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Prematurity is Preventable!

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Last year the March of Dimes launched a multi-billion dollar campaign to promote awareness about premature labor and birth. They were trying to raise funds for research to find the cause and cure. I shook my head when I saw the ads. Practical prevention techniques were not mentioned, only medical drug treatments. (1) Then I opened the latest issue of Medscape and noticed the primary focus of the report was prematurity. Prematurity, it seems, is on the rise in this country, in spite of our prosperity, supposed medical superiority and the billions of dollars spent by the March of Dimes. What a sad state of affairs.

Why Does Prematurity Persist?

Since I work with pregnant women as a Bradley® childbirth educator, teaching, among other things, pregnancy nutrition, I know prematurity is preventable in most cases. However, the March of Dimes only briefly mentions nutrition as a preventative factor, and very little research is being done in that area. So where is all that money going?

Western society has long focused pregnancy-related disease research on single-cause and single-cure theories. Everything from genetics to viruses and bacterial infections has been blamed. Bacterial infections, for example, are a common cause of prematurity, but they remain one of many. Although development of effective antibiotics and advanced detection have reduced preterm births in certain populations, these measures have also resulted in antibiotic-resistant bacteria and, thus, more deadly infections. Rarely do we see discussions on *preventing* bacterial infections. Some very interesting new research has studied prevention and treatment of bacterial infections with probiotics (digestive enzymes and amino acids found in healthy fermented foods such as yogurt), but the topic is not commonly discussed outside the natural health industry. (2)

It's time to broaden our focus and consider how we can prevent prematurity in the first place. Premature labor and birth have a number of identifiable causes. They include (but are not limited to) preeclampsia, infections, placenta previa, premature rupture of membranes, assisted fertility treatments, intrauterine growth restriction (IUGR),

placental abruption, short cervix, scheduled cesarean, induced labor, being a DES daughter (diethylstilbestrol, a synthetic estrogen given to pregnant women, mostly during the 50s), genetic factors, social factors (poverty, abuse, fad diets, etc.), diabetes, smoking and carrying a male child or twins. A number of the causes listed above can be prevented, including preeclampsia, placental abruption, premature rupture of membranes and medically unnecessary cesareans or inductions. Social issues need to be addressed on a larger scale both at home and in the media.

Profitable Prevention

In Issue 67 of Midwifery Today I wrote about "Preventing Problems with Nutrition" and detailed Dr. Brewer's decades of research on this subject. What I didn't mention was that a side affect of the Brewer diet was not only the eradication of preeclampsia in a high-risk population, but the reduction of prematurity rates in that population to 2%. (3, 4) This number is only impressive when you realize that the present prematurity rate is 12.1% in the general population and higher in high-risk populations. According to the March of Dimes, since 1981 the rate of premature birth has increased by almost 30%.(5)

When Dr. Brewer worked with pregnant women in both the deep, rural South and in inner-city San Francisco, he found both populations had one thing in common: neither ate well. He found them woefully deficient in protein and a variety of whole, healthy foods. He had these women eat two eggs and drink a quart of milk a day, because these were not only good sources of protein and calcium, but cheap, quick and easy. Additionally, it was recommended that women include at least three to five servings of a whole grain/high complex carbohydrate, five servings of fruits and vegetables, and at least two to three servings of some other protein source (meat, fish, other dairy, nuts, beans, seeds, tofu, etc.). Dr. Brewer also recommended that women salt their food to taste and drink plenty of clean, fresh water. Quality and variety was the key, and the results were remarkable.

Adequate nutrition during pregnancy prevents prematurity in many ways: by boosting the immune system to prevent infections that can cause chorioamniotitis and premature rupture of membranes; by supplying adequate hydration to prevent dehydration and oligohydramnios, common causes of premature labor; by supplying the liver with adequate protein for the production of albumin and supporting the expanding blood volume, thus preventing preeclampsia; by supplying the body with enough

nutrients for optimal functioning to prevent IUGR and support a full-term pregnancy.

