

Pesticides the Science.
Weeds or Illness?
You Decide

Dr. Kate Klemer, DC, RCST 2016

CAUTION

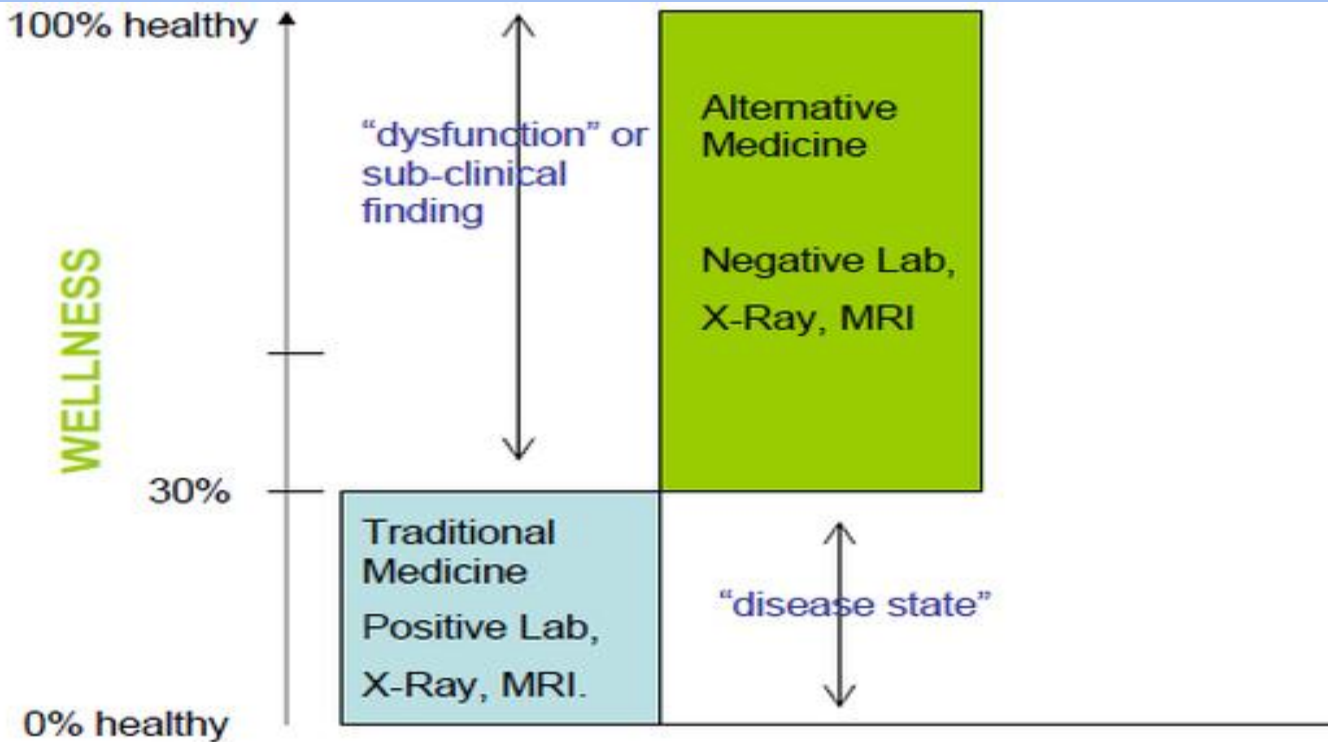
PESTICIDE APPLICATION

KEEP



OFF

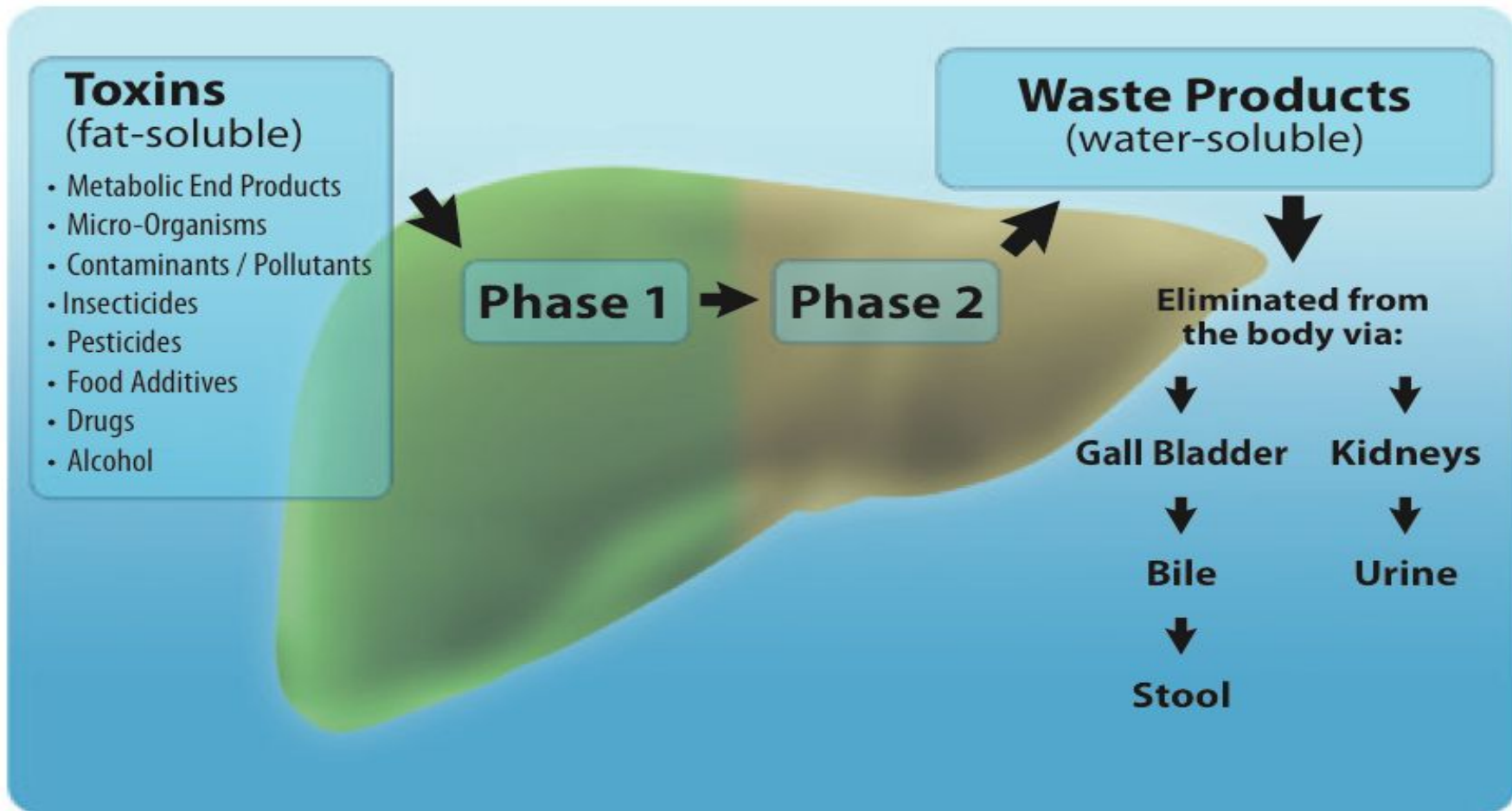
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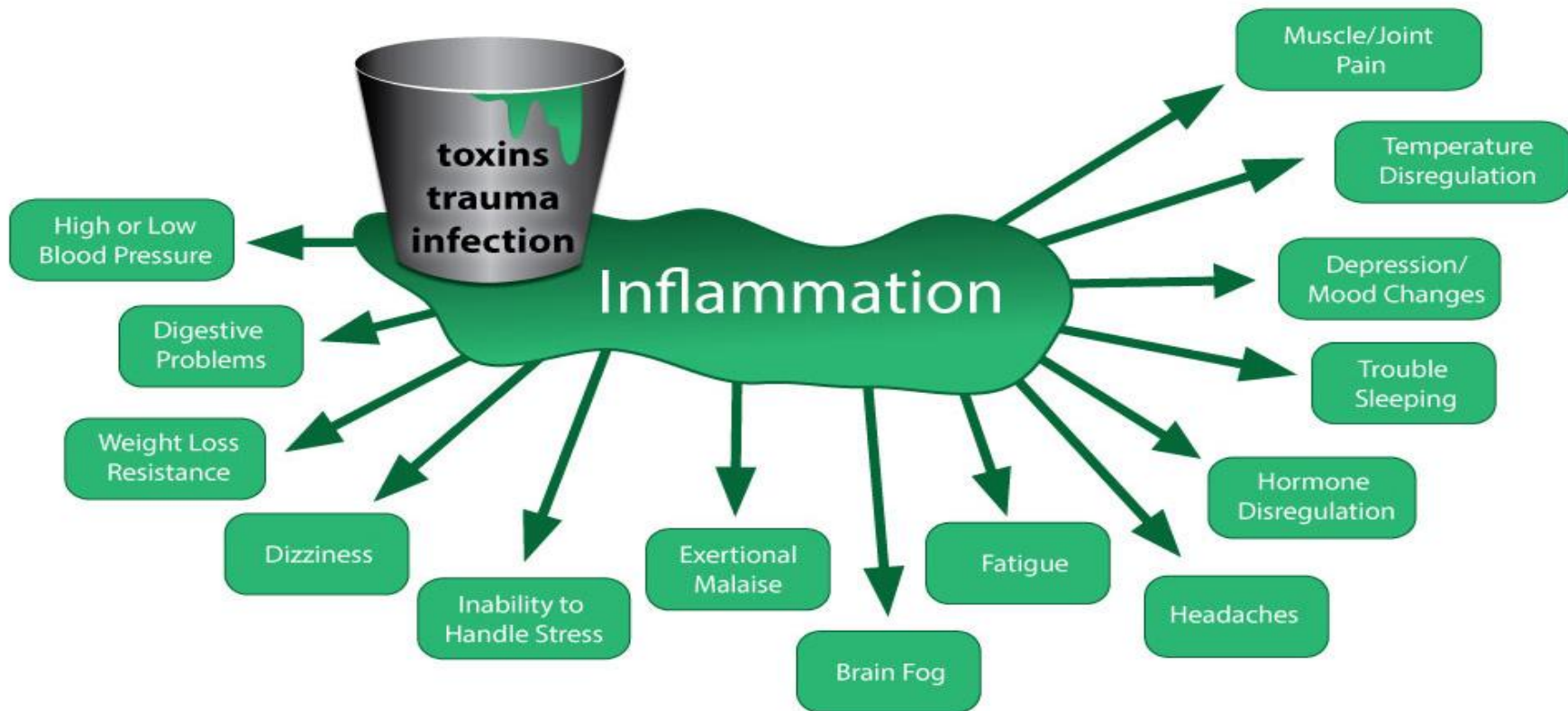
Wellness is a spectrum, Disease is dualistic...Just because you do not have a disease does not mean you are well...

