The specifics of the diet (available at tinyurl.com/brewer diet) were compiled by Dr. Tom Brewer, an obstetrician, after years of studying research on the effects of nutrition in pregnancy. He lived to see his philosophy used to prevent or treat various complications of pregnancy, including pregnancy-induced hypertension, pathological edema, eclampsia (toxemia), pre-eclampsia, HELLP syndrome, premature labor, anemias, placental abruption, intrauterine growth restriction (IUGR) and low birth weight. All of these problems have a common source—food deficiency and low blood volume.
The Importance of Blood Volume

One of the main functions of the pregnant body is to preserve the pregnancy and nourish the baby. The body’s ability to do this well depends a great deal on its ability to increase the mother’s blood volume. Normally, this blood volume is expected to increase by 50 to 60 percent by the end of the second trimester. From there, the body needs to maintain this expanded blood volume throughout the third trimester. For a woman with a pre-pregnant weight of 130 pounds, this would be an increase of about 2.1 quarts of blood (from about 3.5 quarts at the beginning of the pregnancy to about 5.6 quarts at the end of the second trimester).

The pregnant woman’s liver makes albumin to facilitate this expansion of blood volume. When albumin is in the mother’s bloodstream, it creates strong colloid osmotic pressure, which pulls extra fluid out of her tissues and into the blood circulating in her blood vessels. The only way that the liver can make this albumin is from protein eaten by the mother.

However, if the mother is trying to restrict her weight gain to someone’s “ideal” number—either by eating less food, or by going on a high-protein, low-calorie diet, much of the protein that she eats will get burned up for energy. Brewer found that when a woman eats one-third fewer calories than the 2,600 he suggested (about 1,700 calories), half of the protein that she eats gets used for energy. In that case, only 60 of her 120 grams of protein is available to make albumin (and baby cells, and uterine muscle cells), and she will probably have trouble expanding her blood volume adequately.

Salt also creates osmotic pressure in the bloodstream, which helps to pull extra fluid out of the tissues and into circulation. While salt restriction may be helpful for pregnant women who have unhealthy hearts or kidneys, it is dangerous in healthy women. A healthy woman’s taste buds are usually the most accurate indicator of the amount of salt she needs, and studies have shown that it is not possible for a healthy pregnant woman to eat too much salt. Her kidneys will simply excrete whatever extra salt that she eats. In fact, it has also been shown that after just two weeks of using salt in moderation, the expectant mother’s blood volume will begin to drop.

When a mother’s blood volume starts dropping, or simply stops increasing too early in the pregnancy, the body has no way of knowing that she is just eating less food than she needs. All the body knows is that the blood volume is less than it’s supposed to be. So it starts the same processes that it uses when the blood volume is dropping due to hemorrhage. The kidneys produce an enzyme called renin, which causes the arteries to constrict. During hemorrhage, this
response is a stop-gap measure, decreasing the amount of blood in the limbs and sending more to the internal organs to keep the body functioning until help arrives. During pregnancy, however, when no hemorrhage is occurring, this arterial constriction causes a rise in blood pressure. Attempting to treat this rising blood pressure with a salt or weight restriction only causes the blood volume to drop even more, leading to further production of renin and more arterial constriction. And the blood pressure continues to rise.

Meanwhile, the kidneys are desperately trying to increase blood volume by reabsorbing as much water and salt as they can from fluid that they filter out of the blood. They return this reabsorbed fluid and salt to the bloodstream. However, since there isn’t enough albumin and salt in the mother’s blood to create enough osmotic pressure to hold this reabsorbed water in the circulation, much of it leaks out into the tissues. The kidneys keep reabsorbing water at one end of the process, and the water keeps leaking out of the capillaries at the other end. The mother sees rapid swelling in her ankles, fingers and face, and experiences rapid weight gain from the extra water in her tissues.

At this point, the mother is developing pre-eclampsia. If her nutrition is not improved quickly, or if diuretics are prescribed (in medications, herbal teas or supplements), her blood volume will continue to drop, and she will develop eclampsia (toxemia). Toxemia can culminate in convulsions, coma, HELLP and death. Many sources maintain that there is no known cause of toxemia, and therefore many practitioners continue to try to manage the situation by treating the symptoms alone, but they do so without success. The symptoms not only persist, but the mother will also continue to experience one complication after another.

