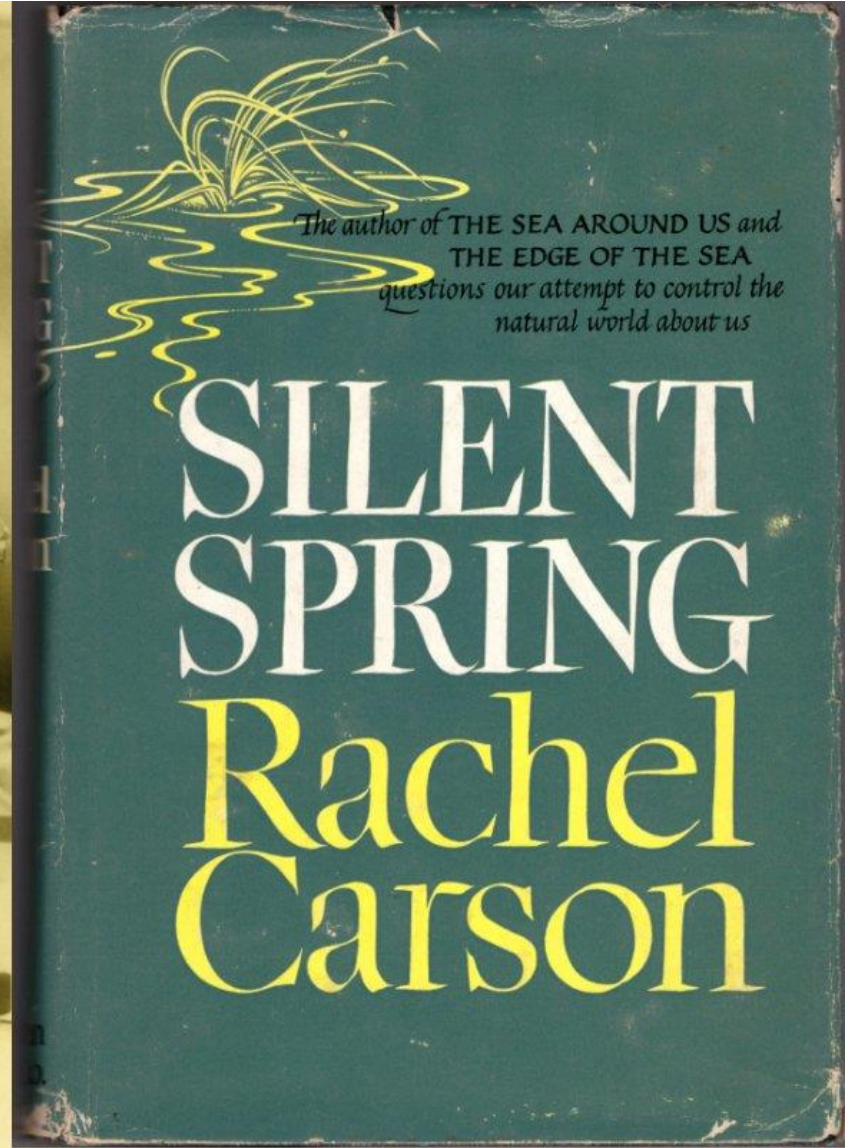


ENDOCRINE DISRUPTORS

NOVEMBER 14, 2024

HELEN NICHOLS, RD LN CDCEs

INTRO



LEARNING OBJECTIVES

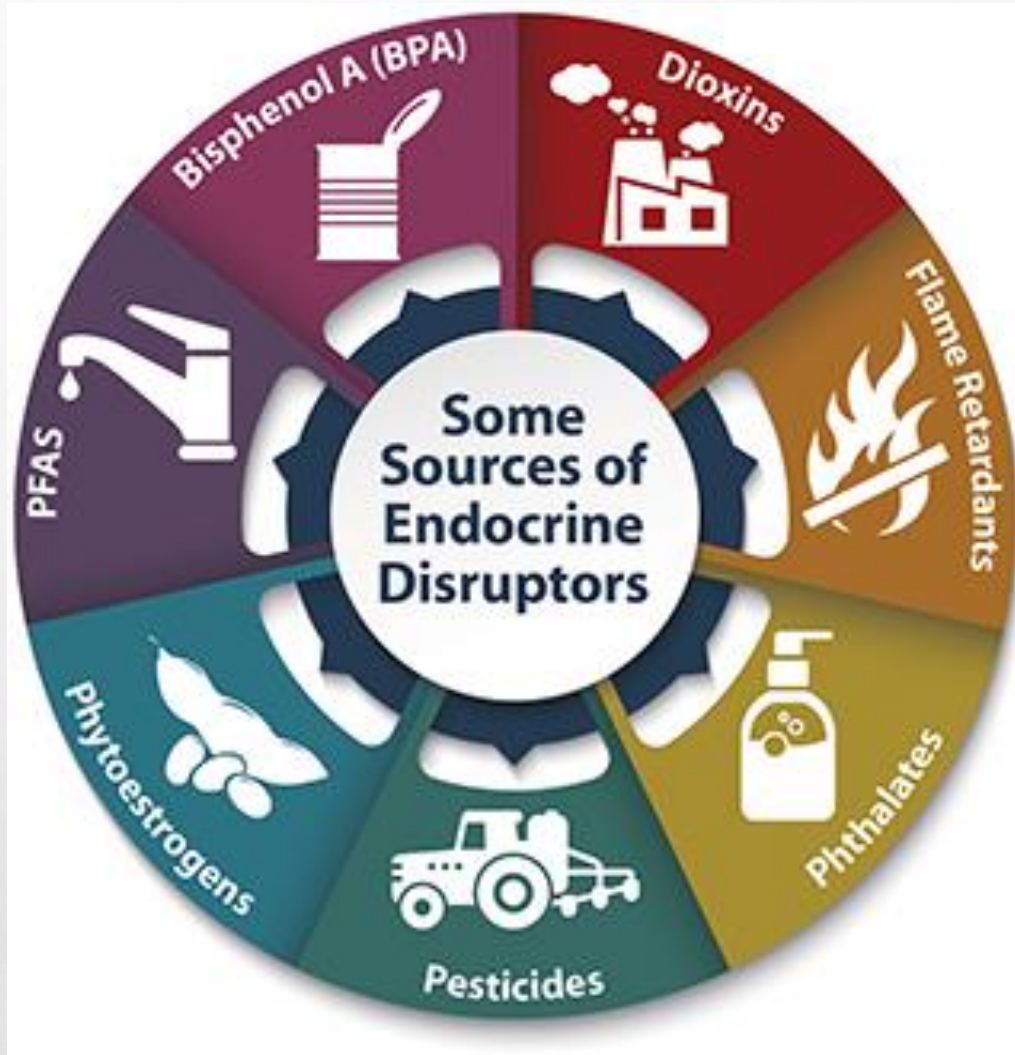
**What are
endocrine
disruptors?**

**What are “forever
chemicals”**

**Which chemicals
are linked to
obesity and Type 2
diabetes**

- **ESSENTIAL OILS**
- **FLAME RETARDANTS**
- **FORMALDEHYDE**
- **HAZARDOUS MATERIAL/WASTE**
- **HEXAVALENT CHROMIUM**
- **HYDRAULIC FRACTURING & HEALTH**
- **INDOOR AIR QUALITY**
- **LEAD**
- **MERCURY**
- **MOLD**
- **NANOMATERIALS**
- **PERFLUOROALKYL AND
POLYFLUOROALKYL SUBSTANCES
(PFAS)**
- **PESTICIDES**
- **RADON**
- **SAFE WATER AND YOUR HEALTH**
- **SMOKING AND VAPING**
- **STYRENE**
- **WEATHER EXTREMES**

Endocrine disruptors are natural or man-made chemicals that may mimic or interfere with the body's hormones, known as the endocrine system. These chemicals are linked with many health problems in both wildlife and people.



