

CATEGORY	SABOTEUR	WHERE IT LURKS (Where it is found)	IMPACT ON HEALTH & FERTILITY	REFERENCES
FOOD			Increased oxidative stress, inflammation and damage to DNA and mitochondria. Often stimulate allergic and immune responses. Increased stress can increase cortisol and deplete progesterone as well as other hormones and nutrients.	
	Wheat (including gluten)		Celiac Disease and Gluten Intolerance is very underdiagnosed. Celiac Disease - associated with abnormal sperm, such as lower sperm numbers, altered shape, and reduced function. Men with untreated celiac disease may also have lower testosterone levels. Women with unexplained infertility have a 2.5 to 3.5 greater incidence of celiac disease than those with normal fertility. There is an increased incidence of autoimmune thyroid disease in men and women with celiac disease, which impacts fertility. Wheat/gluten-triggered inflammation and immune response can damage the lining of the intestine, which impairs the body's ability to absorb nutrients need for egg and sperm health and production, hormone balance, fertilization and implantation and development of the embryo. This = MALNUTRITION even in a person eating nutritious food. Nutrient deficiencies that have been scientifically demonstrated in people with celiac disease include protein, vitamin A, D, E and K. A vitamin K deficiency can impair proper blood clotting, which can lead to miscarriage and postpartum hemorrhage. Other nutrients that may be deficient are selenium, folate, iron and zinc. One study demonstrated that women with untreated celiac were much more likely to have menstrual abnormalities such as infrequent periods (greater than 3 months apart). Studies have shown that women with untreated celiac disease have increased immune response, recurrent miscarriage, IUGR and stillbirth. Many of these outcomes were reversed by following a gluten-free diet. Men with celiac disease have a higher incidence of hormone abnormalities (low testosterone, increased FSH and prolactin), which can lead to reduced sperm production. Finally, exposure to gliadins (which are a protein present in wheat), causes an increase in release of something called zonulin into the intestine. This is in ALL people, not just people with Celiac disease. Zonulin then leads to increased intestinal permeability or "leaky gut."	Bast, Alice; O'Bryan, Tom; Bast, Elizabeth. Celiac Disease and Reproductive Health. Practical Gastroenterology, October 2009. BastArticle.pdf - <a href="http://www.celiac.com/articles/22602/1/Untangling-the-Relationship-Between-Celiac-Disease-and-Infertility/Page1.html">http://www.celiac.com/articles/22602/1/Untangling-the-Relationship-Between-Celiac-Disease-and-Infertility/Page1.html</a> - Choi JM, et al. Increased prevalence of celiac disease in patients with unexplained infertility in the United States. J Reprod Med. 2011 May-Jun;56(5-6):199-203. - <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4377866/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4377866/</a> - <a href="https://www.ncbi.nlm.nih.gov/pubmed/16635908">https://www.ncbi.nlm.nih.gov/pubmed/16635908</a>
	Pasteurized Dairy	Milk, cheese, processed food, yogurt	One of the most common food allergens. May also trigger food immune response due to food sensitivities. Major source of animal-derived estrogens in the human diet, which can impact hormone balance in humans.	

