Casual Friday Series

Navigating Silent Health Hazards

Generational Toxicity

Disclaimer

- *Information in this presentation is not intended, in itself, to diagnose, treat, reverse, cure, or prevent any disease. While this presentation is based on medical literature, findings, and text, The following statements have not been evaluated by the FDA.*
- *The information provided in this presentation is for your consideration only as a practicing health care provider. Ultimately you are responsible for exercising professional judgment in the care of your own patients.*

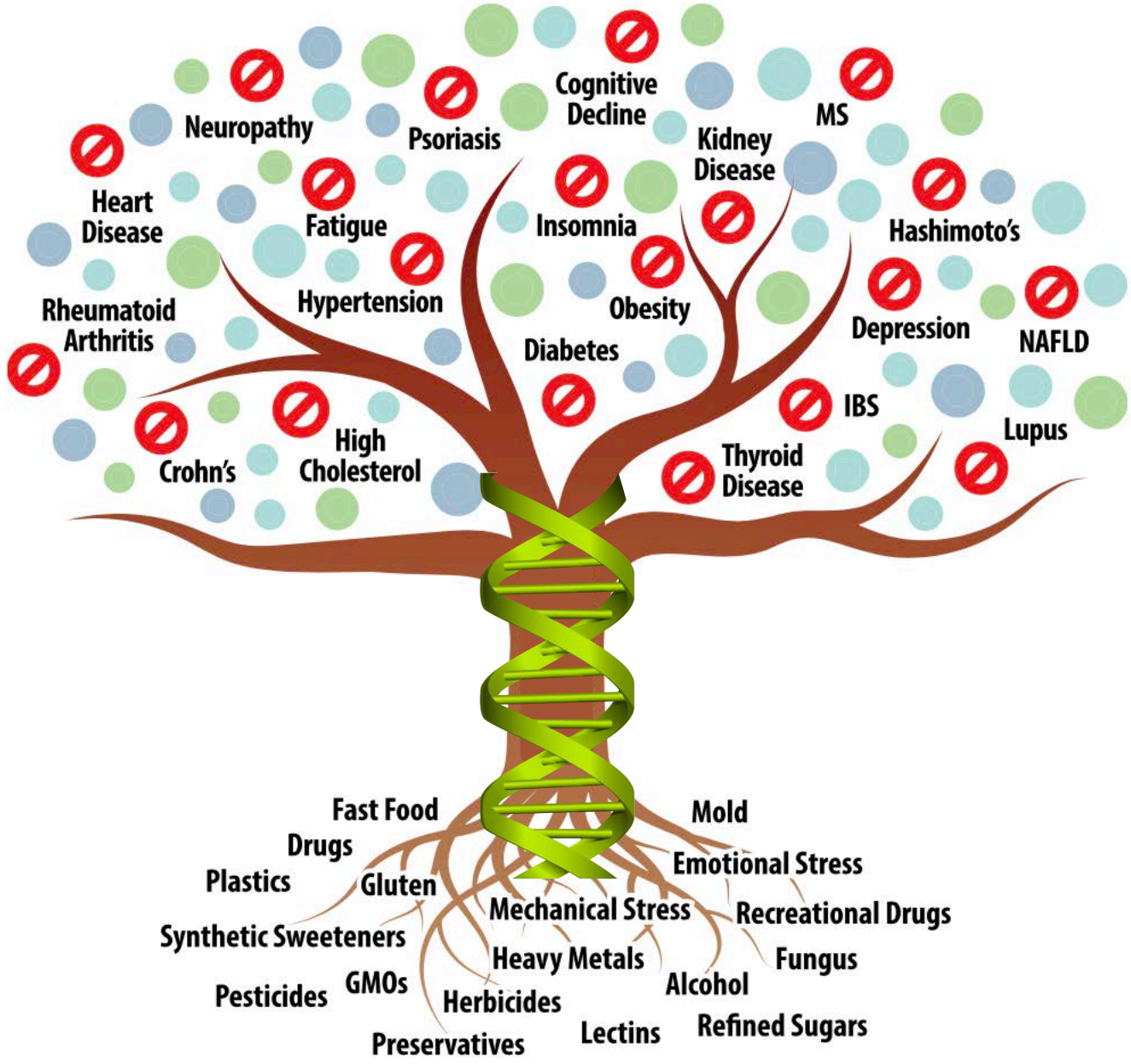
When a single statement can mean so many things…