Undernourished Nation

Fad diets are becoming increasingly problematic. While they have always existed, the newest ones promote low carbohydrate/high protein diets that actually place women at higher risk for pregnancy complications by depleting their nutritional stores. Recent studies have shown that high protein diets without sufficient complex carbohydrates can cause women to lose weight when they should be gaining in order to build a baby. However, these studies are misinterpreted as indicating that too much protein is bad for women.(6) A study by the Colorado Centre for Reproductive Medicine revealed poor implantation of embryos in mice fed supplemental high protein diets, resulting in complications contributing to miscarriage or premature birth.(7)

The major problem with both the human and animal studies was that the researchers used powdered protein supplements, not dietary-food sources, and left out complex carbohydrates, fruits, vegetables, dairy, nuts, beans, seeds, salt, etc. It was not a complete diet. What the studies really told us is that protein supplements don't work. In order to supply the pregnant body with what it needs, dietary protein, along with complex carbohydrates and all the other nutrients need to come from real food. Protein supplements are only advisable for moms who are pregnant with multiples, and then the supplements should be used in addition to the whole-food Brewer diet.(8)

On the other end of the spectrum, Americans as a whole tend to be overweight and eat a great deal of poor quality, non-nutritious foods. I never cease to be amazed at what the average American thinks is a healthy diet. Based mostly on simple carbohydrates, sugar and fats and totally devoid of whole fruits, vegetables, complex carbohydrates and single-source proteins (i.e. beef, rather than bologna, sausage, etc.), it is no wonder many of us are obese. An overweight woman is not necessarily well fed.

Conversely, eating a vegetarian or vegan diet does not guarantee proper nutrition, either. These women need to take extra care to obtain nutrition from a variety of vegetarian sources. Many women simply cut out animal products without adding different sources of calcium and protein. A vegan diet also requires supplementation with vitamin B_{12}, as it is rarely found in vegetarian sources. (For vegetarian or vegan diet details, refer to *The Brewer Pregnancy Hotline*, part 3, chapters 4–6.)

What Does the Research Say?

Interestingly enough, a few recent studies have examined the impact of nutritional quality on pregnancy outcomes, but this research is not advertised. For example, a University of North Carolina study showed that women who failed to eat with recommended frequency and regularity had a higher incidence of premature delivery than those who met certain guidelines. Animal and human research suggests that skipping meals elevates stress hormones that can contribute to premature delivery.(9)

Similarly, a study in India in 2000 found that preterm birth rates among women whose diets were improved by nutritional supplementation were half those of women whose
diets weren't supplemented. (10)

Another recent study published in the *American Journal of Obstetrics and Gynecology* looked at the effect of nutritional counseling for twin pregnancies and found that it improved all pregnancy outcomes significantly, up to the age of three years.(11) This included increased birth weights and gestation periods and a reduced number of births prior to 36 weeks, as well as reduced incidence of premature rupture of membranes and preeclampsia.

Other research has detailed the role of vitamin C in preventing infections, miscarriage and preterm birth. It was found that woman deficient in vitamin C had higher rates of premature rupture of membranes and that this could be counteracted by vitamin C supplementation.(12) I would suggest that eating adequate amounts of fruits and vegetables high in vitamin C might have the same effect.

Recently, a study published in *Obstetrics and Gynecology,* found that women who ate eggs enriched with docosahexaenoic acid (DHA) had longer gestation periods.

Extensive research has been done in Europe on ingesting fish and increasing omega 3 fatty acids.(13) Research from Sweden found that woman who had low consumption of seafood tended to have higher rates of premature labor and women who ate higher amounts had longer gestation periods and bigger babies.

Sadly, most of the research focuses on a single element of diet. This evidence is useful to the extent that it is incorporated into a broader nutritional plan. So, while fish are an excellent source of protein and omega fatty acids, they are just one of many good food sources that would assist in preventing preterm labor and preeclampsia. They should not

be relied upon as the sole source of protein, calories or omega fatty acids.

In our current medical, magic substance/pill, mindset, we must help interpret these studies to the public so women don't mistakenly create an apparent malnutrition by focusing solely on one food source.

Why the March of Dimes is not shouting all this information from the rooftops, I don't know. But I can guess: Feeding pregnant women does not make money or feed the pharmaceutical machine. Through correspondence with Michael Finnerty, Director of National Education Initiatives for the March of Dimes, I was told that they are doing some research on pregnancy nutrition and that they do recognize the connection between good nutrition and healthy pregnancy. However, nutrition is not even mentioned on the March of Dimes Web site as a means to prevent prematurity.(14)

What Can *We* Do?