You may be on the path to illness, and you can change that.

Figure 1 - Detoxification (Biotransformation) Pathways



Is Your Bucket Overflowing?



How toxicity causes weight gain

①

Our natural detox pathways are open to clear toxins and prevent weight gain

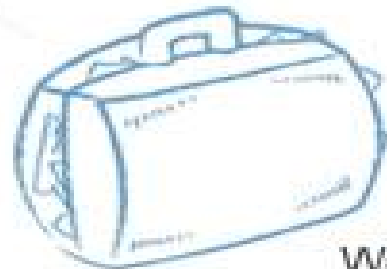


②



When we overload these pathways with toxic foods, unhealthy lifestyle habits, and plastics and pesticides...

③



We suffer from weight gain

Toxins cause weight gain because they:

- Mimic the action of our own hormones and disrupt fat deposition
- Alter the way we metabolize sugar
- Worsen hormonal imbalance in menopause

Pesticide Poisoning

chemical factoids

- We are losing species from the earth faster than the dinosaurs disappeared
- especially amphibians because they are more exposed living part of their life in water
- Chemicals pass the placenta and go into the unborn child in utero=not good

- Short-term exposure to high levels of pesticides can result in harm to organs and even death
- Long-term exposure to lower levels of pesticides can cause cancer.
- Children are at a greater risk than adults.



Types of Pesticides

- Antimicrobials- control germs/microbes
- Disinfectants- control germs/microbes
- Fungicides- control fungal problems (ex mold)
- Herbicides- kill growth of unwanted plants
- Insecticides -control insects
- Repellants-repel unwanted pests



Long and Short Term Effects of Pesticides

Short Term Effects/Acute Dangers

- Headaches
- Nausea
- Skin, Eye, Nerve Irritation
- Breathing difficulties

Long Term Effects/ Chronic Dangers

- Cancer (leukemia, bone, liver, ovarian, prostate, etc...)
- Parkinson's disease
- Fertility Issues: male and female
- Endocrine Disruption of thyroid, ovaries, testes
- Birth Defects
- Asthma
- Autism



Glyphosate/AKA Roundup and Atrazine are most common Pesticides Globally

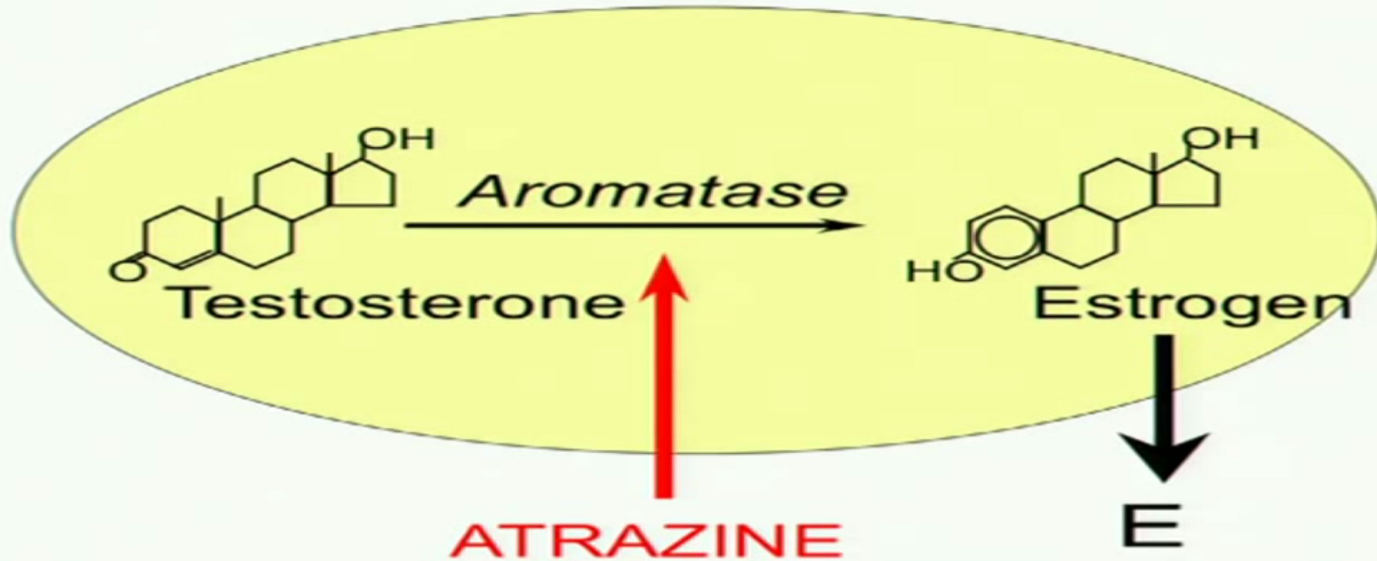
- Used worldwide at about 5.6 billion pounds per year.
- The US accounts for 1 billion pounds of pesticides alone

Pesticides get washed into water used for drinking

Atrazine is one of the most widely used weed killers

- It's widely used to combat weeds on golf courses, residential lawns and Christmas tree farms. It's also used on half of all corn grown in the U.S.
- ***has been banned in Europe since 2004*** due to suspected health concerns and environmental damage, including the high risk of water contamination.
- causes hermaphroditism in frogs (turning males into egg-laying females) by inducing an enzyme called aromatase, which causes overproduction of estrogen.
- atrazine is involved in the development of breast cancer, since many breast cancers are triggered by the overproduction of estrogen.





- Atrazine Induces Aromatase which increases estrogen
- Interesting that the same company that makes Atrazine also makes medications that block aromatase to *treat* breast cancer
- USE A WATER FILTER! ATRAZINE HAS BEEN FOUND IN WATER SOURCES FOR UP TO 15 YEARS AFTER EXPOSURE



Atrazine is the 21st Century's DDT: LET'S GET IT BANNED!

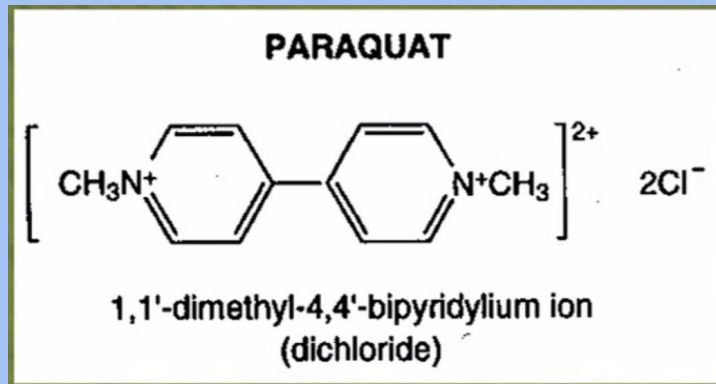


- > **Atrazine is one of the world's most harmful pesticides.**
- > **Atrazine was banned in the European Union in 2004.**
- > **Eighty million pounds of Atrazine are used in the USA each year, primarily on corn, rice, sorghum and sugar.**
- > **Atrazine is an endocrine disruptor that causes immunosuppression, hermaphroditism and complete sex reversal in frogs at concentrations as low as 2.5 parts per billion.**
- > **Atrazine is the most commonly detected pesticide in US groundwater, and can persist in the environment 15 years after it is applied.**



Paraquat = Herbicide

- Increases the Risk of Parkinson's by 2.2 fold
- One of the most widely used pesticides in the world
- Used for killing weeds and foliage
- Prolonged use increased risk of farmers to get Parkinson's



Avoid!



Weed Killer, Long Cleared, Is Doubted



Glyphosate being sprayed on a field in Suffolk, England. Introduced in the 1970s, it is the most widely used herbicide in the world. Universal Images Group, via Getty Images

Widely Used Herbicide Linked to Cancer

The World Health Organization's research arm declares glyphosate a probable carcinogen. What's the evidence?