It runs in the family…

It’s Genetic…

It has always been there…

One reason or excuse after another…


Neuropathy
Psoriasis
Cognitive Decline
MS
Kidney Disease
Heart Disease
Fatigue
Insomnia
Hashimoto's
Hypertension
Obesity
Depression
NAFLD
Rheumatoid Arthritis
Diabetes
IBS
Lupus
Crohn's
High Cholesterol
Thyroid Disease
Fast Food
Mold
Drugs
Emotional Stress
Plastics
Gluten
Mechanical Stress
Recreational Drugs
Synthetic Sweeteners
Heavy Metals
Fungus
Pesticides
GMOs
Herbicides
Alcohol
Lectins
Refined Sugars
Preservatives

Generational Toxicity…

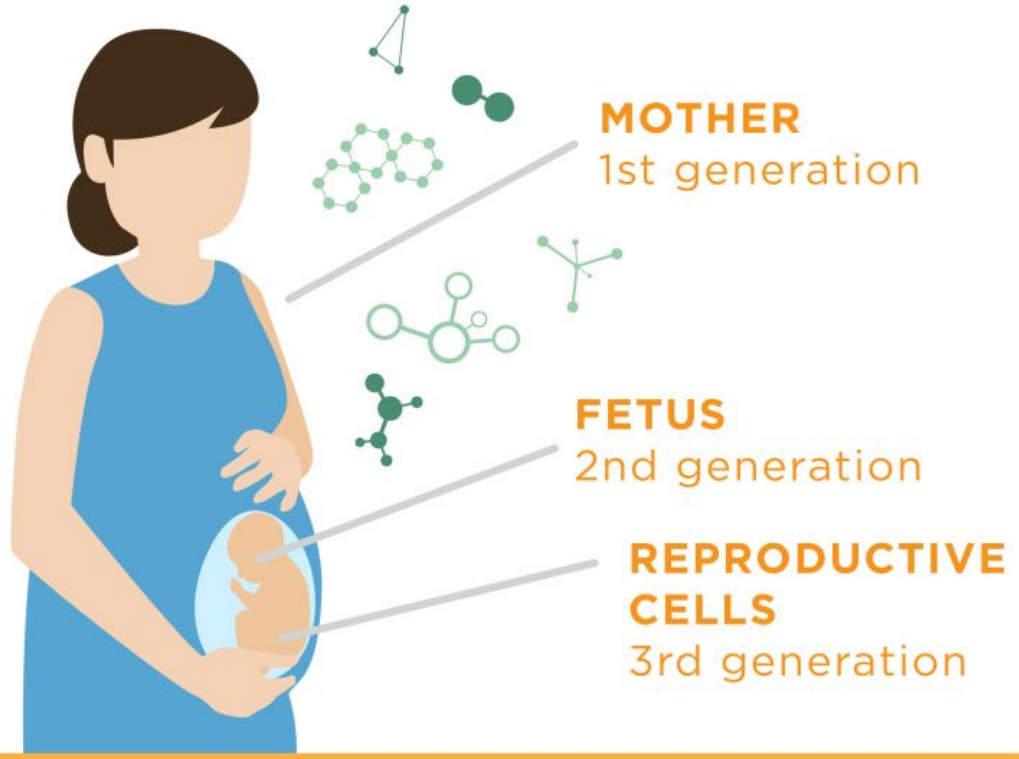
Transgenerational Inheritance…

What is at the core of Generational Toxicity

Why is this some impactful:

- It all comes down to the “germ cell” (egg or sperm)
- Toxins are effecting our epigenetics and transferring on certain predisposition activated by a toxic exposure.
- Once that germ cell is impacted and disrupted… Everything that comes after is impacted by exposure.
- This is carried on for generations that are forever changed
    - The foundation we are built on is altered.

WHAT DOES THAT MEAN?



TRANSGENERATIONAL EFFECT – A health effect in (great)grandchildren caused by toxic exposures to the (great)grandparent.

EPIGENETICS – The study of chemical markers that bind to DNA and change the way it functions. Epigenetic changes in the sperm or eggs can follow exposures to various stressors and be passed down to future generations.

