

**Level II: WIC Certification Program**

# **PRENATAL NUTRITION**

## **MODULE**



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**Nutrition Services/WIC Program**  
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## OBJECTIVES OF THE PRENATAL NUTRITION MODULE

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### Knowledge and Practice Objectives

At the completion of this module the student will be able to:

1. State two reasons why adequate nutrition during pregnancy is important.
2. State the major criteria used in assessing the nutritional status of prenatal participants.
3. List at least three nutrition risk factors for pregnant women and state why these factors affect nutritional needs and status.
4. Recognize all nutrition risk factors for pregnant women.
5. Demonstrate correct use of the BMI chart for women to assess pregravid weight.
6. State the recommended range of weight gain and the recommended pattern of weight gain during pregnancy for underweight, normal weight, overweight, and obese women.
7. Demonstrate the correct use of the Prenatal Weight Gain Grid to assess weight gain during pregnancy.
8. State current recommendations regarding vitamin/mineral supplementation, salt restriction, and use of diuretics during pregnancy.
9. Use the “Food Guide Pyramid” when making dietary recommendations to prenatal participants to enhance their nutrient intake.
10. State counseling recommendations for the common problems of pregnancy: nausea, heart-burn, and constipation.
11. State counseling recommendations for excessive weight gain and weight loss in pregnancy.
12. State recommendations regarding the use of caffeine, alcohol, drugs, and cigarettes during pregnancy.
13. State the dietary recommendations indicated for iron deficiency anemia.
14. State one reason why adequate nutrition during the postpartum period for non-breastfeeding women is important.

## Introduction

**Pregnancy:** The state in which the mother is carrying the embryo/fetus, from conception to birth.

**Prenatal:** During pregnancy.



**Breastfeeding** is well recognized as the best feeding method! Breast milk is nutritionally complete, promoting optimal growth and development, and protecting against many infant and childhood illnesses. Moms also benefit—breastfeeding lowers a woman's risk for certain cancers and bone fractures later in life and helps her return to her prepregnancy weight.

The prenatal period is the best time to help a woman learn about the many benefits of breastfeeding, as well as “how to” breastfeed. Because breastfeeding is so important to a mother's and infant's health, WIC regulations require staff to provide breastfeeding education at each prenatal visit and in the early postpartum period. Colorado WIC has developed a training module and an education tool, the “Breastfeeding Education Guide,” to assist staff in providing education. Use of the Guide is discussed in detail in the *Breastfeeding Module and Resource Manual*.

From the day she hears, “You're pregnant,” until the day the baby is born, the pregnant woman is on an adventure that will determine how healthy her baby will be at birth and will impact the baby's life forever. The smell of food may make her sick, yet she needs to eat well to have a good pregnancy outcome. She may need to think twice about the glasses of wine or beer that she has enjoyed on a weekly basis. She needs to decide how she will feed her new baby. Finding a doctor and arranging for medical care may be a big problem that must be handled.

Even with all of the changes and decisions to be made, pregnancy is an exciting time in the life of a woman. Many times, she is the center of attention because of the pregnancy and may receive special attention from her partner, friends and the soon-to-be grandparents. She can dream of what the future will bring her child. There are so many things to look forward to!

Because of the excitement and the desire to do “the best for the baby,” the nine months of pregnancy is also a time when a woman is very interested in learning. She will want information about what and how much foods to eat, how much to exercise, how to live with nausea and vomiting and how to handle heartburn, and how to feed her baby.

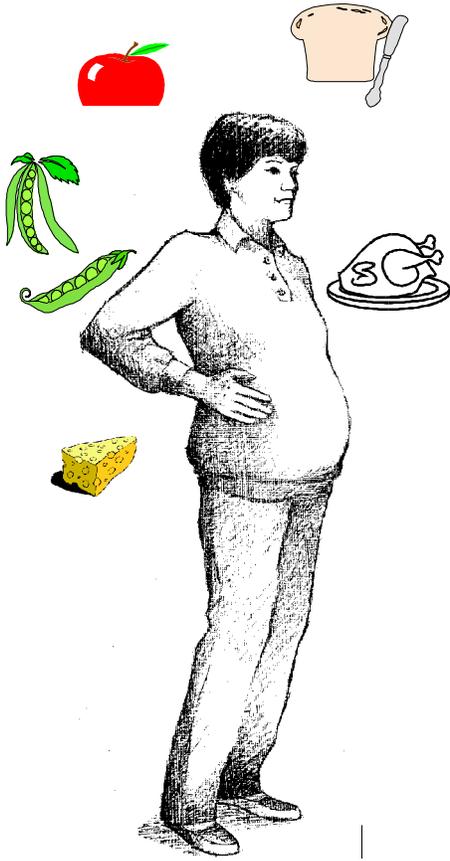
As a WIC staff person, you are in an important position to help pregnant women to learn to eat well and take care of themselves and nurture the growing fetus. You can:

- Find out if the woman has a nutritional need based on her height, weight, hematocrit/hemoglobin and her dietary intake;
- Identify food habits and concerns that the woman may have;
- Offer nutrition information that supports good eating habits;
- Help the woman identify nutrition and health goals;
- Make referrals to other needed services;
- Issue food instruments (WIC checks) for supplemental foods; and
- Document the nutrition education given and plan for future education.

This Module will give you the information, tools and procedures you need to help the pregnant women who you serve to have healthy, successful pregnancies.

## Part I: Importance of Nutrition and Prenatal Care During Pregnancy

### The Importance of Nutrition



Adequate prenatal nutrition is one of the most important factors influencing the health of pregnant women and their infants. Adequate nutrition during pregnancy is needed to maintain the tissues and nutrient stores of the mother and to allow for normal growth and development of the fetus. Women who consume an inadequate diet during pregnancy have a greater chance of complications and difficult deliveries including stillbirths, prematurity, and infants with birth defects. Further, inadequate nutrition during the prenatal period increases the chance that a baby will be born with nervous system disorders and impaired mental development.

Women who eat poorly during pregnancy may not gain weight adequately and thus increase their chances that their infants will be low birth weight (less than 5½ pounds at birth). Low birth weight infants are more likely to become ill and die during the period just before and after birth (the perinatal period). Low birth weight infants may also suffer long-term health problems and developmental disabilities.

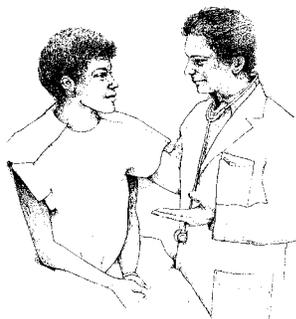
We can see that adequate prenatal nutrition is vital to ensure the health of pregnant women and their babies.

**Stillbirth:** The birth of a dead child.

**Prematurity:** Birth occurring at or before 37 completed weeks gestation.

**Perinatal:** Pertaining to the period around child birth beginning at 20 weeks of gestation to the end of the neonatal period (28 days after birth).

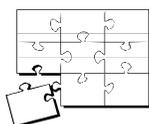
**Low birth weight (LBW):** A birth weight less than 5-1/2 pounds (2500 grams).



**Primary Care Provider:** A physician, usually family or general practitioner, internist, or pediatrician, who provides a broad range of routine medical services and refers patients to specialists, hospitals, and other providers as necessary.