SILENT SPRING

- **DDT – “PERSISTENT CHEMICAL”**





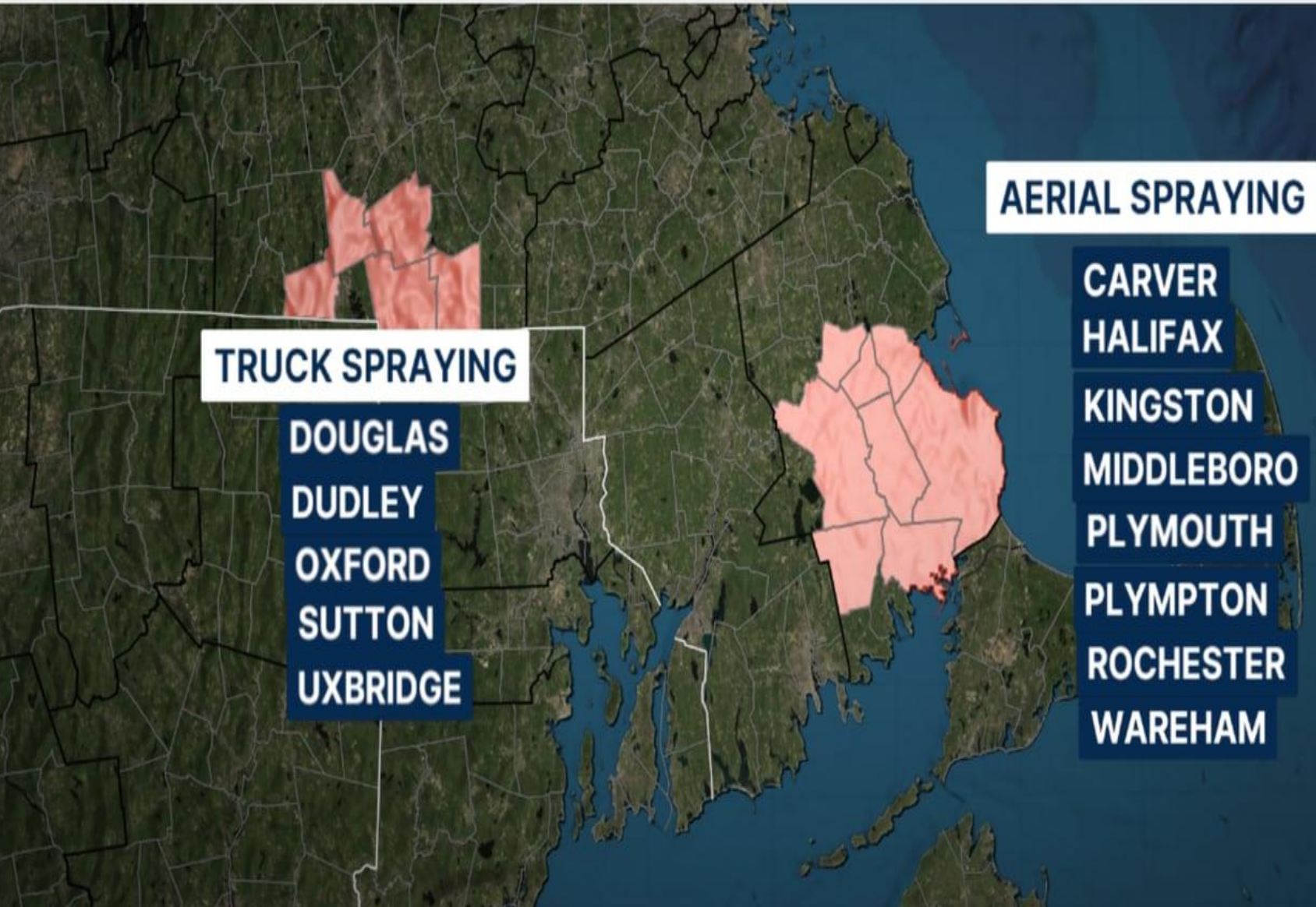




Chasing the mosquito man



MOSQUITO SPRAYING





What!?



Anvil 10+10, an EPA-registered product extensively tested and used in both ground-level and aerial spraying in the U.S. to control mosquitoes.

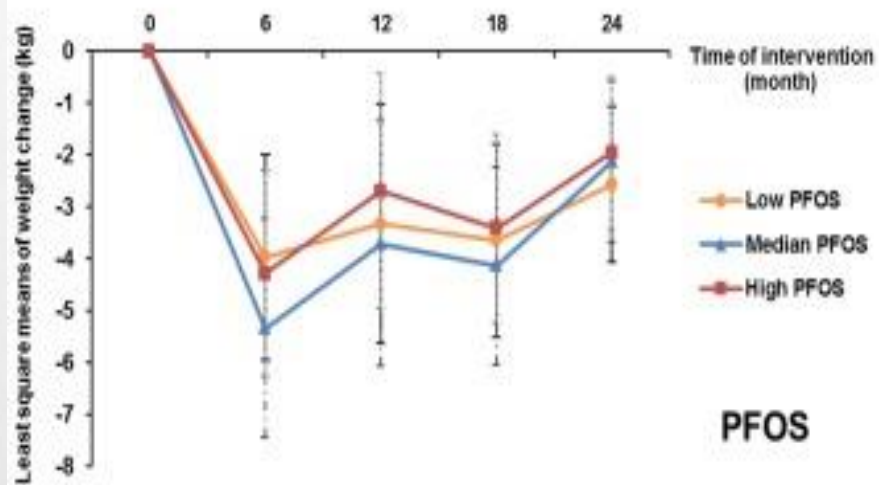
- **INGESTION – ARSENIC IN WATER**
- **INHALATION – FIREFIGHTERS VOLATILE ORGANIC COMPOUNDS, CANDLES**
- **ABSORPTION – PARABENS IN LOTIONS SHAMPOOS CONDITIONERS**