	Legumes (SOY) and Flax Seeds	Soybean oil, edamame, soy milk, processed food (including surprising places like canned tuna), tofu, soy protein powders	Soy contains compounds that mimic estrogen and may contribute to estrogen-dominance, which is associated with PCOS and endometriosis (noth of which can contribute to fertility issues). Soy consumption in men has been associated with lower sperm counts. - Flax Seeds: Flax Seeds: 265% more phytoestrogens than soy. Definite no-no in situations like PCOS, Endometriosis and in men. There is 379,380 µg per 100g of flax versus 103,920 for the same amount of soy.	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2721724/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2721724/</a> - <a href="https://www.superfoodly.com/gynecomastia-foods-men-should-avoid-that-lower-testosterone/">https://www.superfoodly.com/gynecomastia-foods-men-should-avoid-that-lower-testosterone/</a>
	Refined Sugar (as well as Fructose)	High fructose corn syrup, refined sugar (white, brown, corn), fruit (varies depending on the type of fruit)	Can cause increased insulin release and ultimately conditions assooiated with insulin-resistance such as PCOS. Fructose raises uric acid in the body, which can block the body's production of nitric oxide (NO). NO is essential for maintaining the proper environment for sperm growth and development. Elevated uric acid also increases oxidative stress in mitochondria.	<a href="https://www.ncbi.nlm.nih.gov/pubmed/17992261">https://www.ncbi.nlm.nih.gov/pubmed/17992261</a>
	Trans Fat/Omega 6 fatty acids	Processed food, vegetable seed oils (Canola/Rapeseed, Sunflower, Cottonseed, Grapeseed, Rice Bran, Peanut and Soybean oils), conventionally raised beef,	Consumption can lead to drastic reduction in fertility via inflammation and ovulatory disorders among other mechanisms, incites overall inflammation. High omega-6 fat consumption lowers sperm count and significantly impairs the quality of those that remain. Omega 6 fats are easily incorporated into the cell walls of sperm. Infertile men have lower concentrations of omega 3 fatty acids and elevated concentrations of omega 6 fatty acids. Increased consumption of omega 6 fatty acids with respect to omeg 3 is associated with increasing rates of testicular cancer. Sperm with damaged DNA may still have the ability to fertilize an egg. This may lead to miscarriage or issues in the fetus. - When women consumed just as little as 2% of their caloric intake daily from trans fats, they demonstrated a 73% increased risk for ovulatory infertility.	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3720081/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3720081/</a> - <a href="https://www.ncbi.nlm.nih.gov/pubmed/19666200">https://www.ncbi.nlm.nih.gov/pubmed/19666200</a> - <a href="https://hms.harvard.edu/news/trans-fats-may-raise-risk-infertility-2-9-07">https://hms.harvard.edu/news/trans-fats-may-raise-risk-infertility-2-9-07</a>
<b>FOOD-ASSOCIATED</b>			Increase oxidative stress	

	GMOs/GE Food	Whole food (corn, soy potatoes, salmon, high fructose corn syrup, virtually all sugar beet crops in US, rice, canola oil, milk, papaya, yellow squash	May be associated with infertility (few long-term studies available as they have not be around for very long), but one study one mice demonstrated this - Associated with stimulated immune response including increased IgE and IgG antibodies and increased cytokines (part of the inflammatory response). Some GE foods are engineered to produce their own toxins and pesticides to kill things that might consume it.	<a href="https://www.organicconsumers.org/scientific/new-study-links-genetically-engineered-corn-infertility">https://www.organicconsumers.org/scientific/new-study-links-genetically-engineered-corn-infertility</a>
