁰¹

Sounds heartwarming, but think of whether Russian or Chinese soldiers have the same fuzzy feelings when they are ordered to invade a country.

10.2. A global conspiracy?

Not necessarily. Kind of. Can thousands of doctors, experts and politicians prevent a public shut down of the discussion of the causes of infertility and “Hormonageddon”?

Did they allow these chemicals to pass knowingly or are they just as clueless and careless as the rest of us? Are they all in some secret society with funny hats and secret handshakes to cover up the causes and the effects of hormonal havoc, especially testosterone collapse?

Consider this example, in the 1920s, it became known that Asbestos can cause lung cancer. It took over 70 years of private research, activism, lobbying, and political pressure to ban it in industrial countries. The big corporations, producers and banks of course were interested to cover up the health issues. But it was not only those in power who could afford to protect themselves from asbestos exposure, but also small bureaucrats, doctors and other people who lived in asbestos contaminated buildings themselves. Some retired doctors who had helped to cover up the health risks, were still vowing that asbestos is completely safe in the late 1990s. Beginning in the 1990s, it was banned in European and then in all industrial countries.

Some of the low-level enablers even thought it would be better for society as a whole if we tolerate some health risks in exchange for the huge benefits of asbestos to the industry and the associated increase in living standards of the masses, for ‘the greater good’. Of course, they couldn’t tell this to the masses, who are short sighted, with a ‘que sera, sera’ - mentality. Asbestos insulation for buildings was cheap, highly effective, resistant to weathering and fireproof, rapidly reducing disease and preventing millions of early deaths by exposure to cold or heat, mold and poverty. Asbestos was one of the prerequisites for the post-war economic progress. So, from a purely rationalist point of view, lying about the health risks did indeed save more lives for a certain time than it destroyed. Most of us know people, friends and families who are capable of going along with this without flinching.

The low-level enablers did not have to be part of the big boys' club the convince themselves it would be better to have a few victims of

lung diseases in exchange for a massive uplift in general health and wealth.

What applies to asbestos, is true for dozens of technological advances with short term benefits for humanity as a whole, that were - after much lobbying and corruption - proven to be harmful to health and ultimately were banned: lead paint, leaded gasoline, X-ray directly into the doctor's face, arsenic in newspapers, spraying DDT into children's faces, radioactive bottled water, mercury as treatment for syphilis, Thalidomide...and so on.

Here is a short history of the rise and fall of asbestos by Michelle Whitmer:

“Court documents provide irrefutable proof the asbestos industry leveraged its power and influence to keep workers and the public in the dark about the hazards of asbestos. Dozens of companies are implicated in the decades-long cover-up.”

“As early as the late 19th century, scattered reports on the health risks of asbestos emerged in Canada, Europe and the U.S. By the 1920s, leading medical journals had published articles linking asbestos to asbestosis, a new and sometimes fatal lung condition where inhaled asbestos scars the lungs and makes breathing difficult.”

“The disease was a serious problem for asbestos workers, who often toiled in thick clouds of asbestos dust each day. Even in the 1920s, doctors believed asbestosis could be prevented by limiting exposure to asbestos. It would take several decades, however, before asbestos was properly regulated in the U.S. and workers learned their jobs could lead to cancer and other serious health complications years down the line.”

“Between 1940 and 1980, the business expanded into a multibillion-dollar industry that employed more than 200,000 people.”³⁰²

10.3. Abolishing the nuclear family

Not only the role of the extended family, but of the nuclear family is being dissolved from within. Today's western societies are the first to have given up on this most archaic social instinct of having children and of investing much of their resources and energy to raise them. And non-Western nations are catching up fast, even more traditionalist societies, for instance in the Middle East.

The nuclear family has always been the backbone of any society in history, even totalitarian collectivist states have not been able to

break it. This includes biological influenced gender roles. It would be every totalitarian collectivist state's dream to dismantle the family completely, and to force women to hand over their anonymous babies, to be raised by state run nursing homes from infancy on. The abolishment of the family was proposed by Marx and Engels.³⁰³ Already Plato believed that the interests of the state are best preserved if children are raised and educated by the society as a whole, rather than by their biological parents. So he proposed a simple (if startlingly unfamiliar) scheme for the breeding, nurturing, and training of children in the guardian class.

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But even though communist leaders have largely managed to break up strong affiliations to the extended family, they have never seriously tried to implement the end of the nuclear family. The modern-day inclination to destroy the family is unprecedented and it strongly coincides with the biological endocrinal disruption in the population.

In most communist/ socialist societies, 10 percent of the population were murdered at the start and then more later on. It is always the more individualist, libertarian, and conservative and more family-oriented citizens that are executed first. But even in North Korea, with all the social engineering, executions and reeducation camps over three generations, where already small children are forced to learn that the state is above everything and interpersonal relations must take a subordinate role, where people are induced to rat out their grandma for "thought crime"; even there, the human instinct for the nuclear family could not be broken. If dissidents escape over the border, the state kills the entire family left behind, this threat works to keep almost anyone at bay.

Similarly, China has a 70-year-old communist agenda that endorses gender equality even though the party just "banned feminism" altogether and they just banned "effeminate men" from TV.³⁰⁵ And loyalty to the state is held as the highest merit, but here too, the nuclear family always remained undisrupted.

And that is not only because the state needs a steady supply of new citizens. Even during the one-child- policy, the nuclear family was not challenged.

In 1923 the Soviet Regime promoted the new Soviet woman: "single, confident, and committed to a life of edifying political-agitational work."

"Worker first, mother second, wife never again!" Author Alexandra Kollontai, former director of the Women's Department of the Communist Party (Zhenotdel), used fiction to promote new social relations under Socialism."

"Like the institution of the state under complete Communism, the family would "wither away not because it is being forcibly destroyed by the state, but because the family ceases to be a necessity."

So, the ideal family is a single working mom household with the children raised in nurseries.

"Trotsky argued: women would have to be relieved of housekeeping and childcare duties, and freed from the bonds of marriage. New Socialist institutions such as canteens, laundries, and nurseries would permit Soviet women to practice domestic independence—and, crucially, to enter the workforce."³⁰⁶

Not only did communism as envisioned by Marx never happen, but the socialist and inaccurately self-declared communist states never really tried to dissolve the nuclear family completely, as in a socialist dystopia, where mothers hand over their babies to be raised in state run nurseries.

According to Marx, communism is when the socialist state, a temporary entity, has withered away to leave the citizen self-governing.

The only thing that was fulfilled under 'communism' indeed however, was Vladimir Lenin's demand: *"He who does not work shall not eat"*, as a necessary principle under socialism.

(Vladimir Lenin: *The State and Revolution*, 1917)

At the end of the book, we revisit the decline and Fall of the roman Empire, where similar trends as today were rampant in the upper classes, the citizens. Plummeting birth rates, abortion, contraception, obsession with pleasure and status, sex orgies. But the middle classes were much less affected than the upper classes (citizens), whereas the peasants in the provinces showed no disruption of the nuclear family. Thus, the "Romans" are still around, today's Italians are largely genetic descendants of imperial Romans.³⁰⁷

Chapter 11

Theories and Proposals for population reduction

“Perhaps by means of injections and drugs and chemicals the population could be induced to bear whatever its scientific masters may decide to be for its good. “

Lord Bertrand Russell, the scientific outlook 1931.

As we have seen, whatever decreases fertility is ultimately also reducing testosterone. Disrupting testosterone secretion is actually the pathway by which certain EDCs disturb fertility. The two go hand in hand, when the talk is of population reduction by pharmaceutical intervention and chemical sterilization, then this ultimately includes 'weakening the human character' and reducing virility by disrupting gonadal hormones.

Many prominent intellectuals, politicians and industrialists have called for efforts to bring about population reduction in order to prevent food collapse, over-aging or climate change. among those are of course eugenic methods to selectively kill off the “unfit.” Eugenicists have not gone away after the 70s, even Obama’s top science advisor has called for sterilization and forced adoption of babies of single mothers (see below). In general, globalist power brokers restrict themselves to propose that the population “should” decline by 50-90%, without specifying the means by which this should come about. Only because they want to do exactly what has been happening to fertility and gonadal hormones, does not prove they have deliberately let it happen or even made it happen. Your guess is as good as mine.

Others such as Malthus have warned that population numbers will collapse inevitably without deliberate intervention, from scarcity of food and land. The latter can hardly be disputed. One thing is clear, if solar- and geomagnetic activity continue to decline – and there is no indication to a stop – then the world population will be reduced to some extent inevitably in the next decades(s). Fertility is declining at an accelerating rate, so the overpopulation problem will solve itself sooner than the people would like (at the latest from

2045 onwards). But as I've proposed, it is the parallel decline in gonadal hormones, which is a prerequisite for people to react with indifference to or even cheer on their genetic extinction.

The population in the world doubled since 1960 - increasing the effects of other problems such as natural climate change, crop failure and food shortages that come with declining solar activity.

Populations in poverty have on average higher birth rates. In Europe and Northeast- and northern Asia, birth rates were very high until the early Modern age and the Industrial Revolution, with a high mortality rate, leading to high fluctuation, but stable population numbers.

