



A GOOD START

NUTRITION DURING PREGNANCY



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Over the past few years our thinking on diet and pregnancy has changed. We now know that there is a direct correlation between a healthy baby and good nutrition.

Studies have repeatedly shown that a woman's pre-pregnant weight and weight gain during pregnancy are linked to the weight of the baby at birth. Field studies have shown that provisions of calories and proteins eaten during pregnancy do increase infant birth weight, reducing susceptibility to infection during the first year of life.

With more women working full time and today's busy lifestyles, many women are finding it more and more difficult to meet the nutritional needs required during pregnancy. It is, therefore, particularly timely for the National Cattlemen's Beef Association to prepare materials that incorporate new information and provide helpful advice for meeting nutritional requirements.

Take a few minutes to read this brochure and put into practice the habit of eating right. By doing so, you will be protecting your own health and giving your baby the chance for a good start.



THE IMPORTANCE OF NUTRITION DURING PREGNANCY

Because your unborn baby is totally dependent on you for nourishment, your diet is one of the most important elements in establishing the future well-being of you and your child.

During pregnancy, vitamins, minerals and proteins are transferred to the fetus through the mother's blood. These nutrients are obtained from the reserve of nutrients accumulated before pregnancy and from the intake of nutrients during pregnancy. If your diet cannot meet the nutritional needs of the infant, your own stores will be depleted. If you have a history of good eating habits, and therefore a plentiful supply of nutrients, you are at an advantage. It is critical to maintain these good habits to meet the physical and mental stresses of pregnancy and to establish a healthy pattern for life.

PHYSIOLOGICAL CHANGES

During pregnancy, the need for nutrients is determined by several physiological changes. Beginning in the third month, metabolic and blood circulation rates increase allowing nutrients to circulate freely to the baby. While these physiological changes necessitate an increase in the demand for nutrients, other changes are occurring that allow the body to use nutrients more efficiently. Kidneys, intestines and other organs are working harder to absorb nutrients, increasing your ability to nourish your baby.

BALANCED DIET

Eating a well-balanced diet consisting of a variety of carefully selected, nutrient dense foods ensures that you and your baby are getting the nutrients needed.

"Well-balanced" means eating the right proportions of a wide variety of foods with an emphasis on those that are nutrient dense, that is, foods high in nutrients relative to the calories they contain. While a boost in calories is necessary during pregnancy, it is important to ensure that those calories contain enough of the essential nutrients. Some foods, such as lean meats and fresh fruits and vegetables, are nutrient dense in their natural state, but ingredients added during food preparation can add calories which lower a food's nutrient density.

Adding fiber to the diet will help prevent or relieve constipation and hemorrhoids that often occur during pregnancy. A diet with an ample amount of grain products and fresh fruits and vegetables (see chart pages 8-9), will provide the fiber needed. Too much fiber, however, may reduce the body's absorption of minerals, irritate the bowel, and cause diarrhea.

It is important to start monitoring eating habits early, increasing your intake of nutrient dense foods throughout pregnancy. The development of your baby's bones, tissues and organs requires different nutrients at different times. Maintaining a well-balanced diet throughout pregnancy will ensure that those nutrients are readily available when your baby needs them.

FUNCTIONS OF NUTRIENTS

Now that you know the importance of nutrition during pregnancy, you may be interested in the functions of some major nutrients and their contribution to the development of a healthy baby. Key nutrients can be broken down into six categories: carbohydrates, fats, proteins, minerals, vitamins and water.

CARBOHYDRATES

- Provide energy and dietary fiber.
- Assist in developing baby's brain and nervous system.

FATS

- Provide energy, promote healthy skin and carry fat soluble vitamins.
- Help develop brain cells and nervous system of baby.

PROTEINS

- Build cells, muscle tissue, teeth and bones.
- Play a key role in producing hormones for normal growth patterns and health-protecting antibodies.

MINERALS

Iron:

- Combines with protein to form hemoglobin, found in red blood cells, which transports oxygen throughout the body.
- Supports increase in blood volume during pregnancy. Heme iron, the most readily-absorbed iron, is found in beef, pork, lamb, veal, poultry and fish.

Calcium:

- Builds, strengthens and maintains healthy bones and teeth.

Zinc:

- Promotes wound healing and important in protein synthesis.

