

**Bio cards:**

**OH NO! The period product you use contains parabens! This leads to disruptions in your immune system (the non-canonical inflammasome activation)**

**Visit a clinic and lose 2 points for having to skip out on work to seek treatment**



**If your points are higher than 4, you took a trip to eastern Australia, where the climate was extremely hot and humid. The changes in temperature and humidity of the vulva skins made you susceptible to infections.**

**Lose 1 point.**

**If your points are lower than 4, you cannot go on the trip due to travel expenses. No changes to your points**



You always prefer cotton clothing because it is more comfortable and assumed to contain less health hazards. However, there are more studies that found a significant amount of *phthalates* in cotton clothes. Studies have also found that exposure to phthalates in cotton products could also pose long-term health impacts.

If your point is higher than 6, lose 1 point because you have more access to organic cotton period products and because of the potential exposure to phthalates.

If your point is lower than 6, no change to your point in this round (Phthalates can potentially be present in non-cotton products as well, but the study results are inconsistent).



You had Ovarian Folliculogenesis disorders and hormone disruption, presumably due to exposure to *Di(2-ethylhexyl) Phthalate* and *Diisononyl Phthalate* during adulthood through period products.

Lose 2 points and lose 1 round on the next turn because you have to seek medical treatment.



You are pregnant and you are worried that exposures to EDCs through period products may affect your baby's health. If your score is higher than 6, you did expensive hormone tests with your OBGYN, but unfortunately there was no definitive conclusion how previous exposures may affect your child's health.

Lose 2 points due to the medical examination fee and the anxiety caused by inconclusive results.

If your score is lower than 6, such tests may not be accessible to lower income families.

No change to your score.



Accumulated exposure to EDCs could aggregate health risks for reproductive disorders.

If you are from Black/Brown population, lose 2 points because studies have found that the black populations are disproportionately exposed to *phthalates* and *parabens* through feminine hygiene products, hair care products and other personal care products.

If you are from other ethnicity groups, lose 1 point.



If your point is higher than 4, you went to a scientific lecture about EDCs in period products. However, the lack of research on long-term impacts and absorption rate through vagina made you more anxious and worried. Lose 1 round.

If your point is lower than 4, the scientific lectures are relatively less accessible to you. No change to your score.



You became interested in how your period products affect the environment and the ecosystem. You read that disposable tampons and sanitary pads had far greater environmental impacts across each category than the reusable menstrual cup.

If your point is higher than 5, you decide to switch to menstrual cups. Gain 1 point for your environmental awareness.

If your point is lower than 5, you don't have enough resources to change your menstrual products. No changes to your score



A recent health checkup showed that you are at high risk for diabetes. The doctor suspected that it may have to do with EDC exposure because *xenoestrogens* and other EDCs affect the gut microbiome and increases one's risk for diabetes.

Lose 1 point because you now live with the high risk for diabetes



If your score is higher than 5, you took an online course on endocrine disruption chemicals. You also got a free textbook, *Endocrine Disruption and Human Health* by Philippa D. Darbre. The knowledge you gained helps you make informed decisions in daily life and also helps convey the knowledge to your family. Gain 1 point.

If your score is lower than 5, it is relatively challenging for you to understand the dense science materials with your education background. No changes to your score



**Your niece has been diagnosed to have ADHD. Several studies have found correlations between prenatal exposures to EDCs such as *PCBs* with neurodevelopmental disorders because of the co-development of thyroid and the brain. The causal link is still unclear which requires more research. If your point is higher than 7, you donate \$500 for biological research. Gain 1 point for your philanthropic efforts.**

**If your point is lower than 7, no change to your scores**



**OH NO! The period product you use contains parabens! This leads to disruptions in the biological system of the hypothalamo-pituitary-gonadal axis.**

**Visit a clinic and lose 2 points because you now need to seek and pay for treatment**



**Your friend developed pneumonia and her doctor speculates it is from immunodeficiency caused by paraben exposure.**

**Gain 1 point for sending her flowers and a get well card!**



**If your points are higher than 6, you conducted research on the different percent compositions of parabens in various period products and a company wants to buy the rights to your research**

**Gain 5 points for your great achievement in a field of science that is under researched**

**If your points are lower than 6, you do not have the extra time to be conducting research. No point change**



**OOPS! None of your pants fit you anymore. Your exposure to parabens from your period products have played a role in your recent weight gain so you have to buy new sized pants. Time to go shopping!**

**Lose 1 point for having to buy new pants**



**You found out that your grandmother developed breast cancer and that paraben exposure may have been a cause for it. You want to donate to research so that scientists can better understand how paraben exposure increases this risk.**