As care providers and teachers, we should check what a pregnant woman is eating from the very first meeting. Assess the strengths and weakness of each woman's diet individually. You cannot assume pregnant women are eating well, no matter how educated they are or conscientious they seem to be. Although I spend one entire class and parts of almost all others teaching about pregnancy nutrition, I still find women who are reluctant to make changes or are missing crucial elements, regardless of supreme efforts to eat well.

Having women choose a variety of food sources for the nutrients listed below will help to ensure proper nutrition:

Protein: chicken, fish, shellfish, beef, pork, turkey, tofu, nuts, legumes, beans, seeds, milk, eggs, cottage cheese, hard cheeses, whole grains, wheat gluten, soy cheese, fortified soymilk and tahini.

Calcium: milk, yogurt, hard cheese, cottage cheese, eggs.

Non-dairy sources of calcium and protein: (see sidebar)

Whole grains/complex carbohydrates/minerals/fiber: brown rice, kasha (buckwheat groats), whole oats, whole wheat bread, whole grain cereals, quinoa, wild rice, wheat gluten, wheat germ, whole-wheat pastas, baked sweet and white potatoes, green peas, beans, lentils and corn or whole-wheat tortillas.

B vitamins (great variety needed!): liver, whole grains, dark green leafy vegetables, beef, wheat germ and bran, blackstrap molasses, nuts, cauliflower, mushrooms, eggs,

unpolished rice, lentils, yogurt, milk, organ meats, brewer's yeast, poultry, fish, peanuts and soybeans.

Fruits/vitamin C: strawberries, kiwi fruit, apples, oranges, bananas, mangos, cherries, cantaloupe, pears, grapefruit, plums, nectarines, peaches, blueberries, raspberries and blackberries.

Green vegetables/vitamin C/minerals: spinach, broccoli, zucchini, dark green lettuces, kale, Swiss chard, green beans, asparagus, arugula, bell peppers and lambs lettuce.

Yellow or orange vegetables/vitamin A: sweet potatoes, carrots, squash, yellow or orange peppers and corn.

Iron: red meat, organ meat, eggs, fish, poultry, blackstrap molasses, cherry juice, green leafy vegetables, dried fruits (raisins, apricots, etc.), black olives, avocadoes, broccoli, clams, kidney beans, pinto beans, navy beans, lentils, lima beans, oysters, pork loin, sardines, shrimp, split green peas, tuna and anything red, dark green or black in color.

Zinc: pumpkin seeds, squash seeds, sunflower seeds, seafood, organ meat, mushrooms, brewer's yeast, soybeans, eggs, wheat germ and turkey.

Folic acid: spinach, asparagus, turnip greens, Brussels sprouts, lima beans, soybeans, organ meats, brewer's yeast, root vegetables, whole grains, wheat germ, bulgur wheat, kidney beans, white beans, salmon, orange juice, avocadoes and milk.

Magnesium: avocadoes, wheat germ, almonds, pumpkin seeds, cashews, spinach, bran, soybeans, peanuts, lentils and hummus.

Salt: sea salt, olives, cheese, salted nuts, fish and shellfish.

Case Studies

Salt deficiency: One woman was experiencing high blood pressure and edema, and upon questioning it was discovered that her family had avoided salt when she was growing up. As a result, she had very little taste for it, in spite of her need for additional amounts during pregnancy. This underscores the fact that we cannot necessarily rely on women's cravings to tell us what they need. Adding salt resolved the problem. I frequently suggest salted nuts as a healthy snack for my students (as long as they are not allergic), as nuts supply protein, salt, calcium, good fats and fiber.

