Meeting Dietary Requirements as a Pregnant Vegetarian

In recent years, plant-based diets have become more and more popular. People choose to go vegetarian for a variety of reasons including health benefits, sustainability concerns, and ethical motivations. Whatever the reason, this type of diet can be healthy and nutritionally adequate, even during the reproductive years. However, during pregnancy, a bit of planning may be required to make sure the developing baby is getting all the nutrition necessary from a plant-based mom.

First, let's talk about different plant-based diets. Some people choose to avoid meat on occasion such as those who participate in "Meatless Mondays." Others commit fully to a vegetarian lifestyle, which means avoiding all forms of meat. Lacto-vegetarians also exclude eggs from their diet, while ovo-vegetarians also avoid dairy. Vegans have more restrictions, avoiding any products that come from animals such as eggs, dairy, gelatin, and honey. The good news is that there are still many food groups available to vegetarians and vegans. Fruit, vegetables, grains, nuts, legumes, meat substitutes, and dairy alternatives are all still on the table.

During pregnancy, nutritional requirements change to meet the needs of the developing baby. Most women can easily meet these new requirements by taking a prenatal vitamin with 100% of the daily value (DV) to get all the important vitamins and minerals. However, vegans and vegetarians may require a different approach to keep mom and baby as healthy as possible.

Let's take a look at B12 first. Vitamin B12 is involved in the development and function of the central nervous system, formation of red blood cells, and DNA synthesis. During pregnancy the recommended dietary allowance (RDA) for B12 is 2.6 mcg for everyone. However, vegetarians and vegans are at risk of deficiency since this vitamin only occurs naturally in products that come from animals. To ensure that enough is consumed, plant-based moms-to-be should focus on eating foods fortified with B12. Blood work can also help to identify any deficiencies, and if a woman is found to have low B12 during pregnancy, a higher dose supplement may be recommended by the health care provider.

Iron is another vitamin that requires a second look for those with a veggie diet. During pregnancy, iron requirements increase due to a rise in plasma volume and red blood cell concentration. For women who eat meat, an RDA of 27 mg is advised. However, for vegetarians the RDA is 1.8 times higher, meaning 48.6 mg per day is needed. Iron can be obtained from plant-based foods but it is not as bioavailable as iron from meat, so supplementation is usually required.

Around 90-95% of pregnant women don't consume enough choline, regardless of what diet they follow. An RDA for choline of 450 mg is suggested for every pregnant woman. Soybeans, wheat germ, kidney beans, and eggs are some of the best plant-based forms of choline, but this vitamin can also be obtained from a dietary supplement. Choline has been shown to improve liver health, memory, mood, and other brain and nervous system functions.

What about calcium? Vegetarians who still consume milk, cheese, and yogurt may not be too worried about this one. However, it's known that certain plant foods contain large amounts of oxalates, a naturally occurring compound that can reduce the amount of calcium absorbed from food. For example, a cup of spinach contains about 30 mg of calcium, however because this food has a high oxalate content, the calcium is not well absorbed by the body. Another interesting point about calcium is that smaller doses are better absorbed. This means that spacing out a supplement and calcium rich foods throughout the day may be a better approach than taking it all at once. Lastly, it's important to note that calcium should always be taken with vitamin D since the body needs vitamin D to absorb calcium. An RDA for calcium of 1,000 mg/day is advised for women over the age of 18 during pregnancy, regardless of diet type.

The term "Omega 3s" commonly refers to alpha-linolenic acid (ALA), eicosapentaenoic acid (EPA), and docosahexaenoic acid (DHA). It is suggested thaf pregnant women get 1.4 grams/day of ALA, however, there is no official dose for DHA or EPA that has been established for pregnancy. ALA is present in plant oils, such as flaxseed, soybean, and canola oils. Walnuts and chia seeds are also good sources of ALA. The problem is that ALA does not easily convert to DHA in the body, so even when a woman who is plant-based consumes a good amount of ALA they can still have low DHA levels. Although there is no official recommendation in place to take a DHA supplement during pregnancy, vegetarians and vegans can talk to a health care provider to determine if it makes sense to take an algae based one.