LATEST NEWS



Specialists Call for Gastric Surgery to Be Standard Diabetes Treatment



**World Health
Organization**

World Health Organization: Glyphosate Is A Probable Human Carcinogen

The World Health Organisation's cancer agency has declared the world's most widely used weedkiller – glyphosate – a “probable human carcinogen” in a move that will alarm the agrochemical industry and amateur gardeners.

**Find the Full WHO IARC report
here: <http://www.thelancet.com>**

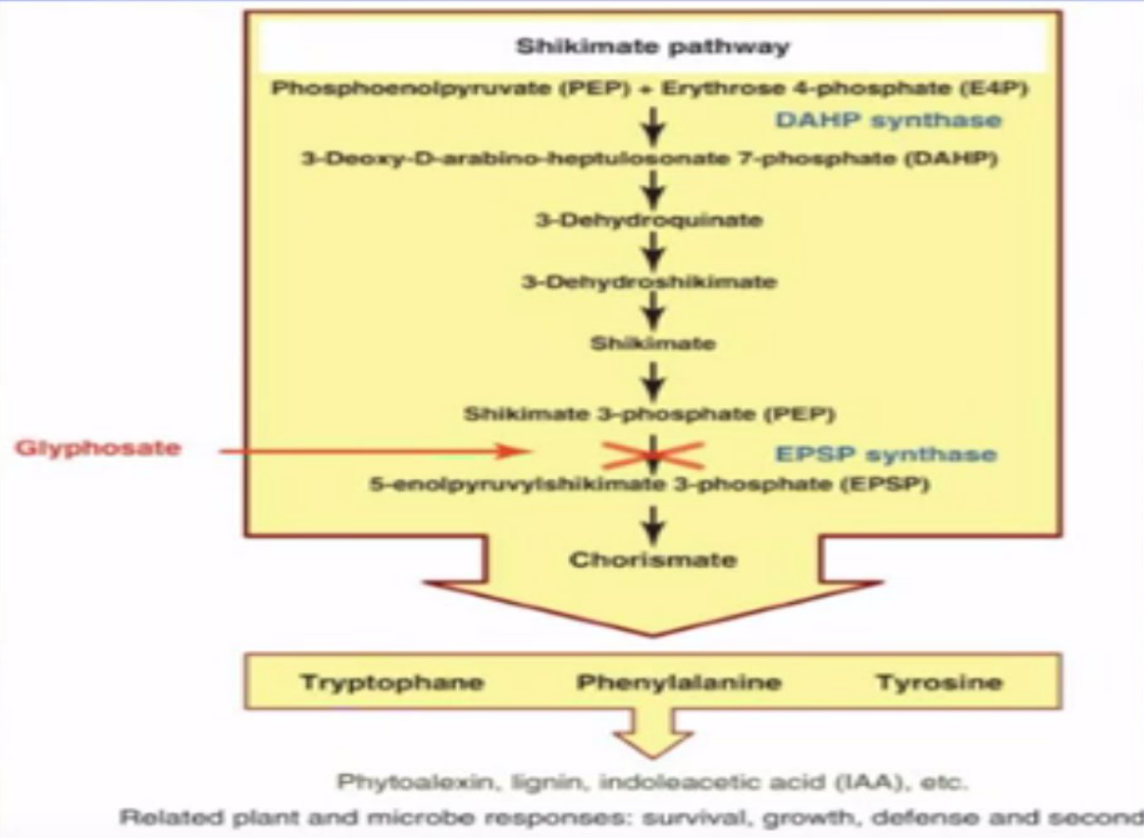
Carcinogenicity of tetrachlorvinphos, parathion, malathion, diazinon, and glyphosate

Glyphosate/Roundup destroys shikimate pathway OF OUR BIOME; WHICH MAKES OUR NEUROTRANSMITTERS

- *Tyrosine makes Dopamine
- *Tryptophan makes Serotonin
- *Phenylalanine makes Tyrosine which makes Dopamine, Norepinephrine, and epinephrine

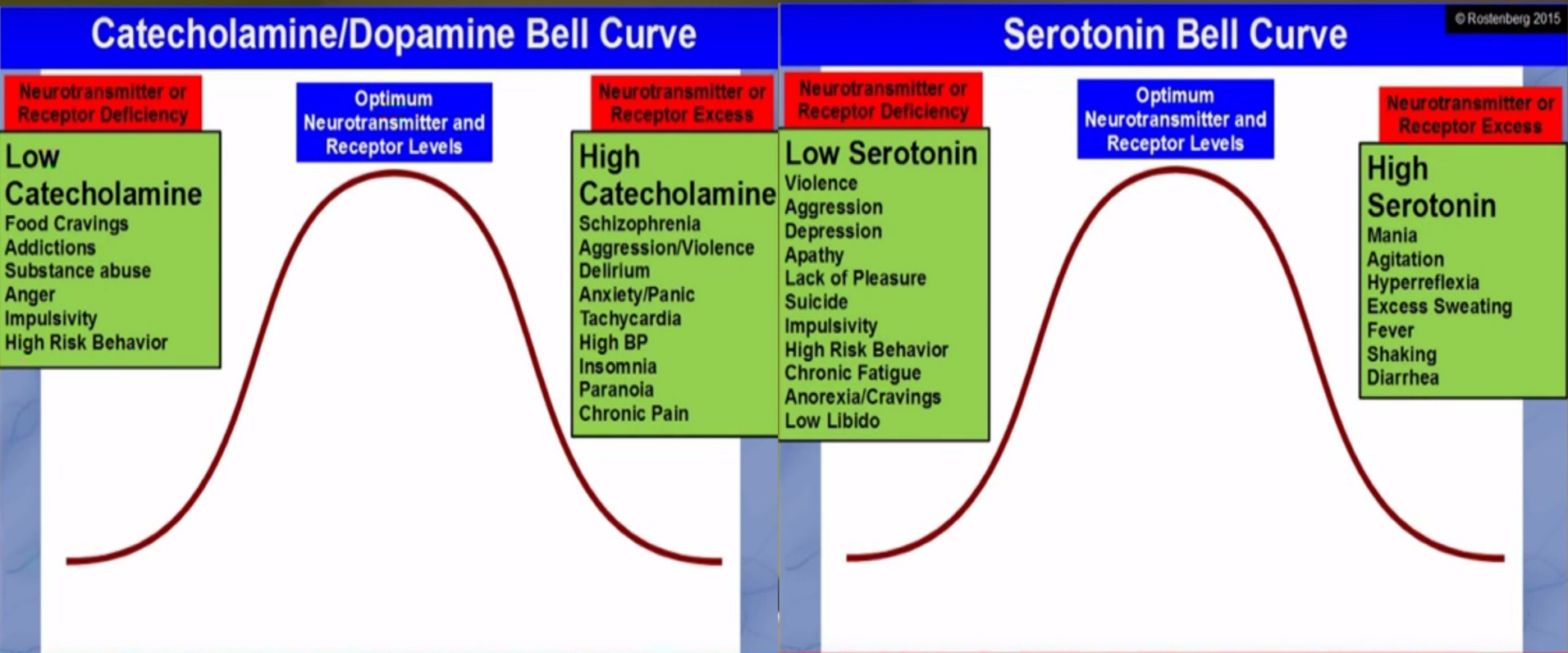
Different Gut Bacteria make Tryptophan: Proteobacteria, Actinbacteria, Firmicutes

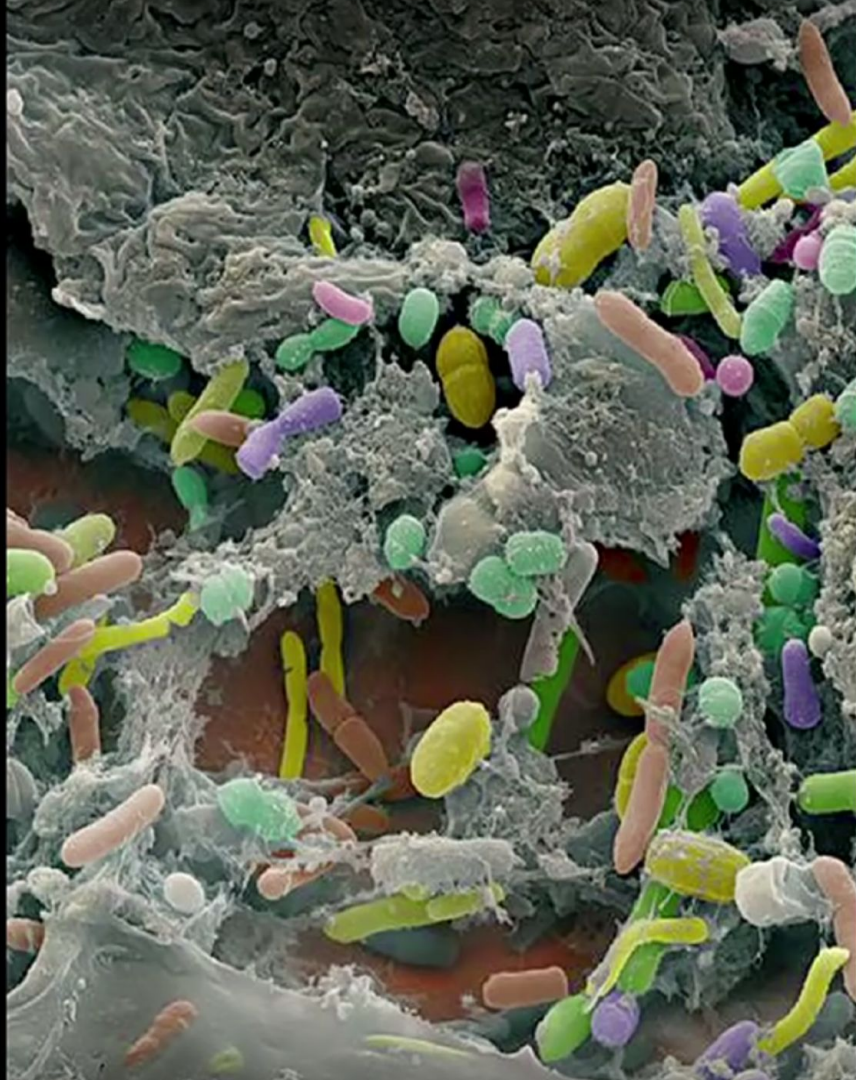
E.Coli makes Chlorismate



OUR BIOME IS KILLED BY ROUNDUP

Our Biome stops making amino acids, which in turn stop making neurotransmitters.