When Thomas Malthus anonymously published his sensational work "An Essay on the Principle of Population" in 1798, he wrote: *'Populations tend to always grow faster than the production of food, part of society seemed to be condemned to misery, hunger or epidemics: these are the scourges that slow down population growth and that, in Malthus' opinion, are the principal obstacles to the progress of society.'*³⁰⁸

Contrary to his prediction, the 'Malthusian Trap' did not snap shut in the 20th century, rather, the Agricultural Revolution was able to keep up the food production, and the British are still around today.

Ever since, dozens of well-connected people have proposed methods for population reduction.

In his 1968 book "*The Population Bomb*", Stanford University Professor Paul Ehrlich himself reached fame for predicting: "*Dire famine' by 1975.*" The newspapers wrote: Experts chart worst failures in 'eco-polcalyptic' predictions."³⁰⁹

Ehrlich said the famine is due to overpopulation; "*birth control may have to be accomplished by making it involuntary and by putting sterilizing agents into staple foods and drinking water.*"

Surely, he didn't mean they should just do it, and he later added they shouldn't, but this happens to be exactly what turned out to go on since: sterilizing or fertility-reducing chemicals have been introduced in pesticides, pharmaceuticals, packaging materials, flame retardants and so on, ending up **in food, soil and drinking water** in accumulative quantities, with a coinciding bottomless drop in fertility and testosterone levels and unprecedented rates of defects in reproductive health.

Nobody is saying secret government operatives are driving tanker trucks to water treatment facilities and dump sterilizing chemicals into reservoirs in the middle of the night. But the chemicals with these side effects are there. Mr. Ehrlich advised in 1967 that:

“The United States is already too big, that birth control may have to be accomplished by making it involuntary and by putting sterilizing agents into staple foods and drinking water, and that the Roman Catholic Church should be pressured into going along.”

*“The US would have to lead international efforts due to its prominence in the world. In order to avoid charges of hypocrisy or racism it would have to take the lead in population reduction efforts.”*³¹⁰

The proposal of adding sterilants to drinking water brought a charge from one newspaper critic that Ehrlich was ‘worse than Hitler.’³¹¹

But Ehrlich was just thinking out loud, for he later added:

*“It might be possible to develop such population control tools, although the task would not be simple.... Technical problems aside, I suspect you'll agree with me that society would probably dissolve before sterilants were added to the water supply by the government. Just consider the fluoridation controversy. Some other way will have to be found.”*³¹²

Well, “sterilants” were NOT “added to the water supply by the government.” Sterilizing properties are just a side effect of useful chemicals that were coincidentally released, mostly by private enterprises in the form of pesticides, plastics and hundreds of industrial and household products, that ended up in the groundwater, drinking water and soil. Governments just happened to let this pass.

Another globalist 'philanthropist', Julian Huxley, was a United Nations advisor, co-founder of UNESCO and the brother of author Aldous Huxley. Julian was not only concerned with the population numbers, but he was an adamant eugenicist:

“The lowest strata are reproducing too fast. Therefore... they must not have too easy access to relief or hospital treatment lest the removal of the last check on natural selection should make it too easy for children to be produced or to survive; long unemployment should be a ground for sterilisation.” Julian Huxley (1944). “Man in the Modern World”³¹³

Professor Paul Weindling 2012 explains:

*“[Julian] Huxley redefined eugenics as “a form of applied human genetics.[...] Huxley pointed out that what the immunologist Peter “Medawar called “genetic engineering” was really a new form of negative eugenics. Eugenics remained at the core of Huxley’s humanism.”*³¹⁴

Julian's brother Aldous Huxley is sometimes credited with having sent out the most vivid warning of humanity's future in the dystopian novel **Brave New World**, published already in the 1930s.

Did he just make well informed guesses, or did he get some insider information from his family into ongoing research?

The novel did anticipate invitro fertilization, the dismantling of the nuclear family and of monogamous relationships, everyone on Soma or anti- depressive drugs, general sex addiction, sex pills, medical rejuvenation procedures, multi-senses theater (the feelies), human shallowness, general narcissism and 'idiocracy', the despise for old and 'unfit' people, sexualization of everything, increasing separation of intellectual classes by breeding patterns (as described in C. Murray's: *Coming Apart*).

The only thing that hasn't come true, and probably won't, is the complete lab baby grown without a womb.

But what has been happening extensively in the past 50 years, is chemical interference in the fertilization and gestation process, leading to epigenetic changes in the born human, influencing character and intelligence. Today, men born with (chemically induced) hypogonadism and low testosterone are literally more docile and mellow. All of this probably came to pass purely accidentally as an unintended side effect of the chemical and agricultural progress. In *Brave New World*:

"Lower caste fetuses are created by receiving alcohol transfusions to reduce intelligence and height, thus conditioning them for simple, menial tasks. Connections between alcohol and incubating embryos are made multiple times in the novel. " ³¹⁵

The fictional director of the hatchery explains: "*Bokanovskification (splitting eggs into multiples to produce serial twin workers) consists of a series of arrests of development. We check the normal growth and, paradoxically enough, the egg responds by budding.*"

Fertilized eggs of the lower cast were treated with eight minutes of hard X-rays, in the 'social predestination room.'

As it turns out, today's real- life invitro fertilization leads not only to birth defects and infertility in the offspring (see p.26), but coincidentally to higher rates of twin birth.

What Huxley insinuated was more or less fetal alcohol syndrome, but systematically induced, with the aim to produce docile and stupid workers.

In real life, fetal alcohol exposure not only results in well-characterised neurobehavioural deficits in offspring, which form the basis for diagnosing fetal alcohol spectrum disorder; but in addition, "in females it delays age at first menarche/puberty onset in alcohol-

oexposed offspring. In males, offspring exposed to prenatal alcohol had **altered testosterone levels**, reduced testes and accessory gland weights and reduced sperm concentration and semen volume." ³¹⁶ "Alcohol exposure during development has been shown to reduce testosterone in males and estrogen in females." ³¹⁷ This wasn't publicly known in 1932. These are similar effects that would decades later be induced by Endocrine Disrupting Chemicals and radiation. Huxley envisioned X-rays (ionizing radiation) instead of microwaves (non- ionizing) to treat the fetus to produce stupid and docile workers.

Aldous Huxley's death wasn't highly publicized, because he died on the same day as then-President John F. Kennedy, on November 22, 1963.

Lord Bertrand Russell was more outspoken on his ideas of stealth population control:

"Just as the sun worship of the Aztecs demanded the painful death of thousands of human beings annually, so the new scientific religion will demand its holocausts of sacred victims. ..."

"Perhaps by means of injections and drugs and chemicals the population could be induced to bear whatever its scientific masters may decide to be for its good. "

Lord Bertrand Russell, the Scientific Outlook 1931

"I do not pretend that birth control is the only way in which population can be kept from increasing. There are others, which, one must suppose, opponents of birth control would prefer. War, as I remarked a moment ago, has hitherto been disappointing in this respect, but perhaps bacteriological war may prove more effective. If a Black Death could be spread throughout the world once every generation, survivors could procreate freely without making the world too full."

(Lord Bertrand Russell: "Can A Scientific Society Be Stable?" 1949 ³¹⁸)

What today's modern-day democrats and pro-abortion activists do not mention is that abortion and in parts contraception has always been a means proposed by self-declared "valuable people" to dispose of the "unfit". Margret Sanger, the founder of Planned Parenthood wrote: *"We don't want word to go out that we want to exterminate the Negro Race."* She had also advocated for 'compulsory sterilization and segregation for people with disabilities.' ³¹⁹

To deliberately sterilize the population involuntarily by putting sterilants in food and drinking water is genocide by the UN definition; Article II of the United Nations Genocide Convention:

“Genocide means any of the following acts committed with intent to destroy, in whole or in part, a national, ethnical, racial or religious group, as such:

-(c) Deliberately inflicting on the group conditions of life calculated to bring about its physical destruction in whole or in part;

-(d) Imposing measures intended to prevent births within the group.

“³²⁰

In a similar tone, Obama’s top science advisor John Holdren advocated for mass sterilizations, forced abortions and a global police force. Holdren advocated the following proposals in the 1977 book entitled “Ecoscience”,³²¹ which he co-authored with Paul and Anne Ehrlich:

“Indeed, it has been concluded that compulsory population-control laws, even including laws requiring compulsory abortion, could be sustained under the existing Constitution if the population crisis became sufficiently severe to endanger the society.”

(page 837)

“One way to carry out this disapproval might be to insist that all illegitimate babies be put up for adoption—especially those born to minors, who generally are not capable of caring properly for a child alone.”

(page 786)

A single mother would have to apply for permission to adopt her own children in order to keep them.

Again today, elitist globalists are proposing different methods to reduce the population in order to ‘combat climate change’, the refugee crisis and injustice, and they’re specifically calling on western people to not have children.