VITAMINS

Vitamin A:

- Promotes growth and bone development and keeps skin and muscle membranes healthy.

Vitamin B-Complex (Thiamin, Riboflavin and Niacin):

- Releases energy from food.
- Promotes healthy skin, nerves and digestive tract.

Vitamin C:

- Maintains structure of bone, cartilage, teeth, skin and blood vessels and promotes wound healing.
- Increases the absorption of nonheme iron.

Folate:

- Plays role in blood formation and metabolism. Folate deficiency is believed to play a role in the development of neural tube defects, one of the most common types of birth defects in the US. The RDA for folate during pregnancy, 600 micrograms per day, is difficult to meet with diet alone and supplementation is recommended.

WATER

- Acts as a solvent to transport nutrients and hormones to cells and carry waste products from cells.
- Facilitates growth.
- Regulates body temperature.





FOCUS ON IRON AND CALCIUM

Iron is essential for the transfer of oxygen and carbon dioxide to and from all body parts. It helps provide energy and may play a role in cognitive development. Yet, despite its many roles, the Centers for Disease Control reports that iron deficiency is the most common nutrient deficiency in the US.

During pregnancy, the need for iron increases. This increase cannot be met by diet, therefore, obstetrical healthcare providers* usually recommend an iron supplement during pregnancy.

Even if iron supplements are taken during pregnancy, you should continue to receive an adequate amount of iron from the foods you eat. Dietary iron comes in two forms: heme and nonheme iron. Heme iron is absorbed by the body five to ten times better than nonheme iron. Heme iron is only found in animal products. In fact, 30 to 60 percent of the iron in beef, pork, lamb, veal, poultry and fish is heme iron. Grains, fruits, vegetables, dairy products and eggs

contain only nonheme iron. Meat is the best dietary source of heme iron and, when eaten together with fruits, vegetables and grains, can enhance the absorption of iron in those foods two- to fourfold.

Because current food labels do not distinguish between heme iron and nonheme iron, the information they provide can easily be misinterpreted. A food label showing a large quantity of iron does not necessarily mean the food is the best source of iron for the body. The *kind* of iron a food provides is as important as the *amount* of iron it provides.

Calcium is essential for development of strong teeth and bones. Although the ability to absorb calcium increases during pregnancy, an intake of 1,000 milligrams (three to four cups of milk) is recommended. If you are not receiving an adequate supply of calcium, it will be extracted from your bones to meet your baby's needs. New research shows that women who are, or become, deficient in calcium during pregnancy may have skeletal problems later in life.

Milk and dairy products are the best source of calcium in the American diet. Smaller amounts of calcium can be found in other foods, such as sardines, almonds, broccoli and turnip greens. However, vegetable sources of calcium are not as readily absorbed as calcium found in milk. If you can't drink milk, check with your healthcare provider or a registered dietitian. He or she may prescribe a calcium supplement.

*Obstetrical healthcare providers include obstetricians, family physicians, nurse-midwives, nurse practitioners and physician assistants.

CALORIC INCREASE

CALORIES

A calorie is a measurement used to determine the energy value of food. Ideally, in a non-pregnant woman, the number of calories consumed each day should not exceed the energy expended during the same period. This makes it possible to maintain a constant, desirable weight. Non-pregnant women between the ages of 15 and 50 require about 2200 calories per day, although needs will vary with the individual.

Pregnant women usually require 300 calories more per day than their pre-pregnant requirement. This number varies according to height, body size, age and activity level, and is more critical in the second and third trimesters. During pregnancy, a boost in calories and gain in weight is necessary to nourish the growing fetus, sustain the normal increase in body size and provide energy for the extra work of carrying the baby.

Being pregnant does not mean you should stop counting calories. On the contrary, selecting nutritious foods may be even more important now that you are monitoring your diet more carefully. Being pregnant and being overweight are not synonymous. While pregnancy is not a time to diet, it is time to avoid overindulgence in foods with lesser nutritional value.

NORMAL WEIGHT GAIN

Weight gain during pregnancy varies with each individual according to her pre-pregnant weight. For an average healthy woman at term, many sources give a total weight gain of 30 pounds with a range of 25-35 pounds. If you were underweight before pregnancy, you may need to gain more. If you are overweight, pregnancy is not the time to diet. However, you may want to evaluate your diet and make more nutritious food choices during this time.