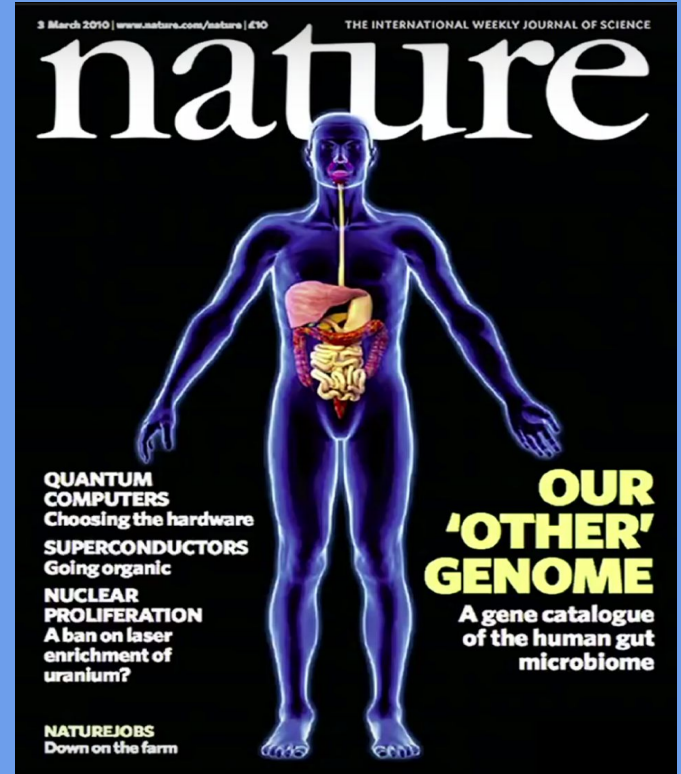
Your flora is your friend

- Food digestion
- Protection against pathogens
- Provides essential nutrients (e.g. vitamins)
- 'Trains' your immune system
- *Disturbance* of flora is linked to disease

Our Microbiome = we live in a symbiotic relationship with bugs; we are ostensibly a community supporting each other

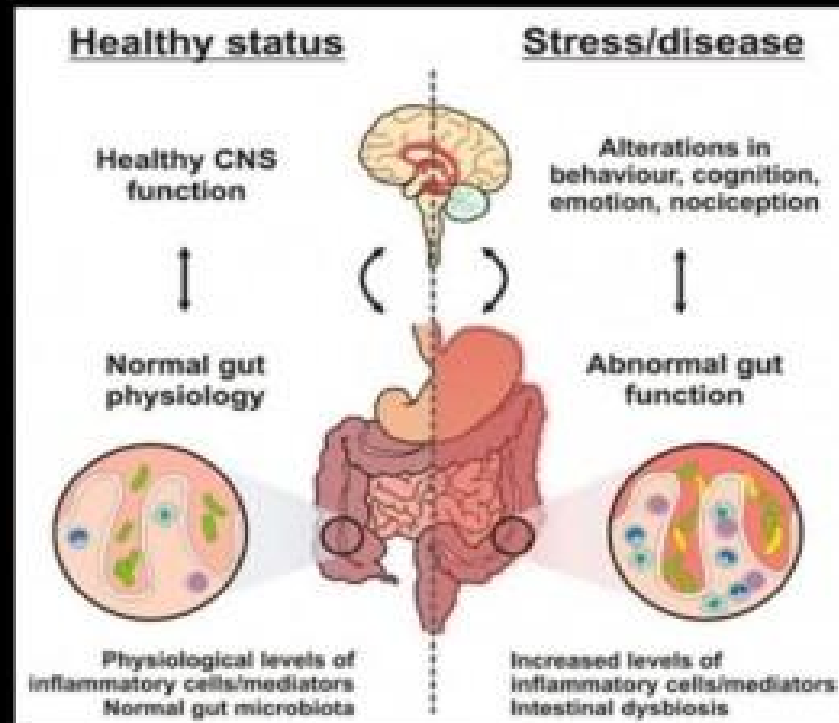
- **Our microbiome...**

- Is inhabited by 100 trillion microorganisms
- This is 10x the number of cells in the human body
- Has 150x as many genes than we have
- Co-exists with gut pathogens
- Regulates the immune system
- Regulates the endocrine system
- Modulates digestion (Vitamin K2, single chain fatty acids, and fructose)
- Weighs 2-6 pounds



Gut/Brain Axis

- Gut injury: Gluten, Glyphosate, Lipopolysaccharides
- Zonulin goes systemic
- Tight junction injury
 - Gut
 - Blood/brain barrier
 - Vascular system
 - Kidney tubules