	Pesticides (see also specific pesticides listed below)	Produce, livestock fed pesticide-sprayed crops, occupational exposure, farmed salmon	Organochlorine: May affect human sperm abnormalities including sperm count, morphology, motility, and seminal volume . Rant on Glyphosate (ROUND-UP): this product can alter gut flora by killing beneficial bacteria. It also immobilizes nutrients. Induces cell death in rat testicular cells, Glyphosate chelates or binds up essential minerals/nutrients in the plant and within the body. Contributing to nutrient deficiencies.	<a href="https://www.ncbi.nlm.nih.gov/pubmed/23820267">https://www.ncbi.nlm.nih.gov/pubmed/23820267</a> - <a href="http://www.greenmedinfo.com/blog/it-time-acknowledge-roundup-herbicide-contraceptive">http://www.greenmedinfo.com/blog/it-time-acknowledge-roundup-herbicide-contraceptive</a> (see refernces at bottom of article)
	Hormones	Milk and dairy (cows injected with rBGH/rBST) - Banned inCanada, Australia, New Zealand, Japan, Israel, or the European Union since 2000. Still allowed in the US although consumer demand has pushed some manufacturers to only market products free of the hormones.	Use in cows is often associated with increased mastitis in cows, requiring the application of antibiotics that may then be present in milk. Studies debate whether or not increased IGF-1 levels in milk are associated with increased IGF-1 levels in humans that consume milk. Dairy is a very common trigger for food allergies and sensitivities that increase the immune response and inflammation. Prolactin, oxytocin, TSH, LRH, Estrogens, Progesterone and insulin all found in cow's milk	
	Antibiotics	Fed to farm animals and livestock (dairy, meat, fish, pigs, chicken to prevent or treat infection but also to speed growth), sometimes sprayed on crops, farm animals treated with antibiotics excrete them in their feces that is then used in maure to grow crops. When analyzed, the crops contain the antibiotics in them.	Antibiotics can enter the bowel and impact the balance of gut bacteria. May even lead to antibiotic resistance in humans.	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2874360/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2874360/</a> - <a href="https://www.scientificamerican.com/article/vegetables-contain-antibiotics/">https://www.scientificamerican.com/article/vegetables-contain-antibiotics/</a>

	Food Additives	MSG - Sauces, gravy, potato chips ASPARTAME - Diet soda, artificial sweeteners BHA/BHT - Bacon, foods containing artificial colors and flavors, baked goods, canned food, powdered soups, instant mashed potatoes, edible oil, margarine, gum, reduced fat spreads, baby oil and baby lotion, lipstick, eyeliner, shaving cream, plastic food wraps containing polyethylene	MSG - linked to reduced fertility and decreased conception rates, reduced sperm count and reduced hormone production in rats, increases oxidative stress ASPARTAME - Menstrual imbalances and impotence BHA/BHT - birth defects and infertility	<a href="http://escholarship.org/uc/item/6wqgp6zn">http://escholarship.org/uc/item/6wqgp6zn</a> - <a href="http://www.sciencedirect.com/science/article/pii/S2214750014000997">http://www.sciencedirect.com/science/article/pii/S2214750014000997</a>
	Folic Acid (in people with MTHFR mutations, and everyone really)	Vitamins/supplements, fortified processed food	In people with an MTHFR mutation the body is unable to metabolize synthetic folic acid (to varying degrees depending on the type of mutation). This can even happen in people without the mutation. Unmetabolized folic acid can build up in the body, this can stimulate inflammation and the immune response. This may also block the binding sites of folate. It could possibly cause a Pseudo-MTHFR deficiency.	Bailey SW, Ayling JE. The extremely slow and variable activity of dihydrofolate reductase in human liver and its implications for high folic acid intake. Proc Natl Acad Sci U S A. 2009; 106(36): 15424-9. PMID: 19706381 - <a href="https://www.mthfrsupport.com.au/folic-acid-vs-5-mthf-treating-mthfr-deficiency/">https://www.mthfrsupport.com.au/folic-acid-vs-5-mthf-treating-mthfr-deficiency/</a>
<b>HEAVY METALS</b>			Increase oxidative stress - Impact thyroid function - People with MTHFR mutations have diminished capabilities to eliminate - Stored in fat cells-	
	Lead	Environmental Pollutant, old paint, water	-Linked to miscarriage, preterm birth - may lower sex hormone levels - may incite the stress response system	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4212138/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4212138/</a> - <a href="https://www.ncbi.nlm.nih.gov/pubmed/11764848">https://www.ncbi.nlm.nih.gov/pubmed/11764848</a>
