KRESSER INSTITUTE FOR FUNCTIONAL AND EVOLUTIONARY MEDICINE

Nutrition: Women's Health, Part 2

Let's talk a little bit about fertility, pregnancy, and breastfeeding. As you may know, I have a program called The Healthy Baby Code, which goes into much more detail about it than I'm going to go into here, and you'll have access to that. If medical conditions like PCOS or amenorrhea are not a concern, we want to focus on building fertility with diet and lifestyle adjustments.

Eliminating any nutrient deficiencies is crucial. Folate is important, not folic acid, as I have written about. We'll include a link to an article that summarizes the key differences between folate and folic acid for fertility and pregnancy. Folate is necessary for the production of new DNA and fetal cell division. Most prenatal supplements use folic acid instead of folate, so that's something to be aware of, and the absorption of folate is dependent on zinc status, so this an example of nutrient synergy, where nutrients have co-factors that are needed for absorption, so you can't just think of nutrients in isolation. Choline is very important, and deficiency of choline has been shown to cause neural tube defects. Higher choline intake is associated with improved cognition in babies and children born to women with higher choline status, and only 14 percent of women get enough choline in the diet, so it's very common for women to be deficient in it. Vitamins A, D, and K2 are the very important fat-soluble vitamins. Unfortunately, Vitamin A has developed a reputation for being dangerous in pregnancy, but it's actually a crucial nutrient for fetal development. It can be toxic in very high doses, when vitamins K2 and D are inadequate, though when vitamins K2 and D are adequate, the toxicity threshold for vitamin A is very, very high, much higher than you could get by eating liver or taking cod liver oil or even taking supplemental vitamin A in most cases. Iron is very important to avoid anemia during pregnancy, and that's a common problem, but indiscriminate iron supplementation during pregnancy when there is an iron deficiency has actually been shown to be harmful, so one of my pet peeves is when clinicians prescribe iron when they see low hemoglobin on a CBC. They just automatically assume that low hemoglobin is iron deficiency, and often they're not aware that the range for hemoglobin changes, particularly in the second or third trimester of pregnancy. It actually goes down because blood volume expands, so the adequate range of hemoglobin falls and can be as low as eleven or even just below eleven in the late second and early third trimester of pregnancy. So women are often misdiagnosed with iron deficiency for those reasons, and they're given iron supplements, which can worsen outcomes, so it's really important to test for iron when you see low hemoglobin and not just assume that low hemoglobin equals iron deficiency; it could be caused by B12 or folate deficiency and many other things. So B12, as I just mentioned, a low B12 can cause anemia. It works together with folate and protects against developmental problems in babies, and deficiency in B12 is associated with infertility. Then we've got the long-chain omega-3 fats, particularly DHA, that are required for healthy brain development in the baby. DHA concentrates in the gray matter and in the eyes of the baby, and protects the brain from oxidative damage. We've got biotin, very important during pregnancy, although deficiency is pretty rare in women that are eating an omnivorous diet because it shows up in a lot of different foods. Glycine helps to balance the methionine in diets that are rich in animal products, in meat, methionine, eggs, methionine-rich foods and lean proteins like eggs and lean meats. High methionine intake increases the need for B vitamins like folate, choline, and

B12. I have an article that explains this in a little bit more detail, it's called "Do High-Protein Diets Cause Kidney Disease and Cancer?" and we'll put a link to it in the resources section. Finally, we have iodine, very important nutrient, iodine deficiency is associated with increased risk of mental retardation and even cretinism. It's a potential issue in women using natural and not iodized salts, so sea salt is great for a number of reasons, but it doesn't contain much iodine, so if someone switches to a "healthy" Paleo type of diet, and they're only having sea salt and they're not eating sea vegetables or dairy products, which are the only significant sources of iodine, or fish heads, they could very well be iodine deficient.

Let's talk about four foods to avoid in general. I mean, this is applicable to overall health but it's particularly applicable to women who are trying to conceive and have a healthy pregnancy. So one would be white sugar, the second would be white flour, then highly processed soy products, and industrial seed oils like soy, corn, canola, etc.

Let's talk a little bit about circadian rhythm entrainment. Some evidence suggests that circadian rhythm disruption with artificial light exposure at the wrong times may affect fertility in both men and women. Shift work has been linked to reduced fertility and a higher risk of miscarriage. Sleep really needs to be a priority, and proper light exposure needs to be a priority prior to conception, and a lot of women are not thinking about this, so it's your job to get this on their radar. Light exposure is the biggest driver of circadian rhythms and should be optimized; we talk about how to do this elsewhere in the exposome unit, and then also in my book.

Thyroid health can also have a significant impact on fertility, as I mentioned. Thyroid dysfunction reduces the likelihood of conception and increases the risk of miscarriage; this is true for both hypo- and hyperthyroidism. It can lead to an increased risk of complications like preeclampsia, poor fetal growth, premature birth, and stillbirth. Autoimmune disease is also an issue. It disproportionately affects women and can significantly affect a woman's ability to get pregnant. According to the latest statistics, one in four women will develop an autoimmune disease in their lifetime, and one in six men, which is just astounding, really, when you think about it. This is a modern problem that didn't exist, at least to this extent, before. So with autoimmune disease, you want to remove foods that are provoking an immune response like gluten, dairy products, eggs, and sometimes soy products.

So let's talk a little bit about calorie needs during pregnancy. I'm sure you've heard the phrase "eating for two"; weight gain is important during pregnancy, but normal-weight women don't typically need an extreme amount of extra food. Overweight women may actually need very few extra calories. Energy needs are different in each trimester, so that's important to be aware, and there's typically no increase needed during the first trimester. During the second trimester, women may need about 200 to 300 additional calories daily, and then during the third trimester, when the fetal skeleton is rapidly developing, women may need an extra 400 to 500 calories above their baseline needs. Women who are overweight may need less, and underweight may need more, and following weight gain across pregnancy is the best indicator of adequate calorie intake. One thing I want you to be aware of is during pregnancy, following a calorie-restricted weight-loss diet is typically a very bad idea. It's not the time to prioritize weight loss. You will see patients that are

concerned about gaining weight during pregnancy and concerned about their ability to lose it after pregnancy, but you really need to educate them as to the importance of providing adequate calories to their system, so that their baby can adequately develop. You may know from The Healthy Baby Code, if you've seen it, or from some of my other writings, that low birth weight is associated with an astonishing number of conditions later on in life, and we have studies that show that this fetal programming that happens with low birth weight can affect the baby for their entire life. I just read a study, in fact, that showed that fetal programming at the HPA axis can lead to elevated cortisol levels for as long as 70 years, and possibly longer, 70-year-olds were the oldest that they studied in that cohort, so it's a very important thing, there's little that's more important than that, so it's something you really need to emphasize with your patients.

For breastfeeding, women need about 300 to 500 extra calories a day to promote a good milk supply. Breastfeeding women generally do better with a moderate carbohydrate intake instead of a low-carb diet. Breast milk is 39 percent carbohydrate, 54 percent fat and 7 percent protein. Women generally need to eat some carbohydrate to ensure adequate production of breast milk, though carbohydrate needs will vary depending on activity levels. I recommend about 30 to 50 percent of calories from carbohydrates for breastfeeding women. Micronutrient intake during breastfeeding should mimic that during pregnancy.