Leaky Gut Progression



Stress



Toxins



Food Particles



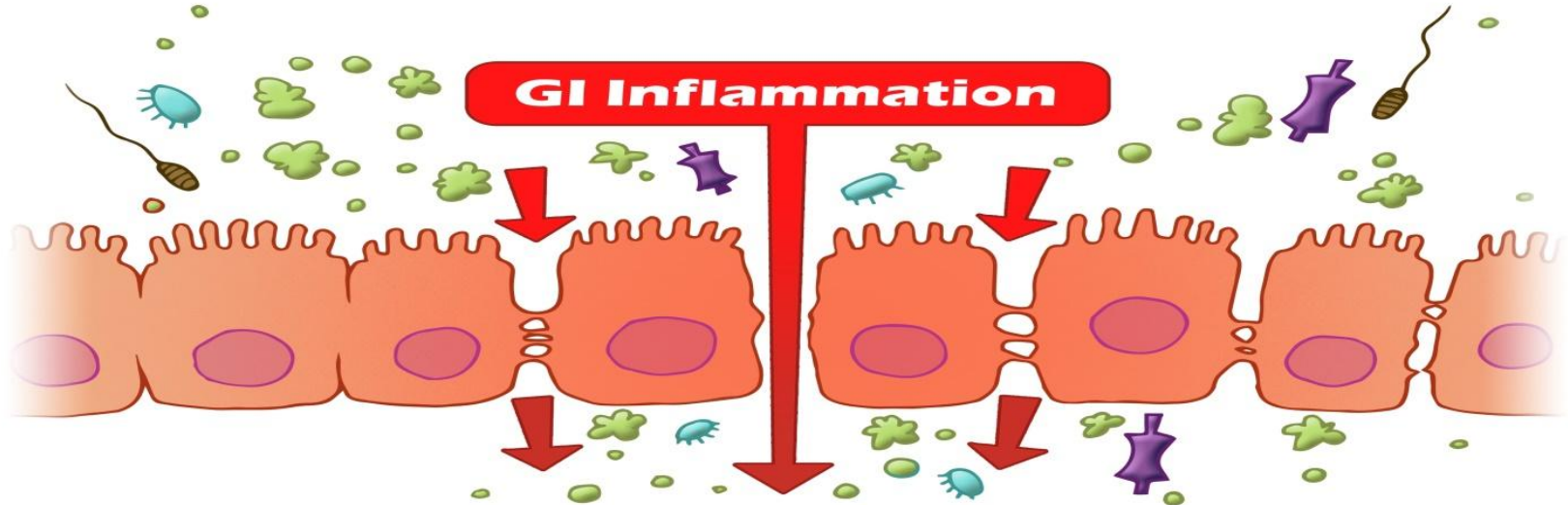
Drugs



Pathogens



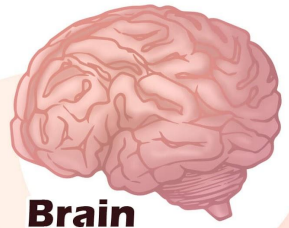
Organ Malfunction



GI Inflammation

Food Intolerances

Immune System Issues



Brain
 Depression
 Anxiety
 ADHD



Sinus and Mouth
 Frequent Colds
 Food Sensitivities

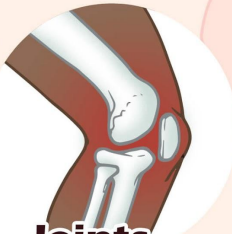


Skin
 Acne
 Rosacea
 Eczema
 Psoriasis

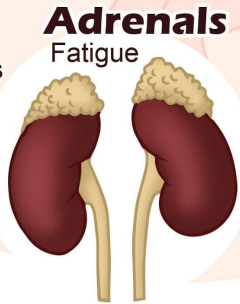


Thyroid
 Hashimotos
 Hypothyroidism
 Graves

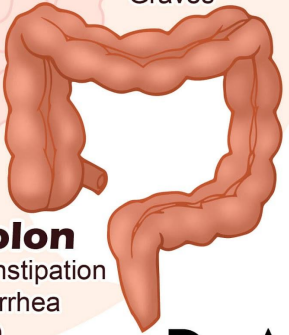
Leaky Gut
Affects the Whole Body



Joints
 Rheumatoid Arthritis
 Fibromyalgia
 Headaches



Adrenals
 Fatigue



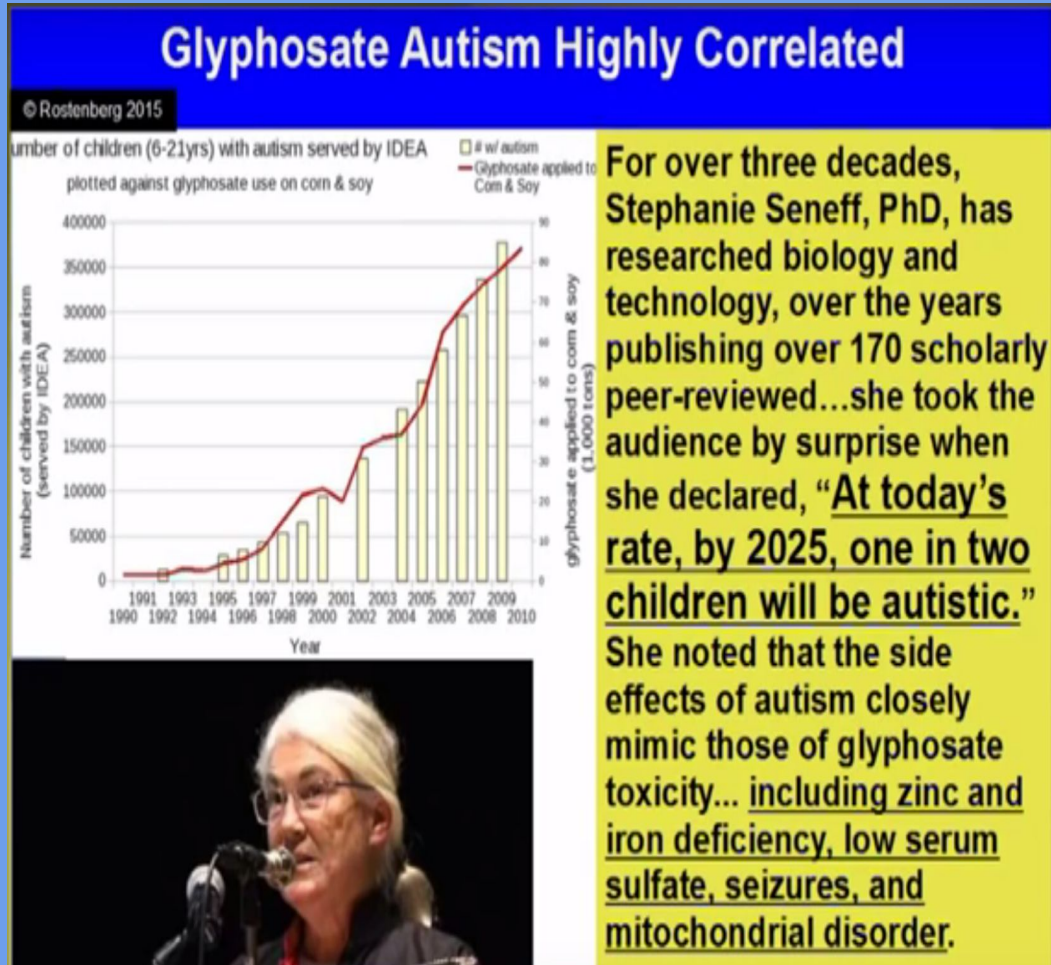
Colon
 Constipation
 Diarrhea
 IBD



Could Childhood Obesity Epidemic Be Related to Glyphosate?



Stephanie Seneff, PhD is a MIT researcher



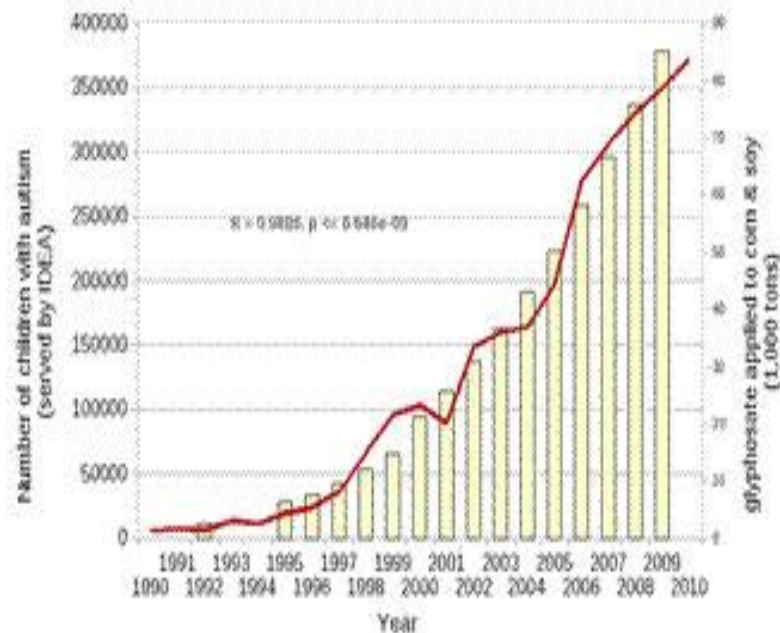
Glyphosate and Autism*



Number of children (6-21yrs) with autism served by IDEA

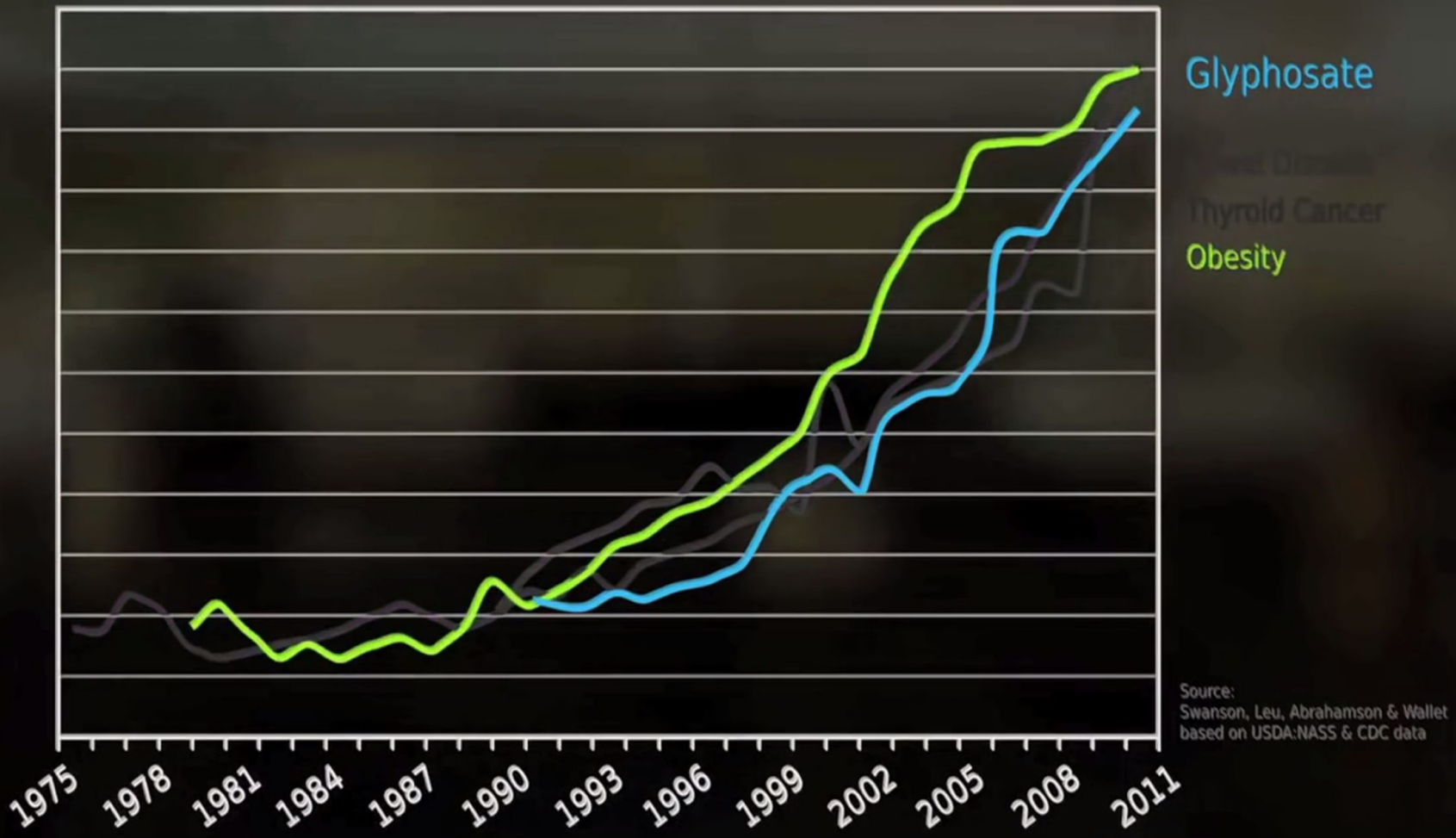
plotted against glyphosate use on corn & soy

