Funnell, and Strebel Inc.

Gary F. Strebel, M.D.
Julie Strebel Hager, M.D.
Jennifer L. Strebel, M.D.

Obstetrics . Gynecology . Infertility . Endocrinology .

Many common problems during pregnancy can usually be treated with over- the- counter medications without discussing them with the obstetrician. The following list is provided to you so that you can utilize these medications without clearance from us. All of the medications listed below are widely used in pregnancy. Please limit exposures to medication for the first 12 weeks of pregnancy.

Problem	Acceptable Medications
Colds or Sinus Infection	Benadryl, Claritin, Robitussin DM, Afrin, Zinc, Mucinex DM, Singulair, Nasacort, Dayquil, Alka-Seltzer Cold & Sinus, Flonase, Delsym, Biotin, Tavist, Emergen-C, Theraflu, Nasonex, Nyquil, Zyrtec
	Okay for Use After 12 weeks Actifed **(short term use w/ No HTN)** Sudafed **(short term use w/ No HTN)** Claritin-D **(short term use w/ no HTN)** Allegra -D **(short term use w/ No HTN)**
Constipation	Colace, Milk Of Magnesia, Miralax, Metamucil, Dulcolax/ Correctol/ Senokot, Magnesium Citrate, Citrucel (Try in order of list for relief)
Cough	Robitussin Dm, Chloraseptic Spray, Cepacal, Cough Drops
Diarrhea/Gas	Imodium, Beeno, Kaopectate, Gas X, Mylicon

Headaches, Aches and Pains	Tylenol Products BioFreeze Thermacare Patch	Icy Hot LidocainePatch
Indigestion and Heart Burn	Mylanta II Gaviscon Tums (limit 4 per day) Nexium	Maalox Pepcid Prilosec Rolaids
Nausea	Emetrol Unisom Melatonin Reglan Meclizine	Zofran Dramamine Phenergan Vitamin B6 + Unisom 25mg Ginger
Leg Cramps	Magnesium Multi Vitamin	Hydration
Other	Azo Monistat Topical Cortisol Neosporin	Abreva Spray Tan Oragel Epson Salt Bath
Acne	Salicylic acid Clindamycin Topical	Benzoyl peroxide Sulfur Products
Hemorrhoids	Tucks Pads Anusol	Preparation H Hydrocortisone

AVOID: ADVIL, MOTRIN, AND ALL NON-STEROIDAL ANTI-INFLAMMATORY MEDICATIONS.

The Physicians Tower Building: 4200 W. Memorial Road Suite 201 Oklahoma City, Ok 73120
Phone: (405) 749-4200
FAX: (405) 749-4218

CG

Funnell and Strebel, Inc.
Gary F. Strebel, M.D.
Julie Strebel Hager, M.D.

Obstetrics . Gynecology . Infertility . Endocrinology . Laser and Micro-Surgery

Date: _____

Patient Name: _____

To Whom It May Concern:

The above patient is under my care for pregnancy and/or is breastfeeding. This patient may have the following vaccines:

Injectable Flu Vaccine.

Covid Vaccine.

RSV Vaccine

TDAP

Please feel free to contact our office with any questions or concerns.

Thank you,

Julie Strebel Hager, M.D.

THE TOWER PHYSICIANS OFFICES . 4200 W. MEMORIAL RD. SUITE 401 . OKLAHOMA CITY, OK 73120 . (405) 749-4200 . FAX (405) 749-4218

Funnell and Strebel, Inc.
Gary F. Strebel, M.D.
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Obstetrics . Gynecology . Infertility . Endocrinology . Laser and Micro-Surgery

Date: _____

Patient Name: _____

To Whom It May Concern:

The above patient is under my care for pregnancy. Please allow our patient to have dental care including:

- Xrays of the mouth as long as the belly area is properly shielded
- Routine cleanings
- Local Anesthetic
- Nitrous Oxide

Please feel free to contact our office with any questions or concerns.

Thank you,

Julie Strebel Hager, M.D.

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Advice About Eating Fish

What Pregnant Women & Parents Should Know

Fish and other protein-rich foods have nutrients that can help your child's growth and development.

For women of childbearing age (about 16-49 years old), especially pregnant and breastfeeding women, and for parents and caregivers of young children.

- *Eat 2 to 3 servings of fish a week from the "Best Choices" list OR 1 serving from the "Good Choices" list.*
- *Eat a variety of fish.*
- *Serve 1 to 2 servings of fish a week to children, starting at age 2.*
- *If you eat fish caught by family or friends, check for fish advisories. If there is no advisory, eat only one serving and no other fish that week.**

Use this chart!