**Inadequate Prenatal Care**

Nutrition Risk Factor #65: Any woman who begins prenatal care after the first trimester (4th month or 13 weeks gestation). Objective, low risk



**The Importance of Prenatal Care**

It is important to point out that nutrition care, although extremely important, is only one component of good prenatal care. The quality, quantity, and timing of prenatal care influence pregnancy outcome. WIC staff should encourage participants to visit a primary care provider, an obstetrician, a nurse midwife, or a prenatal clinic as soon as they learn of their pregnancy. They should return for regular checkups during their pregnancy to ensure that everything is progressing normally. Many complications of pregnancy that result in illness or mortality of infants and mothers are preventable. Early detection of potential problems is more likely when the pregnant woman makes regular visits to medical personnel. In addition, the doctor or nurse can answer questions and suggest pamphlets, videos, or books on topics of interest to mothers. Lack of prenatal care is closely associated with teenage pregnancy, low income, and substance abuse.

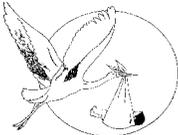
Women who choose not to have prenatal care when it is available make this decision for many reasons. Some of these reasons are:

1. Fearing that the cost of prenatal care may be too high. They may not be able to afford even the reduced cost prenatal programs.
2. Not wanting to bother with the complicated application process necessary to get on Medicaid.
3. Not trusting doctors or not feeling prenatal care is necessary. Perhaps they had previous pregnancies without prenatal care and had healthy children.
4. Not wanting to confront their health issues (e.g., pregnancy, substance use).

**Your Role**

The WIC Pregnant Woman Nutrition Questionnaire asks: *Do you now receive prenatal care from a doctor or clinic? In which month of pregnancy did care begin?* For women who are not receiving prenatal care, try to identify the reasons they have not begun prenatal care. You may need to reassure them that public health facilities can provide them with high-quality care at very reasonable prices throughout the entire period of their pregnancies. Inform them that adequate prenatal care has been shown to result in better outcomes of pregnancy—fewer complications for the mother and her baby, fewer low weight births and lower neonatal death rates. Any time and effort spent on having a healthy pregnancy will pay off after the baby is born. Healthy babies require less time away from work and leisure activities.

The following begins a series of Self-Checks that occur throughout this module. As you come to each Self-Check, complete it right away. The answers are located on pages 93-97.

 <b>SELF-CHECK #1</b>		<b>PRENATAL NUTRITION</b>
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**Questions**

1. Name at least two reasons why adequate nutrition during pregnancy is important.

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Place a “T” (for True) or an “F” (for False) in the space to the left of each of the following statements:

2. \_\_\_ Low birth weight in infants is desirable because it results in an easier delivery.
3. \_\_\_ Women are risked as having inadequate prenatal care if they begin visiting their provider late in their first trimester of pregnancy.

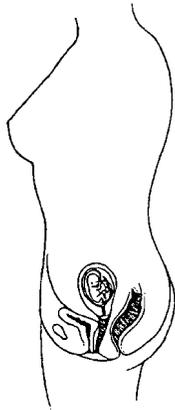
**Conception:** Occurs when the egg is fertilized by the sperm.

**Embryo:** The stage of development of the unborn baby from conception up to the end of the 8th week of gestation.

**Fetus:** The stage of development of the unborn baby from the beginning of the 9th week until birth.

**Trimesters:** The length of the pregnancy generally determined in terms of weeks:  
0-13 weeks gestation = first trimester  
14-26 weeks gestation = second trimester  
27-40+ weeks gestation = third trimester

**Placenta:** The organ which connects the fetus to the mother and carries nutrients to the fetus, and removes its wastes. It is completely formed by the 12th week of gestation.



The first trimester is the most critical phase of development. Exposure to drugs, alcohol, viruses, chemicals, radiation, and inadequate folic acid can lead to birth defects.

## Prenatal Growth and Development

A full term baby develops in 40 weeks or nine months. The nine months of pregnancy are divided into three trimesters of three months each. On the next few pages you will learn what happens to both the mother and the unborn baby during the three trimesters.

### The First Trimester (First week through 13 weeks)

Pregnancy begins with conception, when an egg is fertilized by a sperm. The fertilized egg moves to the uterus where it grows for the next nine months. The fertilized egg divides into many cells almost immediately. The fertilized egg is called an embryo for the first eight weeks of life. After eight weeks the developing embryo will be called a fetus.

During the first trimester, a mother's body changes to help her baby to grow. The placenta develops to carry nutrients and oxygen to the fetus and carry carbon dioxide and other wastes away from it. The amniotic sac fills with fluid to cushion the developing baby. The mother's uterus and its supporting muscles increase greatly in size, strength, and flexibility. Her breasts grow and change in preparation for breastfeeding. Also, her blood volume increases by 50 percent to carry the extra nutrients and waste products.

### The Embryo/Fetus

By the end of the first month the embryo is one-fifth of an inch long. The brain, eyes, spinal cord, liver, arms, legs, and pancreas have begun to develop. The heart is already beating.

The first trimester is the most critical phase of human development because so many parts of the body are forming. Anything that interferes with development at this time could cause birth defects or could even kill the embryo. Sadly, many women do not even realize they are pregnant at this point.

During this time, exposure to drugs, alcohol, viruses, chemicals, radiation, and inadequate folic acid can lead to birth defects.

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**Gestation:** The state of pregnancy. The period of carrying the developing embryo/fetus from fertilization to birth. This period of time is usually 40 weeks. If a woman is "at 20 weeks gestation," this means that she is 20 weeks along in her pregnancy.

**Gestational age:** The age of the embryo/fetus since gestation. Computed from the first day of the last menstrual period to any time up to birth.

**Vernix:** A waxy white protective substance covering the skin of the fetus.

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By the end of the first trimester, the fetus is about 2½ to 3 inches long and weighs about ½ ounce. The urinary and circulatory systems are functioning and other organs of the body continue to develop. The sex organs are developed, but it is difficult to tell if the baby is a boy or a girl.

### **The Pregnant Woman**

During the first month of this trimester, many women don't know they are pregnant. Yet this is the most critical period in the fetus' development. A woman will often continue to drink, smoke or take medications that might harm her baby, because she doesn't know she is pregnant.

After a missed menstrual period, the woman may be fairly sure that she is pregnant. Even before that she may feel more sleepy than usual or feel nauseated. She may need to urinate more often and notice that her breasts are tingly and tender. As the first trimester goes along, these symptoms continue. She may also have heartburn, indigestion and constipation. She may have nausea and vomiting.

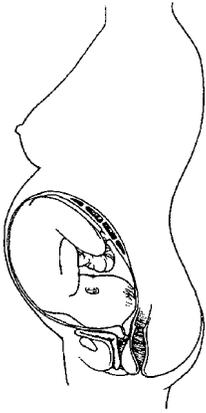
### **The Second Trimester (14th week through 26 weeks)**

#### **The Fetus**

The fetus keeps growing and developing during the second trimester. During the fourth month, the fetus grows to about four inches and is able to suck and swallow. Fingers and toes are growing more recognizable.

During the fifth month the fetus grows another four to six inches and is actively moving and kicking strong enough to be felt by the mother. Hair is growing on the head and eyebrows and lashes are beginning to grow. Vernix covers the fetus.