Some pregnancy teas, supplements and juices contain nettle, dandelion, alfalfa, bilberry or celery—all of which have diuretic properties and should be diligently avoided in pregnancy. It is vitally important for pregnant women and those who care for them to understand that there is a huge difference between the edema and hypertension of non-pregnant people with heart or kidney disease and the edema and hypertension of normal, otherwise-healthy pregnant women. The edema and hypertension of the diseased body is caused by an abnormally expanded blood volume, and must be treated with therapies which help the body deal with that expanded blood volume—therapies which may include diuretics. The normal pregnant body that is developing pathological edema or hypertension is suffering from an abnormally contracted blood volume—and the only way to turn that condition around is to assist the body in its efforts to expand the blood volume again. Diuretics counteract the pregnant body’s efforts to increase the blood volume and can lead to the mother’s developing hypovolemic shock. Helping the pregnant mother to eat more calories, more salt and more protein is the therapy which will help her body expand its blood volume to the level needed to sustain a healthy pregnancy.
Treating Pre-eclampsia

One way to treat pre-eclampsia is to educate the mother about its relationship to nutrition and blood volume. Once she understands the physiology, we can strongly encourage her to eat according to the Brewer Diet plan. As part of that plan we can suggest that she eat something every hour that has protein in it, and that she work at increasing her salt and calorie intake. We can also sit with her and obtain a lifestyle history, and work with her to match her nutrition to her activity level and environment. This will help her balance her calorie/salt/protein intake and her calorie/salt/protein expenditures. The goal is to customfit the Brewer Diet to each individual mother. Start with the Brewer Diet's Basic Plan as the minimum amount of food to build on, and add calories, salt and protein according to her unique needs and lifestyle.

When the problem demands a more immediate response, a doctor can give the mother albumin intravenously, and sometimes put her on antibiotics (to lessen the load on the liver by aromatic toxins from the intestines). Dr. Brewer would often tell of one woman who, unable to find a doctor who would give her IV albumin, brought her blood pressure down by eating 52 eggs and drinking 6 quarts of milk over a period of 3 days.

Anne Frye, a midwife and author in Washington, recommends having the mother eat a high-protein item every waking hour. “Initially recommend an increase to 150 to 200 grams of protein daily (250 to 350 grams or more with multiple gestations), with 3,000 to 4,000 calories and 500 mg of choline daily,” she suggests. “If the woman has a history of liver disorders, recommend less protein (120-150 grams for a single fetus); her liver may be overwhelmed otherwise, and monitor her lab work closely for changes…. Once liver enzymes and blood proteins have normalized, the hemoglobin has dropped appropriately, the fetus is an appropriate size for dates and secondary symptoms have subsided, the woman can cut back to 100 grams of protein daily (150 grams with multiples).”

Other Complications of Malnutrition

All of the complications mentioned thus far are related to blood volume, but also to a lack of adequate nutrition. If the malnutrition is not corrected, some liver tissue can die and hemorrhage, leading to small hemorrhages in the mother’s adrenals, lungs, brain and the lining of her heart. The cells lining the capillaries in the kidneys can be damaged as well, and the falling blood volume can cause kidney dysfunction. Abruption of the placenta can happen when
the blood volume is so low that the maternal pool of blood that is normally behind the placenta begins to clot as the flow through that arteriovenous shunt slows down. Intrauterine growth retardation and low birth weight can result from lack of nutrients in the mother’s blood, and from low pressure of the blood behind the placenta. Babies can suffer neurological impairment due to this lack of nutrients and calories when their brains are at the most critical stage of development.

Ninety percent of premature labor is caused by inadequate nutrition and falling blood volume. The blood volume necessary to prevent premature labor increases with the number of babies the mother is carrying. The exact mechanism is unknown, but there is speculation that it is due to the fact that an undernourished placenta is less capable of producing the muscle relaxant which keeps the uterus quiet during pregnancy, or that an inadequate blood volume somehow triggers an increase in the production of oxytocin by the pituitary. In any case, premature labor due to an abnormally low blood volume can be prevented with a proper diet, and it can be stopped with the use of IV fluids (without medications added) or IV albumin.

In addition, inadequate nutrition in pregnancy can lead to several labor complications.

1) **Inadequate nutrition can mean that a smaller baby can be more difficult to push out than a larger one is.** When the baby is small because of food deficiency, the uterus will also be malnourished, and less capable of functioning at its full potential. A non-pregnant uterus weighs 2 ounces. At the end of pregnancy, the uterus alone weighs about 2 pounds. This means that during the pregnancy the uterus needs to grow 1 pound 14 ounces of new muscle tissue. If the mother is eating less food than she needs, her uterus won’t be as strong as it would have been had she eaten well. Her uterus will also be more prone to dysfunction during the labor process. Eating well will give the mother a larger baby, but will also give her a stronger uterus, more capable of pushing out that baby.

2) **The pelvis is designed to stretch during labor.** A wellnourished placenta will produce good amounts of the hormones needed to loosen pelvic ligaments so that it can stretch to allow the baby through. Therefore, it can be easier to push a larger baby through a more-stretchy pelvis than it would be to push a smaller baby through a pelvis unable to yield.