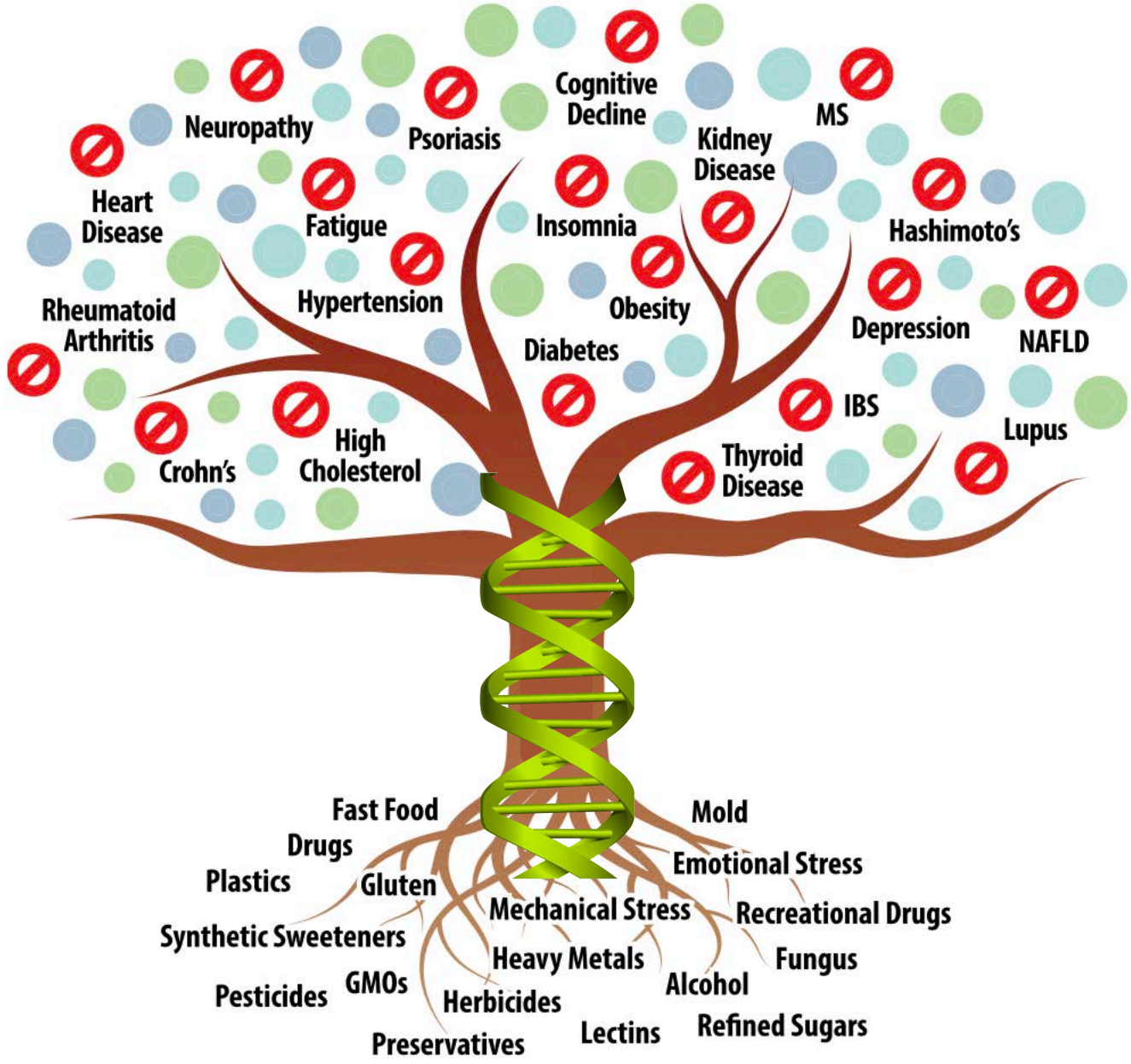
Some of the Generation Impact

Some numbers from Dr. Skinner:

- In plants these changes carried forward 100 generations
- In insects they carried forward for 50-100 generations
- In some human studies showed impact for 10 generations before showing a decrease in exposure impact
- This is difficult to study in humans as it is expensive and takes time.