□ # w/ autism
— Glyphosate applied to Corn & Soy



* <http://www.examiner.com/article/>

data-show-correlations-between-increase-neurological-diseases-and-gmos



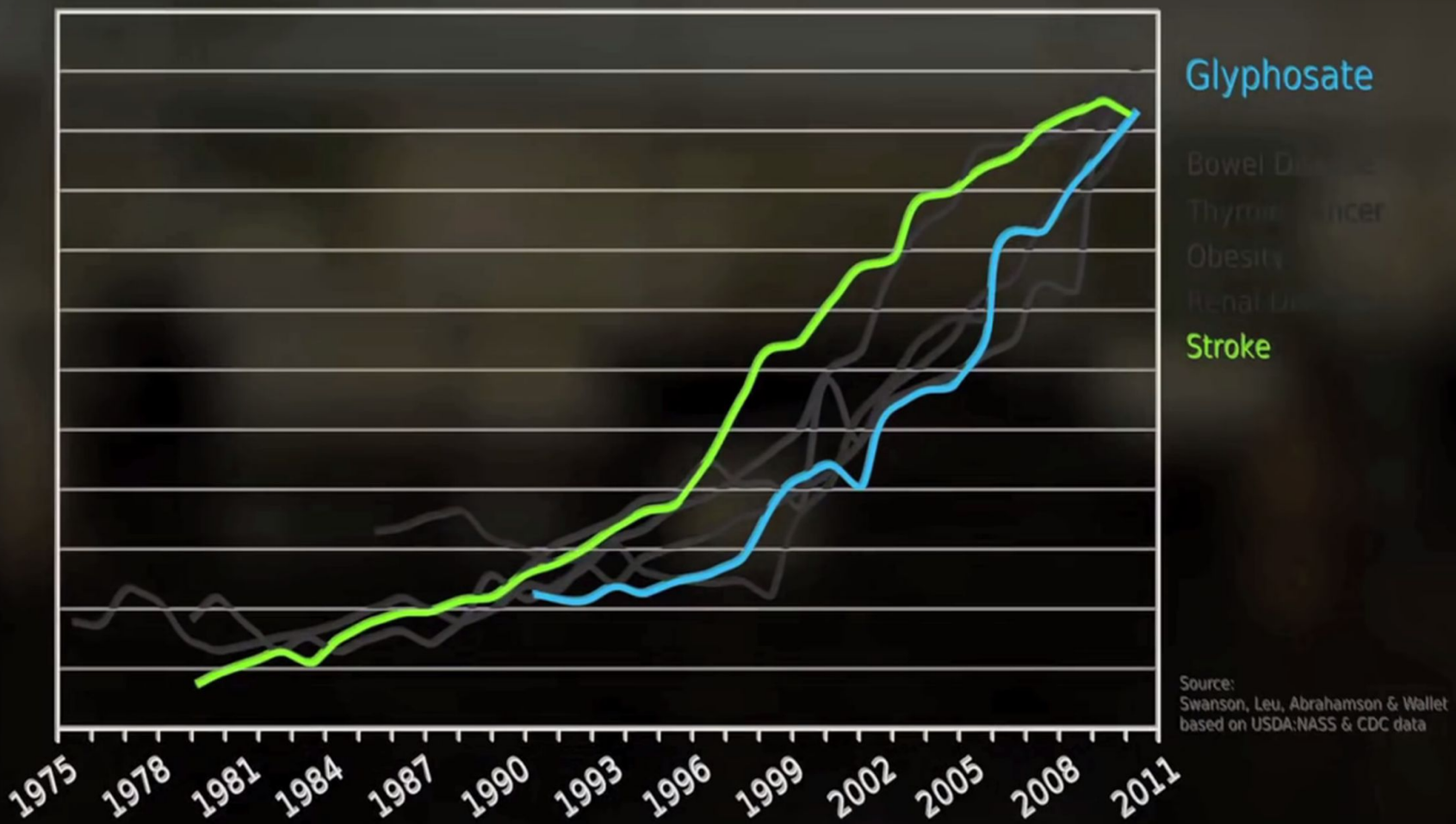
Glyphosate

Heart Disease

Thyroid Cancer

Obesity

Source:
Swanson, Leu, Abrahamson & Waller
based on USDA:NASS & CDC data



Glyphosate

Bowel Disease

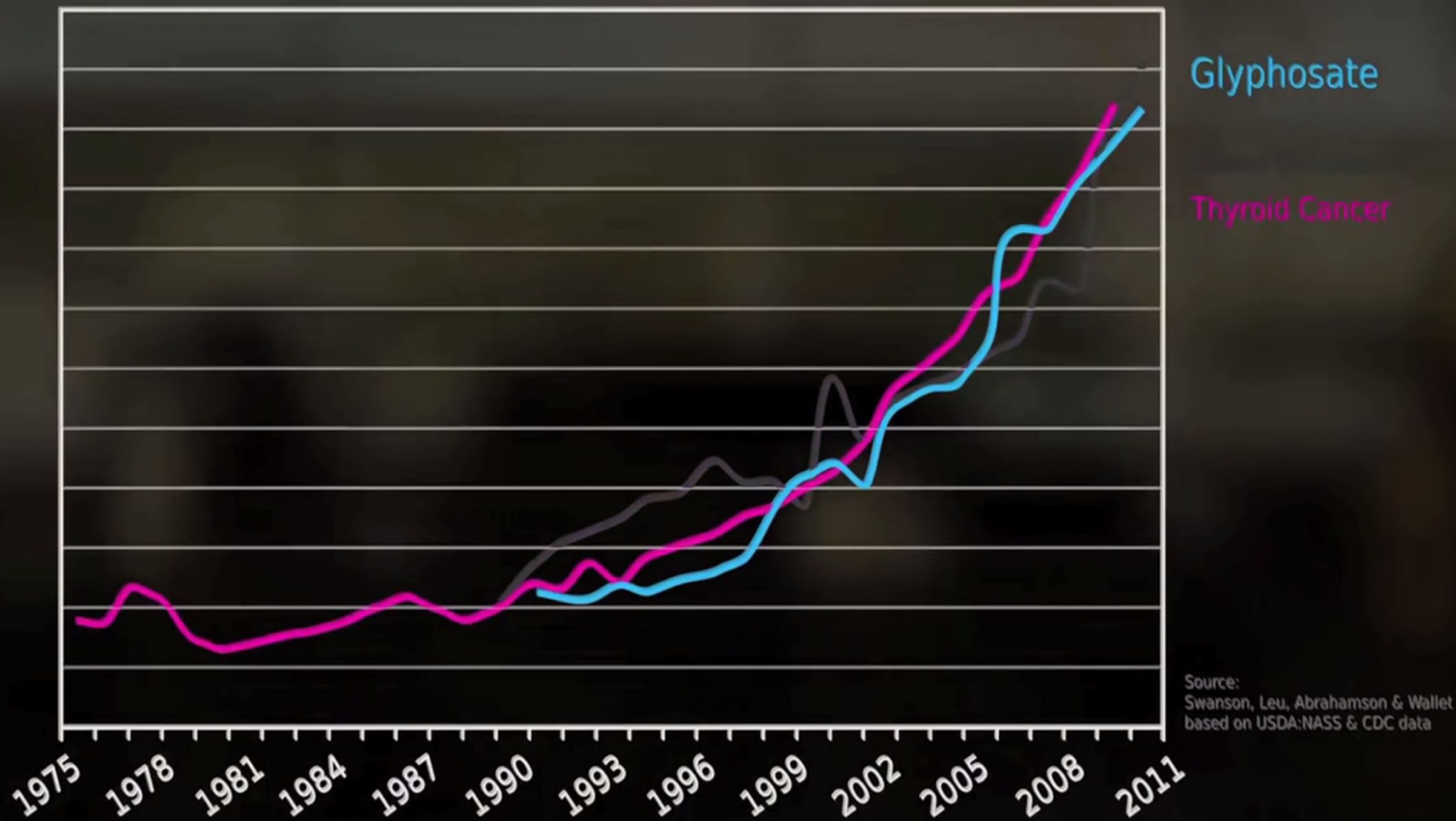
Thyroid Cancer

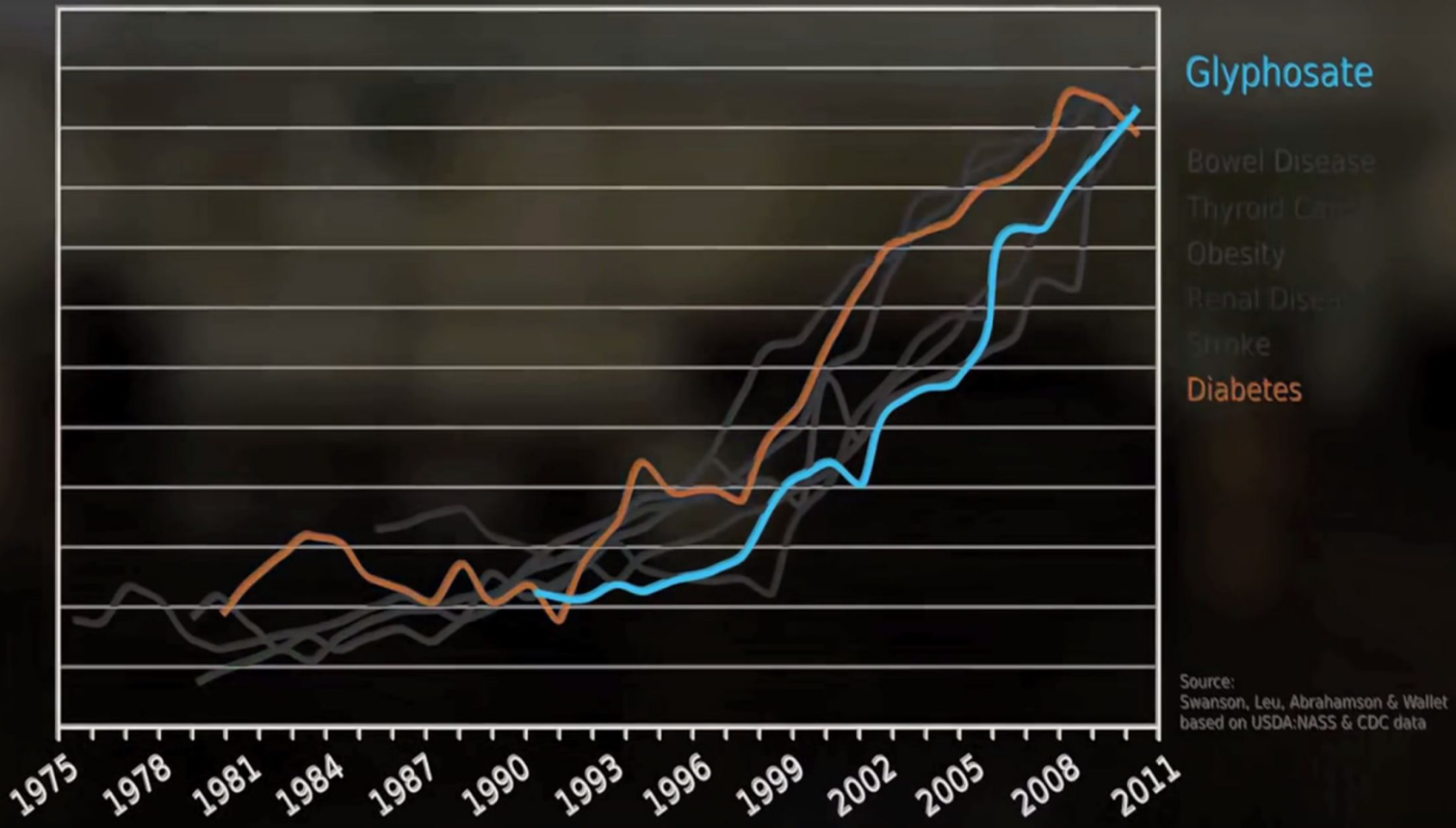
Obesity

Renal Disease

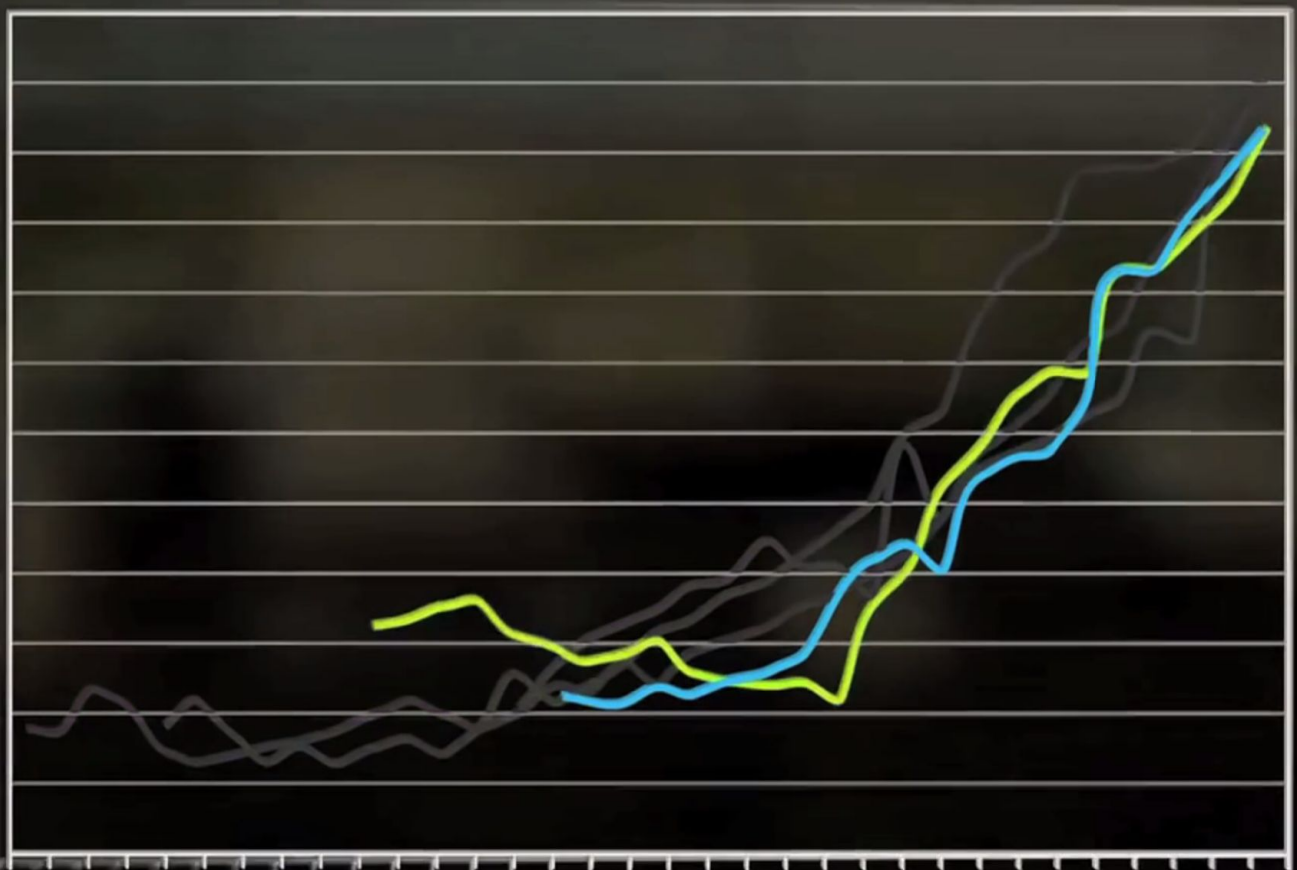
Stroke

Source:
Swanson, Leu, Abrahamson & Wallet
based on USDA:NASS & CDC data





Glyphosate
B...
Thyroid Cancer
Renal Disease



Source:
Swanson, Leu, Abrahamson & Wallet
based on USDA:NASS & CDC data

How come one gets sick and another does not?

It's all about epigenetics... so respect your neighbor even if you don't get sick by stopping the use of pesticides

EPIGENETICS IS A TRIGGER IN OUR ENVIRONMENT THAT CLICKS ON GENETIC MUTATIONS. SOME PEOPLE HAVE MORE OF THESE THAN OTHERS. HERE ARE THE FACTORS THAT ACTIVATE GENETIC MUTATIONS RELATED TO DISEASE:

- Childhood trauma (ACE Study) especially if untreated
- Poor diet: hormones, antibiotics, GMO's, and pesticides in food and water
- Environmental toxins: in food, air, and water
- Lack of sunlight
- Poor stress management and emotional regulation