A blog about nutrition wouldn't be complete without talking about folic acid, especially during January's National Birth Defects Awareness Month. When folic acid is taken for at least one month prior to pregnancy, this important vitamin reduces the chance of neural tube defects (a type of birth defect affecting the baby's brain and spinal cord) by as much as 50-70%! Like everyone else, vegetarians and vegans should get 400 mcg/day prior to pregnancy and 600-800 mcg/day during pregnancy from a supplement.

As a vegetarian myself, if I had a dollar for every time someone asked me about protein I'd be a millionaire by now! For some reason, well intentioned friends and family seem to be very concerned about this topic – especially during pregnancy! A general recommendation of 71 grams of protein/day is currently in place for everyone during pregnancy. Vegetarians can easily meet this requirement by consuming foods like yogurt, chia seeds, quinoa, beans, eggs, and certain vegetables. Vegans can focus on many of the above foods as well as tofu, lentils, soy milk, and nut butters. Although most women can meet the RDA with the right attention to diet, if you're concerned about not getting enough protein during pregnancy, your health care provider can refer you to a nutritionist to help further.

Pregnancy as a vegetarian or vegan doesn't have to be stressful, but some additional planning may be needed. When possible, focus on getting nutrients from your diet. However, to meet RDAs during pregnancy, or if a deficiency is noted by blood work, supplementation can be beneficial. If you ever have any questions about vitamins, minerals, omega 3s, or protein during pregnancy, contact a MotherToBaby specialist to receive individualized counseling. With the right approach, a plant-based mom and baby can get all the nutrients they need!

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Meeting Dietary Requirements as a Pregnant Vegetarian

It was late on a Tuesday when a chat came in from Dr. Rodriguez. “My patient is taking a medication for epilepsy. She is planning a pregnancy and I’ve seen from some sources she may need to take more folic acid to help prevent birth defects. Does she need to be on a higher dose?” As teratogen information specialists, we receive many inquiries regarding folic acid; and it was understandable why this healthcare provider was confused as the guidance isn’t exactly straightforward.

What is folic acid?

Folic acid is the lab made form of folate. Folate is a B9 vitamin. Folate and folic acid help the body create new cells and can lower the chance of having a child with a class of birth defects called neural tube defects, which are problems with the brain and spinal cord. The neural tube forms very early in pregnancy (around 4 to 6 weeks after the first day of the last menstrual period), so it’s important that any woman who could become pregnant get enough folic acid at least one month ***BEFORE*** she gets pregnant. In the United States many of our foods, such as breakfast cereal, bread, pasta, and rice are fortified with folic acid, which meant the vitamin has been added to the food. According to the Centers for Disease Control and Prevention (CDC), folic acid fortification programs have led to a 35% decrease in the rate of neural tube defects! We also get folate, which is the naturally occurring form of Vitamin B9, from foods like dark leafy greens, beans, citrus fruits, and nuts. However, only about 50% of this form is bioavailable (able to be absorbed and used by

the body) so additional intake, in the form of a supplement, is recommended by organizations like the CDC and National Institutes of Health (NIH).

How much is needed?

The CDC recommends that all women of reproductive age get at least 400 mcg (0.4 mg) of folic acid each day. Once pregnant, organizations like The NIH and the United States Preventative Services Task Force (USPSTF) recommend that women who are pregnant get 600 to 800 mcg (0.6 to 0.8 mg) of folic acid per day. This amount can usually be met by taking an over-the-counter prenatal vitamin; a higher amount is not recommended for most pregnant women.

Women who have previously had a pregnancy affected by a neural tube defect (NTD) should take a higher dose of folic acid if they are planning to become pregnant again. The CDC and the American College of Obstetricians and Gynecologists (ACOG) recommends 4,000 mcg (4 mg) per day for these individuals. This higher dose should be started at least one month before becoming pregnant and should be continued through the first three months of pregnancy.

So what about Dr. Rodriguez's patient who was on an anti-epileptic drug (AED) for her seizure disorder? Many, but not all, medications in the AED class are known as "folic acid antagonists." This means that they can interfere with how the body absorbs and uses this important vitamin. If someone becomes pregnant while taking a folic acid antagonist, they may have lower levels of folic acid in their body and their pregnancy could be at higher risk of neural tube defects. That said, there is no great research that shows that taking extra folic acid would lower the risk of NTDs for women taking folic acid antagonists. So, should a woman taking an AED stick with the 400 mcg per day that is already recommended for everyone, or take more just in case it could be helpful?