By the end of the sixth month the fetus is developed enough to have a chance of survival if born prematurely although the lungs are still immature. The fetus weighs about one and three-quarter pounds and is about 13 inches long. The eyes are able to open and finger and toe prints can be seen.



### **The Pregnant Woman**

During the second trimester, women usually do not need to urinate as often and have less nausea and vomiting. But they still may feel tired and have constipation. And they still have heartburn and indigestion which can get worse as the fetus grows larger. Their breasts no longer feel tender, but they have definitely gotten bigger.

### **The Third Trimester (27th week through 40th week)**

During the last three months of pregnancy, the fetus continues to grow and develop and the pregnant woman grows larger.

### **The Fetus**

The fetus is quickly gaining weight during the last trimester. An average fetus will be about seven and a half pounds and about 20 inches long at birth. The fetus moves around and is very active during the 7th and 8th months, but has little room to move during the final month. The brain is also developing at this time and the baby can see and hear.

### **The New Mother**

During the third trimester most women feel less tired. They have many things to think about and prepare for such as infant clothes, a place for the baby to sleep, a car seat, etc. The woman may have more heartburn and indigestion as the baby gets bigger. Pressure of the growing fetus on the bladder may bring on the return of frequent urination. Leg cramps and swelling are also common during the final trimester.

## Part II: Anthropometric Indicators of Nutritional Need

**Pregravid:** Before pregnancy; preconceptual.

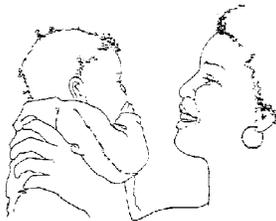
**Pregravid weight:** What the woman weighed before she became pregnant.

The first part of evaluating a woman's nutritional need is anthropometric assessment. Anthropometric assessment is the process of learning whether the woman's pregravid (prepregnancy) weight was low, normal, or high, and whether she is gaining enough weight in her current pregnancy. Her pregravid weight and her weight gain during pregnancy can both be indicators of her nutritional need and affect the outcome of her pregnancy. For example, low weight gain may mean that the woman is not eating enough to balance the energy she is using. WIC staff have a unique opportunity to provide nutrition education and counseling to improve pregnancy outcomes.

Refer to the Level 1: Screening Module for techniques for measuring height and weight in women. WIC staff must make an extra effort to be accurate because this is the information used for assessing a woman's health.

### Weight Gain - How Much is Enough?

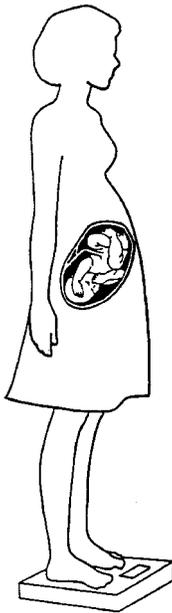
Weight gain during pregnancy has a tremendous effect on the outcome of the pregnancy. Adequate weight gain is necessary for normal growth and development of the fetus.



Babies whose mothers do not gain enough weight are likely to grow poorly in the uterus and be born prematurely or small for gestational age. Low birth weight (a birth weight of less than 5-1/2 pounds) has been associated with mental retardation, birth defects, growth and development problems. Alternately babies whose mothers gain too much weight may have high birth weights, Caesarean section deliveries and birth trauma. Women who gain too much weight during pregnancy may have gestational diabetes, difficulties with delivery, and high blood pressure. Also, they could have problems losing the weight after the baby is born.

Adequate weight gain during pregnancy increases the likelihood that a woman will deliver a full term, healthy baby.

How much weight should a woman gain during pregnancy? WIC recommends that most women gain 25-35 pounds. But, how much any individual gains depends on many things, such as if the woman was of higher or lower pregravid weight status or is carrying twins.



### Weight Gain Distribution During Pregnancy

So you might be wondering why a woman has to gain 25-35 pounds to make a seven and a half pound baby? This weight is necessary to nourish the growing fetus. As you can see from the following breakdown, the baby accounts for only a portion of the total weight gain.

#### Components of Prenatal Weight Gain

1½ to 3 pounds	breasts
1½ to 2 pounds	placenta
2 to 4 pounds	uterus (womb)
8½ to 9 pounds	increased blood and fluids
7½ pounds	baby
4 to 8 pounds	mother's fat stores (needed to supply energy for labor, delivery, and the production of milk after birth)

### **Identifying Weight Categories**

The amount of weight WIC staff recommend a prenatal participant gain will depend on the woman's weight category. The weight category is based on her height and pregravid weight. These categories include: low weight, normal weight, high weight, and obese. For example, if a woman has *low weight* category, she is often referred to as "underweight," meaning her weight is low for her height. The weight categories are defined by a person's Body Mass Index (BMI) which describes a relative weight for height. BMI is found to be significantly correlated with total body fat content and is believed to be a good indicator of maternal nutrition status.

Body Mass Index can be calculated using the formula in the margin or by using an estimate from the BMI Chart. Once the BMI is determined, the weight category can be identified. The weight categories are defined by the following BMI values:

Low:	BMI <19.8
Normal:	BMI 19.8 - 26.0
High:	BMI 26.1 - 29.0
Obese:	BMI >29.0

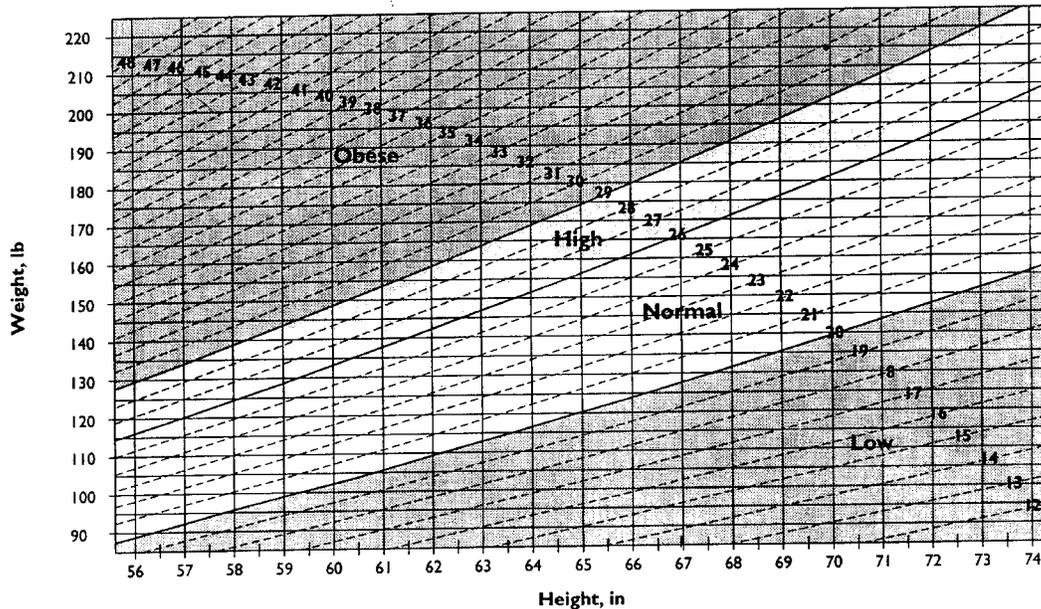


Another way to calculate BMI is using a mathematic formula. BMI is a person's weight in kilograms divided by their height in meters squared. Or, BMI =

$$\frac{\text{wt kg}}{\text{ht m}^2}$$

Because the United States uses pounds and inches, staff would first need to convert to kilograms and meters, respectively. This is not an easy calculation, that is why ASPENS calculates BMI for you.