	Mercury	Fillings (teeth), fish (air and water via burning coal)	- Increases oxidative stress - Impairs sperm quality -	<a href="https://www.ncbi.nlm.nih.gov/pubmed/24555655">https://www.ncbi.nlm.nih.gov/pubmed/24555655</a> -
	Aluminum	Food, food additives, cookware	Associated with low sperm count and infertility in men.	<a href="http://www.sciencedirect.com/science/article/pii/S0890623814002548">http://www.sciencedirect.com/science/article/pii/S0890623814002548</a>
	Cadmium	Environmental Pollutant, fertilizers	Induces anovulation and pituitary dysfunction in rats, correlation between cadmium exposure and abnormal sperm in humans	<a href="https://www.ncbi.nlm.nih.gov/pubmed/9046358">https://www.ncbi.nlm.nih.gov/pubmed/9046358</a> - <a href="https://www.ncbi.nlm.nih.gov/pubmed/16604149">https://www.ncbi.nlm.nih.gov/pubmed/16604149</a>

	Arsenic	Environmental Pollutant, water, food (from soil)	<p>- Low-level environmental arsenic exposure correlates with unexplained male infertility risk-Impairs sperm production - Associated with decreased sperm count - Exposure reduces testosterone and impairs steroid hormone production - Interferes with hormones (the glucocorticoid system that regulates metabolism and how the body processes sugars and carbohydrates, which can impact weight, the immune system and insulin resistance),</p>	<p><a href="http://www.sciencedirect.com/science/article/pii/S0048969716316230">http://www.sciencedirect.com/science/article/pii/S0048969716316230</a> - <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4786478/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4786478/</a> - <a href="http://www.environmentalhealthnews.org/ehs/news/2012/07/2012-1105-arsenic-lower-sperm-concentration">http://www.environmentalhealthnews.org/ehs/news/2012/07/2012-1105-arsenic-lower-sperm-concentration</a></p>
<b>ENDOCRINE DISRUPTORS</b>				
	BPA	Cash register receipts, canned food (liners), plastics, children's toys	<p>Decreased sperm concentration Decreased total sperm count Decreased sperm vitality Decreased sperm motility Compared with those who did not have detectable levels, the men with detectable levels of BPA had more than: three times the risk of lowered sperm concentration and lower sperm vitality four times the risk of lower sperm count twice the risk of lower sperm motility - Can negatively impact IVF success by impairing oocyte quality and impacting hormone levels - Can impair normal fertilization - Can damage DNA and cause chromosome abnormalities</p>	<p><a href="https://www.ncbi.nlm.nih.gov/pubmed/21035116">https://www.ncbi.nlm.nih.gov/pubmed/21035116</a> -<a href="https://www.ncbi.nlm.nih.gov/pubmed/21122836">https://www.ncbi.nlm.nih.gov/pubmed/21122836</a> - <a href="https://www.ncbi.nlm.nih.gov/pubmed/20002217">https://www.ncbi.nlm.nih.gov/pubmed/20002217</a></p>
	Phthalates	vinyl flooring, detergents, automotive plastics, soap, shampoo, deodorants, fragrances, hair spray, nail polish, plastic bags, food packaging, garden hoses, inflatable toys, blood-storage bags, intravenous medical tubing, sex toys	<p>- Can trigger early cell death in testicular cells - Associated with decreased sperm count, decreased sperm motility, male reproductive system birth defects, diabetes, thyroid abnormalities - Reduce testosterone production - May be associated with preterm birth -</p>	<p><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241569/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1241569/</a> -<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4726156/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4726156/</a></p>