You can use this chart to help you choose which fish to eat, and how often to eat them, based on their mercury levels. The "Best Choices" have the lowest levels of mercury.

What is a serving?

To find out, use the palm of your hand!



For an adult 4 ounces

For children, ages 4 to 7 2 ounces

Best Choices EAT 2 TO 3 SERVINGS A WEEK

Anchovy	Herring	Scallop
Atlantic croaker	Lobster, American and spiny	Shad
Atlantic mackerel	Mullet	Shrimp
Black sea bass	Oyster	Skate
Butterfish	Pacific chub mackerel	Smelt
Catfish	Perch, freshwater and ocean	Sole
Clam	Pickerel	Squid
Cod	Plaice	Tilapia
Crab	Pollock	Trout, freshwater
Crawfish	Salmon	Tuna, canned light (includes skipjack)
Flounder	Sardine	Whitefish
Haddock		Whiting
Hake		

OR

Good Choices EAT 1 SERVING A WEEK

Bluefish	Monkfish	Tilefish (Atlantic Ocean)
Buffalofish	Rockfish	Tuna, albacore/ white tuna, canned and fresh/frozen
Carp	Sablefish	Tuna, yellowfin
Chilean sea bass/ Patagonian toothfish	Sheepshead	Weakfish/seatrout
Grouper	Snapper	White croaker/ Pacific croaker
Halibut	Spanish mackerel	
Mahi mahi/ dolphinfish	Striped bass (ocean)	

Choices to Avoid HIGHEST MERCURY LEVELS

King mackerel	Shark	Tilefish (Gulf of Mexico)
Marlin	Swordfish	Tuna, bigeye
Orange roughy		

*Some fish caught by family and friends, such as larger carp, catfish, trout and perch, are more likely to have fish advisories due to mercury or other contaminants. State advisories will tell you how often you can safely eat those fish.

www.FDA.gov/fishadvice

www.EPA.gov/fishadvice

EPA

FDA U.S. FOOD & DRUG ADMINISTRATION

THIS ADVICE REFERS TO FISH AND SHELLFISH COLLECTIVELY AS "FISH." / ADVICE UPDATED JANUARY 2017

(/downloads/Food/FoodborneIllnessContaminants/Metals/UCM536321.pdf)

Resources

We have developed the following resources to help you:

- **Text Version of the Advice Chart (/Food/FoodborneIllnessContaminants/Metals/ucm536514.htm)**- includes a sortable table of the fish categories, seen in the chart, that lets you sort by fish name or fish category
- **Materials to Print, Post, Share** - Print-Friendly Material for consumers, health professionals and industry
- **Supporting Scientific Documents** - Peer Reviews, Assessments, and other Supporting Technical Documents

Print, Post, Share

FDA encourages consumers, health professionals, educators, and retailers to print, post, and share the Fish Advice chart.

We have provided print-friendly downloads for your convenience.

FUNNELL, STREBEL, AND HAGER INC.
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Julie Strebel Hager, M.D.
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Brooke L. Storer, M.D.
OBSTETRICS . GYNECOLOGY . INFERTILITY . ENDOCRINOLOGY . LASER AND MICRO-SURGERY

FOOD SAFETY IN PREGNANCY

1. ALL raw foods should be avoided (i.e. sushi is ok but sashimi is not.)
2. ALL food products should be pasteurized.
3. Seafood high in mercury should be avoided: the fish highest in mercury are shark, swordfish, and mackerel.
4. Salmon and tuna are good sources of brain healthy omega acids but should not be consumed every day and should be limited to 1-2 serving per week.
5. Soft cheeses such as Brie and Camembert should be avoided.
6. Deli meats should be sizzled prior to consumption but do not have to be eaten hot.
7. Avoid eating raw sprouts.
8. Aspartame and other artificial sweeteners are safe in pregnancy if there is no maternal PKU disease.
9. Caffeine may be consumed but should be limited during pregnancy, especially if you have problems such as high blood pressure or preeclampsia, a safe level for healthy pregnant women is 200mg per day (i.e. one cup, 8oz. of coffee, 3 cups of tea or caffeinated soda.)
10. Shellfish such as shrimp, crab, and lobster that are cooked are safe; oysters are traditionally uncooked and therefore UNSAFE.
11. Hot dogs are ok as long as they are cooked to steaming and the uncooked juice is not used as a marinade sauce.
12. Again, any uncooked juice from any meat should not be used as a marinade after cooking.

