Endocrine Disrupting Chemicals in Food Products & Fertility

Summary of Evidence
- Endocrine disrupting chemicals (EDCs) closely resemble endogenous hormones in the body, binding to their receptor sites where they act as agonists or antagonists (1).
- They come in several different forms: phthalates, bisphenols, parabens, organophosphates and other pesticides (1, 2).
- These forms are ubiquitous in the food system in food packaging, plasticware and water bottles.
- Studies have shown that EDCs are associated with:
  - Increased time to pregnancy (TTP)
  - Poorer IVF outcomes
  - Poorer quality sperm
  - Increased infertility
  - Lowered testosterone

QUICK FACTS: Minimizing Exposure
- Studies have shown that EDCs are ubiquitous in the food system.
- These forms are associated with adverse health effects.

**Effect Modification of Soy Intake on BPA Exposure and IVF Outcomes**

**Phthalates**
- Phthalates are used to impart flexibility and durability in plastics (3).
- Found in food packaging, detergents, lubricants and pharmaceuticals, plus personal care products (3).
- Most people in the US have detectable levels of phthalates in their urine (3).
- Phthalates have anti-androgenic effects and weak estrogenic effects (1).
- Certain phthalates have been banned in children’s products (4, 5).

**Literature Review Highlights**

**BPA**
- Exposure to BPA affects ~90% of the population (1).
- BPA is used in the lining of cans to create a barrier, in food storage containers and reusable water and baby bottles.
- Exposure is ~1 microgram/kg/day in the general population (2).
- EPA: exposure > 50 micrograms/kg/day can cause adverse effects (3).
- Animal models show BPA inhibits follicle development and renders the uterus less receptive (5).

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**Organophosphates**
- Organophosphates are found in insecticides used in agriculture as well as in flame retardants and polychlorathene (1).
- They resemble sex steroid hormones and may cause similar effects and sometimes block gene transcription (1).

**New Protocol & Implementation**

Food for Fertility is a group education class for women who are interested in diet and lifestyle strategies for improving fertility outcomes.
- Each class includes a check-in, a lecture & interactive cooking demo, plus physical activity component.
- Students are motivated to go above and beyond usual diet and lifestyle changes.
- The below handout will be added to the course to provide simple, easy to follow guidance to make further changes to improve fertility outcomes.
- It will be included in a packet distributed to students along with a brief lecture on the evidence.

**Patient Education Handout**

**Reference Available at:** [https://tinyurl.com/y4vfdjqd](https://tinyurl.com/y4vfdjqd)