- **PERFLUOROALKYL SUBSTANCES AND CHANGES IN BODY WEIGHT AND RESTING METABOLIC RATE IN RESPONSE TO WEIGHT-LOSS DIETS: A PROSPECTIVE STUDY**

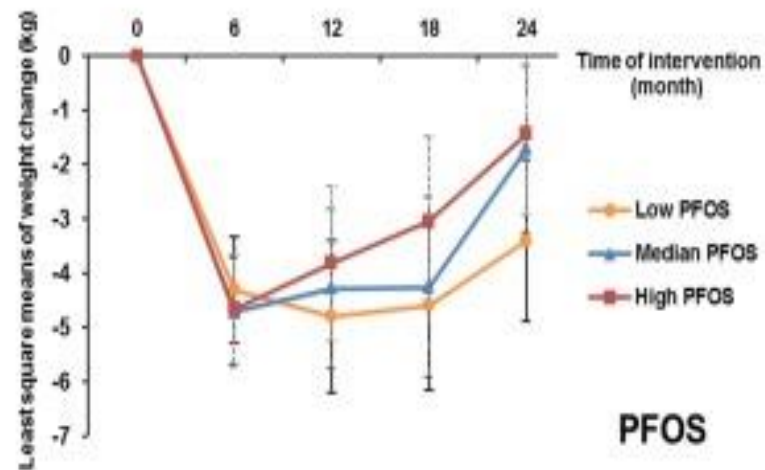
- **PFAS, PERFLUOROALKYL SUBSTANCE; PFDA, PERFLUORODECANOIC ACID; PFHXS, PERFLUOROHEXANESULFONIC ACID; PFNA, PERFLUORONONANOIC ACID; PFOA, PERFLUOROCTANOIC ACID; PFOS, PERFLUOROCTANESULFONIC ACID.**

- **PUBLISHED ONLINE 2018 FEB 13. DOI: [10.1371/JOURNAL.PMED.1002502](https://doi.org/10.1371/JOURNAL.PMED.1002502)**