Let's look at the current professional recommendations:

- The American Academy of Neurology and the American Epilepsy Society guidelines state that all women of childbearing age, with or without epilepsy, should be supplemented with at least 400 mcg (0.4 mg) of folic acid per day prior to conception and during pregnancy. They go on to say there is not enough data to know if taking folic acid at doses higher than 400 mcg offer greater protective benefits for women on AEDs.

- The American College of Obstetricians and Gynecologists (ACOG) recommends 4000 mcg (4 mg) of folic acid per day for individuals at increased risk of having a baby with a NTD, which includes women with seizure disorders.

- The Centers for Disease Control and Prevention (CDC) only recommends a higher dose of folic acid for those with a history of a pregnancy affected by a NTD.

- The U.S. Department of Health and Human Services (Office of Women's Health) recommends talking to your doctor to determine the right dose of folic acid if you are taking a medication for epilepsy.

Clear as mud, right? The current consensus seems to be that there is no consensus. Some groups recommend a higher dose while others do not. In situations like this where there is no clear consensus from the professional groups, it comes down to weighing the risks vs. benefits. The risks include the fact that higher doses of folic acid are not well studied in pregnancy, could mask a B-12 deficiency, and may actually make some medications less effective. The benefits of taking more are theoretical (not proven). A higher dose of folic acid ***might*** be protective in preventing birth defects while on a folic acid antagonist, but there is not enough research to know if this is true. Ultimately, much more data will be needed to come up with clear guidelines for women with epilepsy.

Because Dr. Rodriguez's patient was on carbamazepine, a folic acid antagonist that is associated with a higher chance for neural tube defects, she decided that she would have a thorough discussion of the risk vs. benefits of taking a higher dose of folic acid with her patient before she became pregnant. Dr. Rodriguez was glad she hadn't missed any overarching recommendations for women who need to take medication to control their seizure disorders during pregnancy. She ended her chat by saying: "It can be a challenge to keep up to date with all the recommendations. I'm so glad to have access to MotherToBaby to be able to ask questions like this."

MotherToBaby specialists are always happy to review the latest data and professional recommendations with healthcare providers and patients alike. If you have questions about folic acid, epilepsy medication, or any other exposures in pregnancy or lactation, please feel free to get in touch.

Meeting Dietary Requirements as a Pregnant Vegetarian

By Lori Wolfe, Certified Genetic Counselor at MotherToBaby North Texas

Did you know that the month of March is green tea month? Green tea has been said to have many health benefits, including: preventing memory loss, promoting bone health, decreasing risk of cancer, increasing dental health, reducing the chance of getting type 2 diabetes, and helping us lose weight. Green tea is loaded with nutrients and antioxidants, and has been said to be "the healthiest beverage on the planet." So, given all of this wonderful news, who wouldn't want to join Lucky the Leprechaun in the month of March and enjoy a cup of green tea?

As an information specialist with MotherToBaby, I recently had a pregnant mom named Lynn text me, asking: "Can you drink green tea if you take your prenatal vitamin later? How much does green tea impact folic acid absorption? I am in my first trimester and have had some green tea throughout pregnancy, and I am now worried about it impacting my folic acid absorption." Wow, I thought, that is a great question! As the MotherToBaby specialist on the other side of the text, I started researching her questions so that I could give her the most up-to-date information out there.

First, let's talk about folic acid: what is it and why is it important to pregnant women?
We all need folic acid every day in our bodies to help make new cells. Folic acid is a synthetic form of Vitamin B9, also known as folate. It is very important to take enough folic acid just before and during pregnancy. Many studies have shown that taking the recommended daily allowance of 400 micrograms per day during pregnancy reduces the chance that the baby will have serious birth defects of the spine and brain, called neural tube defects (NTD).

So what's the connection between drinking green tea, folic acid, and pregnancy?
Green tea contains something called catechins, which have been shown to partially prevent the cells in the intestines from absorbing folic acid. Studies have shown that when women are drinking a lot of green tea, they have lower levels of folate in their system. That means there is less folic acid that can cross the placenta and get to the baby, and the baby can thus be at a higher risk for having a NTD. This can occur when a pregnant woman is drinking more than three cups of tea per day. Green tea and some forms of black tea such as Oolong tea can be high in catechins. Taking a daily prenatal vitamin has been shown to reduce this possible risk in heavy tea drinkers.