The Physicians Tower Building 4200 W. Memorial Road Suite 201 Oklahoma City, OK 73120 Phone: (405) 749-4200 Fax: (405) 749-4218

PATIENT HANDOUT

Tdap vaccination during pregnancy

Society for Maternal-Fetal Medicine

By the Society for Maternal-Fetal Medicine (SMFM), with the assistance of Dr. Loralei L. Thornburg and the SMFM Education Committee

Why is vaccination against pertussis (whooping cough) important during pregnancy?

In 2012, more than 48,000 cases of pertussis were reported in the United States. For people who have not been vaccinated, pertussis is highly contagious. Pertussis is easily spread through the air when infected people cough. Approximately 90% of those who are not immune to pertussis can become infected. Pertussis in adults can cause significant illness such as a severe chronic cough lasting up to 3 months, but in newborns it can be life-threatening. Recent studies have shown that almost 1% of infants who need to be hospitalized die from pertussis, usually due to pneumonia and seizures.

The majority of pertussis cases in the United States, specifically hospitalizations and deaths related to this infection, occur in infants younger than 3 months of age. Babies cannot be vaccinated until they are 2 months old, so a newborn is at risk of getting infected until he or she can receive a vaccine. Vaccinating women in pregnancy may reduce the likelihood that their babies will be exposed to pertussis.

Is the vaccine safe during pregnancy?

Tdap (combined tetanus, diphtheria and pertussis) vaccination in pregnancy has been shown in studies to be very safe. The vaccine contains pertussis bacteria that have been made inactive and proteins from tetanus and diphtheria that contain no bacteria. There are no known harmful effects on the developing baby.

When and how often should the pertussis vaccine be given?

The vaccine should be administered in the third trimester, between 27 and 36 weeks' gestation. Following vaccination, the pregnant woman produces antibodies against the bacteria. These antibodies cross the placenta to the fetus, protecting the newborn against infection after delivery. Pregnant women should receive a Tdap vaccine during every pregnancy, regardless of when prior vaccinations were given, in order to provide maximum protection for the newborn.

Who else in the household should get a Tdap vaccine?

All family members and caregivers who will have contact with the newborn should also be sure that their Tdap "booster" vaccine status is up to date. Even if they received a standard tetanus booster within the past 10 years, they should get the Tdap vaccination at least 2 to 3 weeks before the baby is born, to make sure immunity has started to develop.

What are some side effects of the Tdap vaccine?

The vaccine has very few side effects. Pain and redness can occur where the injection is given. Rarely, inflammation of the blood vessels where the injection is given can occur. If any pain, redness, or swelling persists beyond a few days, contact your doctor.

FROM THE PAGES OF Contemporary OB/GYN
Expert Advice for Today's Ob/Gyn

06

Clinical Expert Series CME

Dos and Don'ts in Pregnancy

Truths and Myths

Nathan S. Fox, MD

Pregnancy is a time of excitement and anxiety. The reality for pregnant women is that their actions could affect their pregnancies and their fetuses. As such, they need to know what they should and should not do to minimize risk and optimize outcomes. Whereas this advice used to come from doctors, a few books, and some family and friends, in the age of the internet, women are now bombarded with information and recommendations, which are often confusing at best and conflicting at worst. The objective of this review is to present current, evidence-based recommendations for some of the things that pregnant women should and should not routinely do during pregnancy.

(Obstet Gynecol 2018;131:713–21)
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Pregnant women are bombarded with advice. Among social media, web searches, direct marketing, family, and friends, it can be difficult for women to navigate the myriad of conflicting recommendations regarding what they should and should not do when they are pregnant. This leads to confusion at best and misinformation at worst regarding nearly all facets of life—eating, drinking, sleeping, working, travel, exercise, and sexual intercourse, to name a few. Women usually turn to their prenatal care providers for direction, but health care providers are also exposed to the same variety of opinions regarding routine advice for pregnancy. This article is meant to be an evidence-based review of common recommendations for pregnant women. It is not meant to be exhaustive nor is it meant to replace more expansive reviews of each topic. As such, a systematic review and meta-analysis were not performed for each topic. Rather, quality systematic reviews are referenced (such as a Cochrane review) as are guidelines from several national or international organizations such as the American College of Obstetricians and Gynecologists (ACOG). Relevant studies are also referenced to support the "bottom line" conclusions of the author (Box 1). It is of course possible that in certain instances others could read the same studies and come to different conclusions in general or for a specific patient. However, the goal of this article is to combine these topics into one source that can be used as a starting point for discussion with pregnant women, and the article itself can be shared with pregnant women as well.

