

Nutrition: Fertility, Pregnancy, and Breastfeeding - Part 1

Hey, everyone, in this presentation we're going to talk about nutrition for fertility, pregnancy, and breastfeeding. Infertility is a major issue in Western industrialized cultures. Almost 12 percent of women have received infertility services, and one in eight couples have trouble conceiving or sustaining a healthy pregnancy. Men and women are equally responsible for fertility concerns, which is unfortunately little known. The focus is almost always on the woman, and it's important that both men and women are optimizing their health when trying to conceive.

Major causes of infertility and miscarriage

Endometriosis

Autoimmune disease

PCOS

Methylation defects

Hypothalamic amenorrhea

Low sperm counts

Poor egg quality

Anti-sperm antibodies (in men)

Male/female tube blockages

Untreated STDS

I've listed some of the major causes of infertility and miscarriage on this slide; they include endometriosis, PCOS, hypothalamic amenorrhea, poor egg quality, autoimmune disease, low sperm count, and anti-sperm antibodies in men.

You should definitely be testing both your female and male patients for these conditions: for methylation defects, thyroid conditions, gastrointestinal dysfunction, nutrient imbalance, autoimmune disease, PCOS, etc., because these are the underlying conditions that cause infertility, and this is where functional medicine differs from the conventional treatment of infertility. In conventional medicine, they use assisted reproductive technology to help women get pregnant. In functional medicine, we don't rule that out, but we instead try to focus on the underlying causes that are preventing the body from naturally conceiving in the first place. And I believe that even if a

woman chooses to do ART, they should always address these factors first or at least simultaneously, because if a woman does conceive when her body's not ready for it, there's a much higher chance that the pregnancy is not going to lead to a successful, natural birth.

Let's talk a little bit about thyroid health. Hypo- and hyperthyroidism can affect fertility. Thyroid dysfunction reduces the likelihood of conception and increases the risk of miscarriage. An increased risk of complications due to poor thyroid function includes preeclampsia, poor fetal growth, premature birth, and stillbirth, so hypothyroidism should definitely be treated if a woman is trying to conceive and she has this condition, and refer back to the presentation we did on thyroid disorders for nutritional treatment of this condition.

Autoimmune disease disproportionately affects women; the latest statistics suggest that about one in four women is expected to develop an autoimmune disease in her lifetime. It can significantly impair the ability of a woman to get pregnant or stay pregnant, and diet, of course, plays a major role in autoimmune disease. We suggest removing foods that are provoking an immune response, things like gluten, soy, dairy, or eggs—or foods, rather, that *may* be provoking an immune response—and then increasing the intake of anti-inflammatory foods like fatty fish, non-starchy vegetables, and antioxidant-rich fruits. If you have access to it, you can consider using Cyrex testing to identify foods that may be provoking an immune response, and you can refer back to the autoimmune disease presentation for guidelines on nutritional support for those conditions.

Methylation defects, we know that MTHFR polymorphisms and other polymorphisms of methylation-related genes are prevalent in the population. Genetics affect how folate and B12 are utilized, among other nutrients that are important in the methylation cycle, and those with MTHFR polymorphisms or polymorphisms in other methylation-related genes may have a decreased ability to produce the active forms of folate and methyl folate, and they may see a slowdown in their methylation cycle as a result. Methyl folate is required to convert homocysteine into methionine, so one of the ways of diagnosing methylation issues is testing for homocysteine. If it's high, that can be suggestive of a problem with methylation. Low folate and/or high homocysteine are risk factors for miscarriage, preeclampsia, infertility, and birth defects including neural tube defects. I recommend doing some testing for methylation gene status and also a functional methylation panel to identify issues in the methylation cycle, and you can use this information to recommend an appropriate dose and/or form of folate, B12, and other methylation-supporting nutrients. We'll discuss methylation in more detail in a different part of this course.

If medical conditions like PCOS or amenorrhea are not a concern, then you would focus on building the healthy ability to conceive with diet and lifestyle adjustments. So a great starting place, of course, is a nutrient-dense Paleo type of diet, but make sure that calorie intake is adequate to promote fertility. Low-calorie dieting is common among women and may contribute to infertility, and I also suggest a moderate carbohydrate intake of 20 to 40 percent of calories from carbohydrate, rather than a very low or very high carbohydrate intake. Make sure that the patient is getting enough fat, between 40 to 50 percent of calories is often ideal, 40 to 60 percent, and

patients should not be avoiding saturated fat or cholesterol, as these can be important nutrients for supporting healthy fertility.

You want to make sure to screen for and eliminate any nutrient deficiencies. Folate is necessary for production of new DNA in fetal cell division. Most prenatal supplements use folic acid instead of folate, and this does not have the same effects on the body. The absorption of folate is dependent on zinc status, and I would say a minimum supplementation is maybe 400 micrograms per day, both before and during pregnancy. The recommended dietary allowance is 600 micrograms per day during pregnancy, so if they're eating a nutrient-dense diet, they'll be getting some folate, especially if they're eating things like liver and lentils, but supplementing with an additional 400 micrograms per day can be a good insurance policy, especially if they have had a miscarriage or they're having trouble conceiving in the first place.

Choline is required for optimal brain development in the fetus. Choline deficiency can cause neural tube defects as well. Higher choline intake is associated with improved cognition in the child. Quite amazingly, only 14 percent of women get enough choline in the diet, so choline deficiency is very common, and that's perhaps because it's not found in a lot of foods. Liver and egg yolks are the most concentrated sources of choline, so 450 to 550 micrograms per day of choline is recommended, and that's the amount that's found in four egg yolks, so it's not surprising that only 14 percent of women are getting enough choline in the diet. So, eating several eggs a day and then eating some organ meats throughout the week, particularly liver, is a good strategy for meeting choline needs.

Vitamins A, D, and K2, the fat-soluble vitamins, are all very important for fertility. Vitamin A is considered to be dangerous in pregnancy, but it's actually a necessary nutrient for fetal development. The intake of vitamin A must be balanced with vitamin D and K2, and this is where the confusion arises. If you take high doses of vitamin A and you have very low intake of D and K2, which many people do, it can be toxic. But the toxicity threshold for vitamin A goes up to something like 270,000 IU per day when vitamin D intake is sufficient, which is far, far more than anyone is going to get from the diet and even through supplementation. So, I recommend liver; again, organ meat is the best source of vitamin A. If the patient's not willing to eat organ meats, then cod liver oil is a very good source of vitamin A, and that has the added advantage of also containing vitamin D. Vitamin D is important for fetal development and conception, and the optimal blood level is 25 to 50 nanograms per milliliter, and more is definitely not better. We've seen an increasing number of studies that have confirmed that, so supplementation should be tailored to keep vitamin D in that range within the blood, so we can't give a blanket recommendation to patients about how much vitamin D they should take. We need to test their blood levels and then recommend a dose based on what their blood levels are. Finally, vitamin K2 is also important, and it's not in a lot of foods, it's in pasture-raised dairy products and organ meats, and then in fermented foods, so a patient needs to focus on those foods in order to get enough vitamin K2. Unlike vitamin D and vitamin A, there's no upper limit for vitamin K2 that's been established yet, and extremely high doses of 30 to 45 milligrams, K2 is usually dosed in micrograms, to put that in perspective, have been used in osteoporosis studies with no ill effects, but as a target dose, I'd suggest somewhere around 500 micrograms to one milligram per day.