The chart below gives a breakdown of the average weight gain showing how weight is distributed during pregnancy.

COMPONENTS OF MATERNAL WEIGHT GAIN IN PREGNANCY

COMPONENT	WEIGHT
FETUS	7 (range of 5-10 pounds)
Placenta	1.5
Amniotic Fluid	2
MOTHER	
Uterus	2
Breasts	1
Blood increase	3
Tissue fluids	3
Fat	4.4
TOTAL	23.9 pounds

Credit: Guthrie, H.A. Introductory Nutrition, 6th Edition. St. Louis: C.V. Mosby, 1996.



ACHIEVING THE WELL-BALANCED DIET

To fulfill the nutritional requirements of pregnancy, it is important to select foods from each of these food groups: bread group, vegetable group, fruit group, milk group and meat group. But simply choosing the right foods means you are only halfway there. To totally achieve a well-balanced diet, you must also concentrate on eating the correct proportions of these foods.

The following chart shows the average serving size, recommended daily servings during pregnancy and key nutrients supplied for each of the food groups. Use the chart to plan your daily menu by dividing the recommended servings by the number of meals and snacks. For instance, to meet the requirement of four servings from the milk group, you would need a serving at each meal and one as a snack. You might do this by having a cup of milk at breakfast and dinner, a serving of yogurt at lunch and one and a half slices of cheese during a snack. Once you have established a daily routine, it will be easier to select the right proportions of the right foods throughout your pregnancy.

FOOD GROUPS CHART FOR PREGNANT WOMEN

Have at least the minimum number of servings suggested from each group. Limit total amount of food eaten to maintain your desirable body weight. The amount of food you need depends on your activity level.

FOOD GROUPS CHART FOR PREGNANT WOMEN

	FOOD INCLUDED IN THIS GROUP ARE:	SERVINGS SIZES	DAILY RECOMMENDED SERVINGS	KEY NUTRIENTS SUPPLIED
BREAD GROUP	whole grain, enriched or restored breads hamburger bun or English muffin roll, biscuit or muffin crackers cooked cereal, rice or pasta ready-to-eat cereal	1 slice 1 half 1 small 2 large / 3-4 small ½ cup 1 oz.	6 or more servings daily in the amounts recommended from a variety of foods within this group (Include several servings a day of whole grain products.)	Thiamin Iron Niacin Fiber Folate
VEGETABLE GROUP	dark green leafy vegetables deep yellow vegetables starchy vegetables other vegetables	1 cup ½ cup ½ cup ½ cup	3 to 5 servings daily in the amounts recommended from a variety of foods within this group (Include all types regularly; use dark green leafy vegetables several times a week.)	Vitamin A Vitamin C Fiber
FRUIT GROUP	apple, banana, orange, pear grapefruit melon berries fruit juice canned fruit dried fruit	1 piece of fruit 1 half 1 wedge ½ cup ½ cup ½ cup ¼ cup	2 to 4 servings daily in the amounts recommended from a variety of foods within this group	Vitamin C Vitamin A Fiber
MILK GROUP	milk and yogurt cheese (1 oz. equals 1 slice or a 1" cube) processed cheese	1 cup 1½ oz. 2 oz.	4 servings daily in the amounts recommended from a variety of foods within this group (Include lowfat products.)	Calcium Riboflavin Protein
MEAT GROUP	lean beef, pork, lamb, veal, poultry, fish liver and other organ meats eggs peanut butter dry beans and peas	3 oz. 1 egg = 1 oz. meat 2 Tbs. = 1 oz. meat ½ cup = 1 oz. meat	2 to 3 servings daily (total 5-7 ounces of lean meat, fish, poultry or meat alternates) in the amounts recommended from a variety of foods within this group	Protein Zinc Niacin Iron Thiamin
OTHER FOODS	butter, margarine, oils, mayonnaise, salad dressings, jams, jellies, soft drinks, desserts, candy, snack foods and alcohol	EAT ONLY IN MODERATION	NO AMOUNT RECOMMENDED	This group is a significant source of sugar, alcohol and fat.

This chart adapted from information from U.S.D.A. Home and Garden Bulletin Number 232-1.

CONTRIBUTION OF MEAT TO THE DIET

It is well known that beef, poultry and fish provide sufficient *protein* to meet the needs of most Americans. Meats are also a good source of iron, zinc, and the B vitamins (niacin, thiamin and B₁₂), and can enhance the absorption of iron in other foods.