From the Maternal-Fetal Medicine Associates, PLLC, and the Department of Obstetrics, Gynecology, and Reproductive Science, Icahn School of Medicine at Mount Sinai, New York, New York.

Continuing medical education for this article is available at http://links.lww.com/AOG/B71.

The author has indicated that he has met the journal's requirements for authorship.

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PRENATAL VITAMINS

Prenatal vitamins are designed to meet the daily mineral and vitamin (micronutrient) requirements of most pregnant women. However, except for folic acid and possibly vitamin D and iron, it is unknown whether meeting recommended dietary allowances improves outcomes or whether failing to meet these recommended allowances worsens outcomes. Additionally, for women with well-balanced, nutritious diets that meet the recommended allowances, supplementation is likely not required. If supplementation is required, there is no known best formulation. A simple multivitamin will normally suffice, including nonprescription vitamins.

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A Cochrane review of randomized trials in low- and middle-income countries where micronutrient deficiencies are common found that micronutrient supplementation reduced the risk of low birth weight and small for gestational age, but there were no other differences in maternal or neonatal outcomes.[1] These trials are likely not generalizable to higher income countries. For this reason, health authorities in the United Kingdom do not recommend supplementation aside from folic acid in the first trimester and vitamin D throughout pregnancy.

Folic acid deficiency is associated with fetal neural tube defects; therefore, women who do not consume at least 400–800 micrograms of folic acid daily should be advised to take folic acid supplementation from prepregnancy until the end of the first trimester.[2] Women with a history of a fetal neural tube defect should take 4,000 micrograms (4 mg) daily.[2]

Iron supplementation is advised as a result of the risk of maternal anemia at birth.[3] However, if dietary iron is adequate (30 mg/d) and anemia is part of routine prenatal screening (which it usually is in the United States), there is no known benefit to supplemental iron in the absence of anemia.

Vitamin D deficiency is associated with several adverse outcomes such as preterm birth and preeclampsia, but it is currently unknown whether supplementation improves outcomes.[4–6] The National Academy of Medicine (previously known as the Institute of Medicine) recommends that all women younger than 70 years consume 600 international units of vitamin D daily and recommends the same for pregnant women.[5] Currently, ACOG does not recommend routine screening for vitamin D deficiency nor does it recommend supplementation beyond the dose in a standard prenatal vitamin (usually 200–600 international units).[6]

The recommended daily allowance of calcium for women age 19–50 years is 1,000 mg/d, including during pregnancy.[5] For women with low calcium intake, calcium supplementation has been shown to reduce the incidence of hypertensive disorders of pregnancy[7] but not the incidence of other adverse outcomes.[8] Therefore, women should be sure to consume through diet or supplements at least 1,000 mg of calcium per day. Most multivitamins and prenatal vitamins have only approximately 200–300 mg of calcium.

NUTRITION AND WEIGHT GAIN

The National Academy of Medicine recommends weight gain in pregnancy based on the prepregnancy body mass index (calculated as weight (kg)/[height (m)]^2; Table 1).[9] These recommendations are supported by mostly retrospective data showing a direct correlation between maternal weight gain and birth weight. Several observational studies have shown that weight gain below or above the National Academy of Medicine recommendations is associated with adverse pregnancy outcomes. One recent meta-analysis demonstrated that weight gain below the National Academy of Medicine recommendations is associated with a higher risk of preterm birth and small-for-gestational-age newborns; weight gain above the National Academy of Medicine recommendations is associated with a higher risk of macrosomia and cesarean delivery.[10]

Women are also advised to eat an additional 350–450 calories per day in the second and third trimesters. It is unclear whether women need to consume additional calories in the first trimester. However, these recommendations as well as the baseline caloric requirements are highly dependent on a woman's activity level, her height and weight, and her own metabolism history. Therefore, recommendations need to be individualized. General dietary recommendations for women should include eating plenty of fruits and vegetables, whole grains, dairy, and a variety of proteins. A good nutrition resource for pregnant women is a website run by the U.S. Department of Agriculture, www.choosemyplate.gov.

For women who eat well-balanced diets with adequate caloric intake yet have weight gain below or above the National Academy of Medicine recommendations, it is unknown whether they should increase or decrease their intake to meet the National Academy of Medicine weight gain recommendations. Because those recommendations were derived from observational data, they should be used as a general guide and not as an overriding requirement.