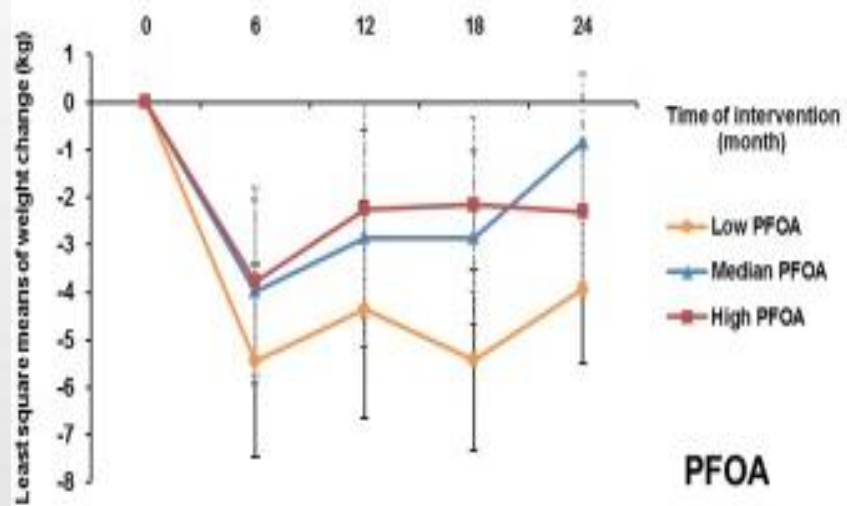
Men



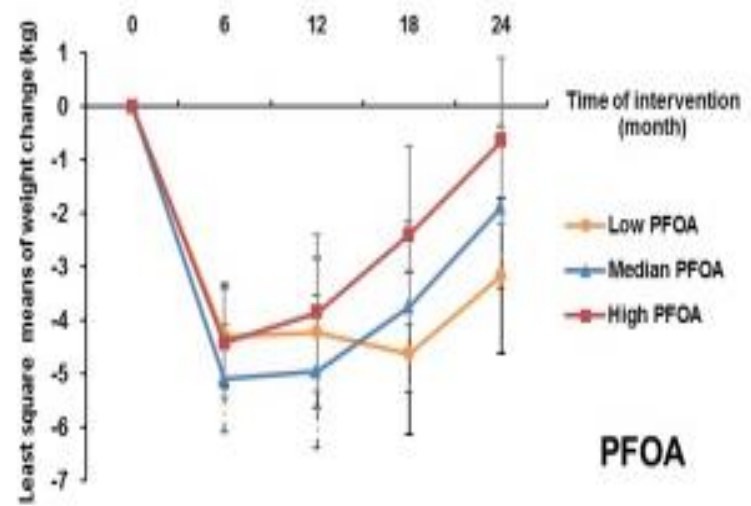
Women



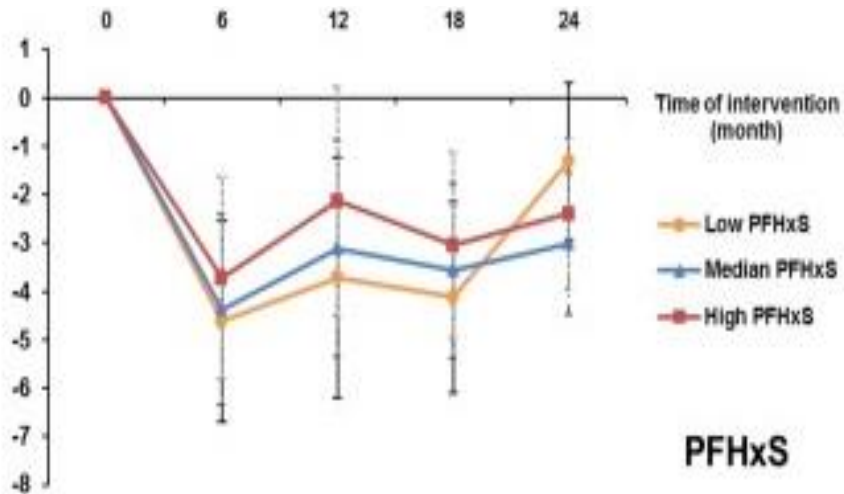
Men



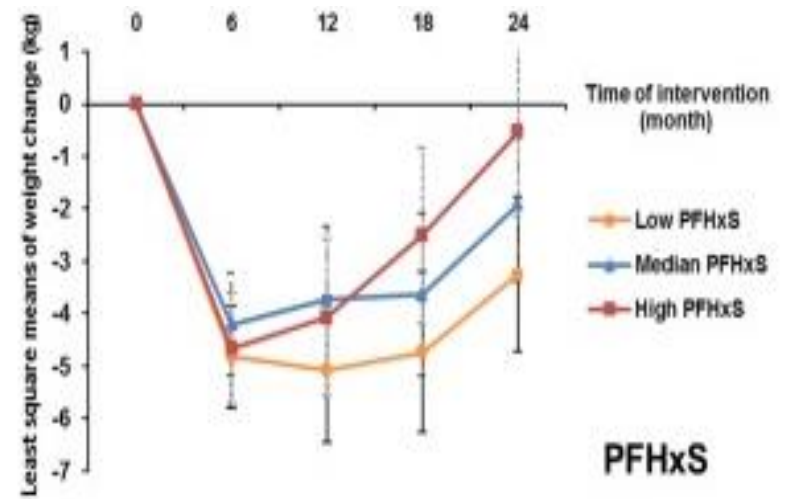