During pregnancy, 5-7 ounces of meat, poultry, fish or meat alternates are recommended per day. When selecting the correct amount of meat for your diet, remember that serving sizes relate to the weight of the meat after cooking and without bone or fat. When purchasing meat, allow at

least 4 ounces of boneless raw meat per 3-ounce cooked serving.

To reduce fat, trim meat and remove skin from poultry. Broil or bake meats rather than frying and avoid adding rich sauces or gravies.

MINERAL AND VITAMIN SUPPLEMENTS

In an effort to stay healthy, many Americans have gone overboard in their consumption of vitamins. It is important to remember that vitamin and mineral supplements can't take the place of a nutritious diet. While special cases do occur, the average American diet can supply more than enough of the vitamins and minerals essential to good health.

It is particularly important that pregnant women get enough iron in their diets. While iron is essential to support the increase in blood volume during pregnancy, it is also important in the production of milk for breastfeeding mothers. Even if you consume a diet rich in iron, your obstetrical healthcare provider more than likely will prescribe an iron supplement.

Pregnant women can usually receive their additional vitamin needs from an increased caloric intake. If you have been taking birth control pills for an extended period of time or are a vegetarian, you may need additional nutrient support. Your healthcare provider can tell you what supplements, if any, you will need.



NUTRITIOUS SNACKS

Small snacks in between meals can satisfy hunger pangs and, if chosen carefully, can add nutrients to your diet. Keep small supplies of raw vegetables, cheese, lean lunch meats or fruit juices in the refrigerator. These snacks are convenient to carry to the office or take on long car rides.

SNACK SUGGESTIONS:

- cubes of ham and pineapple
- thin slices of broiled, lean meat
- apple, peach or pear slices
- raw vegetables with a yogurt or cottage cheese dip
- banana
- hard boiled eggs
- dried fruit mixed with nuts
- granola bars
- low fat yogurt or cottage cheese
- sliced cheese with crackers
- celery stuffed with peanut butter
- applesauce
- squares of lunchmeat
- cheese cubes on toothpicks
- graham crackers and peanut butter
- tortilla wrap filled with layers of either sliced beef, ham or cheese and fresh vegetables.

SELECTED NUTRIENTS IN VARIOUS MEAT CUTS

MEAT CUT (3 oz. cooked, trimmed serving)	Calories	Total Fat (g)	Saturated Fatty Acids (g)	Monoun- saturated Fatty Acids (g)	Polyun- saturated Fatty Acids (g)	Choles- terol (mg)	Sodium (mg)	% RECOMMENDED DAILY INTAKE*					
								Protein	Iron	Zinc	Thiamin	Niacin	B ₁₂
Beef Top Round, Braised	174	4.8	1.6	1.9	0.2	77	38	51	11	35	4	18	88
Beef Top Sirloin, Broiled	166	6.1	2.4	2.6	0.2	76	56	43	11	50	8	20	93
Beef Chuck Arm Pot Roast, Braised	184	7.1	2.6	3.0	0.3	86	56	47	12	67	5	18	111
Pork Tenderloin, Roasted	139	4.1	1.4	1.6	0.3	67	48	40	5	20	57	22	18
Pork Boneless Top Loin Chop, Braised	172	7.3	2.7	3.4	0.5	62	36	41	3	17	35	22	15
Leg of Lamb (Shank & Sirloin), Roasted	162	6.6	2.3	2.9	0.4	76	58	40	7	38	7	30	86
Veal Arm Steak, Braised	171	4.5	1.3	1.6	0.4	132	77	51	4	48	4	51	60
Chicken Breast with Skin, Roasted	167	6.6	1.9	2.6	1.4	71	60	42	3	8	4	60	11
Skinless Chicken Breast, Roasted	140	3.0	0.9	1.1	0.7	72	63	44	3	8	4	65	11
Skinless Chicken Leg, Roasted	162	7.2	2.0	2.6	1.7	80	77	38	4	22	5	30	11

Source: USDA/NDL Nutrient Database for Std. Release 13. Beef, pork, lamb and veal based on separable lean only. Beef cuts and pork tenderloin trimmed to 1/4" fat, all grades, cooked.