**If your salary is under \$75,000, gain 1 point because you were recognized in your local newspaper**

**If your salary is over \$75,000, gain 2 points because you were invited to a dinner banquet regarding this research**



**If you have more than 10 points, you are curious to see how different period products have different percentages of endocrine disruptors. You mail a bunch of different labs and finally a lab accepts you.**

**Gain 3 points for being a part of research in an under researched field of study**

**If you have less than 10 points, no change to your score**



**Your exposure to EDCs from the period products that you are using lead to hormonal imbalances. This is due to disruptions in the hypothalamo-pituitary-gonadal axis which causes you to have difficulty sleeping.**

**Lose 2 points for having difficulty sleeping**



**You are interested in conducting research on the various endocrine systems that are affected by paraben exposure. You realize that this research will take up a lot of time so you hire someone to help you**

**If your salary is over \$100,000 lose 2 points  
If your salary is under \$100,000 lose only 1 point because you are able to recruit some money from a research grant**



**You get a call from a period product company that is testing the safety and efficacy of their new products. You decide to enroll in the study**

**Gain 2 points for receiving monetary compensation for your time**



**Your inorganic tampon/pad/liner is causing your period to be more painful and produce a heavier flow.**

**Lose 4 points for the purchase of new products!**



**Oh No! You found out that your cervix length is too short for the menstrual cups that are available.**

**Lose 1 point for losing money by purchasing a menstrual cup that didn't end up working for you.**



**Oh No! You have contracted bacterial vaginosis from the phthalates in your tampons. You must purchase antibiotics for treatment.**

**Lose 3 points to pay for the antibiotic treatment.**



**If you are above the age of 35, you begin showing signs of menopause. You must purchase extra products - such as liners for spotting - to help manage the transition.**

**Lose 2 points for the purchase of new products.**

**If you are under the age of 35, draw another biology chance card.**



**You sustained chemical burns from the chlorine bleaching process that is used to create the pads/liners/tampons you use. This process exposes you to dioxins and furans which can**

**Lose 2 points to pay for a visit to the ER to address this concern.**



**Your friend who only uses 100% cotton products tells you about the dangers of using other products not made of 100% cotton. This scares you! You need to do further research.**

**Lose 2 points for the inconvenience of having to search for more information in addition to the lack of readily available and reliable information.**



After taking an anatomy class you learn that the vaginal canal is incredibly absorbent and delicate. You begin to think about how you always wear tampons and start to question what your vagina is absorbing all those hours that the tampon is in.

Lose 2 points for the inconvenience of having to search for more information in addition to the lack of readily available and reliable information.



The dioxins, furins, and fragrances in the inorganic tampons/pads/liners you use have caused you to have continuous allergic reactions and longer periods.

Lose 4 points for this EDC exposure and to purchase extra products in response to the longer menstrual cycle.



After a night of fear-induced googling, you find out that inorganic tampons/pads/liners have EDCs in them and these have been linked to varying types of cancers including uterine and breast cancer. Scared, you enroll in a long-term study that continuously tracks your bodily systems in an attempt to catch cancerous markers early.

Gain 4 points now to enter the study, and gain another point each time you pass the starting tile!



Your friend wants to transition from Always pads and tampons to a menstrual cup and period panties for both health and environmental reasons. You help them do research on their cervix shape and depth to determine the best cup for them and help them learn how to seal the cup to prevent leaks.

Gain 2 points for supporting your friend!



**You take an allergy test and find out that you are allergic to latex, specifically the type of latex found in menstrual cups.**

**Because you were experimenting with different period products and had an allergic reaction, lose your next turn.**

**However, you gain 2 points for using the menstrual cup since it contains fewer EDCs than traditional pads and tampons.**



**You start taking birth control and your periods become extremely limited. The hormones released in the birth control pill affect ovulation, so you do not experience a period and instead just have some spotting.**

**Lose 1 point because birth control pills release synthetic hormones (estrogen and progesterin) and are, therefore, considered EDCs with unknown long-term effects.**



**Your migraine medication has a bad interaction with the parabens, a type of EDC found in your period products as antimicrobial and preservative. An experimental treatment is tried to help alleviate the symptoms.**

**Roll the dice again. If you land on an odd number (1, 3, or 5), you have to skip your next turn because the treatment took a toll on your body. If you land on an even number (2, 4, or 6), you do not have to skip your next turn because you responded well to the treatment and were able to go back to work.**



**You recently moved into a new apartment with a roommate who is an avid smoker and smokes cigarettes in the apartment, even though you have repeatedly told them to stop. You signed a 1 year lease and cannot find a new place at the moment, so you have to continue to live there.**

**Lose 2 points because regular exposure to second hand cigarette smoke disrupts normal endocrine processes.**



**You begin to miss multiple periods in a row but not because of birth control or pregnancy. This causes a lot of daily abnormal blood spotting.**