ALCOHOL

High alcohol intake in pregnancy has been associated with fetal malformations and developmental delays,

Table 1. National Academy of Medicine* Recommendations for Weight Gain in Pregnancy

Prepregnancy BMI Category (kg/m^2)	Recommended Weight Gain (lbs)
Underweight (less than 18.5)	28–40
Normal weight (18.5–24.9)	25–35
Overweight (25.0–29.9)	15–25
Obese (30 or greater)	11–20

BMI, body mass index.
* Previously known as the Institute of Medicine.

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Box 1. Dos and Don'ts in Pregnancy

Prenatal Vitamins

- Pregnant women should consume the following each day through diet or supplements:
  - Folic acid 400–800 micrograms (until the end of the first trimester)
  - Iron 30 mg (or be screened for anemia)
  - Vitamin D 600 international units
  - Calcium 1,000 mg
- Prenatal vitamins are unlikely to be harmful. Therefore, they may be used to ensure adequate consumption of several vitamins and minerals in pregnancy. However, their necessity for all pregnant women is uncertain, especially for women with well-balanced diets.
- There is no known ideal formulation for a prenatal vitamin.

Nutrition and Weight Gain

- Pregnant women should be advised to eat a healthy, well-balanced diet and typically should increase their caloric intake by a small amount (350–450 calories/d).
- Women with higher prepregnancy BMIs do not need to gain the same amount of weight as women with normal or low BMIs.

Alcohol

- Although current data suggest that consumption of small amounts of alcohol during pregnancy (less than seven to nine drinks/wk) does not appear to be harmful to the fetus, the exact threshold between safe and unsafe, if it exists, is unknown. Therefore, alcohol should be avoided in pregnancy.

Artificial Sweeteners

- Artificial sweeteners can be used in pregnancy.
- Data regarding saccharin are conflicting. Low (typical) consumption is likely safe.

Caffeine

- Low-to-moderate caffeine intake in pregnancy does not appear to be associated with any adverse outcomes.
- Pregnant women may have caffeine but should probably limit it to less than 300 mg/d (a typical 8-ounce cup of brewed coffee has approximately 130 mg of caffeine. An 8-ounce cup of tea or 12-ounce soda has approximately 50 mg of caffeine), but exact amounts vary based on the specific beverage or food.

Fish Consumption

- Pregnant women should try to consume two to three servings per week of fish with a high DHA and low mercury content.

Box 1.Dos and Don'ts in Pregnancy *(continued)*

Fish Consumption *(continued)*

- For women who do not achieve this, it is unknown whether DHA and n-3 PUFA supplementation are beneficial, but they are unlikely to be harmful.

Raw and Undercooked Fish

- In line with current recommendations, pregnant women should generally avoid undercooked fish. However, sushi that was prepared in a clean and reputable establishment is unlikely to pose a risk to the pregnancy.

Other Foods to Avoid

- Pregnant women should avoid raw and undercooked meat.
- Pregnant women should wash vegetables and fruit before eating them.
- Pregnant women should avoid unpasteurized dairy products.
- Unheated deli meats could also potentially increase the risk of Listeria, but the risk in recent years in uncertain.
- Pregnant women should avoid foods that are being recalled for possible Listeria contamination.

Smoking, Nicotine, and Vaping

- Women should not smoke cigarettes during pregnancy. If they are unable to quit entirely, they should reduce it as much as possible.
- Nicotine replacement (with patches or gum) is appropriate as part of a smoking cessation strategy.

Marijuana

- Marijuana use is not known to be associated with any adverse outcomes in pregnancy.
- However, data regarding long-term neurodevelopmental outcomes are lacking; therefore, marijuana use is currently not recommended in pregnancy.

Exercise and Bedrest

- Pregnant women should be encouraged to exercise regularly.
- There is no known benefit to activity restriction or bedrest for pregnant women.

Avoiding Injury

- Pregnant women should wear lap and shoulder seatbelts while in a motor vehicle and should not disable their airbags.

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Box 1.Dos and Don'ts in Pregnancy *(continued)*

Oral Health

- Oral health and dental procedures can continue as scheduled during pregnancy.

Hot Tubs and Swimming

- Although data are limited, pregnant women should probably avoid hot tub use in the first trimester.
- Swimming pool use should not be discouraged in pregnancy.

Insect Repellants

- Topical insect repellants (including DEET) can be used in pregnancy and should be used in areas with high risk for insect-borne illnesses.

Hair Dyes

- Although data are limited, because systemic absorption is minimal, hair dye is presumed to be safe in pregnancy.