“People are sick with experience”

Dr. Patrick Gentempo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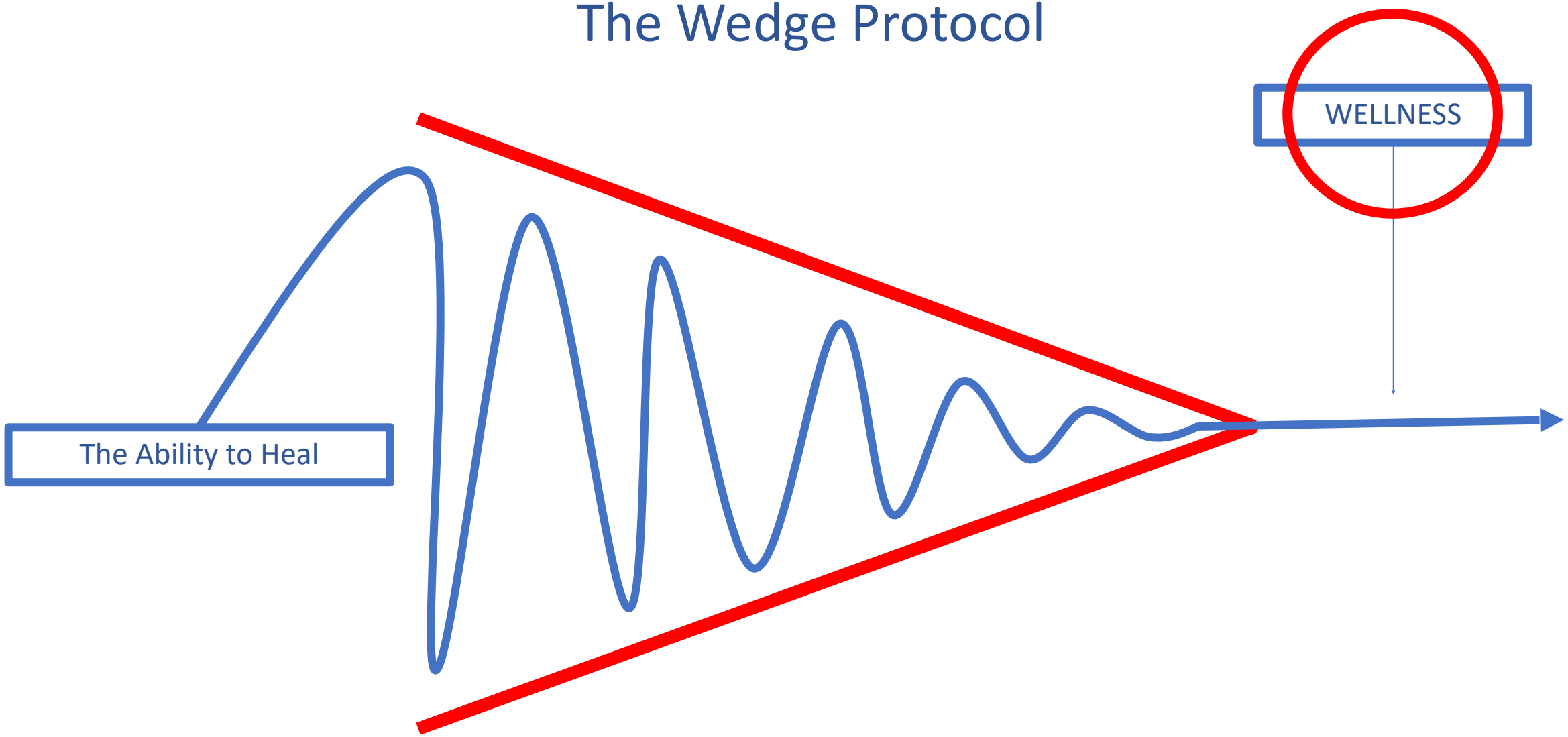
Germ Cell Exposure

Germ Cell and Fetal Exposure:

- 287 chemicals detected in umbilical cord blood
- 180 of those are cancer causing in humans and animals
- 217 are toxic to the brain and nervous system
- 208 cause birth defects and abnormal development in animal tests
- Our baby’s buckets are full before they are already born!