	Fire Retardants: (Polybrominated diphenyl esters or PBDEs), TPHP/TPP	- PBDEs, are added to foam rubber in couch cushions, carpet pads and to materials in new beds (particularly since 2007) as well as baked goods and soft drinks! These can leach into the skin, soil and air. - TPHP/TPP - furniture, plastics and nail polish	- PBDEs, are added to foam rubber in couch cushions, carpet pads and to materials in new beds (particularly since 2007). Women with 8-10 times higher levels of PBDE's in their blood were 30% less likely to become pregnant. The European Union banned PBDE's in 2002, but the US has not banned these substances. Americans have 20 times more PBDE's in their blood than Europeans. Animal studies have shown that these compounds can alter sex and thyroid hormone levels. They have been associated with delayed onset of puberty. In humans, elevated levels in the blood were associated with longer time to pregnancy. - TPHP/TPPs interfere with normal hormone functioning, levels are elevated in women who use nail products that contain this substance	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2866688/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2866688/</a> - <a href="http://www.ewg.org/research/nail-polish-chemical-doubles-furniture-fire-retardant">http://www.ewg.org/research/nail-polish-chemical-doubles-furniture-fire-retardant</a>
	Parabens	Used as preservatives in many foods, cosmetics, toiletries, and pharmaceuticals	May negatively impact mitochondrial function (in testes)	<a href="http://www.sciencedirect.com/science/article/pii/S0890623808002682">http://www.sciencedirect.com/science/article/pii/S0890623808002682</a>
	Dioxin	Ubiquitous in the environment (unfortunately). The highest levels of these compounds are found in some soils, sediments and food, especially dairy products, meat, fish (farmed salmon) and shellfish. Very low levels are found in plants, water and air (according to the WHO)	Toxic to the reproductive system (particularly the developing system in the fetus). Disrupt the balance of sex hormone signaling. Associated with changes in hormone levels, altered puberty, altered start of menarche, endometriosis, decreased fertility, fetal loss.	<a href="http://www.chem-tox.com/infertility/">http://www.chem-tox.com/infertility/</a> - Chalupka S, Chalupka AN. The impact of environmental and occupational exposures on reproductive health. JOGNN. 2010;39:84-102. doi: 10.1111/j.1552-6909.2009.01091.x. - Phillips KP, Tanphaichitr N. Human exposure to endocrine disrupters and semen quality. J Toxicol Environ Health B Crit Rev. 2008 Mar;11(3-4):188-220.
	Atrazine (Pesticide)	Crops (specifically corn), drinking water	Linked to breast tumors, delayed puberty, prostate inflammation (see also organochlorine above)	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4726156/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4726156/</a>
	Glycol Ethers	Paint solvents, cleaning products, brake fluid, cosmetics	Associated with shrunken testicles in rats, decreased fertility, and lower sperm counts. Women exposed showed increased risk of miscarriage and subfertility as well as prolonged time to pregnancy.	<a href="https://www.ncbi.nlm.nih.gov/pubmed/18417551">https://www.ncbi.nlm.nih.gov/pubmed/18417551</a> - <a href="https://academic.oup.com/aje/article/143/7/707/58332/Ethylene-Glycol-Ethers-and-Risks-of-Spontaneous">https://academic.oup.com/aje/article/143/7/707/58332/Ethylene-Glycol-Ethers-and-Risks-of-Spontaneous</a> - <a href="http://journals.lww.com/epidem/Abstract/2002/03000/Prolonged_Time_to_Pregnancy_in_Female_Workers.14.aspx">http://journals.lww.com/epidem/Abstract/2002/03000/Prolonged_Time_to_Pregnancy_in_Female_Workers.14.aspx</a>

	PERC - perchloroethylene, trichloroethylene or tetrachloroethylene	Dry cleaning, solvent in automotive and metalworking factories	Disrupts hormone function. perchloroethylene associated with a 4.7x greater risk for miscarriage, trichloroethylene 3.1 times greater risk for miscarriage.	<a href="http://onlinelibrary.wiley.com/doi/10.1002/ajim.4700200210/full">http://onlinelibrary.wiley.com/doi/10.1002/ajim.4700200210/full</a>
<b>HALOGENS</b>				
	Flouride	Tap water, toothpaste and mouthwash	Associated with lower fertility rates, hormone disruption and low sperm counts. Can be very toxic and suppress thyroid activity (flouride was used as an antithyroid drug in the past). increases oxidative stress and DNA damage. Can interfere with steroid hormone production.	<a href="http://europepmc.org/abstract/med/7920753">http://europepmc.org/abstract/med/7920753</a> - <a href="http://www.fluorideresearch.org/271/files/FJ1994_v27_n1_p001-058.pdf#page=11">http://www.fluorideresearch.org/271/files/FJ1994_v27_n1_p001-058.pdf#page=11</a>