**Chart for Estimating Body Mass Index (BMI) Category and BMI (Pounds and Inches)**



**Using the BMI Chart**

To determine the woman’s pregravid BMI using the Chart for Estimating BMI Category, find the point on the chart where the woman’s prepregnancy height (in inches) and weight (in pounds) intersect. Read the number on the line sloping up from the left to the right that is closest to this point. This is an estimation of the woman’s BMI.

Here is an example. A 5'4" (64") woman with a pregravid weight of 160 pounds has an estimated BMI of about 27.5 and therefore in the “high” BMI range when she became pregnant.

Practice!

What is the estimated BMI and weight category of a 5'6" woman with a pregravid weight of 135 pounds?

Answer: Her estimated BMI is about 21.75, and therefore, she is in the “normal” weight category.

The line of 66" in height intersects with 135 pounds just below the line of a BMI of 22.

Fortunately, in WIC, once a woman’s height and pregravid weight are entered into ASPENS, Update Woman Visit Data Screen 104, the prepregnancy BMI will be calculated and displayed.

### Recommendations for Weight Gain

Total weight gain recommendations during pregnancy are based on a woman’s prepregnancy BMI and are expressed in the table below.

Prepregnancy BMI	Target weight gain range
Low < 19.8	<b>28</b> - 40 pounds
Normal 19.8 - 26.0	<b>25</b> - 35 pounds
High 26.1- 29.0	<b>15</b> - 25 pounds
Obese > 29.0	<b>15</b> pounds

In addition to looking at prepregnancy weight categories to recommend a normal weight gain, other factors must be considered. These include smoking during pregnancy, maternal stature, and multiple gestation that can affect total weight gain.

- ◆ Women who smoke during pregnancy tend to gain less weight in pregnancy and may give birth to infants with growth retardation. A high weight gain in pregnancy may help correct some of this problem. Therefore, WIC staff should recommend that women who smoke try to gain weight toward the high end for their weight category.
- ◆ Weight gain for multi-fetal pregnancies is obviously higher. Women pregnant with twins are encouraged to gain 35-45 pounds and at a rate of weight gain of 1.5 pounds/week for normal weight women during the second half of pregnancy.
- ◆ It is acceptable for short women (under 62") to gain weight at the lower end of each range.

Additional recommendations for women who:

- smoke
- are carrying twins
- are short

## Assessing Weight Gain During Pregnancy

In addition to evaluating a woman's weight before pregnancy, we need to evaluate her weight gain during pregnancy. Weight gain should be slow and steady.

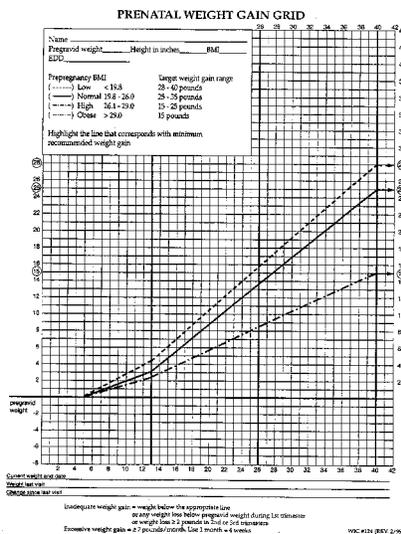
In general women gain between 2-4 pounds in their first trimester. For women in their second and third trimesters weight gain recommendations are as follows:

- ◆ underweight women are encouraged to gain at about .5 kg/week or about 4½ pounds per month;
- ◆ normal and overweight women are encouraged to gain at about .4 kg/week or about 3½ pounds per month;
- ◆ obese women are encouraged to gain at about .3 kg/week or about 2½ pounds per month.

Rate of weight gain →

## The Prenatal Weight Gain Grid

The *Prenatal Weight Gain Grid* (left margin) is a graph that enables WIC staff to plot a woman's weight gain throughout her pregnancy. It provides a pictorial view of her weight gain and shows how her weight gain compares to the weight gain range of her weight category. Remember, the recommended total weight gain range is based on a woman's prepregnancy weight category.



The weight gain ranges are depicted on the grid as three different upward sloping lines. The upper-most line is dotted and represents the lower end of the target weight gain range (28 pounds) for women with a “low” prepregnancy BMI. The middle line is a solid line and represents the lower end of the target weight gain range (25 pounds) for women with a “normal” prepregnancy BMI. The bottom dot and dash line represents the lower end of the target weight gain range (15 pounds) for women with a “high” prepregnancy BMI and represents the 15 pound weight gain that is suggested for women with an “obese” prepregnancy BMI.

These grids show recommended weight gains. In real life, every woman's weight gain is not going to track exactly along a sloping line. However, a pregnant woman can increase her chances of a healthy pregnancy by using these weight gain recommendations as a target during her pregnancy.

These grids are useful for providing a picture of the pregnancy

weight gain. They make it easier to detect inappropriate changes in weight over time. Let's take a closer look at these grids and how you would plot weight gain on them.

**Procedures for Using the Grid** (sample on page 17)

Instructions when prepregnancy weight is known.

Instructions when pre-pregnancy weight is known

1. Complete the upper left-hand box. Enter the woman's name, pregravid weight, height in inches, EDD (estimated date of delivery), and BMI. The BMI is revealed on ASPENS WIC PS104 screen calculated from the pregnancy weight and height. Identify the woman's prepregnancy weight category and target weight gain range.

Name _____	
Pregravid weight _____	Height in inches _____ BMI _____
EDD _____	
Prepregnancy BMI	Target weight gain range
(- - - -) Low <19.8	28 - 40 pounds
(— — —) Normal 19.8 - 26.0	25 - 35 pounds
(- • - • -) High 26.1 - 29.0	15 - 25 pounds
(- • - • -) Obese >29.0	15 pounds
Highlight the line that corresponds with minimum recommended weight gain	

2. Highlight (using a highlighter or red pen) the line on the grid that corresponds with the minimum (lower end) recommended weight gain. To avoid labeling participants, there is no need to highlight the weight category in the box.
3. Enter the pregravid weight on the line on the left-hand vertical axis of the graph.

Each time a new weight measurement is available at subsequent visits—

1. Determine the number of pounds gained or lost by comparing the current weight from the previous weight. At the first visit, compare the current weight with the prepregnancy weight.

2. Determine the week of gestation from the date of the current weight. Use ASPENS WICPS104 screen to locate the week of gestation. Enter the current date below the week of gestation.
3. Enter the new weight on the “**Current weight**” line under the week of gestation. Enter the last visit weight (which will be the pregravid weight if it is the first visit) on the line “**Weight last visit.**” Subtract the last weight from the new weight to determine the amount of weight gained, or lost, since the previous visit. Enter this number on the line “**Change since last visit.**” Place a dot on the grid where the line representing the number of pounds gained or lost crosses the line representing the week of gestation. Circle the dot.
4. Compare the change in weight between measurements and the total amount gained with the gain expected for the woman’s prepregnancy weight status (low, normal, high, obese).
5. You will use this assessment along with the findings from other information such as dietary, to determine appropriate recommendations.