**If your salary is \$70,000+, gain 1 point because you visit an expensive specialist and the hormone imbalance caused by EDCs is caught early. If your salary is under \$70,000, you were unable to afford the specialist and the diagnosis took more time, so no change in points.**



**One of your close friends is beginning to recover from an eating disorder, which had impacted her reproductive system to the point to which she lost her period. You decide to educate yourself on the impacts of eating disorders on menstruation.**

**Gain 2 points because you are now aware of how eating habits can affect menstruation.**



**You join a weekend warriors athletic group and decide to begin training for the Iron Man triathlon that is coming in a few months. You put a sudden and very intense amount of effort into your training, and lose your period as a result.**

**Lose 2 points because the area in which you are training for several months is near a factory so you have more exposure to EDCs, but gain 1 point because you now have reduced EDC exposure from pads and tampons.**



**You develop a yeast infection as a result of your menstrual product usage because you did not change it regularly enough. Menstrual cups, liners, pads, and tampons all need to be changed regularly because the bacteria they hold grows quickly.**

**Lose 2 points because you now have to be treated for an aggressive bacterial infection and it causes symptoms like fatigue and nausea.**



**You are having pain with sex, even when you are not on your period. You go to the doctor and find out that you have an ovarian cyst as a result of undiagnosed endometriosis.**

**Gain 1 point because the cyst is caught before it ruptured.**



**You hurt yourself during a skiing accident and have broken both your arms. As a result, you are unable to change your period products for one entire menstruation cycle and have to free bleed.**

**As a result of the accident and menstruating, you are unable to go to work.**

**Lose 1 point because of lost wages.**



**After getting the ParaGard intrauterine device (IUD) for birth control, you begin having abnormal, extremely painful cramps for the next few weeks. While checking for the IUD strings, you feel the metal portion of the copper IUD, which means the IUD is in the wrong place and needs to be removed by a professional immediately.**

**Lose 1 point to cover the copayment for the OBGYN appointment, and take another turn to make up for the expulsion of your IUD.**

**For the past year, you have gotten terrible cramps whenever you get your period. After finally speaking with a doctor, they recommend you start birth control (which is considered an EDC due to its interference with the natural hormonal balance) to help regulate your period and alleviate some of the pain from menstrual cramps.**

**Lose 2 points to pay to fill your monthly birth control prescription.**





After experiencing pain in the lower abdomen and menstrual irregularities for years, you go to the doctor for testing. You are diagnosed with endometriosis and decide to opt for hormone treatment (which is considered an EDC due to its interference with the natural hormonal balance) to mitigate the disease's symptoms.

Lose 3 points to pay for monthly hormone medication.



You and your partner are having difficulty getting pregnant. After talking to a fertility specialist, they propose one of the causes of your decreased fertility may be caused by postnatal EDC exposure, which has been linked to increased risk of miscarriage, decreased pregnancy rates, increased onset of reproductive aging.

You have been experiencing chronic stress for the past few months and have not been taking care of yourself (ie. lacking sleep, under eating, etc.). Because of this, you have missed your period for 3 months in a row, and must see the doctor for a check up.

Lose 1 point to pay for the doctor visit, and lose another 1 point to pay for groceries to recover from poor nourishment.



You and your male partner are having difficulty getting pregnant. After talking to a fertility specialist, they propose one of the reasons for your male partner's decreased fertility may be caused by postnatal EDC exposure, which may be associated with low semen quality and testicular cancer.

**Lose 2 points to pay for the consultation with the fertility specialist and move back 2 spaces after considering the large future financial costs of fertility services.**



**Lose 2 points to pay for the consultation with the fertility specialist and lose another 1 point for a follow up appointment.**



**You discover that some EDCs found in menstrual hygiene products have also been linked to an increase in hormone (specifically estradiol and progesterone) activity. This means the EDCs are considered potential risk factors for the development of breast cancer.**

**Lose 2 points to meet with a physician and schedule your routine mammogram.**



**Your best friend told you she was concerned after noticing her 15 year-old son hadn't gone through puberty yet. After meeting with an endocrinologist, she discovered that high neonatal exposure to certain endocrine disrupting chemicals (such as parabens and phthalates) has been linked to the delayed onset of puberty in adolescents.**

**Receive 1 point for researching more about EDCs and delayed puberty in adolescents.**



**Your daughter was recently diagnosed with ADHD. After discussion with the doctor, you discovered that high prenatal exposure to certain endocrine disrupting chemicals**

**You have a high fever, chills, and multiple rashes on the body. When you go to the doctor, they notify you that you have toxic shock syndrome.**

(such as parabens and phthalates) has been linked to the development of cognitive disorders after the baby is born.

Lose 2 points due to the costs of paying for monthly medications and behavioral therapy treatment.



Skip a turn due to hospitalization for treatment from intravenous antibiotics and lose 4 points due to the high hospital bills.