Women



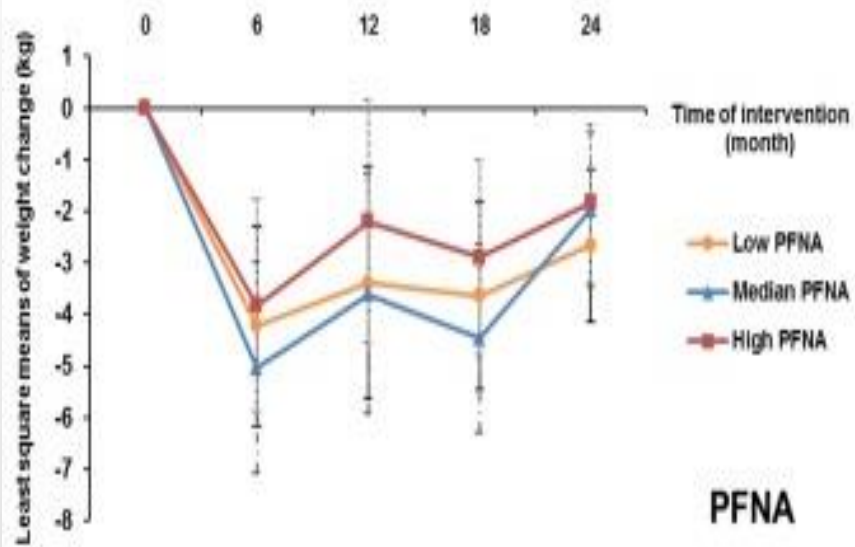
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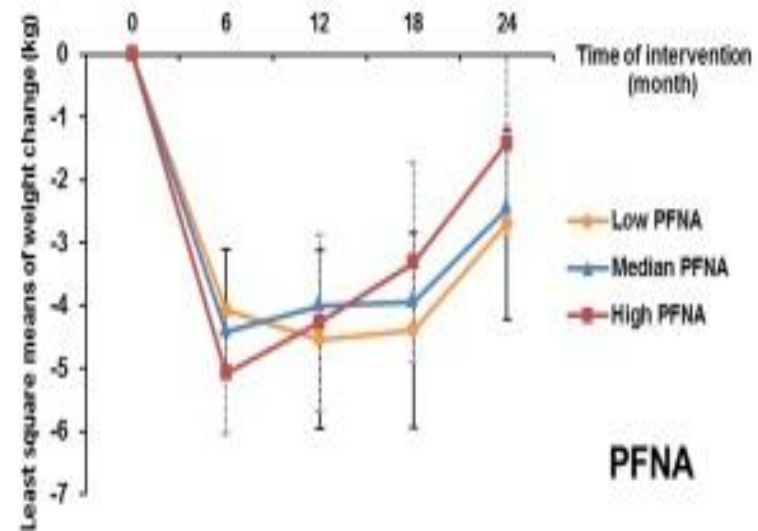
Women