Under-population

Between 1964 and 2018 the global fertility rate fell from 5.06 births per woman to 2.4.³²²

Today, all industrialized countries, not only in the West, have fertility rates below the replacement threshold of 2.1 children per woman (first and foremost among the wealthy classes), *‘this is happening in about half of all nations.’* In July 2020, the BBC

reported: "*Jaw-dropping' global crash in children being born.*" ³²³ Researchers at the University of Washington's Institute for Health Metrics and Evaluation showed: the global fertility rate nearly halved to 2.4 in 2017 - and their study - published in the Lancet - projects it will fall below 1.7 by 2100. ³²⁴ Even in China - after decades of one-child policy to allegedly prevent over population - as of 2018, China's local authorities '*are scrambling to incentivize women to have more children, as the country's birth rate continues to drop*' ³²⁵ (I had postulated in *Solar Behavior* that the one-child policy was a stealth eugenic program, that indeed raised the Chinese IQ in one generation).

Only westerners are not concerned at all about their biological extinction, quite to the contrary.

Again, given the ongoing testosterone crisis keeps proceeding unchecked at the same time, the problem of global overpopulation will solve itself faster than people would think (at the latest from 2045 onwards). Now, the minority of millennials who were theoretically going to have children are canceling this because of COVID, but they speak of postponing it, ³²⁶ which is a bit ironic because the older millennials are now 40 years old - and in case of women - past reproduction. It is the same age group of women who say they want to have children some day and then start looking for a partner when they are 38. At midlife, between a third and a half of all successful career women in the United States do not have children. ³²⁷

Chapter 12

Testosterone in solar maximum and minimum

Cold winters

My assessment that Grand Solar Minima – the periods of harsher climate and a decrease in interpersonal violence - are periods when male testosterone levels are higher, is based on circumstantial evidence.

The wars and genocides - erupting primarily in solar maxima - are not typical for high testosterone and masculinity and femininity, but rather the opposite.

We don't have reliable direct data on male testosterone level measurements reaching further back than 1975. The indirect evidence of how testosterone and estrogen levels are related to solar- and geomagnetic cycles – or rather whether testosterone is generally higher in solar maximum or minimum - gives a mixed picture, as listed below.

Geomagnetic and atmospheric conditions during Grand Solar Minima are leaning toward conditions in more northerly latitudes and in terms of seasons, to winter conditions. This is explained in detail in *Solar Behavior (2020)*. Here is a short summary:

During a Grand Minimum, the conditions in climate and energetic state of the atmosphere at a particular location shift towards the conditions that would be present in a more northerly altitude.

If we compare a location A at 20° North to location B at 50° North, the more southerly location A has on average less cosmic ray flux³²⁸, a weaker static geo-magnetic field, higher (first mode) Schumann Resonance intensity, higher UV radiation but less UV variability, and more lightening than the northern location B. In Grand Minimum, these parameters are enhanced in location A and the conditions in location B shift to become more similar to those at location A.

Generally speaking, in a beginning Grand Minimum, the conditions at a particular location change as if everyone is moving a bit northward (or away from the Equator). These parameters can all influence human behavior.

Indicators of higher male testosterone levels in grand solar minimum

Solar Radio Flux density (solar microwave radiation on Earth) is higher in solar maximum. To repeat: in today's definition, radio waves range from 1 Hz to 300 MHz, microwaves range from 300 MHz to 300 GHz.

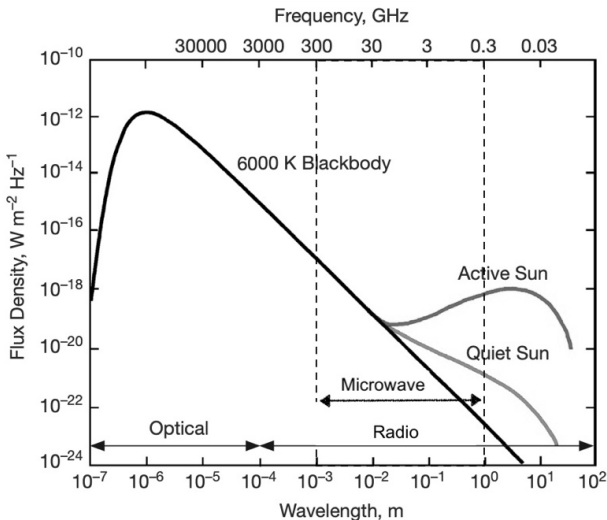


Fig. 4 The solar flux density is equal to that from a blackbody radiator at 6000 K at wavelengths less than about 1.0 cm (a frequency greater than about 30 GHz), but the spectral density becomes much greater at longer wavelengths for both a quiet and disturbed Sun. An active Sun [solar maximum] has much larger flux density than does a quiet Sun [solar minimum] in the frequency range between 100 MHz (3-m wavelength) and 30 GHz (1 cm wavelength). These elevated fluxes come mainly from the contribution of the solar **corona** and the chromosphere, a thin layer just above the visible photosphere. The scales of 'active' and 'quiet' sun here refer to 11-year-solar cycles, they can be extrapolated to much greater fluctuations for grand solar cycles.

Graphic: Ho, Christian et al 2008: *Solar Brightness Temperature and Corresponding Antenna Noise Temperature at Microwave Frequencies*; IPN Progress Report 42-175 • November 15, 2008; https://ipnpr.jpl.nasa.gov/progress_report/42-175/175E.pdf

Solar activity is measured mostly in 10.7 cm solar radio flux on Earth, which is within the microwave spectrum similar to a microwave oven, but of course in a much lower amplitude.

"The 2,800 MHz, or 10.7 cm, responds to the same conditions that produce changes in the visible and X-ray wavelengths." ³²⁹

In solar maximum, people are exposed to a greater dose of this very weak, but stable microwave flux from the sun. Could this steady flux be enough to lower testosterone in men and estrogen in women, in a similar way as artificial short term, high amplitude microwaves do?

The microwave wavelength 2800 MHz daily radio flux correlates highly with the daily sunspot number and the two databases are used interchangeably.

"Unlike many solar indices, the F10.7 radio flux can easily be measured reliably on a day-to-day basis from the Earth's surface, in all types of weather. Reported in "solar flux units", (s.f.u.), the F10.7 can vary from below 50 s.f.u. to above 300 s.f.u., over the course of a solar cycle." ³³⁰

"The solar microwave flux is nominally an absolute flux, one solar flux unit is defined as [the very small amount of] 10-22 Watt per square meter per Hertz." ³³¹

Professor Svalgaard elucidates the recently "changing relationship between Sunspot Number and F10.7": Sunspot Number and the 10.7cm solar radio flux are the most widely-used indices of solar activity. Despite their differing nature and origins at different places in the Sun, these two indices are highly-correlated to the point where one can be used as a proxy for the other. *"However, during Solar Activity Cycle 23 we started to see a small but definite change in this relationship."* ³³²

Solar cycle 23 lasted between 1996 and 2008, that's when the two measurements began to drift apart.

"The progressive drift is much larger than the 3% correction and is therefore not due to the correction. It seems inescapable that the relation between the sunspot number and the microwave flux has changed significantly in recent years." ³³³

To be sure, the fact that the first global response to an infectious disease in history – with government measures thousands of times more severe than during the Spanish Flu – is about a CORONAVIRUS, has nothing to do with the solar corona of this beginning solar minimum, nothing at all.

Male testosterone is lower in winter in northern latitudes.

A 2003 study found that the testosterone levels of men in one Norwegian town bottomed out in summer and reached a high in late fall. A study of Danish men found similar seasonal variations (on a slightly different schedule). But studies done in sunny San Diego and snowy Boston failed to replicate the Scandinavian findings.³³⁴

Space flight has decreased testosterone in astronauts.

Space flight in low orbit or outer space results in increased cosmic ray exposure. On Earth, cosmic ray flux is greater in solar minimum. "Alterations in HPG and HPA axes functioning have been reported following spaceflight. Most evaluations focused on the reduced levels of circulating testosterone in men that appear to rebound after return to Earth."³³⁵

Ethnic differences in hormones of people living in Zambia.

The concentrations of progesterone, oestradiol, testosterone and cortisol have been measured in blood plasma from groups of men and women living in Zambia, but having European, African or Asian origins. Oestradiol concentration was higher in blood from African men than from men of the other two groups. Asian women showed the lowest luteal phase plasma oestrogen level. African men had **lower mean testosterone** in plasma than the other groups, while African women had higher results. There were no ethnic differences in progesterone concentrations.³³⁶

Testosterone, latitude and culture.

A new study out of Durham University in the United Kingdom suggests that the childhood environment of males determines their testosterone level, undermining the previous prevailing theories that race or genes govern the amount of the hormone in each individual. *"Bangladeshi men who grew up and lived as adults in the UK had significantly higher levels of testosterone compared with the men who grew up and lived in Bangladesh as adults."*³³⁷ However, what was not considered in the conclusion of this study, is that people growing up in third world countries, even the middle class, which was observed here, have on average higher exposure rates of environmental chemical toxins, including EDCs, in drinking water, food, and consumer goods, than residents of western countries.

