Association of Reproductive Health Professionals

What You Need to Know
Counseling Patients on Preconception Care: Folate and Beyond

Preconception counseling as life-long health promotion

Preconception counseling for all women of reproductive age can improve the chances of a successful pregnancy, especially counseling on how:

- Folate intake and folic acid supplementation reduce neural tube defects (NTDs)
- Alcohol ingestion during pregnancy can cause fetal alcohol syndrome (FAS)
- Exposure to environmental contaminants affects reproductive health

Neural tube defects, folate and folic acid

Folate intake and folic acid supplementation are important for all women of reproductive age because 1:1000 pregnancies are affected by a NTD.[1]

- Both folate (naturally occurring in food) and folic acid (synthetically produced) have a major impact on the reduction of NTDs
- The neural tube closes by day 28 of gestation, before many women realize they are pregnant
- Folic acid supplementation is estimated to reduce the risk of NTDs by:
  - 50% for women who have never had a child with a NTD[2]
  - 70% for women who have had a child with a NTD
- It is important to make sure that all women, even those with normal folate levels, supplement their diets with folic acid. This is because some women with serum folate levels in the normal range are still at risk for having a child with a NTD through:
  - Genetic predisposition
  - Certain medications (e.g. anti-seizure drugs such as valproic acid and carbamazepine)
  - Certain pathological states[3]

Folate intake and folic acid supplementation

All women of childbearing age should be encouraged to take a folic acid supplement, even those with a healthy diet, because:

Figure 1: Sources of Folate and Folic Acid

Folate can be found in:	Folic Acid can be found in:
• Lentils • Asparagus • Spinach • Romaine lettuce • Black beans • Broccoli • Peanuts • Orange Juice • Enriched breads • Enriched pastas	• Fortified breakfast cereals • Enriched breads • Enriched pastas • Prenatal vitamins • Multivitamins • Some oral contraceptives (e.g., Drospirenon, Ethinylestradion, Methyltetrahydrofolate)

Figure 2: Folate and Folic Acid Recommendations[7]

Women capable of becoming pregnant:	Women with previous NTD pregnancy:
• Healthy diet • 600 mcg folate equivalents/day • Folic acid supplement of 400 mcg/day (0.4mg/d)	• Healthy diet • Folic acid supplement of 4 mg/day

- Most women do not get enough folate in their diet[4]
  - Cooking reduces folate in many foods
  - Low carbohydrate diets may reduce folic acid intake[5]
- Many women are ambivalent about pregnancy, and may have contraceptive gaps[6]

Alcohol

- Drinking alcohol during pregnancy increases the risk for fetal alcohol syndrome (FAS).[8]
- Current guidelines encourage women to avoid drinking any alcohol during pregnancy (including beer and wine coolers).[9]

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What You Need to Know is a publication of the Association of Reproductive Health Professionals (ARHP) for health care professionals, educators, and researchers working in the field of reproductive health.

Environmental contaminants

Some chemicals in the environment end up in certain foods and drinks and can be harmful to reproductive health.

Bisphenol A (BPA) interferes with the normal function of hormones in the body and is especially harmful during the first three months of pregnancy. While we can't fully eliminate our risk of BPA exposure, since BPA can be in our carpets, pipes and other household items, we can take smart steps to lower our exposure.

Figure 3: Limiting exposure to BPA

Avoid:	Use:
• Plastic food containers and packaging (PVC #3, Styrofoam #6 and BPA #7) • Hard plastic water bottles that don't specify "BPA-free" • Canned foods, such as vegetables, soups, fruits, meat products, fish, and desserts • Certain canned beverages, such as meal replacement shakes	• Glass containers, especially for microwaving food • Non-polycarbonate plastic or glass bottles • Fresh or frozen fruits and vegetables

Methylmercury and polychlorinated biphenyls (PCBs) are found in ocean and freshwater fish. If a developing fetus is exposed to *methylmercury*, there may be long term health consequences. These consequences include delays in development, blindness, and cerebral palsy.[10] Research has shown that PCBs alter the normal function of hormones and contribute to low birth weight in children of women who eat contaminated fish.

Figure 4: Reducing exposure to methylmercury and polychlorinated biphenyls (PCBs)

Do:	Don't:
• Limit the amount of fish you eat on a weekly basis • Trim fat from fish before cooking • Eat fish that are known to have low or no levels of methyl-mercury—trout, salm-on, tilapia, sardines	• Eat fish that are known to have high levels of methylmercury—shark, swordfish, king mackerel and tilefish • Eat more than 2 cans of light tuna per week • Eat more than 2/3 can per week of white albacore tuna

Additional Resources:

Folic Acid Supplementation:

- US Department of Health and Human Services. www.womenshealth.gov/faq/folic-acid.cfm
- National Institutes of Health. Dietary supplement fact sheet: folate. http://ods.od.nih.gov/factsheets/folate.asp
- March of Dimes. www.marchofdimes.com/1151.asp

Alcohol:

- Centers for Disease Control and Prevention. Alcohol use and pregnancy. www.cdc.gov/ncbddd/factsheets/FAS_alcoholuse.pdf
- National Institute on Alcohol Abuse and Alcoholism. Drinking and your pregnancy. http://pubs.niaaa.nih.gov/publications/DrinkingPregnancy_HTML/pregnancy.htm

Food Contaminants:

- Natural Resources Defense Council. Chemicals in plastic bottles: how to know what's safe for your family. www.nrdc.org/health/bpa.pdf
- Environmental Protection Agency. EPA's Roadmap for mercury. 2009. www.epa.gov/mercury/executivesummary.htm
- What you need to know about mercury in fish and shellfish. http://water.epa.gov/scitech/swguidance/fishshellfish/outreach/advice_index.cfm
- Environmental Working Group: Food Guide. www.ewg.org/ourfood
- Physicians for Social Responsibility: Healthy Fish, Healthy Families. www.psr.org/resources/healthy-fish-healthy.html

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