*Based on recommendations from the Food and Nutrition Board for pregnant women. Dietary Reference Intakes for Thiamin, Niacin and Vitamin B₁₂ (1998); Dietary Reference Intakes for Iron and Zinc (2001); Recommended Dietary Allowance for Protein (1989).

SPECIAL CONSIDERATIONS

EFFECTS OF DRUGS, ALCOHOL, TOBACCO AND CAFFEINE

Medical professionals agree that the use of drugs, alcohol, tobacco and caffeine during pregnancy may have a harmful effect on the unborn child. For this reason, most healthcare providers suggest that pregnant women avoid these substances completely. It is best to discuss these matters with your healthcare provider prior to pregnancy.

Drugs

The use of addictive drugs is dangerous under any circumstances and can be particularly harmful for an unborn baby. Babies of drug dependent women are often born with birth defects and physiological addictions. Over-the-counter drugs can pose a risk to the unborn child as well.

During pregnancy, you should be especially cautious of any chemical that goes into your body, including something as common as aspirin. While some medication can be helpful to the mother, others can pass through the placenta and affect the baby. Check with your obstetrical healthcare provider before taking any medication.

Alcohol

The body absorbs alcohol rapidly. Drinking in excess can overload the liver and pass through the bloodstream to the placenta. Babies of alcoholic women have been known to be born with Fetal Alcohol Syndrome resulting in low birth weight, physical deformities or retarded mental and motor development. Excessive alcohol consumption also prevents the intake of nutrient-dense foods.

If you drink, discuss alcohol consumption with your healthcare provider. He or she may advise you to abstain from alcohol during pregnancy.

Tobacco

The growing concern over the health hazards of smoking has produced a significant amount of research on the subject of smoking during pregnancy. Tobacco contains thousands of chemicals that cause physical reactions similar to that of a drug. When absorbed into the bloodstream, chemicals such as nicotine and carbon monoxide can reach the placenta, reducing the flow of blood and oxygen to the unborn baby. Studies have linked the effects of smoking to low birth weight, premature deliveries, stillborn babies and miscarriages.

Caffeine

Caffeine is a stimulant found in coffee, tea, chocolate and soft drinks. It passes quickly through the blood stream and builds up in concentrated amounts in the placenta. Recent research suggests intake of very high levels of caffeine during pregnancy may be linked to spontaneous abortion and growth retardation. Overall, the research indicates consuming greater than 300 mg of caffeine per day during pregnancy may be harmful. The best advice right now is to eliminate caffeine from the diet during pregnancy or reduce intake to one or two caffeinated beverages each day. A better choice would be to drink milk, fruit juices or water.

TIPS FOR THE WORKPLACE

If you work during pregnancy, a few helpful hints will make your pregnancy and your job go more smoothly.

When lunching out, study the menu carefully to include foods that make a positive contribution to your daily nutrient intake. You may want to pack a brown bag lunch more often to have complete control over what you eat and how it is prepared.

Rather than coffee, drink milk or fruit juice. Keep snacks such as dried fruits or crackers tucked away in your desk. If your office has the facilities, other snacks listed on page 11 are easily kept in the refrigerator.

If your work confines you to an office, take several short breaks to move around. Even a 10-minute walk during lunch will give you added energy and help prevent varicose veins.

Sitting for long periods of time may be uncomfortable, especially in the last trimester. When sitting at your desk, prop your feet up on a box or overturned wastebasket underneath the desk. This will help alleviate back tension and keep your feet from swelling.

THE VEGETARIAN DIET

If you do not eat animal products, you will need to carefully combine grains and legumes to make sure you are getting the nutrients needed. Protein, calcium, zinc, iron, vitamin B₁₂, riboflavin and thiamin can be found in grains, nuts, eggs, vegetables and dairy products. Be sure to eat the required amount of calories and check with your healthcare provider for supplemental needs. He or she may recommend a vitamin B₁₂ supplement.



FEELING GOOD

Every woman's body reacts differently to the physical demands of pregnancy. Some women feel tired and sluggish throughout pregnancy while others feel rejuvenated and energetic. Likewise, excessively dry or oily skin troubles some women while others report an improvement in their complexion. In anticipation of some of these physical changes, be prepared to make adjustments in your daily routine.