Contrarily, there are indicators for higher testosterone levels in Grand Solar Maximum

Most indirect evidence suggesting higher testosterone in solar maximum as well as in Grand Solar Maximum are derived from data that associate higher testosterone with sunlight exposure in vivo as well as in utero.

Sunlight exposure boosts testosterone production in men. Overall, sunlight is more abundant in solar maximum.

Exposure to bright light increases testosterone levels and leads to greater sexual satisfaction in men with low sexual desire. A group of scientists from the University of Siena in Italy have tested sexual and physiological responses to bright light. They found that regular, early-morning, use of a light box -- similar to those used to combat Seasonal Affective Disorder - led both to increased testosterone levels and greater reported levels of sexual satisfaction.³³⁸

Sunlight and Digit ratio (2D:4D)

More sunlight in gestation coincided with lower 2D:4D digit ratio (greater masculinization) in men and women in Poland. The solstitial-melatonin-testosterone hypothesis posits that melatonin inhibits the production of foetal testosterone and melatonin levels are at their lowest in months when light levels are high. Polish men and women born between 1907 and 1997 were examined. Participants born in late-Autumn and who experienced long days in the 2nd and 3rd prenatal months had a **low 2D:4D digit ratio**. *"The effects were strongest for participants born in the first half of the 20th Century, where photoperiods would be less disrupted by artificial light."*³³⁹

The researchers assumed that the differences between subjects born before 1950 and subjects born after 1950 would be due to light pollution at night. What was not addressed in the study is the fact that those born in the second half of the 20th Century, where the effect was less pronounced, are also the generation of the period when EDCs were introduced proficiently, with an overall disruption of androgenization in gestation.

A study by Myerson (1939) showed that even exposure of the genital area to UV light 'greatly stimulated androsterone production in men and increased testosterone production by 200%.³⁴⁰

Melatonin is a ubiquitous molecule and exhibits different effects in long-day and short-day breeding animals. Testosterone, the main resource of androgens in the testis, is produced by Leydig cells but

regulated mainly by cytokine secreted by Sertoli cells. Melatonin acts as a local modulator of the endocrine activity in Leydig cells. In Sertoli cells, melatonin influences cellular proliferation and energy metabolism and, consequently, can regulate steroidogenesis. This suggests melatonin as a key player in the regulation of steroidogenesis. However, the melatonin-induced regulation of steroid hormones may differ among species, and the literature data indicate that melatonin has important effects on steroidogenesis and male reproduction.³⁴¹

Chapter 13

Treatments and attempted treatments for male testosterone deficiency

13.1. Testosterone Replacement Therapy

Testosterone Replacement Therapy has a positive impact on depression in patients with late-onset testosterone deficiency.

"TRT reduces depressive symptoms, according to data coming from small-sized, placebo-controlled RCTs of patients with pretreatment clinical mild depression. This impact was not noticed in men with major depressive disorders. In patients without pretreatment depression, TRT leads to a reduction of scores for depressive symptoms." ³⁴²

Additional research showed that "Overall, the quality of life in older hypogonadal men can be positively influenced by testosterone substitution, as has been demonstrated in large placebo-controlled trials." ³⁴³

A phenomenon in Western countries?

Prescriptions for Testosterone Replacement Therapy more than doubled from 2010 to 2013. This has been partially attributed to drug marketing campaigns urging older men to boost "low T" levels, even if they don't need it. ³⁴⁴

The Figure below shows the distribution of testosterone replacement treatment use in selected countries worldwide in 2011. Note the top countries are all western countries, who are incidentally also leading in social progressivism, oikophobia and negative ethnocentrism.

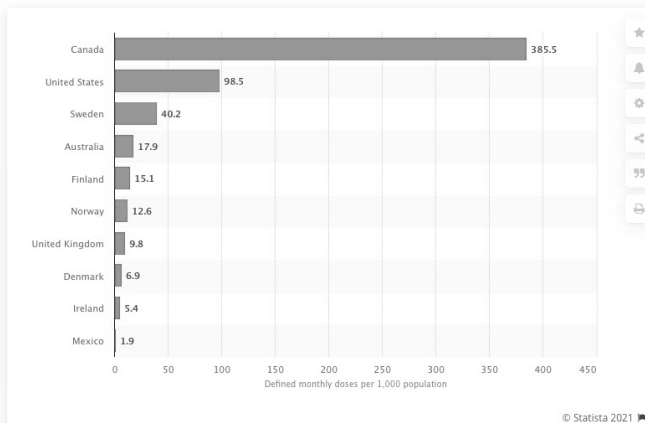


Fig. 5 Testosterone use worldwide by select countries per 1,000 people 2011; Published by Statista Research Department, Aug 13, 2013 <https://www.statista.com/statistics/302923/testosterone-use-globally-per-1-000-population/>

Physicians were interviewed on diagnosing and treating testosterone (T) deficiency in Germany, Spain, the United Kingdom, Brazil and Saudi Arabia. Erectile dysfunction (ED) and lack of libido (2006) but also depression and obesity (2010) were regarded as symptoms of T deficiency. For 70% of physicians, severity of complaints was more significant than the laboratory value of T to prescribe T, more so in Germany (96%) than in Spain and Saudi Arabia. Concerns about prostate disease remained strong and, therefore, 11% of eligible patients did not receive T.³⁴⁵ "In the United States, men spend over 3 billion dollars annually on TRT."³⁴⁶

13.2. The risks of TRT

Dr. Puneet Masson, Penn Medicine cautions: "Many times people feel that, 'Oh, I have low testosterone—it affects fertility—I should take a testosterone supplement. That's actually something we do not want them to do. If a man is taking any extra testosterone, it can basically shut off his body's ability to make its own testosterone—and the body's ability to make its own sperm.'" The number of men taking testosterone supplements has noticeably increased in the last decade. This growth is even among men who don't need to because their testosterone levels are normal, according to a March 2014 study in the *Journal of Endocrinology and Metabolism*.

Dr. Masson adds: *“There’s a lot of misuse of these supplements and treatments,” “People take them as a sort of anti-aging treatment when they have normal testosterone. Testosterone replacement therapy should be given to someone who has low testosterone and is symptomatic from it.”*³⁴⁷

Dr. Thomas O'Connor, a prominent men's health internal medicine physician cautions:

*“Testosterone Replacement Therapy has to be considered for life. most men don't want to stop - and depending on circumstances they may not be able to.”*³⁴⁸

Testosterone replacement therapy can increase men's risk of stroke and heart attack.³⁴⁹

In particular, “Studies showed men over 65 - who were prescribed testosterone - had twice the risk of suffering from a heart attack. Men under 50 with a history of heart problems have a three-fold increased risk of a heart attack during the first 90 days of TRT. “³⁵⁰ Further, Obstructive Sleep Apnea Syndrome has been associated with testosterone administration.³⁵¹

A short background of TRT by Ana Marcella Rivas et al:

*“Already from the 1970s onwards, several authors reported an age-associated decline of serum testosterone levels beginning in the fourth or fifth decades of life. Other studies found that the decline in testosterone with age might be more related to comorbidities that develop in many aging men. Aggressive marketing campaigns by pharmaceutical companies have led to warped perceptions. Many men with low testosterone levels have no symptoms, and many men with symptoms who receive treatment and reach goal testosterone levels have no improvement in their symptoms.”*³⁵²

As we have seen, **the actual prevalence of hypogonadism has been estimated to be 39% in men aged 45 years or older in the United States** “(p. 18).

*“Erectile dysfunction is associated with low bioactive testosterone levels and visceral adiposity in men with type 2 diabetes.”*³⁵³

In addition, Dr. Friedman points out that just as hormone replacement therapy was shown to cause serious health risks to women in the early 2000s, men are now experiencing adverse reactions to TRT, such as an increased risk of stroke and heart attack.”

“TRT can also cause an increase in red blood cells, which thickens the blood, leading to blood clots. A study published in the August 2013 issue of Clinical and Applied Thrombosis/Hemostasis found that blood clots may develop as quickly as three weeks after beginning testosterone drugs.³⁵⁴ Finally, the most common

negative effect of TRT is testicular shrinkage and impotency. In spite of such warnings, testosterone prescriptions show no signs of decline. In fact, TRT has increased tenfold in the last decade, and is growing steadily at 10 percent per month!"³⁵⁵

Chapter 14

Historic precedents of oikophobia and low ethnocentrism

14.1. natural variations in testosterone over time, solar cycles and the Pacification Process in the Middle Ages, self-domestication

Grand Solar Minima are times of peace. People living in the post war area tend to imagine this means cuddly love and tolerance for everyone, even for repeat violent criminals, no matter what damage they cause to society. In the past millennium, the increased desire to establish peace and security manifested in harsh punishment of violent crime, to such severity that it altered the gene pool in the direction of more impulse control and lowered reactive aggression, which contributed to peacefulness, self-control and enforcement of human rights during the last millennium. The effects last till today.