Travel

- Airline travel is safe in pregnancy.
- Pregnant women should be familiar with the infection exposures and available medical care for each specific destination.
- There is no exact gestational age at which women must stop travel. Each pregnant woman must balance the benefit of the trip with the potential of a complication at her destination.

Sexual Intercourse

- Pregnant women without bleeding, placenta previa at greater than 20 weeks of gestation, or ruptured membranes should not have restrictions regarding sexual intercourse.

Sleeping Position

- It is currently unknown whether, and at what gestational age, pregnant women should be advised to sleep on their side.

BMI, body mass index; DHA, docosahexaenoic acid; n-3 PUFA, omega-3 long-chain polyunsaturated fatty acids; DEET, N,N-diethyl-3-methylbanzamide.

including fetal alcohol syndrome.[11] However, the threshold for safe consumption is not known. A prospective cohort study of 2,900 pregnancies out of Australia followed children until 14 years of age and did not find an association between light or moderate (up to 10 drinks/wk) alcohol consumption and child behavioral problems.[12] Another large prospective cohort study out of Australia found no association between less than one drink per day (on average) and child attention, learning, or cognitive abilities at age 14 years.[13] A series of studies out of Denmark showed that low-to-moderate alcohol consumption (less than nine drinks/wk) was not associated with adverse neurodevelopmental outcomes at age 5 years.[14–19] A 2007 meta-analysis confirmed that low to moderate alcohol consumption during pregnancy is not associated with adverse neonatal or child outcomes.[20] However, as a result of possible methodologic flaws in these studies, it cannot be concluded for certain that alcohol consumption at this level during pregnancy is safe. Therefore, all major health organizations recommend abstaining completely from alcohol during pregnancy.[11,21,22]

ARTIFICIAL SWEETENERS

There is no evidence that the artificial sweeteners aspartame (NutraSweet), sucralose (Splenda), acesulfame potassium (Sunett), stevioside (Stevia), or saccharin (Sweet 'N Low) increase the risk of birth defects. Very high saccharin exposure in rats has been associated with an increased risk of bladder cancer in the offspring,[23] but another study did not show an increased risk.[24]

CAFFEINE

Most data in humans suggest that low-to-moderate caffeine intake in pregnancy is not associated with any adverse outcomes[25,26]; however, there are few studies of high methodologic quality.[27] Some animal studies suggest that high caffeine intake slightly increases the risk of spontaneous abortion, but the equivalent dose in humans would be greater than 10 cups of coffee per day. Observational studies in humans examining caffeine intake and pregnancy loss have mixed results, likely as a result of methodologic flaws inherent to observational studies. For example, observational studies are limited by confounding variables such as smoking, other food intake, and other lifestyle choices. There are few well-designed prospective trials that examine what amount of caffeine, if any, increases the risk of spontaneous abortion.

FISH CONSUMPTION

Observational studies suggest that fish consumption in pregnancy is associated with improved neurodevelopment in children.[28–30] A randomized trial showed that a diet high in fish (and other healthy foods) lowered the risk of preterm birth.[31] However, fish is also

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a source of mercury exposure, and mercury can cause fetal neurologic damage.[28–30,32] Therefore, consuming fish in pregnancy needs to balance the benefits of omega-3 long-chain polyunsaturated fatty acids and docosahexaenoic acid compared with the risk of mercury exposure.[33]

Women should try to consume two to three servings per week of fish high in docosahexaenoic acid and omega-3 long-chain polyunsaturated fatty acids and low in mercury. These fish include anchovies, Atlantic herring, Atlantic mackerel, mussels, oysters, farmed and wild salmon, sardines, snapper, and trout. Other fish or seafood that have low mercury are safe, but might not provide high amounts of docosahexaenoic acid. These include shrimp, pollock, tilapia, cod, and catfish. Women should avoid fish with high mercury content, including king mackerel, shark, swordfish, marlin, and tilefish. The mercury content of commercial fish can be found at http://www.stonybrook.edu/commcms/gelfond/fish/database.html.[34] Another good resource can be found online at the U.S. Food and Drug Administration website https://www.fda.gov/Food/FoodborneIllnessContaminants/Metals/ucm393070.htm.

For women who do not consume two to three servings of fish per week, there is no clear evidence that supplementation with docosahexaenoic acid and omega-3 long-chain polyunsaturated fatty acids improve outcomes in children.[35,36] However, they are also unlikely to be harmful.