Instructions when prepregnancy weight is NOT known

Instructions when prepregnancy weight is NOT known

At the first visit–

1. Estimate the woman’s prepregnancy status (normal, low, high) by considering her current height and weight. If uncertain, consider her to be within normal range.
2. Determine the week of gestation at the time of the current weight. Use ASPENS WICPS104 screen to find the week of gestation. Enter the current date below the week of gestation.
3. Place a dot on the grid where the line representing the week of gestation crosses the lower line of the weight gain range estimated to be appropriate for the woman. (For example, if the woman’s prepregnancy BMI weight is high or obese, you would place a dot on the dotted and dashed line that corresponds with a 15 pound weight gain.)

4. Subtract the number of pounds represented by the line at the dot from the current weight to determine an estimated prepregnancy weight. Record this estimated prepregnancy weight on the form, noting that it is estimated.

When future weight measurements are available—

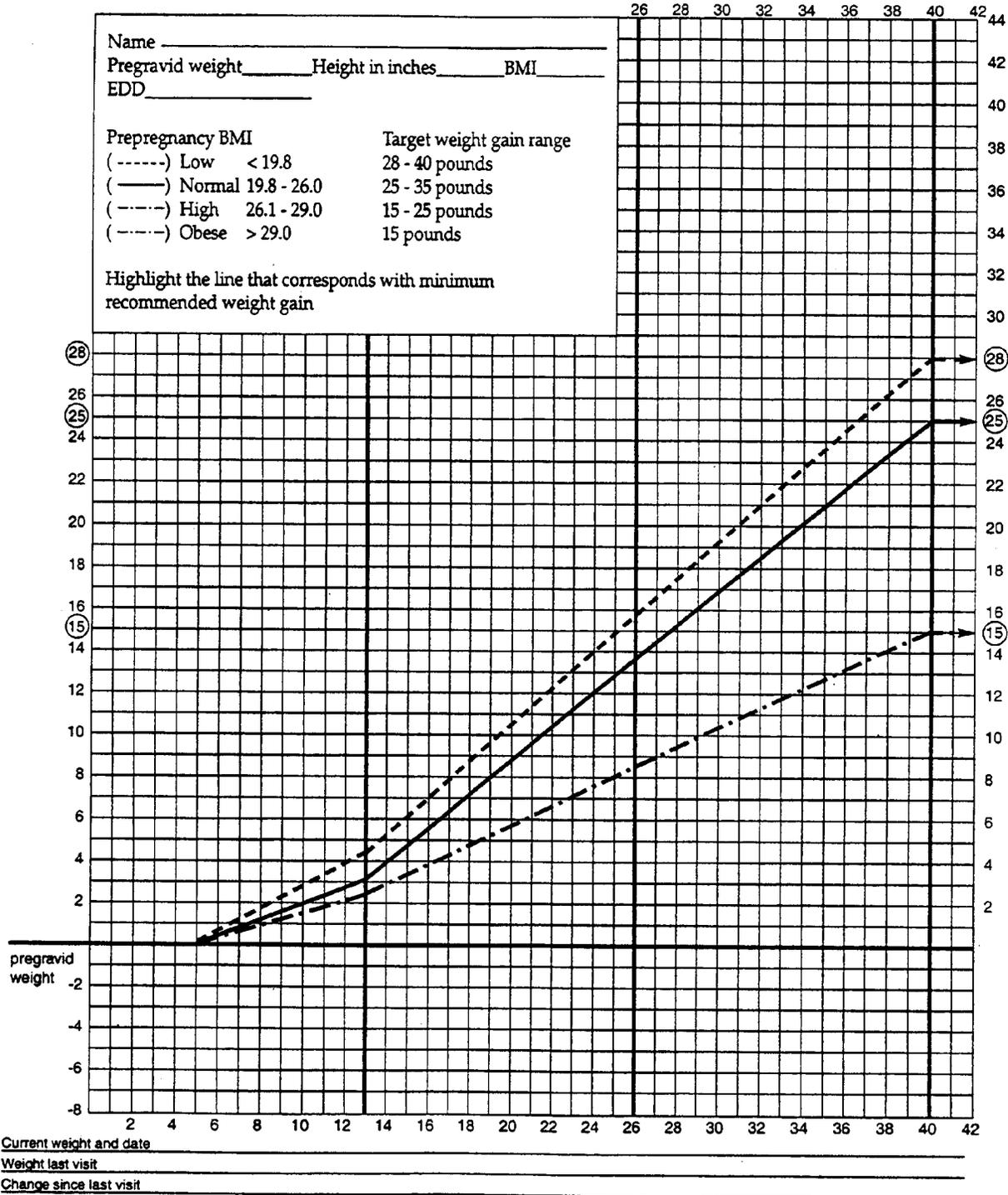
1. Determine the week of gestation on the date of the current weight. Enter the current date below the week of gestation.
2. Place a dot on the grid where the line representing the number of pounds gained or lost crosses the line representing the week of gestation.
3. Compare the change in weight between measurements and the total amount gained with the gain expected for the woman's estimated prepregnancy weight status (normal, low, high, obese).
4. Consider the results of this assessment with the results of dietary and clinical (physical/medical) assessments to determine appropriate recommendations.

#### A Word about Unknown Prepregnancy Weights

When a woman states that she does not know her prepregnancy weight, try to ask questions that might help you determine an approximate weight. Sometimes women have trouble remembering what they weighed before pregnancy or they may have purposefully never weighed themselves. Some questions you might ask are:

- *Did the doctor or clinic staff weigh you when you found out you were pregnant? What was that weight?*
- *Do you think you gained any weight between the time you became pregnant and when you first got weighed?*
- *Do you remember what dress or pants size you were wearing before you got pregnant? Has that changed?*

### PRENATAL WEIGHT GAIN GRID



Inadequate weight gain = weight below the appropriate line  
 or any weight loss below pregravid weight during 1st trimester  
 or weight loss  $\geq 2$  pounds in 2nd or 3rd trimesters  
 Excessive weight gain =  $\geq 7$  pounds/month. Use 1 month = 4 weeks

## **What Prenatal Weight Gain Grids Can Tell Us**

### Evaluating one plotted weight

Weight plotted at one point tells us how a woman's weight has changed since she became pregnant.

Some women will not be sure about their prepregnancy weights. They may not have weighed themselves recently, or they may remember weights from several years, or several pregnancies ago. They may also tell you weights lower than their true weights if they are embarrassed.

If the prepregnancy weight is inaccurate, then we cannot accurately assess weight gained at the first time a pregnancy weight is plotted. However, we will have a starting point to accurately assess future measurements during the pregnancy.

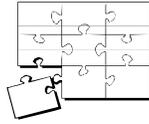
### Evaluating several plotted weights

Several measurements plotted at different weeks of pregnancy give more reliable information to help determine the pattern of weight gain and if the woman is gaining a healthy amount of weight. To most accurately compare weight change, WIC staff should measure the weight of prenatal participants at every WIC visit using the same scale.

Some participants will offer their weight from their doctor's visit earlier that day to save time. Because of the variation in scales, it is best that the participant be weighed again on the WIC clinic scale.

### Unexpected weight changes

A slightly lower or higher rate of weight gain than the recommended is okay as long as there is a progressive increase in weight that approximately equals the recommended weight gain. Most weight gain occurs in the second and third trimester. For all pregnant woman, weight gain should be slow and steady. This means that for the pregnant woman who is gaining at a rate slightly above the range for her weight category, we recommend slow, steady weight gain. At no point do we recommend a woman stop gaining weight and try to maintain her weight throughout the remainder of her pregnancy.