- Homozygous and Heterozygous genetic Single Nucleotide polymorphisms= type of genetic variation among people that can over time if epigenetically triggered can cause disease



Are you a sitting duck for disease?

- Why not be proactive and prevent finding out that you are a sitting duck?
- You can choose what you put in your mouth, on your lawn, and to some degree in your lungs.
- Pesticides trigger cancer and other serious diseases. As we get older our body is not as efficient at methylating, and other cellular functions that keep us healthy
- Therefore it is most important to be more mindful of keeping our environment clean= older than 50 and younger than 18.= most vulnerable

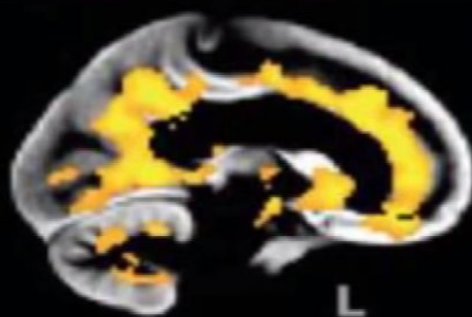
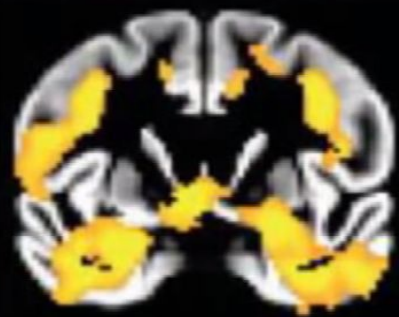


KIDS AND PETS

- Kids and pets are much more vulnerable until they are 50 and up, then we are also as vulnerable. But we can choose what happens more than they can!
- Kids are still forming and growing which makes their DNA more vulnerable to going wonky
- Pets are smaller so it is a higher toxic load on their system
- Dog poop that has been cleaned off your lawn by your neighbor does not compare to you using roundup, atrazine, and other toxins. Dog poop is “organic”, Pesticides alter gene function in wildlife, people, and plants.