RAW AND UNDERCOOKED FISH

Most health organizations advise women to avoid raw and undercooked fish during pregnancy.[37,38] The concern is the result of the risk of foodborne illness such as bacteria or parasites.[39] However, the fish that typically make up sushi (tuna, salmon, yellow tail, snapper, flounder) rarely carry parasites aside from possibly *Anisakis* or *Diphyllobothrium latum* (fish tapeworm), which are uncommon in developed countries and are also not particularly dangerous. Therefore, the risk of infection from sushi in developed countries is likely not significant.[40]

OTHER FOODS TO AVOID

Food restrictions in pregnancy are mostly meant to avoid exposure to toxoplasmosis and Listeria. To lower the risk of toxoplasmosis, pregnant women should avoid eating raw and undercooked meat, and they should wash all fruits and vegetables before eating them.[41–43] To lower the risk of Listeria, pregnant women should avoid unpasteurized dairy products, raw sprouts, unwashed vegetables, and unheated deli meats.[44] However, outbreaks of Listeria have come from a variety of sources. Listeria outbreaks were mostly linked to deli meats in the 1990s. Recent outbreaks have been from ice cream, cantaloupes, hummus, and unpasteurized dairy products. Therefore, it is difficult to create a comprehensive list of foods to avoid during pregnancy to eliminate the risk of listeriosis without being overly restrictive. Therefore, pregnant women should also be aware of any regional outbreaks of listeriosis and avoid those specific foods recalled for potential Listeria.

SMOKING, NICOTINE, AND VAPING

Cigarette smoking is harmful to maternal health, which is reason enough to recommend smoking cessation or reduction during pregnancy. In regard to pregnancy specifically, cigarette smoking is associated with spontaneous pregnancy loss, placental abruption, premature rupture of membranes, preterm birth, low birth weight, and stillbirth.[45–49] Interestingly, it is also associated with a reduction in the risk of preeclampsia,[48] although it is not recommended for this purpose as a result of the numerous adverse effects.

Although some of the adverse effects of smoking are the result of nicotine exposure, nicotine products are considered acceptable as part of a smoking cessation program.[49] This is because nicotine exposure is likely lower when used as a patch or gum than when smoked and because smoking cessation would reduce exposure to other toxins in cigarettes, secondhand smoke, and would be overall beneficial for maternal health. Whether nicotine products as part of smoking cessation reduce the incidence of adverse outcomes in pregnancy is unclear.[50] Other pharmacologic interventions to aid with smoking cessation such as bupropion and varenicline have demonstrated efficacy and appear to be safe, but data are limited.[49]

Electronic nicotine delivery systems such as electronic cigarettes and vaporizers are another method of smoking reduction. However, these methods tend to effectively deliver high amounts of nicotine and their effects on pregnancy outcomes are unknown. Logically, they should not be more dangerous than smoking, but it is possible they are not as safe as other nicotine replacements such as patches and gum. More research is needed to determine the role, if any, of electronic nicotine delivery systems for smoking cessation in pregnant women.[49,51]

MARIJUANA

Marijuana (cannabis) is the most common illicit substance used during pregnancy. Current evidence demonstrates that marijuana use in pregnancy is not independently associated with preterm birth or low

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birth weight; associations seen in smaller studies appear to be the result of confounding factors such as smoking, other drug use, reduced folic acid intake, and socioeconomic status.[52,53] Marijuana also does not appear to increase the risk of birth defects, but studies examining this have been small. Also, doses are not regulated and could vary significantly. Current recommendations are to avoid marijuana use in pregnancy as a result of concerns regarding fetal neurodevelopment.[22,54]

EXERCISE AND BEDREST

As a result of the benefits of regular exercise and the data supporting safety of exercise in pregnancy, women with uncomplicated pregnancies should engage in regular aerobic and strength conditioning exercise.[55] It is probably prudent for women to avoid exercises with a higher risk of injury such as contact sports, downhill skiing, and horseback riding. Women should try to achieve on average 20–30 minutes of moderate-intensity exercise four to five times per week. Pregnant women do not need to ensure their heart rates remain below a specific threshold. Rather, moderate intensity is best defined as 13–14 on a 20-point scale (somewhat hard to hard) or the level at which women can still talk while exercising.[55]

Bedrest, or activity restriction, is associated with several risks and has not been shown to be beneficial in pregnancy. Therefore, it is not recommended for the prevention of preterm birth or pregnancy loss.[56,57] Activity restriction has not been shown to be beneficial for women with hypertensive disorders of pregnancy, premature rupture of membranes, fetal growth restriction, or placenta previa.