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**Anthropometry:** Study of human body measurement.

---

**Underweight**

Nutrition Risk Factor #47  
A woman whose prepregnancy weight is  
< 19.8 Body Mass Index (BMI)  
or  
≤ 90% of Ideal Body Weight (IBW).  
Objective, low risk

Anthropometric Indicators of Nutritional Need

Usually rapid weight changes are a red flag for a concern. Reasons for unexpected changes may include errors in measuring or recording the weight, differences in clothing, severe nausea and/or vomiting, gaining extra body fluid, eating too much or too little, and when a woman is expecting twins or triplets.

If the woman has an abnormal weight change, first make sure she was weighed accurately. You may need to weigh her again. If the weight change truly appears abnormal (sudden increase or decrease) refer the woman to her prenatal care provider for follow-up. Also, it may help to assess her diet to learn if she is eating more or less than her usual diet.

**Identification of Anthropometric Indicators of Nutritional Need**

Now you can use accurate heights and weights, BMI, and the Prenatal Weight Gain Grid to determine if WIC participants have anthropometric indicators of nutritional risk. Remember any one of these indicators make pregnant women eligible for WIC and will also identify the type of education and counseling the woman should receive (normal protocols or high risk counseling).

**Underweight Women**

*Ellen Trovato is a pregnant woman who is 64 inches tall and weighed 103 pounds before she became pregnant. Her BMI is 17.8. She would therefore be considered underweight.*

Underweight pregnant women have twice the chance of delivering a low birth weight infant or growth impaired infant. These infants tend to have more health problems after birth. An underweight woman is also more likely to have complications during the pregnancy and delivery. These complications include higher likelihood of pre-birth hemorrhage, premature rupture of membranes necessary for pregnancy, anemia, endometriosis (inflammation of the uterus lining), and Cesarean delivery.

Underweight women may have eaten poor diets over a period of time. They may continue to eat poorly during pregnancy, resulting in an inadequate intake of calories and nutrients. Underweight women may continue eating poor diets after delivery and have anemia.

**Your Role**

Follow the normal prenatal nutrition protocols (which will be discussed in Part VII) and then try to determine the potential cause of her low weight status. Potential causes might include concerns about body image, poor appetite, availability of food, feelings about food, excessive activity, and health problems. Review the dietary assessment. Some questions might be:

- *How do you feel about gaining weight?*
- *Do you need help in getting enough food to eat?*
- *How is your appetite?*

Then find solutions. You may help them by providing a list of places the participant can go to get some food (e.g., food pantries) or perhaps refer them to a social worker or places that can provide them assistance in the area they need.

### Overweight Women

*Janelle Meirs is a pregnant woman who is 65 inches tall. Before she become pregnant she weighed 180 pounds. Her BMI is 30, so she is considered overweight.*

An overweight woman is more likely to have complications during pregnancy and delivery. These complications include conditions such as diabetes, high blood pressure, premature delivery, birth of a very large infant, and blood clot difficulties. The heavier a pregnant woman is, the more chance she may develop some of these problems. The importance of weight gain must also be stressed to the overweight women. The recommendation is to gain about 15 pounds. However, excessive weight gain puts the mother and infant at future risks. Pregnancy is not a time to lose weight—even obese women are encouraged to gain some weight. Overweight women may not necessarily have adequate nutrient stores since the quality of the diet may not have been adequate.

### Your Role

Follow the normal prenatal nutrition protocols and then gather information about the participant's beliefs about nutrition during pregnancy. A healthy diet is especially important for these women since dieting or weight reduction is NOT advised during pregnancy. Emphasize food choices of high nutritional quality, limiting unnecessary high-calorie foods. Ask questions about the food availability and resources, eating behaviors, feelings about weight gain, and review dietary assessment. Collect information on lifestyle.

#### Overweight

Nutrition Risk Factor #48:

A woman whose prepregnancy weight is

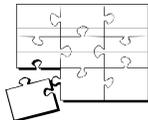
> 26.0 Body Mass Index (BMI)

or

> 120 % of Ideal Body Weight (IBW)

Objective, low risk

Pregnancy is not a time to lose weight; even obese women are encouraged to gain weight.



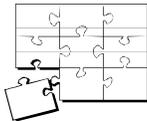
### **Inadequate Weight Gain**

#### **Inadequate Weight Gain**

Nutrition Risk Factor #49

Defined as any weight gain which falls below the appropriate curve on the Prenatal Weight Gain Grid; or

- any weight loss below pregravid weight during the 1<sup>st</sup> trimester, or
- weight loss of 2 pounds or more in the 2<sup>nd</sup> or 3<sup>rd</sup> trimesters (14-40 weeks Subjective, high risk gestation).



Women who do not gain adequate weight during pregnancy tend to give birth to infants with smaller average birth weights and with fetal growth restriction. Lower birth weight and fetal growth restriction are indicators of poor health for an infant and can have lasting effects throughout the infant's life.

The risk factor also applies to women who lose weight during pregnancy. At any time a woman has a loss of two or more pounds in her 2nd or 3rd trimester she should be risked as having inadequate weight gain. This also applies for the woman who is above her recommended weight gain curve. This risk factor may be assigned at initial certification of a pregnant woman who is not gaining weight, but it is more likely to be added as a mid-certification risk factor at subsequent visits during pregnancy.

The supplemental foods and nutrition education provided by WIC may improve maternal weight status and infant outcomes. This risk factor makes a woman high risk and therefore she must be referred to the WIC dietitian or nurse for high risk counseling.

### **Your Role**

Collect information addressing eating behaviors, food resources, food and drink intake, and lifestyle. Find out the participant beliefs and feelings about why she is losing or not gain weight adequately.

Depending on the issues, you may need to provide information on any of the factors that can contribute to poor weight gain such as, nausea, vomiting, poor appetite, not having enough money to buy food, poor absorption of nutrients by the body, infections, emotional stress, eating disorders, substance abuse, and excessive physical exercise.

A woman who was underweight before pregnancy or whose weight gain pattern is poor should be monitored carefully. If she seems reluctant to gain weight, remind her how beneficial her weight gain is to the health of her baby. Refer to the table on page 10 to explain why weight gain is crucial to the normal process of pregnancy.

The woman with poor weight gain may simply need advice on what to eat in order to gain weight. Recommend she incorporate dietary changes using the Food Guide Pyramid. Also, rather than trying to completely change her diet, recommend that she try to increase her intake of snacks throughout the day. Some nutritious snack foods that are also high in calories include nuts, peanut butter, milk shakes, whole milk, cheese made with whole milk, yogurt (flavored), pizza, and cheeseburgers. Adding powdered milk or shredded cheese to meals during their preparation will also increase the caloric content of the meals.

### High Maternal Weight Gain

Gaining too much weight during pregnancy is an indicator of nutritional risk. Women who have high weight gain during pregnancy often give birth to high birth weight infants. If the infant is too large there is significant risk of injury to the woman and infant during delivery. High maternal weight gain is associated with other complications of pregnancy including high blood pressure, preeclampsia, and eclampsia. Women who gain extra weight in pregnancy also have extra weight to lose after delivery. If extra weight is not lost after delivery, a woman may enter a subsequent pregnancy overweight.