Another concern with drinking green tea during pregnancy is the caffeine content.
The good news is that green tea contains less caffeine than coffee (about 20 to 50 mg of caffeine per cup in green tea verses an average of 100 mg of caffeine per cup in coffee). Moderate levels of caffeine (about 200 mg/day) have not been shown to increase any risks in pregnancy. See our MotherToBaby fact sheet for more information on caffeine and pregnancy at https://mothertobaby.org/fact-sheets/caffeine-pregnancy/. Women may want to limit their tea consumption during the first trimester when the baby's neural tube is developing to avoid the chance of decreasing absorption of folic acid. After this point, drinking one cup of green tea per day has not been shown to increase any risks for the baby.

I counseled Lynn that she can enjoy a cup of green tea now and then, as occasionally drinking green or black tea has not been shown to increase the risk for any problems during pregnancy. So, raise that cup of green tea along with Lucky the Leprechaun and enjoy "going green" in the month of March!

If you have questions about exposures during pregnancy or breastfeeding, contact an expert at MotherToBaby. You can reach us by phone at 866-626-6847 or by text at 855-999-3525. You can also email or live chat with us by visiting https://MotherToBaby.org.

Lori Wolfe, CGC, is a board certified Genetic Counselor and the Director of MotherToBaby's North Texas affiliate. MotherToBaby aims to educate women about medications and more during pregnancy and breastfeeding. Along with answering women's and health professionals' questions regarding exposures during pregnancy/breastfeeding via MotherToBaby's toll-free number, text line and by email, Wolfe also teaches at the University of North Texas, provides educational talks regarding pregnancy health in community clinics and high schools.

About MotherToBaby
***MotherToBaby** is a service of the Organization of Teratology Information Specialists (OTIS), suggested resources by many agencies including the Centers for Disease Control and Prevention (CDC). If you have questions about exposures during pregnancy and breastfeeding, please call MotherToBaby toll-FREE at 866-626-6847 or try out MotherToBaby's new **text information service** by texting questions to (855) 999-3525. You can also visit **MotherToBaby.org** to browse a library of fact sheets about dozens of viruses, medications, vaccines, alcohol, diseases, or other exposures during pregnancy and breastfeeding or connect with all of our resources by downloading the new MotherToBaby free app, available on **Android** and **iOS** markets.*

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Meeting Dietary Requirements as a Pregnant Vegetarian

Photo Credit: © Bernd Esche | Dreamstime Stock Photos

By Lauren Bryl, MS, Certified Genetic Counselor, MotherToBaby IL

It's National Birth Defects Prevention Month, and you've found yourself here – standing in the pharmacy aisle in search of prenatal vitamins. You think, "I should start taking one of these if I want to have a baby, right? At least that's what I've heard…" Your eyes are swimming and head is spinning with all the options. "Should I choose the old-fashioned tablets, the fruit-flavored gummies, or the minty chewables? With DHA or without? Do I need extra calcium or vitamin D? Is 200% daily value better than 100%? This seems like a good one," you think to yourself. "Oh wait! Maybe this one is better…" Shelf after shelf of bottles of vitamins and supplements…but which one is right for you?

Give yourself a pat on the back.

First of all – well done, Mama! You've already made the most important decision by choosing to kick off your pregnancy journey with a solid supply of vitamins to support a growing baby! But why are prenatal vitamins so important anyway? Well, one of the main reasons is that deficiency of a vitamin called folate (also called folic acid) in very early pregnancy increases the risk for neural tube defects. Neural tube defects are a group of birth defects in which there is an opening in the spine. They include things like spina bifida. While the other vitamins and minerals may also provide benefits to mom and baby, the folic acid in the prenatal multivitamin is one of the most important for birth defect prevention. Taking folic acid prior to and during pregnancy is the best thing we can do to reduce the risk of neural tube defects.

Take a deep breath.

As a prenatal genetic counselor, I've had many patients ask me which prenatal vitamin is the best. While there are, of course, many factors that go into making a decision about which prenatal vitamin to take including cost considerations and personal preferences, I'm here to give some thoughts from a medical professional's perspective. First of all, you may not even have to make this choice yourself. Your doctor may prescribe you a prenatal vitamin with folic acid, so check with her first. But if she tells you to pick something up over the counter, don't panic.