In this 'War on Crime' which began already in the 12th century, lethal interpersonal violence dropped in Europe roughly by a factor of 10:1 to 50:1 in the period from the fifteenth to the twentieth century.³⁵⁶ This coincided with a cluster of several grand solar minima, which again coincided with the cold period known as the Little Ice Age (1350- 1850). And the trend was enhanced in each Grand Solar Minimum. All of this was detailed in *Solar Behavior (2020)*. This phenomenon can be added to the indicators of higher testosterone levels in Grand Solar Minimum, and it is also consistent with the fact that testosterone alone does not cause aggression, but confidence and dominance. Imagine what the world was like with 50 times more violent crime than today.

Before the 11th Century, it was considered honorable and manly to settle disputes from 'man to man', if need be, by violence. From the 12th Century onward, violent crime was punished often by death so "the innocent could live in peace".

Over a lifetime, one or two out of every two hundred men would end up being executed. A comparable trend is observed in Japan in the same timeframe.

On a large scale, this decline in violence since the early Middle Ages had a significant genetic component. The rigorous execution of even non-violent criminals is considered cruel and inhumane by our modern laws and ethical standards; to most of us, hanging a thief on the town square is unthinkable. Plus, the ineffective justice system of the time meant more innocent suspects were unjustly executed than today. Even today, due to errors or corruption, convicts are sometimes found innocent after years of incarceration or even on death row, which makes a strong case against the death penalty.

But despite of all these problems, in a cynical way, it was among other things the merciless implementation of the rule of law in the Middle Ages that furthered the low criminality and high empathy of today's society. The exact magnitude of the genetic contribution in this pacification process is still debated, but since it does exist, it had a long-lasting effect (likely for many generations to come).

As a side effect of lowered aggression and heightened altruistic sociability and trust, this also fostered the rise of a 'servile people' - overly trusting in authorities - particularly in western and northern cultures - plus the rise of maladaptive individuals who are inclined to harm their group's interests since about 150 years.

14.2. The decline and fall of the Roman Empire

We can see strong parallels between the decline and fall of the Roman Empire and today's decisive period in history.

Late-stage Roman society saw a similar social mood as we are seeing in the West today, low fertility, low family-orientedness and low ethnocentrism, low in-group preference (high levels of oikophobia), narcissism and so on, from the early years of its decline - from around 200 A.D. onward. This was a much more lengthily and tedious process than today. Another striking difference is that the low in-group preference and low birthrates were confined to the aristocracy and the upper middle class, while the peasants were not or little affected.

No clear picture emerges from the viewpoint of the decline of the Roman empire in connection with solar- and geomagnetic activity. Over all, the decline in social mood and national identity roughly overlaps with a declining solar activity at the end of the Roman Climate Optimum, beginning about 150 A.D. whereas temperature

and climate stabilities started to deteriorate significantly only around 450 A.D.

Thus, here too, just as today, the social mood proceeded somewhat atypically in comparison to the rest of the last two millennia, with no perceived increase in rationality, invention or national optimism in a beginning solar minimum.

"The Roman Climate Optimum (BC 200–AD 150) moved smoothly into the Roman Transition Period (AD 150–AD 450), which was a period of climate disorganization, followed by the Late Antique Little Ice Age (AD 450–AD 700)." ³⁵⁷ The latter is also named 'Dark Age Grand Solar Minimum.' ³⁵⁸

We begin in 3rd century Rome. Hugh Trevor-Roper describes the decline of Rome as having begun already around 200 A.D:

"All the great structures [...] the aqueducts, the amphitheatres and the city walls – were raised before the beginning of the third century. After that, there was almost nothing. More and more historians began to discern "a fundamental structural change" at the time, "which the great emperors at the end of that century, and Constantine himself at the beginning of the next, did but stabilize." ³⁵⁹

In 1920, Professor O. Seeck pointed out a 'problem of the biological order' in the late Roman Empire:

"The cruelty and suspiciousness of the emperors removed and killed all persons who, by their mental qualities, capacity, and energy, raised themselves above the average. Through an artificial, inverted selection, independence and originality were stamped out and a servile people bred." ³⁶⁰

Overall population started to decline by falling birth-rates 'already from 100 A.D. onwards during the earlier years of the Empire.' ³⁶¹

"We see in our own days how the fall of the birth-rate commences in the upper classes and soon spreads down to the lower. This decline seems to be common to a high culture, at least the same phenomenon appeared among the civilized populations of the [British] Empire, the Greeks and the Romans." ³⁶²

Cultural progress - except in technology – declined; before, it had been 'depending on the upper class'. *"This Roman upper class, beginning about the second or first century B.C., died out with extreme rapidity. Each generation was perhaps a fourth of the previous one, largely through rearing very few children."* ³⁶³

A. H. Jones noted, referring to the 4th century: *"On our evidence the peasantry were in general apathetic and docile; of any*

*spontaneous action on either side [of two peasant armies] there is scarcely any trace.”*³⁶⁴

As early as in the 18th century – in ‘*The Decline and Fall of the Roman Empire*’ - Edward Gibbon identified five major causes that contributed to the fall of the Roman Empire: **First, the breakdown of the family. Second, increased taxation. Third, an insatiable craving for pleasure. Fourth, an unsustainable buildup of armaments. Fifth, the decay of religion.**³⁶⁵

*“The nation of soldiers, magistrates, and legislators, who composed the thirty-five tribes of the Roman people, was dissolved into the common mass of mankind, and confounded with the millions of servile provincials, who had received the name, without adopting the spirit, of Romans.”*³⁶⁶

As the decline began with low birth rates - especially among the upper classes - it was then accompanied by promiscuity, abortions, widespread infanticide of unwanted newborns³⁶⁷, orgies and venereal diseases among the establishment, replacement of Roman soldiers with non-Roman soldiers, non-Roman emperors from the provinces, Emperors obsessed with sexual deviancies, but uninterested in governing, mass immigration; it all seems familiar in regards to current developments in the West. Unwanted children were disposed of on the street. Gibbon: *“In ancient times the parents had a right to expose children whom they did not desire to educate. Where the supply of food is scarce among primitive peoples this may be excused. Among a civilized people, when economic egotism has obliterated the natural feelings of the parents, it is nothing but legalized infanticide.”*³⁶⁸

Seneca (died 65 AD) warned one of the foundational reasons Rome would fall was the fact that *“they divorce in order to remarry. They marry in order to divorce.”* Already Augustus knew that the falling birth rates were not the result of abstinence, but of contraceptives, he enacted laws to create positive and negative incentives, but the upper class could not even be bribed into wanting children.³⁶⁹

*“Mass population transfers were tried, whether to people recently conquered lands, to replenish newly depopulated ones, or as political policy.”*³⁷⁰

Meisenberg (2007) has observed that when civilizations become advanced the standard of living among the higher classes increased to such an extent that their stress levels drop to a point where they start questioning their religiosity. He claims that this is what happened towards the end of the Roman Civilization, and it likely helped to explain the *‘low levels of ethnocentrism observed*

*at this point in Rom's history, when foreigners were effectively permitted to take over the city.*³⁷¹

Murray (2003) observed “[...] *“Taken as whole, the Roman world throughout its history, whether republic or empire, was a near intellectual void when it came to the arts and sciences - “peopled by a race of pygmies” in Gibbon’s contemptuous words. Scientific, philosophic, and artistic progress did not come to an end when Rome fell, but, without much exaggeration, when Rome rose.*”³⁷²

Lead poisoning inhibits endocrine function

Lead poisoning in Roman cities has long been argued to have contributed to their decline and fall, usually it was assumed, in the form of general health decline and stupidity. By the way, the lead came not primarily from lead pipes in drinking water in ancient Rom, but from cookware, wine cauldrons and to a minor degree, from fumes of lead factories.³⁷³

*“Nriagu estimates the aristocracy of Rome to have consumed two liters of wine a day or almost three bottles (which would seem to make alcoholism more suspect than lead poisoning) and the resulting lead intake to have averaged 180 µg daily. He further estimates the total amount of lead absorbed from all sources to be 250 µg per day and lead concentration in the blood to be 50 µg/dL, at least for the gluttonous and bibulous (as he phrases it) and those with an appetite for adulterated wines and sweetened dainties—who he presumes most Roman emperors to have been.”*³⁷⁴

But lead does not only induce cognitive and nervous devastation, but also hormonal disruption (especially sex hormones). Did something similar happen to the Romans and Greeks as is happening to us?

Other than cognitive decline, fatigue and sterility, the main deteriorating effect of the aristocrats' lead poisoning seems to have been lack of resolve and hormonal confusion, enhancing oikophobia and anti-ethnocentrism.

According to their lifestyle, the aristocracy would have received a much higher steady dose than the lower classes, which could have contributed to the circumstance that these upper classes were more affected by the reluctance to have children, by low fertility, by low ethnocentrism and high levels of oikophobia.

Chronic Lead -Poisoning causes Hypogonadism in Men.³⁷⁵

“In both men and women, lead has been associated with infertility and damaged in serum testosterone. Even In lead smelting

workers without clinical symptoms of lead poisoning, a decrease in serum testosterone (T) is observed."³⁷⁶ Reduced testosterone is most apparent in lead workers.³⁷⁷

Studies suggest that "lead poisoning may lead to a pituitary-hypothalamic defect in LH secretion and may also result in direct testicular seminiferous tubular injury."³⁷⁸

Accumulation of lead affects the majority of endocrine glands.