The Wedge Protocol



Where do they accumulate?

Most common toxins and where they deposit:

- BPA: Fat Cells
- Mercury: Fat and Nerve cells… Pituitary
- Lead: Teeth and Bones
- PBDEs (Flame Retardants): Brain and Fats cells
- Glyphosate: Drives toxins deeper into cells and disrupt microbiome.


Toxic top 10
Water
Mercury
Chlorine
Flouride
Medications
PCBs
The only required liquid we consume (about a gallon/day)
Aluminum
Vaccines
Antiperspirant
Known neurotoxin
Mecury
Vaccines
Teeth
Air
The most toxic heavy metal we have in our environment known neurotoxin
Lead
Beauty products
Drinking water
Paint
Another common heavy metal found in our environment. Neurotoxin and hormone disuptor
EMF
Cell phone
Wifi
Electric towers
Bluetooth
Electromagnetic frequencies associated with cancer, hormone disruption, CNS breakdown
Hidden infections
EBV
Lyme
Mold
Parasites
Common cause of immune suppression, chronic fatigue and autoimmunity
Plastic
Water bottles
Toys
Tupperware
Common carcinogens and hormone disruptors
Glyphosate
Canola
Wheat
Soy
Rice
Corn
The most highly used pesticides associated with autoimmunity, cancer and chronic inflammation
GMO
GMO foods are associated with autoimmunity, cancer and hormone disruption
Wheat
Round up ready
BTW corn
Food prep
Preservatives
Food Coloring
Sources of chronic inflammation, cellular breakdown, and neurotoxins
Cookware
Cooking oils
Almost all traditional crops
Animals Fed corn and soy

PLoS One. 2018; 13(12): e0208803.
Published online 2018 Dec 7. doi: 10.1371/journal.pone.0208803
PMCID: PMC6286137
PMID: 30532171

Perinatal death and exposure to dental amalgam fillings during pregnancy in the population-based MoBa cohort

Lars Björkman, Conceptualization, Formal analysis, Investigation, Visualization, Writing – original draft, Writing – review & editing,[1,2,*] Gunvor B. Lygre, Conceptualization, Validation, Writing – review & editing,[1] Kjell Haug, Conceptualization, Methodology, Validation, Writing – review & editing,[3] and Rolv Skjærven, Conceptualization, Methodology, Validation, Writing – review & editing[3,4]

The absolute risk of perinatal death ranged from 0.20% in women with no amalgam-filled teeth to 0.67% in women with 13 or more teeth filled with amalgam. Analyses including the number of teeth filled with amalgam as a continuous variable indicated an increased risk of perinatal death by increasing number of teeth filled with dental amalgam (crude OR 1.065, 95% CI 1.034 to 1.098, $p<0.001$). After adjustment for potential confounders (mothers' age, education, body mass index, parity, smoking during pregnancy, alcohol consumption during pregnancy) included as categorical variables, there was still an increased risk for perinatal death associated with increasing number of teeth filled with amalgam (OR_{adj} 1.041, 95% CI 1.008 to 1.076, $p = 0.015$). By an increased exposure from 0 to 16 teeth filled with amalgam, the model predicted an almost doubled odds ratio (OR_{adj} 1.915, 95% CI 1.12 to 3.28). In groups with 1 to 12 teeth filled with amalgam the adjusted odds ratios were slightly, but not significantly, increased. The group with the highest exposure (participants with 13 or more teeth filled with amalgam) had an adjusted OR of 2.34 (95% CI 1.27 to 4.32; $p = 0.007$).

Impact of dietary mercury intake during pregnancy on the health of neonates and children: a systematic review

Steven Saavedra [1], Ángeles Fernández-Recamales [2 3], Ana Sayago [2 3], Antonio Cervera-Barajas [4], Raúl González-Domínguez [2 3], Juan D Gonzalez-Sanz [1]

Affiliations + expand

PMID: 33954792 DOI: 10.1093/nutrit/nuab029

Results: Prenatal exposure to mercury was consistently associated with lower birth weight, but only one study reported a negative association with length at birth. Higher mercury levels were also related to lower scores in various neuropsychological and developmental tests.