	Chlorine	PCBs (polychlorinated biphenyls) - industrial products, chlorine found in drinking and bathing water, pools, plastics, cleaning products and TAMPONS, In homes built in the 1950s-1970s (careful with renovations).	Can be toxic to thyroid cells, can trigger Hashimoto's thyroiditis - Associated with abnormal motility and morphology of sperm in humans	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4726156/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4726156/</a>
	Bromide	See Fire retardants (PBDEs)	See Fire retardants (PBDEs)	
<b>OTHER</b>				
	Smoking	Cigarettes	Leads to decreased sperm concentration, can damage sperm to a point that they are unable to fertilize the egg, increases oxidative stress, increases DNA damage in sperm, associated with rendering mitochondria in sperm partially or completely inactive	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3717046/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3717046/</a>

	Alcohol	Beer, Wine, Hard Alcohol	<p>- Hops in beer contains a potent phytoestrogen called 8-prenylnaringenin (8-PN). This phytoestrogen may be 50x more potent than that found in soy. Although levels of this in brewed beer is quite low, a study showed that gut bacteria may convert another phytoestrogen in hops called isoxanthohumol to 8-PN. - The NIH stated, "Alcohol is directly toxic to the testes, causing reduced testosterone levels in men. In a study of normal healthy men who received alcohol for 4 weeks, testosterone levels declined after only 5 days and continued to fall throughout the study period - Alcohol also may interfere with normal sperm structure and movement by inhibiting the metabolism of vitamin A, which is essential for sperm development.</p> <p>- Studies of women who drink alcohol have shown associations with increased time to pregnancy, infertility, decreased implantation rate, increased risk for spontaneous abortion, anovulation and luteal phase deficiency. However, an amount that is clearly associated with these has not been determined. Additionally some studies associated low to moderate consumption of alcohol with increased pregnancy rates.</p>	<p>Gordon, G.C.; Altman, K.; Southren, A.L.; Rubin, E.; &amp; Lieber, C.S. The effects of alcohol (ethanol) administration on sex hormone metabolism in normal men. <i>New England Journal of Medicine</i> 295: 793-797, 1976. - <a href="http://www.bmj.com/content/327/7413/468.4">http://www.bmj.com/content/327/7413/468.4</a> - <a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3717046/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3717046/</a></p>
	Caffeine	Coffee, tea, chocolate, cacao, energy drinks, sports drinks	<p>Caffeine has been reported to have negative effects on female fertility. There appears to be a narrow window of "safety" when it comes to the amount of caffeine that can be consumed. - Studies show increased time to pregnancy with consumption greater than 500 mg a day - Women who consumed over 375 mg of caffeine a day had a higher odds ratio of spontaneous miscarriage than those who consumed less than 200 mg a day. Those who had a spontaneous miscarriage were more likely to have a fetus with normal chromosomes indicating that the miscarriage could be secondary to caffeine exposure and not chromosome abnormalities.</p>	<p><a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3717046/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3717046/</a> -</p>

	Radiation	Cell phones, occupational exposure, flying, environmental exposure	Cell phone use associated with decreased sperm motility and viability, increased formation of reactive oxygen species, decreased sperm counts and increased abnormal sperm morphology. Studies show that carrying a cell phone at hip/beltline/pocket was associated with decreased sperm motility	<a href="https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3717046/">https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3717046/</a> - <a href="https://www.ncbi.nlm.nih.gov/pubmed/17482179">https://www.ncbi.nlm.nih.gov/pubmed/17482179</a>
	Medications: See Medicine Cabinet Makeover Worksheet			