K. Doumouchtsis et al suggest that lead initially causes some subclinical testicular damage, followed by hypothalamic or pituitary disturbance when longer periods of exposure take place. Similarly, lead accumulates in granulosa cells of the ovary, causing delays in growth and pubertal development and reduced fertility in females.³⁷⁹

Roman writers did note that "*Indeed, those who eat the least expensive foods are the strongest. Thus, slaves are generally stronger than their masters, country folk are stronger than city folk, and the poor are stronger than the rich. Furthermore, those who eat inexpensive food can work harder, are less fatigued by working, and are sick less often than those who eat expensive food. Also, they are better able to tolerate cold, heat, lack of sleep, and so forth.*" (trans. King, 2010)³⁸⁰

Apart from the lead poisoning via wine cauldrons, alcohol itself disrupts testosterone.³⁸¹

Pornography addiction: a proxy for male testosterone deterioration?

These days, pornography is very prevalent in our society, and porn addiction (as by self-diagnosis) affects about 5-8% of adults.³⁸²

The pornography market has grown exorbitantly from 1975 to today.

The numbers for total annual revenue are disputed. The consensus values for the late 1970s range between \$5–10 million³⁸³ on the lower end; and \$100 million a year (for gross retail volume in Los Angeles alone (1979 Revision of the Federal Criminal Code)).

The Guardian claims "*Current [adult content] revenue estimates for the US range from \$9bn to \$97bn a year. The latter figure looks excessive, a conservative estimate is \$15bn.*"³⁸⁴ In 2007, The Observer newspaper gave a figure of \$13 billion.³⁸⁵ 100,000 websites offer illegal child pornography (U.S. Customs Service estimate, 2001).³⁸⁶

Taken together, today's estimates for annual pornography revenues range from 13 to 90 billion with a B.

While the sales increases are obviously related to the invention of the internet and thus to availability, it is nevertheless astonishing to see that in less than 50 years between the late 1970s and today, the pornography market increased 1300 times or possibly 10,000 times.

Pornography consumption can also lead to further 'undermining of self- confidence in men'. Even though the prevalence of actual micropenis is affecting more and more men - about 0.6 % of young men in 2016 and possibly arriving at 1 % within years - it is still relatively rare. Nevertheless, most men believe their penis is "smaller than the average."³⁸⁷ A 2019 research article notes that most males believe the average length for an erect penis is around 15.2 centimeters (cm) or 6 inches.³⁸⁸ According to analysis published in the British Journal of Urology International, the average flaccid, pendulous penis is 9.16 cm (3.61 inches) in length; the average erect penis is 13.12 cm (5.16 inches) long.³⁸⁹ In a 2005 study, 37 percent of respondents said that their problems concerning Small Penis Syndrome began in adolescence after they had seen erotic images for the first time. *"Because of the growing availability of pornography on the Internet, this could become even more of a problem in the future."*³⁹⁰

While for the survival of society, things as penis size are trivial, the subject is somewhat exemplary for the low self-confidence, narcissist, hormonally confused and consumption-obsessed society in these decisive moments of history.

The 'speedo index' as a proxy of testosterone levels and positive life outlooks?



Fig. 6: the 'Speedo index' men's swimwear 1950s to 2000s vs. sperm morphology value 1968 to 2008 (white curve). Sperm morphology declined from 63% from normal to 4 % from normal. An alleged correlation between sperm count, testosterone levels, pornography consumption, male self-confidence and swimwear?

Chapter 15

Remedies and prevention

As a generalized rule, what disturbs sperm production and fertility also disturbs testosterone production and function in men and even estrogen in women. Thus, reducing Endocrine Disrupting Chemicals that disrupt fertility, will generally be favorable for testosterone or estrogen regulation. More detailed advice on how to prevent EDC intake in everyday life is again provided in S. Swan's "Countdown", Chapter 11.

Below is a short list of the most prevalent sources and measures for prevention that are relatively easy to implement. For reduction of endocrine disrupting non-ionizing radiation (EDNR), see paragraph at the end of this chapter.

15.1. Minerals and vitamins

Deficiency in **Magnesium**, **Selenium**³⁹¹, **Zinc**, **Vitamin C**³⁹², **Vitamin D**, **Vitamin E**^{393 394}, are all associated with testosterone/estrogen disfunction and deficiency. Coincidentally, deficiency of some of these minerals and vitamins can also be induced by wireless- EMF.

Zinc and vitamin D were not only successfully used in animal studies to alleviate the harmful effects of mobile/ wireless EMF, but it was shown that zinc deficiency can actually be induced by EMF exposure.

As it happens, deficiency of zinc and vitamin C, D, E is also implicated in the treatment and prevention of severe cases of COVID 19.

"One of the risk factors du jour for corOnavirus disease 2019 (COVID -19) has been vitamin D deficiency." Even Dr. Fauci recommends Vitamin D supplements (see below).³⁹⁵

Testosterone and COVID

First a disclaimer: COVID-19 is an infectious virus disease, take measures to protect yourself and others.

"For men, low testosterone means high a risk of severe COVID-19. Scientist presented new clues on why more men than women develop severe disease outcomes." ³⁹⁶

The connection was corroborated by this case-control study: Severely low testosterone in males with COVID-19, "significantly lower levels of LH and tT were found in patients with COVID-19 compared to healthy controls."

"Testosterone levels suggestive for hypogonadism were observed in 89.8% of patients at hospital admission. In as many as 85% of cases, hypogonadism was secondary." ³⁹⁷

"Abhinav Diwan, MD, professor of medicine, lead author of a recent Covid study, supported by the National Institutes of Health (NIH), found if a man had low testosterone when he first came to the hospital, his risk of having severe COVID-19 -- meaning his risk of requiring intensive care or dying -- was much higher compared with men who had more circulating testosterone. And if testosterone levels dropped further during hospitalization, the risk increased. It was found that *"Lower testosterone levels seemed to predict which patients were likely to become very ill over the next few days."* ³⁹⁸

Similarly, in Sept 2020, Aneela N. Hussain et al concluded: *"Low testosterone levels in males [with Covid 19] have a direct correlation with the high probability of Intensive Care Unit admission and the worse disease outcome (Acute respiratory distress syndrome (ARDS), duration of ICU stay and mortality)."* ³⁹⁹

Then it turned out Covid deaths were associated with areas of 5G high mmW exposure in the United States.

Stephanie McCarter, MD, 2020 revealed: *There was a statistically "significant increase in the rates of COVID-19 cases and deaths in the areas of the US with 5G high mmW (millimeter Wave) exposure. 5G mmW index was a statistically significant factor for the higher cases and rates in all three analyses in all 50 states, the country's largest counties, and the largest counties in California."*

"Covid death per million were 94% higher and deaths per test were 81% higher in 5G high mmW areas."

McCarter summarized: *«the potential for 5G and even lower RF frequencies to contribute to increased infection by COVID-19 and the severity of infection has clear evidence in multiple peer-reviewed studies. The mechanisms of RF causing increased*

*infection and its severity include oxidative stress with depletion of key nutrients like **Vitamin D** and glutathione.*"⁴⁰⁰

EMFs cause mineral and vitamin deficiency

Dr. Trevor Marshall demonstrated that very low radiofrequencies, much lower than 5G frequencies, affect the human Vitamin-D receptor (VDR) in the cell by changing its shape. This change in the receptor affects its ability to bind with vitamin D. The binding of VDR with vitamin D is important in regulating cellular metabolic pathways.⁴⁰¹

See more on the effects of vitamin D deficiency below.

To add to the problem, Wi-Fi router radiation has caused lung tissue changes in rats.⁴⁰² As we saw on page 61, a Wi-Fi router increased antibiotic resistance and motility of E Coli and increased metabolic activity and biofilm production in Staphylococcus Aureus and Staphylococcus Epidermis.

It should be carefully considered in a pandemic with a virus that causes lung inflammation, whether it is the best idea to lock people in their homes, in home office, in front of their computers and TV screens, next to their Wi-Fi routers for years, without sunlight.

In addition to this, extensive hygiene mask wearing can propagate the buildup of bacteria and fungi in the respiratory system.

Male albino rats who were exposed to a **950 MHz electromagnetic field (EMF)**, showed significant increases in iron copper levels and copper/zinc ratio accompanied with a **decrease of zinc level in all studied organs.**⁴⁰³ As we'll see shortly, exposure to an electromagnetic field (a 50-Hz frequency magnetic field for 5 minutes every other day over a period of 6 months) caused cellular damage in lung and liver tissues in rats and zinc supplementation inhibited the inflicted cellular damage.⁴⁰⁴

Vitamin D deficiency, wireless EMF and virus diseases: closing the circle to testosterone function

Extensive research exists documenting vitamin D's role in decreasing risk of infection from pathogens as well as strengthening immune function. *"Over a decade ago low vitamin D levels were identified as a pandemic."*⁴⁰⁵

Vitamin D is an important factor in estrogen biosynthesis of both female and male gonads.⁴⁰⁶

“Taking vitamin D supplements might correct a deficiency and even contribute to increased testosterone levels.”⁴⁰⁷

Likewise for women, there is a “positive correlation” between vitamin D and estradiol. In other words, women with lower levels of vitamin D tended also to have lower levels of estradiol, and women with higher levels of vitamin D tended also to have higher levels of estradiol.⁴⁰⁸

More recently, “one of the risk factors du jour for coronavirus disease 2019 (COVID-19) has been vitamin D deficiency.”