Conclusion: The literature shows clear evidence of the adverse effects of maternal methyl mercury exposure on anthropometric variables and cognitive or physical development in children. It is noteworthy, however, that mercury toxicity may sometimes be mitigated by other essential nutrients in the maternal diet, such as polyunsaturated fatty acids.

Environ Epigenet. 2022; 8(1): dvac001.
Published online 2022 Feb 16. doi: 10.1093/eep/dvac001
PMCID: PMC8848501
PMID: 35186326

Role of epigenetic transgenerational inheritance in generational toxicology

Eric E Nilsson, Millissia Ben Maamar, and Michael K Skinner

Many environmental toxicants have been shown to be associated with the transgenerational inheritance of increased disease susceptibility. This review describes the generational toxicity of some of these chemicals and their role in the induction of epigenetic transgenerational inheritance of disease. Epigenetic factors include DNA methylation, histone modifications, retention of histones in sperm, changes to chromatin structure, and expression of non-coding RNAs. For toxicant-induced epigenetic transgenerational inheritance to occur, exposure to a toxicant must result in epigenetic changes to germ cells (sperm or eggs) since it is the germ cells that carry molecular information to subsequent generations. In addition, the epigenetic changes induced in transgenerational generation animals must cause alterations in gene expression in these animals' somatic cells. In some cases of generational toxicology, negligible changes are seen in the directly exposed generations, but increased disease rates are seen in transgenerational descendants. Governmental policies regulating toxicant exposure should take generational effects into account. A new approach that takes into consideration generational toxicity will be needed to protect our future populations.

Exposure from the Beginning

From an exposure here…

To the next 4 Generations!

Epigenetic Transgenerational Inheritance of Obesity Susceptibility

Stephanie E King [1], Michael K Skinner [2]

Affiliations + expand

PMID: 32521235 PMCID: PMC8260009 DOI: 10.1016/j.tem.2020.02.009

Nutr Rev. Author manuscript; available in PMC 2010 Feb 16.

Published in final edited form as:

Nutr Rev. 2008 Aug; 66(Suppl 1): S7–11.

doi: 10.1111/j.1753-4887.2008.00056.x

PMCID: PMC2822875

NIHMSID: NIHMS65765

PMID: 18673496

The agouti mouse model: an epigenetic biosensor for nutritional and environmental alterations on the fetal epigenome

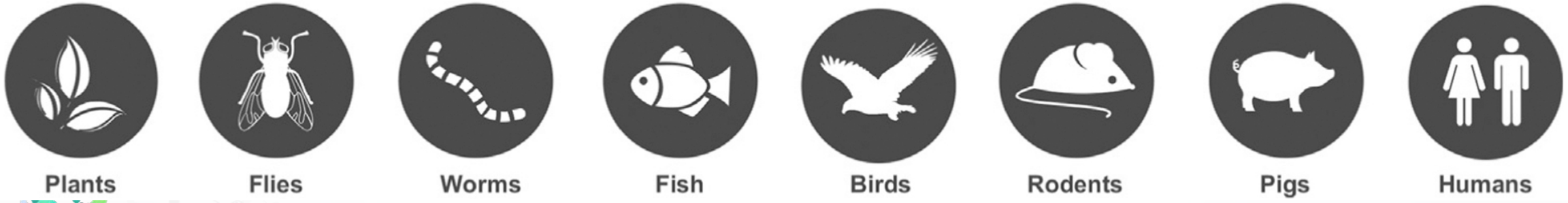
Environmentally induced epigenetic transgenerational inheritance