This is a subjective risk factor that requires you to calculate weight gain per month. Any time a pregnant woman gains 7 or more pounds per month (four week period) assign the risk factor. This risk factor applies to all pregnant women regardless of their weight category (under, normal, over, etc.). It does not apply to multi-fetal pregnancies (twins, triplets, etc.). When a pregnant woman's weight gain appears high, evaluate to see if it meets the greater than or equal to 7 pounds per month criteria.

### Calculating High Maternal Weight Gain

To determine if a woman has high weight gain you may use the tool in the side bar (next page). It is also good if you can learn to determine weight gain in a four week period. If the woman was seen one month ago and her weight gain appears high, you simply need to subtract her previous weight from her current weight. If the difference is greater than or equal to 7 pounds then the risk factor applies.

#### High Maternal Weight Gain

Nutrition Risk Factor #76

Weight gain during a singleton pregnancy of greater than or equal to 7 pounds per month. Subjective, high risk

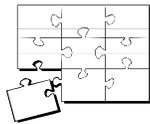
**High Birth weight:** Infant Birth weight greater than 8.8 pounds (4000 grams).

**Preeclampsia:** A condition characterized by an acute elevation of blood pressure, protein in the urine, and edema (abnormal fluid retention) usually in the latter half of pregnancy, without the convulsions and coma typical of eclampsia.

**Eclampsia:** Eclampsia is the sudden development of conditions characterized by all of the symptoms of preeclampsia in the latter part of pregnancy with varying degrees of severity (including convulsions and possibly coma).

**Tool to Determine High Maternal Weight Gain**

# wks between weights	pounds of wt gain should be less than:
4	7
5	8.75
6	10.5
7	12.25
8	14
9	15.75
10	17.5
11	19.25
12	21
13	22.75
14	24.5
15	26.25
16	28



**Edema:** The accumulation of water or fluid in the tissue spaces.

If the time period between weights is less than four weeks, subtract the previous weight from the current weight. If the difference is greater than or equal to 7 then the risk factor should be assigned.

If a woman’s last visit is more than four weeks ago, use this calculation:

Weight should be less than:

$$1.75 \text{ pounds X number of weeks between weights}$$

For example, a woman has gained 13 pounds since her visit 7 weeks ago. By using the formula above:

$$1.75 \text{ X } 7 = 12.25 \text{ pounds}$$

Since her weight gain is more than 12.25 pounds, she is risked with high weight gain.

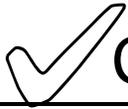
**Your Role**

Follow the normal protocol for pregnancy first. Excessive weight gain may be caused by eating too many calories for the amount of activity the person engages in. However, excessive weight gain during pregnancy may result from edema or fluid retention associated with preeclampsia. Identifying the cause of excessive weight gain may be difficult, but it is necessary for determining whether medical or dietary management is needed. Rapid weight gain is a high risk condition. This woman should be seen by the WIC high risk counselor as soon as possible.

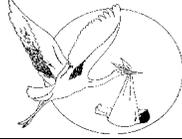
**Summary**

The Prenatal Weight Gain Grid serves as a visual aid for WIC staff throughout a participant's entire pregnancy. Staff can easily see on the grid patterns of weight gain during pregnancy and can be better prepared to offer appropriate education and counseling. Remember that adequate weight gain directly relates to pregnancy outcome in terms of infant birth weight. The grid was also designed as a teaching device for the participant to help explain weight recommendations.

A pregnant woman who is not gaining enough weight or gaining weight too rapidly should be referred to the WIC nutritionist or nurse.



## SELF-CHECK #2



## PRENATAL NUTRITION

### Questions

Answers are located on pages 93-97.

1.
  - a. What is the recommended range for weight gain for a normal weight woman during pregnancy? \_\_\_\_\_
  - b. What is the recommended range for weight gain for an underweight woman during pregnancy? \_\_\_\_\_
  - c. What is the recommended range for weight gain for overweight woman during pregnancy? \_\_\_\_\_
  - d. What is the recommended range for weight gain for an obese woman during pregnancy? \_\_\_\_\_

Place a "T" (for True) or an "F" (for False) in the space to the left of each of the following statements:

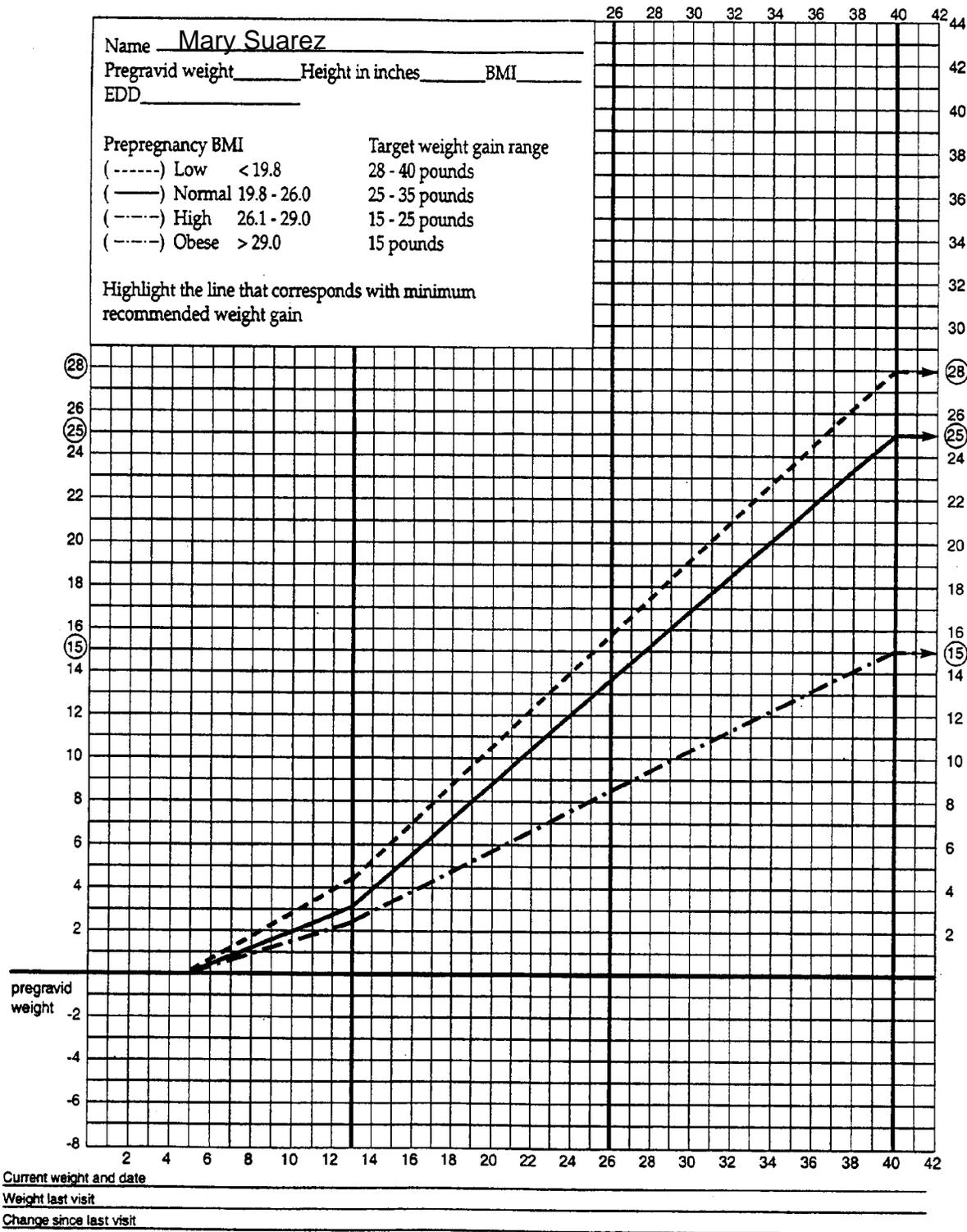
2. \_\_\_ Pregnancy is an excellent time for an overweight woman to lose weight and she should be encouraged not to gain any weight during her pregnancy.
3. \_\_\_ It is acceptable for a woman to gain 12 pounds during one week of the last trimester of pregnancy as long as her total weight gain doesn't exceed 30 pounds.
4. A normal weight woman has gained 27 pounds of weight at 27 weeks gestation. She should be encouraged to: (Circle the correct answer.)
  - a. Lose some weight before her delivery.
  - b. Not lose any weight, but maintain her weight gain at 27 pounds for the rest of the pregnancy.
  - c. Gain weight at a slow, steady rate for the rest of her pregnancy.
  - d. Gain as much weight as she can for the rest of the pregnancy.