REST

The physical demands of pregnancy cause many women to feel fatigued or groggy, particularly in the first and third trimesters. It is important to get at least eight or nine hours of sleep each night to refuel your body for the next day. It may also help to catch a short nap during the day or just put your feet up and relax for 10 or 15 minutes. Some good advice is to rest before you get tired rather than wait until you find yourself exhausted. Also, control your activities and don't try to do too much in one day.



EXERCISE

Exercise during pregnancy can improve circulation and muscle tone, ease back and leg pains, prevent varicose veins and make you feel healthier and more energetic.

Many women find they can continue their pre-pregnancy exercise program with only minor alterations. Moderately strenuous sports such as golfing or swimming can be ideal for relieving stress.

If you have never maintained an exercise program, try taking long walks or engaging in recreational activities. If you find it difficult to exercise on your own, many programs are available that have been designed especially for pregnant women. Check with your health club or prenatal clinic and, as always, check with your healthcare provider before beginning any exercise program.



APPEARANCE

If pregnancy makes you feel somewhat unattractive, take a few extra minutes each day to pamper yourself.

If your complexion changes either to the dry or oily side, try changing your makeup. A bit more makeup will help disguise fatigue and cover blemishes. Now might also be a good time to experiment with a new hair style to complement your changing body lines. Even the smallest difference will make you look and feel more attractive. Check with your hair stylist if your hair becomes too oily or dry. He or she will be able to recommend a special shampoo or conditioner.

DENTAL HEALTH

Some women are more susceptible to dental disorders during pregnancy. This is particularly true if you snack on starches and sugar rich foods between meals. Frequent snacking increases acid production in the mouth, which is damaging to the enamel of your teeth. Try to limit sugary foods to mealtime. Brush regularly with a fluoride-containing toothpaste, and floss thoroughly every day.

If you are planning to undergo any major dental work, it is best to do so before becoming pregnant, however, most routine dental care can be safely done during the second and third trimesters.

FEEDING YOUR BABY

The right way to feed your baby is the way that makes both of you feel most comfortable. A variety of information available from books, prenatal classes and your baby's prospective physician can help you make your decision.

NUTRITIONAL NEEDS DURING BREASTFEEDING

If you choose to breastfeed, you may be surprised to learn that your nutritional needs are greater than those during pregnancy. To produce an adequate supply of milk, women who breastfeed need an additional caloric intake of approximately 500 calories per day above normal.

Breast milk contains proteins, fat, vitamins and minerals as well as substances that help fight infections. The nutrients in breast milk are provided by an increase in caloric intake and energy stored in the mother's body during pregnancy.

Breastfeeding is especially beneficial in the first few days after birth. The breast secretion during this time, called colostrum, contains bacteria fighting chemicals that help combat disease and build the infant's immune system.

DIET

In the first few months after birth an infant will double its birth weight, placing high demands on the breastfeeding mother. These demands can be met by eating more of the nutrient dense foods you ate during pregnancy such as lean meats, low fat dairy products, fruits, vegetables and grain products. You should also drink at least one to two more glasses of milk and an extra glass of other fluids each day. Continue to abstain from alcohol and tobacco use and avoid or limit caffeine consumption while you are breastfeeding. These chemicals are easily passed on to your baby via breast milk.

Put off dieting until you have stopped breastfeeding. Your uterus will contract more quickly during breastfeeding helping you return to your normal weight.



APPENDIX

RECOMMENDED DIETARY ALLOWANCES OR ADEQUATE INTAKES OF SELECTED NUTRIENTS TO MEET NEEDS OF PREGNANCY AND LACTATION

	FEMALE (19-50)	PREGNANT WOMEN	LACTATING MOTHER	% INCREASE IN NEED	
				PREGNANCY	LACTATION
Calories	2200	2500	2700	14	23
Protein (g)	46-50**	60	65	20-30	30-41
Vitamin A (RE)	700	770	1300	10	86
Vitamin D (ug)	5	5	5	0	0
Vitamin C (mg)	75	85	120	13	60
Thiamin (mg)	1.1	1.4	1.4	27	27
Riboflavin (mg)	1.1	1.4	1.6	27	45
Niacin (mg)	14	18	17	29	21
Folate (ug)	400	600	500	50	25
Vitamin B ₁₂ (ug)	2.4	2.6	2.8	8	17
Calcium (mg)	1000	1000	1000	0	0
Iron* (mg)	18	27	9	50	(50)
Zinc (mg)	8	11	12	38	50

*Supplemental iron is usually recommended during pregnancy.