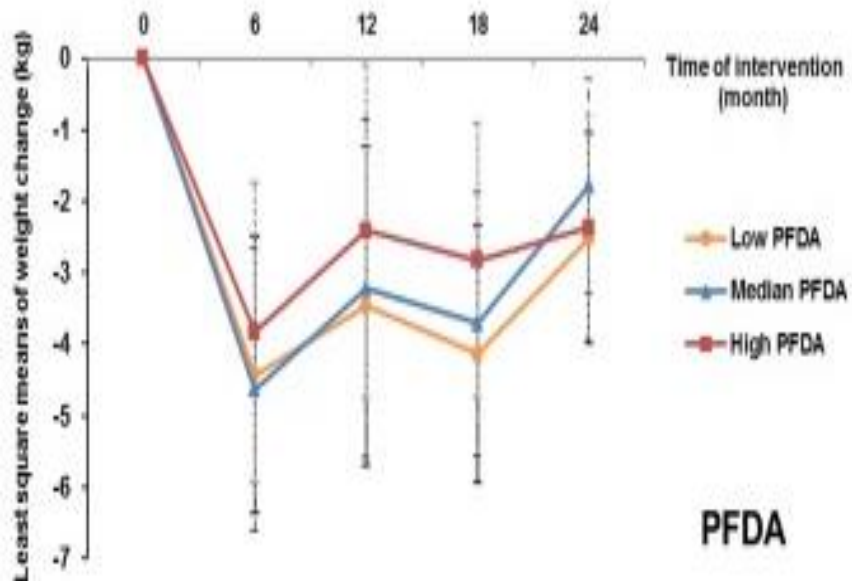
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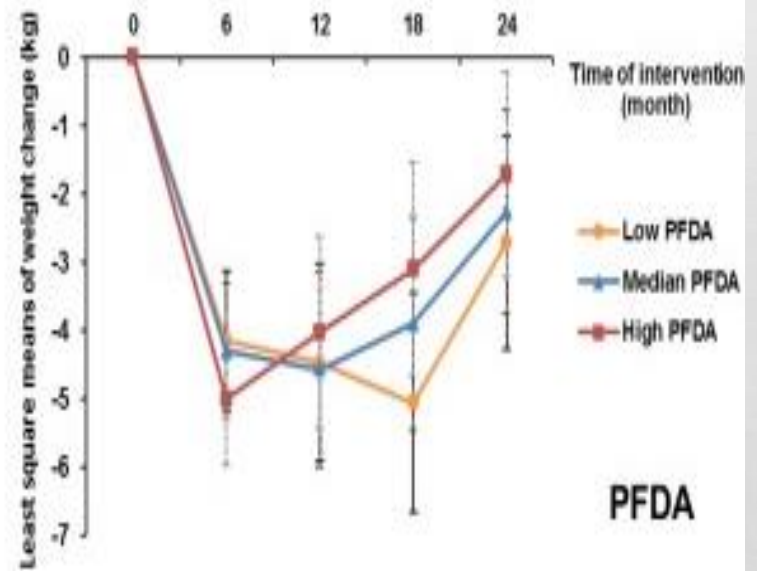
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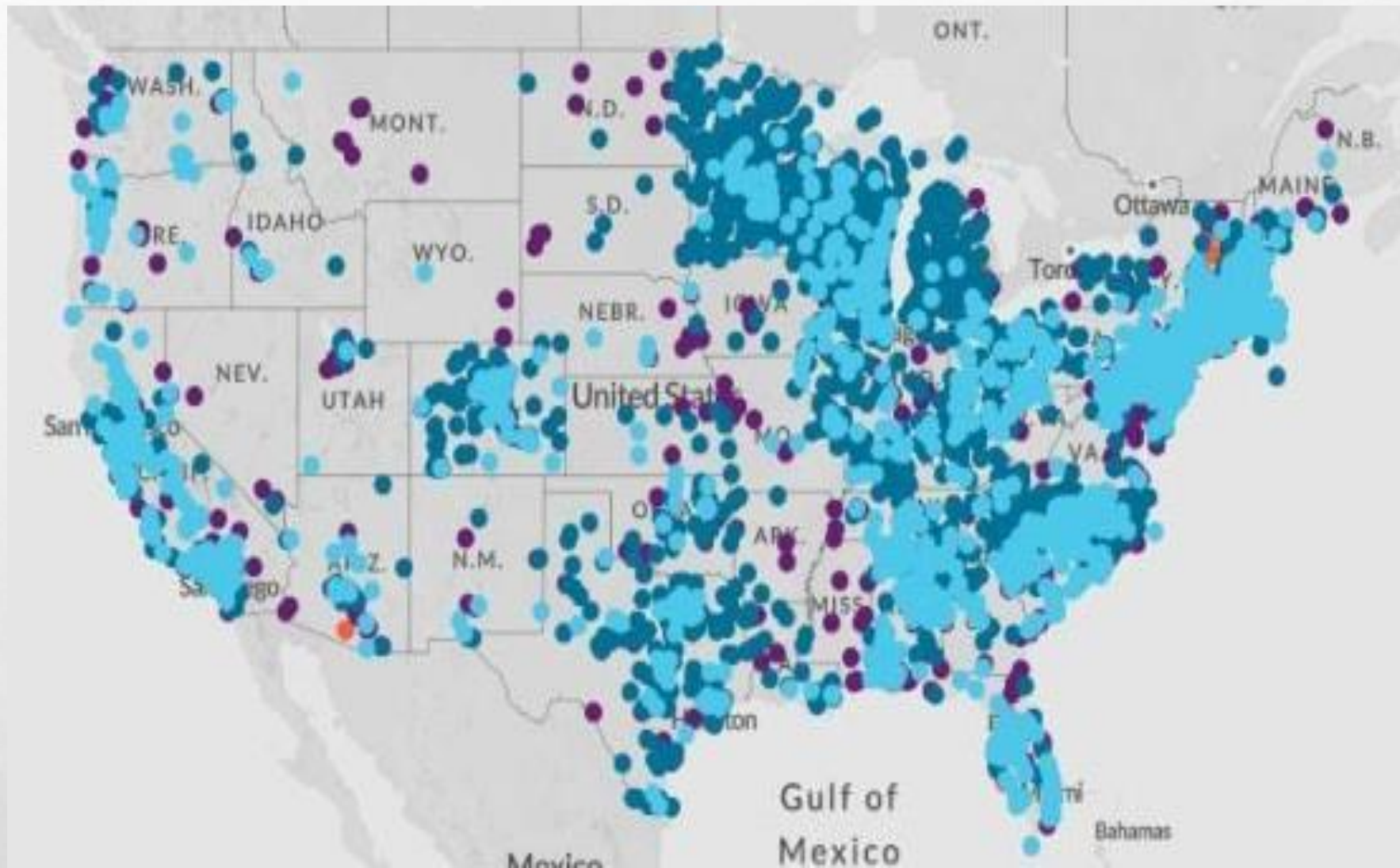
Men