Environmental toxicants

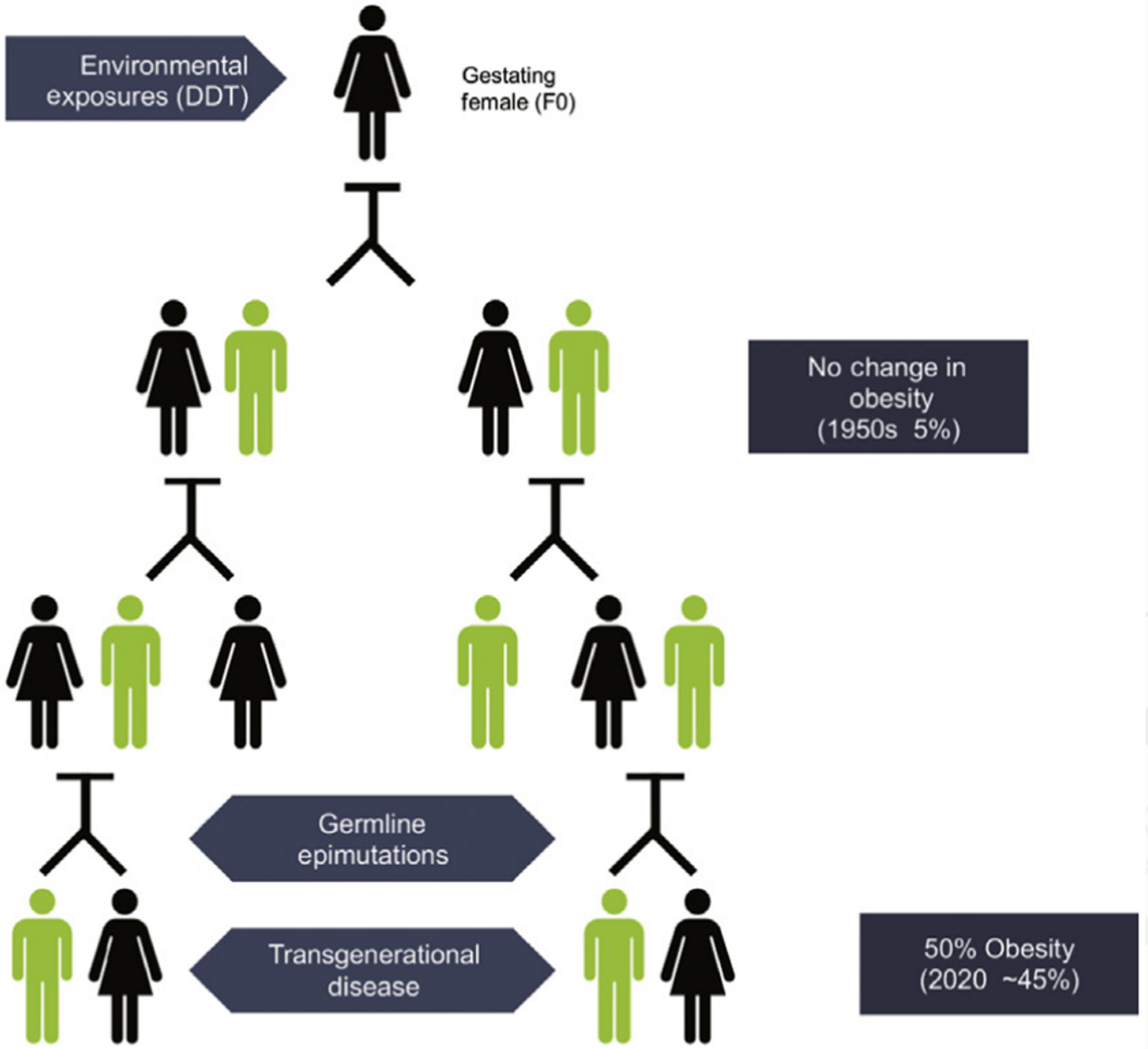
- Agricultural fungicides (Vinclozolin)
- Agricultural pesticides (Methoxychlor)
- Industrial contaminants (Dioxin/TCDD)
- BPA and phthalates (Plastic compounds)
- Herbicides (Atrazine and glyphosate)
- Insect repellants (Permethrin and DEET)
- Pesticides (DDT)
- Industrial toxicants and biocides (Tributyltin)
- Hydrocarbons (Jet fuel JP8)
- Heavy metals (Mercury)