3) **With a lower-than-normal blood volume, a mother is also more prone to dehydration.** In
the event of extra bleeding, she won’t have the fluid reserves to draw from—fluids she would have been building had she been on a better diet. A mother who enters her labor with a well-expanded blood volume from an excellent diet during her pregnancy, and who continues to eat real, solid food and drink nutritious fluids during her labor, does not need the added insurance of IV fluids during her hours of labor.

4) In fact, postpartum hemorrhage is more likely with a malnourished mother, since the liver damage malnutrition causes can make her clotting mechanisms malfunction. The liver has at least 500 metabolic functions, and pregnancy puts a lot of stress on it. But the liver is designed to deal with the stress of pregnancy, as long as the mother eats well enough to provide all the nutrients it needs.

As previously mentioned, one of the liver’s metabolic functions during pregnancy is to make enough serum albumin to help the mother’s blood volume expand by 50 to 60 percent. Another of the liver’s most important tasks during pregnancy is manufacturing essential clotting factors to prevent abnormal bleeding during pregnancy, labor and postpartum. When the liver becomes damaged in pregnancy from an inadequately expanded blood volume or the use of anti-hypertensive drugs, the manufacture of essential clotting factors can become compromised. This could lead to the development of HELLP syndrome and abnormal bleeding. The judicious use of the Brewer Pregnancy Diet can prevent these complications.

When is the Diet Important?

The Brewer Diet is important in all three trimesters of pregnancy. In the first trimester, the Brewer Diet is important to prevent ketosis, and to help prevent or minimize morning sickness. It also promotes blood volume expansion and tissue building (baby cells and uterine muscle cells). Since the placenta is small in the first trimester, the mother can start with a lesser version of the Brewer Diet and gradually work her way up to the complete Basic Plan by the end of the first trimester, being careful to stay in tune with her overall needs.

In the second trimester, good nutrition is important for optimal placental development. If the mother doesn’t smoke and has been on the Brewer Diet, she won’t have to worry about the placental function decreasing if the baby happens to become overdue.
In the third trimester, the diet is important to maintain fluid reserves for labor, and to ensure that the placenta is well nourished. It is also important to eat well because the baby’s brain goes through its most rapid rate of growth in the last two months of the pregnancy. It’s at this point when the problem with limiting a mother to a certain number of pounds presents itself. Mothers will often reach that number before their due dates, and many will starve themselves for the rest of the pregnancy, to the detriment of the child’s development.

Some birth attendants discourage mothers from using this diet, predicting that the weight gained will be difficult to lose after the baby is born. This concern often shows an unfamiliarity with the weight loss usually associated with breastfeeding. It can also show that they are not properly weighing the risk against the benefit of this nutrition therapy. When this test is applied to the Brewer Diet, the benefits of avoiding severe complications with the pregnancy, labor or baby easily outweigh the risk of possibly being slightly overweight for a year or two after the baby’s birth.

The Brewer philosophy is that the number of pounds gained by a mother during pregnancy is not as relevant as the kind of food she eats to gain those pounds. The average weight gain on the Brewer Diet seems to be about 35-45 pounds. However, if a woman can show that she is eating well, and that she’s not trying to artificially limit herself to a certain number of pounds, a weight loss of 5 pounds might be healthy, and a weight gain of 60-80 pounds (or more, for a multiple pregnancy) could also be healthy. The bottom line is that the first question for a pregnant woman arriving for a prenatal visit should not be, “What have you gained this week?” Rather, the first question for every mother should be, “What have you been eating?”

Taking Care of Your Nutrition

1) **Check your diet.** Copy the weekly record from the Brewer Pregnancy Diet website and post it on your refrigerator (home.mindspring.com/~djsnjones/id89.html). No protein or calorie counters are necessary. All you have to do is put a check mark in each box. When you have filled all the boxes, you will know that you have fulfilled the basic minimum of 2,600 calories, 80 to 120 grams of protein and salt to taste.

2) **Try eating frequent small meals, or hourly snacks** such as nuts, cheese, eggs or yogurt,
along with some kind of fruit or vegetable.

3) When choosing a prenatal class, find out if the Brewer Diet is taught there. The Bradley Method, for example, teaches the Brewer Diet, and the HypnoBirthing (Mongan Method) class teaches something similar.

4) When choosing a birth attendant, find out if he or she supports the use of the Brewer Diet and unrestricted weight gain. For a list of pro-Brewer professionals, check the Brewer Pregnancy Diet Registry (home.mindspring.com/~djsnjones/id97.html), which includes caregivers from 13 countries and 49 American states.

About the Author:

Joy Jones, R.N., is a midwife's assistant and the creator of the Brewer Pregnancy Diet website (home.mindspring.com/~djsnjones/). She has worked as a childbirth educator, doula, breastfeeding consultant, author and conference speaker. She and her husband are parents of two grown sons who continue to make them proud.
The Brewer Pregnancy Diet

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