Women



PFAS are found in water, air, fish, and soil at locations across the nation and the globe.





**Stain- & water-
resistance
treatments**



**Nonstick
cookware**



**Waterproof
apparel**



**Cleaning
products**



**Firefighting
foam**



**Takeout
containers**



**Carpets &
textiles**





SOUTH DAKOTA SOYBEAN LEADER

A publication of the South Dakota Soybean Association

2024 Summer Check-In

- ▶ Soy Industry News
- ▶ 3 Farmer-led Efforts to Promote Soy-based Nutrition
- ▶ Farmers and Firefighters Join Forces to Eliminate Forever Chemicals
- ▶ Hungry for Truth: Empowering the Role of Women in Agriculture

New soy-based fire suppressant available -
see full story on page 18.





**80% water and 10% ammonium phosphate
fertilizer solution that sticks to plants and
inhibits combustion.**

PESTICIDES

- **HERBICIDES DESTROY OR CONTROL WEEDS AND OTHER UNWANTED VEGETATION. THEY ARE COMMONLY USED ON LAWNS.**
- **INSECTICIDES KILL OR CONTROL INSECTS. THEY ARE USED IN AGRICULTURE, INDUSTRY, BUSINESSES, AND HOUSEHOLDS.**
- **FUNGICIDES CONTROL FUNGI AND CAN BE USED ON PLANTS OR OTHER SURFACES WHERE MOLD OR MILDEW GROW. THEY MAY ALSO HAVE A ROLE IN PROTECTING CROPS.**

AHS research has led to more than more than 200 papers published in the peer reviewed scientific literature. These studies have linked pesticides to risk for Parkinson's disease, thyroid disease, diabetes, kidney diseases, rheumatoid arthritis, and shingles (herpes zoster), among other health issues. Evidence suggests that children are particularly susceptible to adverse effects from exposure to pesticides, including neurodevelopmental effects.

- **[HTTPS://WWW.NIEHS.NIH.GOV/HEALTH/TOPICS/AGENTS/PESTICIDES](https://www.niehs.nih.gov/health/topics/agents/pesticides)**

ENVIRONMENTAL WORKING GROUP

DIRTY DOZEN

- **PEACHES**
- **STRAWBERRIES**
- **SPINACH**
- **KALE, COLLARD, MUSTARD GREENS**
- **PEARS**
- **NECTARINES**
- **APPLES**
- **BELL AND HOT PEPPERS**
- **GRAPES**
- **CHERRIES**
- **BLUEBERRIES**
- **GREEN BEANS**

ENVIRONMENTAL WORKING GROUP

CLEAN 15

- **AVOCADOS**
- **SWEET CORN**
- **PINEAPPLES**
- **ONIONS**
- **PAPAYAS**
- **SWEET PEAS**
- **ASPARAGUS**
- **HONEY DEW MELONS**
- **KIWI**
- **CANTALOUPE**
- **MUSHROOMS**
- **MANGOES**
- **SWEET POTATOES**
- **WATERMELON**
- **CARROTS**

RESOURCES

Seed program

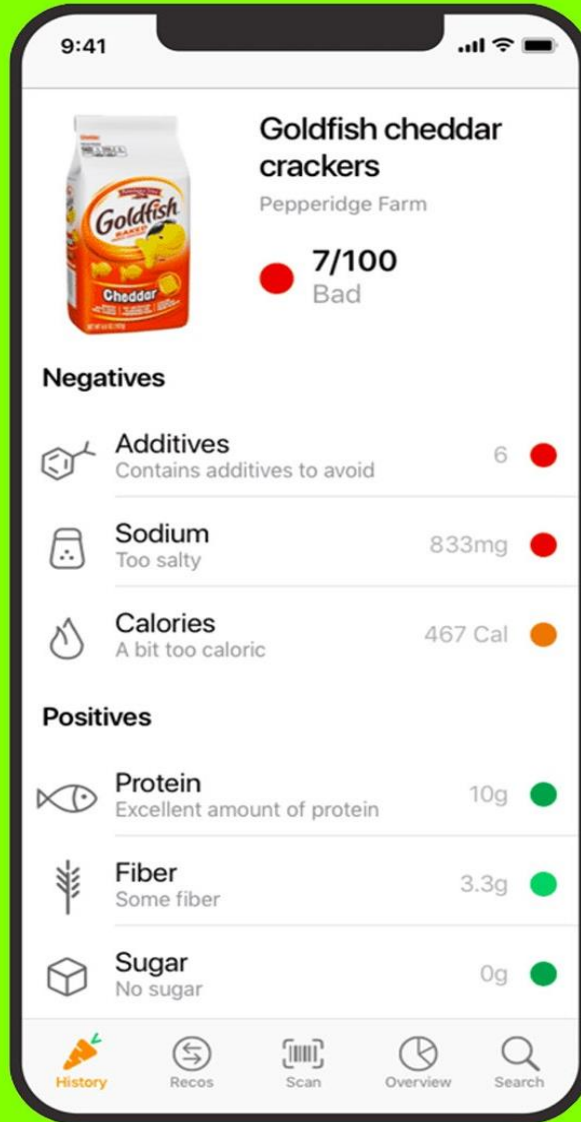
<https://seed-program.org/resources-home>

YUKA APP



Yuka

YUKA APP



**NIEHS
website**

- **[HTTPS://WWW.NIEHS.NIH.GOV/HEALTH/TOPICS/AGENTS/ENDOCRINE](https://www.niehs.nih.gov/health/topics/agents/endocrine)**



THANK YOU!