Other types of exposure

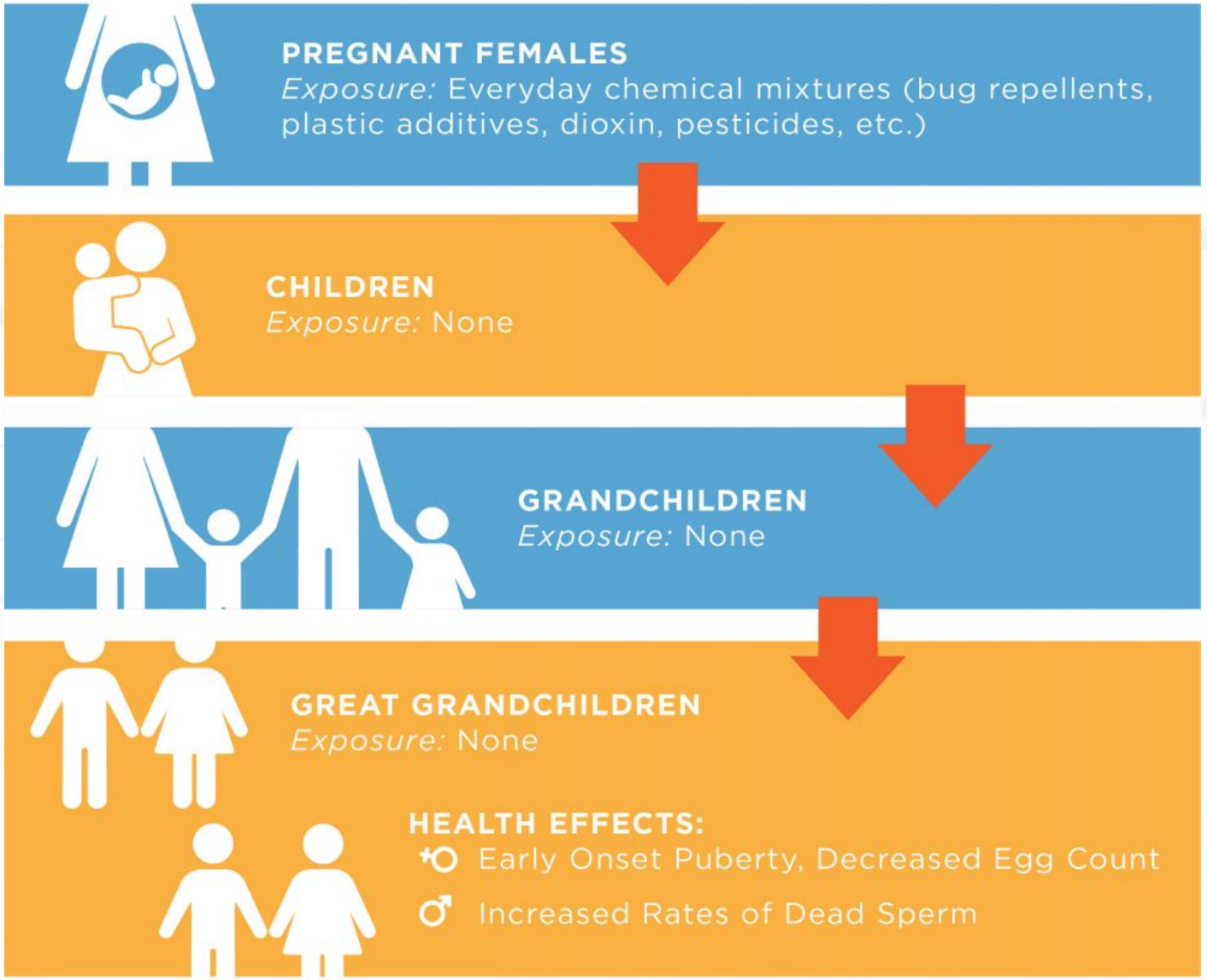
- Nutrition (High fat or caloric restriction)
- Temperature and drought (Plant health and flowering)
- Smoking and alcohol
- Stress and trauma (behavioral)



Epigenetic transgenerational inheritance of obesity susceptibility



STUDY OF TRANSGENERATIONAL EFFECTS



**actual Washington State University study performed on rats, not people*

Addressing Generational Toxicity

1. Ge to the Source:

- Stop the exposures!!

2. Support the Membrane and Mitochondria:

- Reduce cellular inflammation
- Fight, Flight, Freeze vs Rest and Digest
- Quality Fats

3. Get everyone involved:

- The farther down the chain you are, the harder it gets to turn off.
- Get the whole family involved.

4. Need a quality binder:

- There are so many binders out there but we need a true binder.
- Bile reabsorption and toxins
- Cellular binder.
- Avoid weak binders for this Chlorella and Cilantro for instance.