High activity: Another woman also experienced problems assumed to be the beginnings of preeclampsia. When her case was analyzed, it was discovered that, while she ate what appeared to be a superior diet, she was lacking in whole grains (complex carbohydrates) and green leafy vegetables and was walking four miles a day. She was burning her extra protein for energy, and there was not enough available to supply her liver for the production of albumin. By adding more complex carbohydrates and green veggies and cutting her walking to one mile a day, she resolved the high blood pressure issues. Interestingly, when she asked her care provider if improving her nutrition would make a difference, the care provider said no. The woman was told she might have to be induced early, creating the potential for a premature baby. However, she decided to make these minor changes in diet and lifestyle and shocked her care provider by ceasing to show evidence of budding preeclampsia. (Her care provider still thinks it was a fluke.)

Very athletic women need additional complex carbohydrates and protein. For more information on problems for healthy, active woman during pregnancy (i.e. runners), refer to Anne Frye's *Holistic Midwifery* or her *Midwifery Today* article on "Turning Toxemia Around."(15)

Morning sickness & Vegetarian diet: This woman was a strict vegetarian and experienced extreme morning sickness in the first trimester. We worked very hard to improve her diet and help her gain weight. When she entered labor at full term she showed evidence of preeclampisa and had to be induced for medical reasons. After her small but healthy baby girl was born, the midwife discovered that one lobe of the placenta was atrophied and the other was overdeveloped. The midwife said, "It was a good thing you got her on that Brewer diet, because otherwise I don't think she would have made it to term." She predicted that the baby would either have been stillborn or premature.

High-protein diet: A fourth woman consumed plenty of protein (beef) and milk but continued to lose weight and experience illness and fatigue throughout her pregnancy. She resisted my urgings to vary her diet. Her baby was born early and with low birth weight. Sadly, she also experienced problems breastfeeding and weaned very early. Remember, good nutrition is more than protein!

Non-food nutrition sources: This vegetarian athlete refused to increase her food intake, relying on nutrition bars and protein shakes. No matter what I said about eating a

variety of real foods and sufficient complex carbohydrates, fruits and vegetables, in addition to adequate dietary protein, she refused to alter her eating habits. She also received conflicting advice from her medical care providers as to diet and weight gain. As a result, she developed one of the few cases of true preeclampsia I have seen in nine years of teaching and had to be induced early.

Sadly, I see far too many women with histories of eating disorders, and they can be some of the most challenging women to work with. Most of us have some issue with food and can benefit from practical counseling and support regarding nutrition during pregnancy. While more research needs to be done, we can, in the meantime, eat a varied, whole-food diet of superior quality during pregnancy. For more specific details as to what that entails, refer to Dr. Brewer's books listed as references below or to my article on "Nutrition During Pregnancy" from Midwifery Today's *Having a Baby Today* (http://www.midwiferytoday.com/articles/nutritionpreg.asp).(16)

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(Sidebar)

Non-dairy Sources of Calcium and Protein

Daily requirements for pregnant women: 75–100 grams protein from varied sources, 1200 mg calcium

Vegetarian sources of calcium AND protein:

1/2 c almonds	316 mg calcium/18.4 g protein
1/2 c soybeans (roasted)	232 mg calcium/34 g protein
1/2 c Brazil nuts	200 mg calcium/16.4 g protein
1/2 c sunflower seeds	132 mg calcium/26 g protein
1/2 c pistachios	152 mg calcium/23.2 g protein

1 c black beans	47 mg calcium/15.2 g protein
1 c great northern beans	121 mg calcium/14.8 g protein
1 c navy beans (cooked)	123 mg calcium/19.7 g protein
1 c kidney beans (cooked)	50 mg calcium/15.4 g protein
1/2 c peanuts	112 mg calcium/31.2 g protein
1 c pinto beans (cooked)	82 mg calcium/11 g protein
1 c chickpeas(cooked)	80 mg calcium/14.5 g protein
1 c refried beans	118 mg calcium/15.8 g protein
1/2 c cashews	52 mg calcium/17.8 g protein

Non-dairy sources of calcium

1 c turnip greens	105 mg
1 c kale	94 mg
1c broccoli	178 mg
1 c bok choy	74 mg
1/2 c kelp	168 mg
1 c mustard greens	104 mg
1 c collard greens	148 mg
1 T blackstrap molasses	137 mg
5 dried figs	110 mg
1 corn tortilla	60 mg
6 oz fortified orange juice	120 mg
1 c okra	100 mg
1 c acorn squash	64 mg