Even Anthony Fauci, MD, has said in 2020, he takes a vitamin D supplement. Vitamin D “does have an impact on your susceptibility to infection,” Fauci, director of the National Institute of Allergy and Infectious Diseases, told actress Jennifer Garner in a September interview. *“I would not mind recommending—and I take it myself—taking vitamin D supplements.”*⁴⁰⁹

Further studies have shown that “vitamin D levels are a critical factor in prevention of severe COVID 19 infections.”⁴¹⁰

“Vitamin D is critical for prevention as well as recovery, significantly lowering the risk of mortality in COVID-19.”⁴¹¹

In addition, Daneshkhah et al presented evidence for an association of vitamin D status with cytokine storm and unregulated inflammation in COVID-19 patients.⁴¹²

Wireless EMF and vitamin D

In trials with male albino rats - who had lower testosterone values after mobile phone exposure with a harmful effect on testicular function - vitamin D resulted in a significant recovery of the hormonal deficits.⁴¹³

EMF exposure to rats for 30 days, 1 h/day, resulted in significant decrease in immunoglobulin levels. Vitamin D supplementation reversed these results. It was concluded that exposure to mobile phone radiation compromises the immune system of rats, and vitamin D appears to have a protective effect.⁴¹⁴

Sunlight and vitamin D3 can have a positive effect on some men fertility parameters. After the exposure to sunlight, there was a significant increase in count, activity and normal morphology of seminal fluid as well as elevation in LH, FSH and **testosterone and vitamin D3 level in the blood.**⁴¹⁵

In another study, vitamin D showed protective effects against the harmful effects of cell phone radiation exposure on Albino rat testis.⁴¹⁶

“For humans, vitamin D is not available in large enough quantities in food. The human body synthesizes the vitamin when exposed to sunlight, and this is the best source of vitamin D.” ⁴¹⁷

Vitamin C and E

“Vitamin E has been recognized as a requirement for normal testicular function for more than 50 years.” ⁴¹⁸

“Exposure to 900-MHz radiation emitted by mobile phones to rats is associated with endometrial apoptosis and oxidative stress, but treatment with vitamins E and C can diminish these changes.” ⁴¹⁹

Further, vitamin E consumption has protective effects against 3 militesla electromagnetic field effects on oxidative parameters in rats. Vitamin E treatment significantly prevented the increase of the Malandialdehyde (MDA) levels and Glutathione peroxidise (GSHPx) activity and also prevented the decrease of superoxide dismutase (SOD) activity in tissue. ⁴²⁰

In another study with rats exposed to 900 MHz EMF, vitamin E as well as silymarin has significantly reduced oxidative stress and ameliorated hormone levels, including free testosterone levels. ⁴²¹

Further, pumpkin seed oil and vitamin E have improved reproductive function of male rats who were inflicted by testicular injury. ⁴²²

EMF and zinc (organic) supplementation

Extremely low-frequency magnetic field decreased calcium, zinc and magnesium levels in costa of rat.

The rats were exposed to 100 and 500 μ T ELF-MF, which are the safety standards of public and occupational exposure, for 2 h/day during 10 months. Levels of Calcium (Ca); Magnesium (Mg), and Zinc (Zn) were all significantly decreased in the ELF-500 exposure groups. It was concluded that long-term ELF-MF exposure can affect the chemical structure and metabolism of bone by changing the levels of some important elements such as Ca, Zn and Mg in rats. ⁴²³

Zinc supplementation inhibits tissue damage caused by exposure to electromagnetic **field in rat lung and liver tissues**. Results of a study by A. K. Baltaci et al showed that exposure to an electromagnetic field caused cellular damage in lung and liver tissues. This EMF **exposure also led to a significant decrease in zinc levels in lung and liver tissues** (50 Hz). Zinc supplementation inhibited the inflicted cellular damage. ⁴²⁴

*“A contributing factor to the ELF-EMF-induced oxidative stress may be **zinc deficiency**, as lipid peroxidation-induced in Sprague-Dawley rats by long term exposure to ELF-EMFs (50 Hz, 50 mG) can be ameliorated through systemic antioxidant zinc supplementation.”* ⁴²⁵

In corroboration, another study found zinc and vitamin E supplementation have preventative effects on oxidative stress induced by cellular phone radiation in brain tissues of rats and their fetuses. ⁴²⁶

Zinc deficiency and testosterone

Dietary zinc restriction in normal young men was associated with a significant decrease in serum testosterone concentrations after 20 weeks of zinc restriction.

Zinc supplementation of marginally zinc-deficient normal elderly men for six months resulted in an increase in serum testosterone from 8.3 ± 6.3 to 16.0 ± 4.4 nmol/p ($p = 0.02$). *“Zinc may play an important role in modulating serum testosterone levels in normal men.”* ⁴²⁷ So, it doubled serum testosterone.

Androgen deficiency in adult male subjects with sickle cell anemia is correctable with zinc supplementation. ⁴²⁸

Weight training in combination with zinc (6 weeks trial) supplementation improved testosterone and performance in athletes. ⁴²⁹

Regarding non-athletes, M. Kilic, 2007 found: “exercise can decrease thyroid hormones and testosterone in sedentary men; however, zinc supplementation prevents this decrease.” ⁴³⁰

In corroboration of the above findings, zinc supplementation ameliorates electromagnetic field-induced lipid peroxidation in rat brains. (50Hz). ⁴³¹

In breeding bulls, zinc supplements (organic) increase blood serum testosterone and sperm quality. ⁴³²

Zinc deficiency and COVID 19

“Zinc not only balances immune responses but also has a proven direct antiviral action against some viruses. “

In a retrospective observational study with 249 COVID-19 patients admitted to Hospital del Mar in Barcelona, Spain, they found serum zinc levels lower than 50 µg/dl at admission correlated with worse clinical presentation, longer time to reach stability and higher mortality. ⁴³³

“Serum Zinc Content is a novel biomarker to predict COVID-19 outcomes.”

In a prospective observational study in Chennai, India, patients with CORONAVIRUS disease 2019 had significantly low zinc levels in comparison to healthy controls. Zinc deficient patients developed more complications (70.4% vs 30.0%). Further, zinc deficient COVID-19 patients had a prolonged hospital stay.⁴³⁴

J. S. Al-Awfi (2020) stated one of the symptoms in COVID-19 patients - loss of taste - has been associated with zinc deficiency. It is undetermined whether the virus is causative or those patients had zinc deficiency pre COVID-19.

“Approximately 57.4% COVID-19 patients have low zinc serum levels which may indicate an advantage to administer zinc therapeutically to those patients.”⁴³⁵

Magnesium

A study on athletes and sedentary subjects showed taking supplements for at least 1 month might increase testosterone in men and women. People who exercise regularly see a more significant increase in testosterone levels than those who are not active.⁴³⁶

Note, high intensity (weight) training is more effective to naturally boost testosterone than endurance training.

Magnesium-rich foods include whole grains and dark leafy greens. Zinc is also contained in dark greens, flax seeds, and pumpkin seeds.

'Magnesium may also protect against EMF radiation'. Magnesium is a key nutrient important for a variety of functions in the body, 'including EMF radiation protection.' That's because magnesium is involved in over 300 chemical processes in the body, and acts as a cofactor for several antioxidant enzymes. *"This suggests magnesium has the ability to help decrease oxidative stress due to sustained EMF exposure. Furthermore, magnesium acts as a natural calcium channel blocker."*⁴³⁷

Date palm pollen (DPP)

As alluded to above, exposure of mice to 50 Hz EMF caused abnormalities in sperm and a significant decrease in testosterone levels.

Administration of DPP before exposure improved the sperm count, viability, motility and testosterone level in experimental groups and prevented the sperm abnormality induced by EMF.⁴³⁸

After serum testosterone levels in rats were decrease by EMF exposure, the effects were alleviated by administration of 5mg/kg Rosmarinic acid. Using Rosmarinic acid as food additive was suggested to be efficient for supporting people living in EMF environmental pollution.⁴³⁹

Physical Exercise

In maximal and submaximal physical short- and long-term exercise (800-m running, climbing, 36-km cross-country skiing), it turned out that in highly endurance-trained subjects, there was an increase and in less well-trained subjects a decrease of serum testosterone for equal distances and intensities of exercise.⁴⁴⁰

So, get well trained on a healthy level, and again, high Intensity strength training has a more beneficial effect on testosterone than endurance training.