Check the ingredients and their doses.

The exact vitamins and minerals that you, personally, will need in a multivitamin depends on a few things. One is whether you have any known vitamin or mineral deficiencies or risk factors for such a deficiency. For example, vegans and vegetarians are more likely to have deficiency of vitamin B12, a vitamin found in meat and other animal products. The amounts of vitamins and minerals you receive through your diet should be considered. It is common for women to need extra help getting the recommended amounts of calcium, iron, and vitamin D. The daily recommended intakes for pregnant women over 18 years are 1,000 mg (milligrams) of calcium, 27 mg of iron, and 600 IU (International Units) of vitamin D. Some health care providers will also suggest docosahexaenoic acid (DHA) supplementation of 200 mg per day for those who do not eat fatty fish (like salmon and tuna) at least twice a week.

Regardless of your diet, folic acid supplementation is a must. The natural form of the vitamin found in certain foods

(called folate) is not as well absorbed as the supplemental form (folic acid). Because of this, the U.S. Public Health Service recommends that all women of childbearing age take a folic acid supplement of 400 micrograms (0.4 mg) per day. Once you become pregnant, this dosage increases to 600 micrograms (0.6 mg) per day. If you are at higher risk for neural tube defects than the average woman because of family history or another factor, an even higher dosage may be recommended. You should consult with your health care provider for her recommendation.

With vitamins, more is not always better, though. While some vitamins are unlikely to be harmful even if taken at high dosages in pregnancy, this is not true for all. Specifically, very large amounts of supplemental vitamin A have the potential to increase the risk of birth defects and intellectual disabilities. For this reason, it is recommended that vitamin A supplementation not exceed 10,000 IU per day.

Don’t go too far off the beaten path.

Unlike medications and foods, vitamins and supplements are not regulated by the U.S. Food and Drug Administration (FDA). This means that the FDA does not test vitamins and other supplements to ensure that they contain the ingredients written on their labels at the doses indicated. The FDA also does not test for contamination with other, potentially harmful ingredients in vitamins and supplements. It is the responsibility of those who make the vitamins to perform these types of tests to ensure quality and safety.
Does this mean that most vitamins are dangerous? No, but it does mean that it may be safer to choose a widely available multivitamin rather than one produced by a small, specialized manufacturer. Companies with wider distribution are under more pressure to produce a safe product than those whose products you may only be able to buy in a specialty store or through their website. If in doubt, speak with your healthcare provider or a pharmacist.

Choose what works for you.

While perhaps the most obvious point, choosing a vitamin that you will actually take is arguably the most important one as well. The perfect multivitamin won’t do you any good if it is gathering dust in the medicine cabinet. If even just the thought of swallowing a pill half the size of a golf ball every morning has you queasy, you could consider trying a liquid or chewable form. Iron in your prenatal vitamin giving you constipation? Ask your health care provider if it’s necessary that you have iron supplementation if you receive adequate amounts through the foods that you eat.

So if you find yourself in the pharmacy aisle overwhelmed with all the multivitamin options, try not to stress! Remember these tips and save that energy for other difficult decisions down the road…like choosing a preschool!

Lauren Bryl, MS, is a certified genetic counselor, licensed in the state of Illinois. She graduated from Haverford College with a Bachelor’s degree in molecular biology and earned a Master’s of science in genetic counseling at Northwestern University. Located out of Chicago, Lauren serves as the coordinator for MotherToBaby Illinois. Since 2011 she has counseled women, their family members and their healthcare providers regarding the effects of exposures during both pregnancy and lactation. In addition to her role with MotherToBaby, Lauren is a clinical genetic counselor at Insight Medical Genetics where she provides both reproductive and hereditary cancer risk counseling.

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Meeting Dietary Requirements as a Pregnant

Vegetarian

By Lori Wolfe, Certified Genetic Counselor and Teratogen Information Specialist, MotherToBaby North Texas

It's pretty much a fact – ALL pregnant women worry…about what they eat, what they do, what they breathe. Basically, they worry about everything. That's simply because every expectant mother wants to do the very best she can for her developing baby. As a genetic counselor who runs the North Texas affiliate of MotherToBaby, I get calls every day from pregnant woman who want to know what to do and what not to do in order to have the best chance of having a heathy baby without birth defects.