AVOIDING INJURY

Pregnant women should continue to use three-point seatbelts during pregnancy. The lap belt should be placed across the hips and below the uterus. Although there is potential for injury from a seatbelt, the risk is low and, because seatbelts significantly reduce the risk of major injuries from collisions, the overall effect is beneficial.

Although airbags also can reduce the risk of injury, deployment of an airbag itself has a higher risk of injury. Although ACOG recommends not disabling airbags,[58] it is unclear whether they are beneficial, harmful, or neither in pregnancy.[59]

ORAL HEALTH

Oral health and routine dental procedures should continue as scheduled during pregnancy. These include cleanings, extraction, scaling, root canal, radiographs (assuming the abdomen and thyroid are shielded), and restoration and fillings. A report from a working group of the Health Resources and Services Administration in collaboration with ACOG, the American Dental Association, and the National Maternal and Child Oral Health Resource Center can be found at https://www.mchoralhealth.org/materials/consensus_statement.php.

HOT TUBS AND SWIMMING

Hot tubs have the potential to increase maternal body temperature, which is considered a risk for miscarriage and birth defects.[60] One study of 1,063 women found that hot tub or whirlpool use after conception was associated with a twofold increased risk of pregnancy loss at less than 20 weeks of gestation.[61] There was a dose-dependent relationship between frequency of hot tub use and risk of miscarriage (adjusted hazard ratio 1.7 for less than once a week, 2.0 for once a week, and 2.7 for more than once a week). Additionally, hot tub use in the first 4 weeks from the last menstrual period had a higher risk (adjusted hazard ratio 2.3) than hot tub use only after 4 weeks from the last period (adjusted hazard ratio 1.5).

Swimming pools are typically maintained below normal body temperature. Their use does not appear to be associated with birth defects or adverse outcomes.[62,63]

INSECT REPELLANTS

Topical insect repellants can be used in pregnancy because they are not associated with adverse fetal effects.[64,65] These include permethrin clothing and N, N-diethyl-3-methylbanzamide (DEET). As a result of the risk of mosquito-borne illnesses, including West Nile and Zika virus, these insect repellants are recommended in high-risk areas.[66,67]

HAIR DYES

Most of the studies of hair dye exposure in pregnancy evaluate outcomes in cosmetologists as compared with the general population. Studies are mixed as to whether cosmetology as a profession is associated with pregnancy loss or low-birth-weight neonates and it is also unclear whether any observed associations found were the result of exposure to chemicals or long work hours.[68–70] Data on safety for specific chemicals are limited, but for an individual pregnant woman, exposure to hair dye results in minimal systemic absorption, so they are presumed to be safe in pregnancy.

TRAVEL

Airline travel is considered safe in pregnancy,[71] but it is probably prudent for women to take precautions to

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lower their risk of thrombosis, including compression stockings or periodic walking. Cosmic radiation is below the threshold level for fetal concerns.[72] Pregnant women may go through security metal detectors as well. The radiation exposure from the newer backscatter units is 5 microrem, which is 1/600 the amount of cosmic radiation from the flight itself (3 millirem).[73]

In regard to the travel destination, pregnant women should be aware of the potential infection exposures (including Zika virus) as well as available medical care at each individual destination. Also, as pregnancy progresses, the risk of several pregnancy complications increases. Therefore, although there is no exact gestational age after which women cannot travel, each pregnant woman must balance the benefit of the trip with the potential risk of a complication at her destination.

SEXUAL INTERCOURSE

Sexual intercourse and orgasm are not associated with an increased risk of pregnancy complications or preterm birth.[74,75] For women with vaginal bleeding or ruptured membranes, it is unknown whether sexual intercourse increases the risk of bleeding or infection. Although there are no data to support it, most authorities recommend avoiding sexual intercourse after 20 weeks of gestation in the setting of placenta previa.[76]

SLEEPING POSITION

Women are frequently advised to sleep on their sides, most typically the left side. There is biological plausibility to this recommendation, because an enlarged uterus could compress the maternal great vessels while she is in supine position, which could in turn decrease uteroplacental blood flow. Several retrospective studies have found an association between supine maternal sleep position and stillbirth.[77–79] However, these studies are limited by the potential for recall bias among women with recent stillbirths. Additionally, it is unclear whether recommending side sleeping actually reduces the risk of stillbirth, by how much, and at what gestational age this recommendation should be given, if at all.

DISCUSSION

Pregnant women should be informed about what they should and should not do during pregnancy. Often, it is difficult to know for certain what advice is based on good evidence. However, for several common questions, there are data on which to make recommendations. Ultimately, most recommendations are general guidelines and should be individualized to each specific patient as appropriate.

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