Source: National Research Council, *Recommended Dietary Allowances*, 10th ed., 1989.

**Protein RDA for females 19-24 is 46g and for females 25-50, 50g.

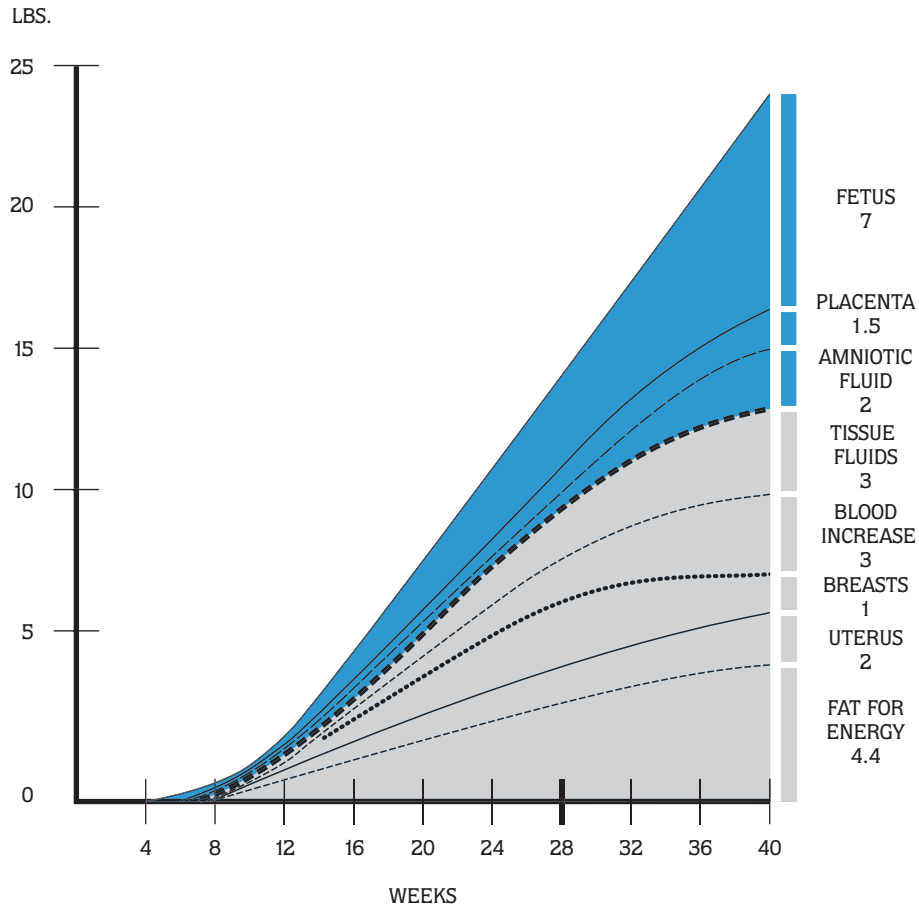
Source: Food and Nutrition Board, Institute of Medicine, The National Academies.

DEVELOPMENTAL CHANGES DURING PREGNANCY

Week 4	Brain development begins
Week 5	Heart and liver function
Week 8	Skeleton development begins
Month 3	Kidneys function
Month 4	Lungs form
Month 5	Fetus kicks and turns
Month 6	Fetus swallows
Month 7	Fetus breathes
Month 8	Fat accumulates
Month 9	Lungs function

Credit: Guthrie, H.A. *Introductory Nutrition*. 6th Edition. St. Louis: C.V. Mosby, 1986.

COMPONENTS OF MATERNAL WEIGHT GAIN IN PREGNANCY



Credit: Guthrie, H.A. Introductory Nutrition. 6th Edition. St. Louis: C.V. Mosby, 1986.

A GOOD START

The recommendations in this booklet are designed to help give you and your baby a good start. Your doctor or nutritionist may have other recommendations. On your next visit, take a few minutes to discuss this information with your physician.

Remember that good nutrition doesn't stop and start when you are pregnant. Sensible eating habits should be adopted throughout life. For information on child nutrition, download a copy of **A Food Guide For The First Five Years** from beefnutrition.org.