Methylation Vitamins Preserve Grey Matter

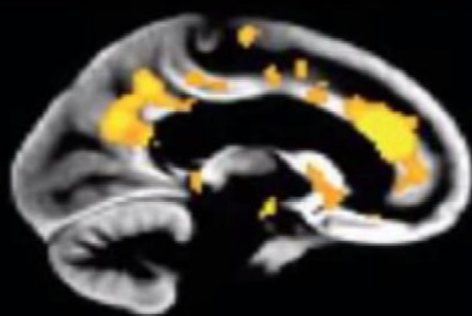
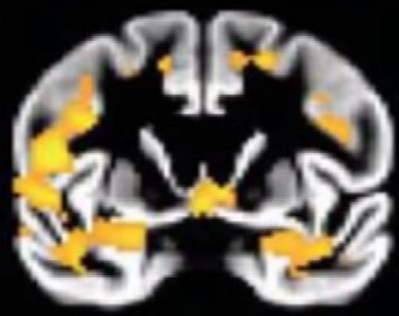


R

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Placebo

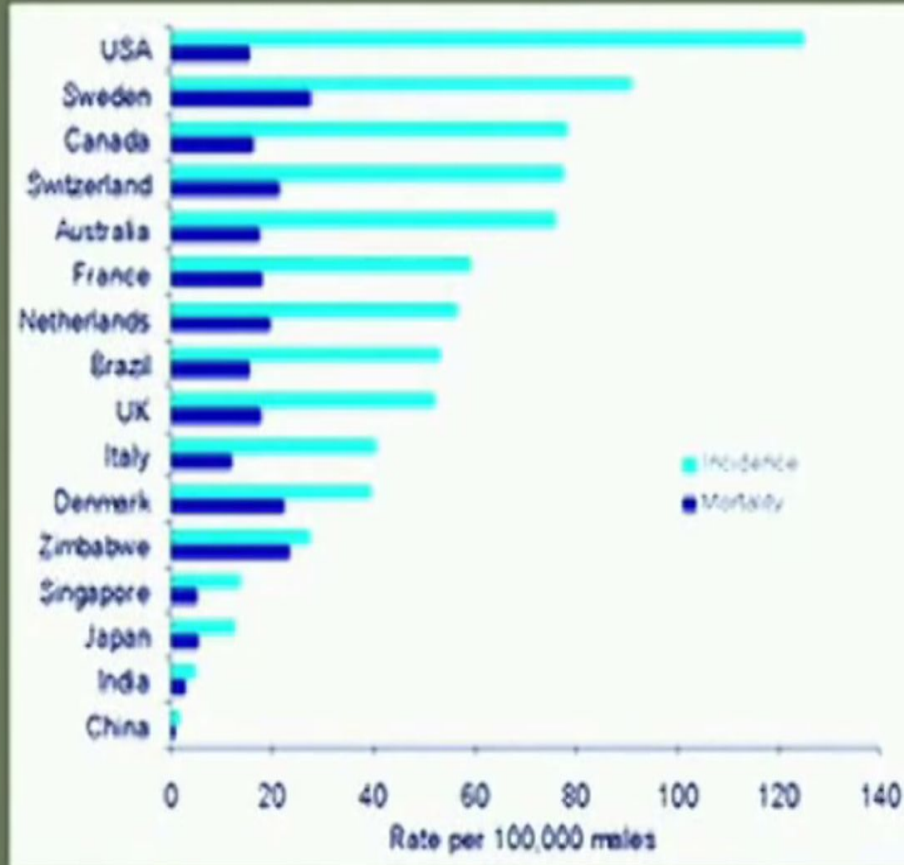
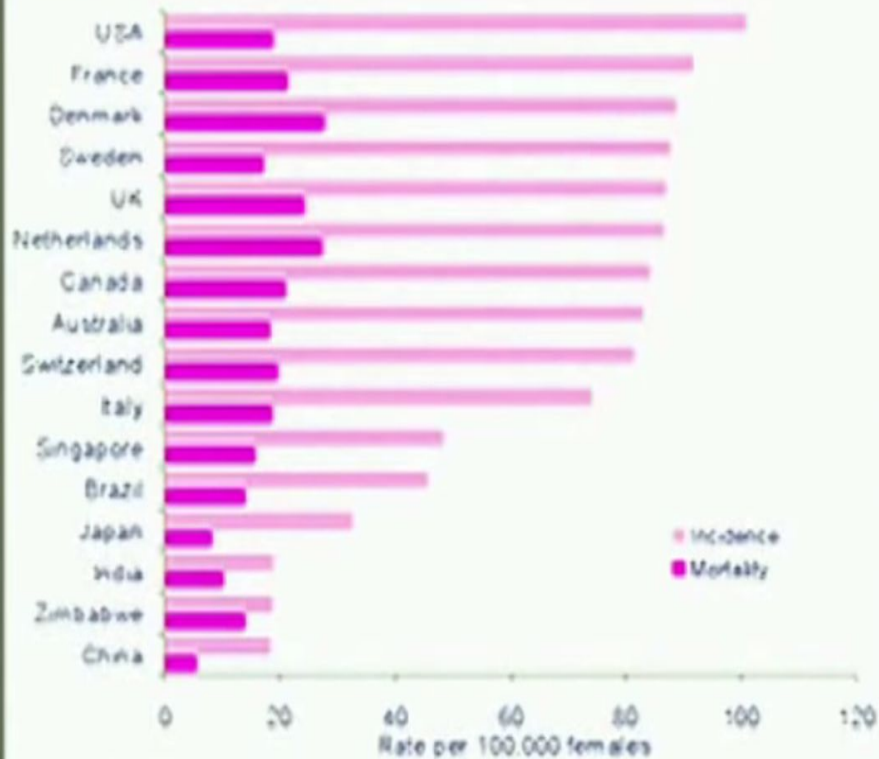


B-vitamin

B vitamins lower homocysteine, which directly leads to a decrease in GM atrophy, thereby slowing cognitive decline. Our results show that B-vitamin supplementation can slow the atrophy of specific brain regions that are a key component of the AD process and that are associated with cognitive decline.

United States has highest cancer rates in world.

Figure 1.2 Age standardised (world) incidence and mortality rates, female breast cancer in selected countries. 2002 estimates



Pesticides In Plants

- ◆ Absorbed by all parts of the plant (leaves, stems, roots)
- ◆ Systemic effects and therefore can't be washed off
- ◆ Affects soil quality (and bacteria in the soil)

Environmental Impact

- ◆ Many pesticides are very stable and extremely persistent in the environment, known as POPs
- ◆ Can have half-life of anywhere from a few days to many years, glyphosate has a half life of anywhere from 2 to 197 days
- ◆ Found in all air and rain samples, pesticide glyphosate alone found in 60 to 100% of samples

DDT

- 40 years after DDT has been banned in the US, its residues can still be found in foods

Environmental Implications

- ◆ Kills other (unintended) plants by interfering with plant growth, photosynthesis, and nutrient absorption
- ◆ Detrimental effects on wildlife causing a variety of problems from deformities to death
- ◆ Emergence of “superweeds” and “superpests” from pesticide resistance as all species try to survive at all costs
- ◆ Resistance means even more aggressive, broad spectrum pesticides will be developed by biotech companies

Bioaccumulation

- ◆ Accumulates in tissues of plants, ends up in animals that eat those plants and animals that eat those animals
- ◆ Accumulates over the years in plant and animal tissues
- ◆ Excrement of animals returns pesticides to soil where they are again taken up by plants
- ◆ Pesticides are taken up by all vegetation and wildlife and ultimately ends up in humans as we are highest in the food chain, exposure is cumulative

Safer Alternatives: Specific Non-Toxic Pesticides

- ◆ Bay leaf essential oil: for flies and ticks
- ◆ Buttermilk wheat flour water mixture: for spider mites
- ◆ Bowls of beer: for snails and slugs
- ◆ Camphor essential oil: for mosquitoes
- ◆ Cedar essential oil: for fleas, mosquitoes and moths
- ◆ Citronella: for flies, ticks, mosquitoes
- ◆ Citrus essential oils: for flies and ticks

Safer Alternatives: Specific Non-Toxic Pesticides

- ◆ Eucalyptus essential oil: for flies and ticks
- ◆ Garlic oil: for fleas, flies and mosquitoes
- ◆ Lavender essential oil: for flies, ticks, mosquitoes and lice
- ◆ Neem oil: for flies, mosquitoes and lice
- ◆ Pennyroyal essential oil: for flies, ticks and mosquitoes
- ◆ Rose geranium essential oil: for ticks
- ◆ Rosemary essential oil: for mosquitoes

Sources

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2. <http://www.motherjones.com/tom-philpott/2013/01/new-study-common-pesticides-kill-frogs-contact>
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4. Rachel Carson: Silent Spring
5. Theo Colburn: our stolen future
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7. Beyondpesticides.org
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11. organicconsumers.org