Recently I was having lunch with my friend, Amber, who is expecting her first babies…Yes… plural! In seven short months, she'll become the mother of twins! As a first time mom-to-be, Amber is always full of questions when we get together. Nothing like having a friend who is an expert in the pregnancy exposure field, right?! "Lori, is it true that since I eat lots of dark green veggies, and breads and cereals, that my babies will not have spina bifida? I remember hearing something about how good folic acid is for developing babies. Is that true?" asked Amber. "Yes!" I enthusiastically replied. "Having enough folic acid in the first two months of your pregnancy is very important to help prevent birth defects in your developing babies. In fact, studies have shown that if you are getting at least 400 mcg of folic acid during your early pregnancy through the foods you eat, as well as your prenatal vitamin, then your babies have up to a 70% less chance of having a spinal cord defect such as spina bifida." The look on her face was priceless…pure shock! "70%? Really?! Wow, I had no idea it could be so effective," Amber answered. "Yes, I have been taking a daily prenatal vitamin since before I became pregnant. I am always careful to take one every day. So what else can I do to help my babies be born without birth defects?"

Let me break it down for all of the "Ambers" out there. What's thought to be the most common preventable cause of mental retardation in a baby? The answer – drinking alcohol during pregnancy. "And what is so crazy is that women do not need to drink alcohol when they are trying to become pregnant, and definitely not once they have a confirmed pregnancy," I explained. About one in every 100 babies born in America is affected by prenatal alcohol exposure and it is totally preventable by simply avoiding alcohol during pregnancy. "Amazing!" replied Amber. "I never realized so many kids were affected by their moms' drinking alcohol during pregnancy. That is sad. But I am good on this count as I have not had any alcohol at all during the last few months," Amber said.

"So is there anything else I can or can't eat or drink, or something else I can avoid that could make a difference in my babies not having birth defects?" she went on to say. "You are about eight weeks pregnant now, right Amber?" I asked her. "Yes. I am now about eight and one half weeks. Why?" she asked. "Well, another thing we worry about is hyperthermia," I told her. "Hyperthermia means increasing your internal or core body temperature up to 102 degrees Fahrenheit or more. When you become that hot, the baby inside of you becomes hot too. When the baby's temperature becomes too hot, especially in weeks five and six of a pregnancy, there is an increased chance that the spinal cord will not close, and your baby can be born with an open spinal cord defect like spina bifida. So we always caution pregnant women not to sit in hot tubs that are heated over 100 degrees, or to be careful to watch their temperature if they become ill with a fever during early pregnancy," I said.
"All of this is really good to know," Amber answered, as we wrapped up lunch. "I'm lucky I have you as a friend!"

I love making sure women have someone to turn to for answers when they have questions about exposures while pregnant or breastfeeding. In fact, during March when the world will commemorate the first-ever World Birth Defects Awareness Day, my lunch with Amber serves as a great reminder that my colleagues and I are there for all pregnant and breastfeeding women across North America.
If you have a question during pregnancy and breastfeeding about something you ate, drank or medication you took, call MotherToBaby at 866-626-6847. I may not be able to meet you for lunch, but a main course of free expertise over the phone, followed by a huge helping of cutting edge research to support that expertise, will certainly be exactly what you ordered in your search for answers. And who knows? Your kids might even thank you for having such an appetite for knowledge one day!

Lori Wolfe is a board certified Genetic Counselor and the Director of MotherToBaby's North Texas affiliate.

MotherToBaby aims to educate women about medications and more during pregnancy and breastfeeding. Along with answering women's and health professionals' questions regarding exposures during pregnancy/breastfeeding via MotherToBaby's toll-free number and by email, Wolfe also teaches at the University of North Texas, provides educational talks regarding pregnancy health in community clinics and high schools, and counsels adoptive parents. MotherToBaby is a service of the international non-profit Organization of Teratology Information Specialists (OTIS), a suggested resource by many agencies includingthe Centers for Disease Control and Prevention (CDC). If you have questions about vaccines, medications or other exposures, call MotherToBaby toll-FREE at 866-626-6847 or visit **MotherToBaby.org** to browse a library of fact sheets and find your nearest affiliate