Summery nutrients

As we have seen, mobile EMF can cause not only deficiency in gonadal hormones, but can be accompanied with a **decrease of zinc levels in various organs.**⁴⁴¹

Secure optimal intake of the following nutrients to correct possible deficiencies: **Magnesium, Selenium, Zinc, Vitamin C, D and E.** Ideally, this is achieved by natural organic foods. Alternatively, high quality supplements can be used, it is important to make sure to not surpass the Upper Limit (UL) values for each mineral or vitamin. As an example, for magnesium, the Upper Limit is the same as the daily value or recommended daily intake, so in theory, you should get it just right. For higher doses in case of deficiencies or medical reasons, ask your doctor. For general health, make sure to get the daily amount of the essential 13 vitamins and 10 minerals, as are available in all-in-one combined supplements.

Nutrient	The Daily Value, as in food labels; it is mostly the same as the	UL (Tolerable Upper Intake Levels, USA) for food and	Safe multiple UL/ Daily Value
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	Recommended Dietary Allowance (RDA)	suppl. combined.	
Zinc	15 mg	40 mg	2.6x
Magnesium	400 mg	350 mg/400 mg (SUL)	1x
Selenium	70 mcg	400 mcg	5.7x
Vitamin C	60 mg	2000 mg	33x
Vitamin D	10 mcg (400 IU)	100 mcg	10x
Vitamin E (alpha-tocopherol)	20 (30 IU) mg	1000 mg	50x

Table 1: The Daily Value is what is on food labels; it is mostly the same as the Recommended Dietary Allowance (RDA) USA.

UL = Tolerable Upper Intake Level (UUSA); Save Multiple UL/Daily Value = (an adult can take this many times the Daily Value without exceeding the UL; for instance: an adult should not take more than 5.7 times the recommended daily amount of selenium; Data and complete table by C. Alan Titchenal, PhD, CNS. Originally published in: NASM Certified Personal Trainer Course Manual, 2004, pp. 632-633; Copyright ©: National Academy of Sports Medicine - www.nasm.org <http://www.nutritionatc.hawaii.edu/UL.htm>

Table 1 compares the typical levels of US recommended daily nutrient intake to the United States Tolerable Upper Intake Levels (UL). The Daily Value amounts, that are currently used as reference values on food and supplement labels, are similar to the RDA (Recommended Dietary Allowance) values, but differ in some cases. UL values are the amounts that are considered to be the maximum safe level of intake from food and supplements combined.

Vitamin D: "The type of vitamin D [D2 or D3] you get is less important than getting the right dose and making sure your levels are in the right range to avoid deficiency. Most experts recommend 600 to 800 IUs of vitamin D per day. (The amount of vitamin D in foods and supplements is usually given in terms of International Units, or IUs.)" ⁴⁴²

15.2. Steps to reduce EDC exposure

Here is a very short overview of the easiest and cheapest ways to reduce your EDC intake from everyday sources.

EDCs are everywhere. You can't avoid them altogether. But the most prominent sources are from things we willingly but into our body. Remember, powerful and well-informed people live on the same planet and in the same city as you. They breathe the same

air and use the same tap water (although, they probably don't drink it unfiltered).

Here is a short summary of those precautions which are easiest and free to implement:

- no excessive alcohol consumption. Heavy drinking is usually considered more than 15 drinks a week for men or more than eight drinks a week for women. ⁴⁴³
- don't put plastic containers in the microwave (don't eat microwaved food in the first place. It kills rats and cats fast, ⁴⁴⁴ it will probably kill you in time).
- eat as little as possible from plastic containers or plastic food packaging.
- eat as much organic as you can afford.
- cook fresh food, with natural ingredients. No junk food. If there is a commercial for the thing you are eating, it probably contains EDCs and other harmful chemicals.
- Avoid soy products and MSG (monosodium glutamate).
- use no pesticides or as little as possible in your garden, (esp. atrazine or roundup).
- cook on cast iron pans instead of Teflon (non-stick) pans.
- find EDC-free and aluminum-free sun screen, or avoid sunscreen and excessive sun exposure, if possible, but get moderate sun, of course.
- get informed about substitutes for pharmaceutical drugs with endocrine disrupting effects. The list is on p. 49.

15.3. Steps to reduce wireless/ EMF exposure

The same here: You can't avoid wireless/ EMF exposure, if you don't want to live in a Russian monastery at the end of the world (Oh wait, they have wireless internet too, now: 'Russian monastery goes global with wireless, 2015'). ⁴⁴⁵

Again, well-informed and well-connected people live among us, too, possibly in the apartment next to you. The main exposure probably comes from your own devices. Twice the distance = 1/4 of the radiation exposure; four times the distance = 1/16 of the radiation. (Distance and the Inverse Square Law). ⁴⁴⁶

The main Swiss phone company Swisscom had announced in 2019, that 5G antennas will emit a radiation cone of under 15° directly onto the individual phone and the user, this is in theory good to prevent the rest of the surroundings being radiated unnecessarily, but it also means the radiation cone follows your

phone and aims at it. Wireless radiation in populated areas can't be avoided altogether, but you can avoid dosing yourself unnecessarily with Smart TVs, wireless routers, your phone, tablet, microwave ovens, etc.

"Smart TVs constantly send signals to connect to the Wi-Fi router. As it continues to search for the available router, it emits radio frequency (RF) signals. The TV will constantly transmit these signals since Wi-Fi is a built-in feature and you can't switch it off." LCD, LED and Plasma TVs emit EMF radiation and UV radiation from all directions to a distance of up to 12 feet. ⁴⁴⁷ Children are more susceptible.

Let's go through a few things you can do to prevent unnecessary EMF exposure. Starting with remedies that are free and easy to implement, moving down to more advanced and then to costly ones.

- First, get your cellphone away from your crotch and your brain. (Men and women). This is easy enough, you can do it right now while you're reading this, even though carrying it in your back pocket or in a backpack is not safe but it is much better (For men, protect the hypothalamic-pituitary-testes regulatory axis that controls testosterone production).
- even better, keep your phone away from your body as much as possible, especially from your crotch, your brain, and even from your kidneys (middle back), where the adrenal glands are, which also produce small amounts of testosterone.
- if you put your phone on airplane mode, it will keep connecting to the net and might keep emitting EMFs all the same.
- use the phone on speaker mode.
- If you use headphones, get airtubes - anti-radiation- earphones, which have the wires and the speakers a few inches away from your ear and transmit the sound by air tubes to the ear piece (5 + USD).
- stay a few feet or as far as conveniently possible away from your internet router and the flat screen TV, wi-fi connecting devices like printers etc.
- Set your screens to Night Shift to reduce blue light permanently, if you have no ambitions in computer graphics. Your iPhone, iPad, MacBook and Windows 10 devices have a feature called Night Shift for changing the color temperature of the screen. Many Android devices also offer a built-in 'Blue Light' or 'Night Light' feature and a variety of third-party utility apps get the job done, too.

- turn off wi-fi, connect your laptop with an ethernet cable. (for a MacBook and most thin laptops you need an ethernet adapter, c. 30 USD).
- if you turn off the Wi-Fi button of your router, it keeps emitting EMFs anyways, you can test this by putting it in a Faraday cage or wrap it in a metal mesh, it will build up a strong static field around itself and start crackling immediately. Keep it in another room or on the other side of your room.
- In the same way, your laptop might keep emitting EMFs after you turn off the airport or wireless network.
- So, for a more advanced measure, you can remove the wireless transmitter from your laptop. Disclaimer: you might lose your warranty for the device! Plus, I cannot assure you for all types of laptops that your internet connection will still work smoothly. But I have successfully disconnected and removed the Wi-Fi AirPort Blue Tooth Card (according to instructions for replacing the card and insulated the ends of internal antenna cables with heat resistant tape) on two generations of MacBook Air and MacBook Pro; they run without problems, including fast internet connection. The procedure takes 30 minutes.
- Kindly enquire where your roommates, on-floor neighbors have their routers or emitting devices.
- You can't tell them what to do, it is perfectly legal to run as many routers and computers as they like, you can however adapt your own settings, don't place your bed on the other side of a wall behind the main router.
- And then depending on your budget and situation, you can move to the country side, away from high voltage power lines, 5 g towers and close next-door neighbors. Or even have an electronics-free bedroom.

For the next generation:

As we have seen, the crucial time for a human's balance of sex hormones throughout life is in pregnancy, more specifically the 8th-12th week of gestation. The best thing to do for the happiness and well-being for the future life of a boy or girl, is to let them develop in the womb without toxins, without endocrine disrupting chemicals and radiation.

-No smoking or drinking or junk food for the future father three months before conception. The same for the mother lasting throughout pregnancy, of course. And what's with these smoker couples where she quits and he keeps on smoking, anyways?

- Then, for the future mother, all of the above, but strictly, no compromises, no phone near the belly, no microwave.

That is the best you can do for your child, you can forget putting aside money for a college education or extra expensive health care, if a child develops to its full potential, it will need neither. (Savings will be devalued anyways in the Great Reset in the coming years).

Sane, healthy and competent men and women will be highly sought after for the rebuilding of civilization.

The End

Notes

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