**Self-Check #2, Question 4 (cont.)**

Fill out the Prenatal Weight Gain Grid forms on the following two pages after reading the case studies presented in Questions 8 and 9.

5. Mary Suarez comes to your clinic for her first visit today, June 1, (any year). She is 14 weeks pregnant and was 25 years old at conception. Her due date is December 1 (any year). She is 5'2" and weighs 121 pounds at this visit of 14 weeks gestation. She reports that her prepregnancy weight was 115 pounds.
  - a. Fill out a Prenatal Weight Gain Grid accordingly. Determine an approximate BMI by using the chart on page 11 and enter on the pregravid weight line on the left side of the grid. Fill in the information needed in the upper left corner (pregravid weight, height, BMI, EDD).
  - b. Plot her current weight at 14 weeks gestation.
  - c. What range of total weight gain do you recommend for her?
  - d. Circle which NRF(s) applies to her:
    - #47- underweight prepregnancy
    - #48- overweight prepregnancy
    - #49- inadequate weight gain
    - #76- high maternal weight gain
    - None apply
  
6. Susan Jones arrives at your clinic and reports that she is 10 weeks pregnant and her official due date is August 15. This is the first time she is being seen in the clinic (January 17). After measuring and weighing her, you determine that she is 5'5" and she weighs 185 pounds at this visit. When asked about her prepregnancy weight, she says that she has no idea what she weighed before her pregnancy. She tells you that she doesn't think she has gained much weight because she still fits into the clothes she wore before becoming pregnant. Fill out a Prenatal Weight Gain Grid accordingly:
  - a. Fill in the information needed in the upper left corner (pregravid weight, height, BMI, EDD).
  - b. Plot her current weight at 10 weeks of pregnancy.
  - c. What range of total weight gain do you recommend for her?
  - d. Circle which NRF(s) applies to her:
    - #47- underweight prepregnancy
    - #48- overweight prepregnancy
    - #49- inadequate weight gain
    - #76- high maternal weight gain
    - None apply

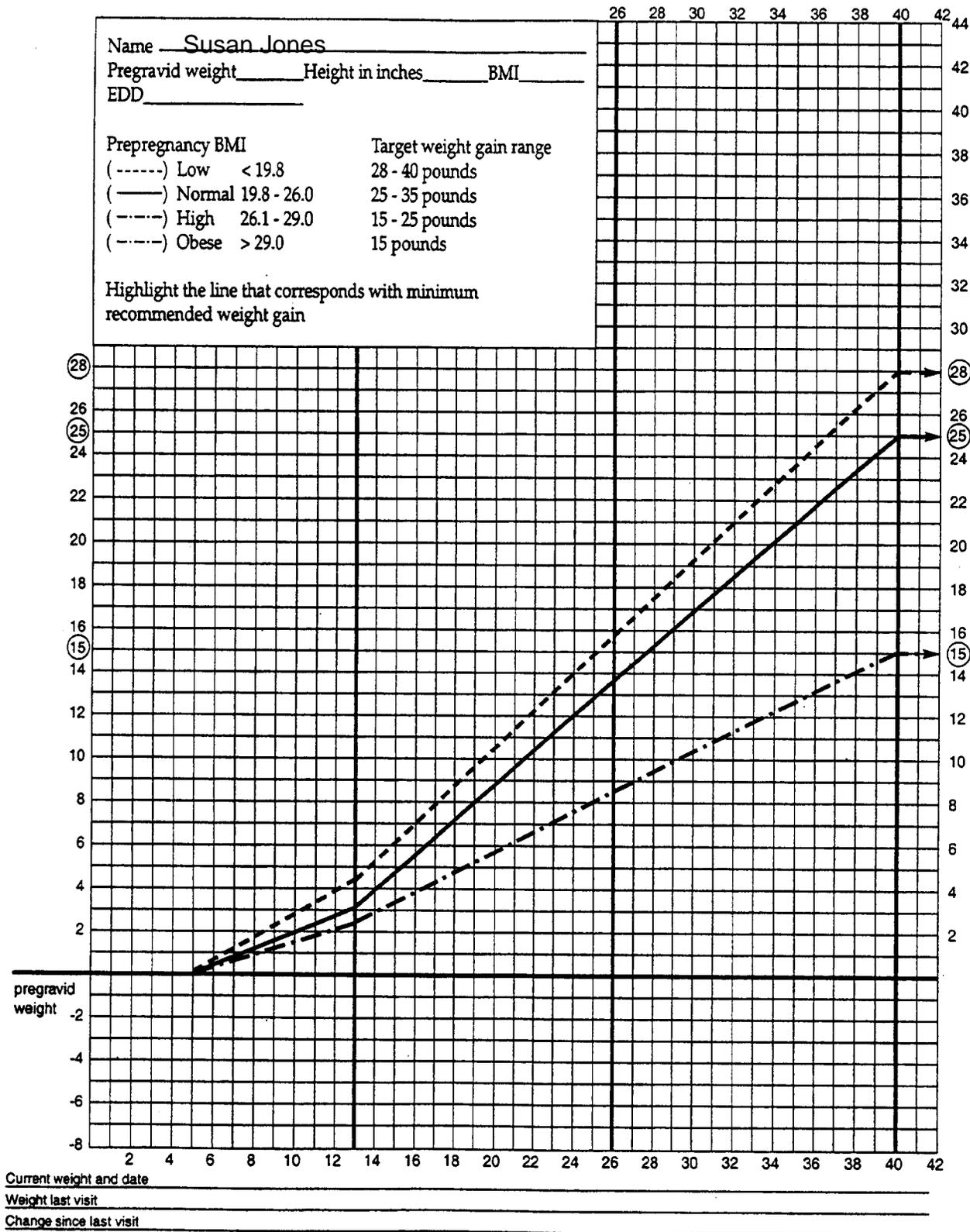
### PRENATAL WEIGHT GAIN GRID



Inadequate weight gain = weight below the appropriate line  
 or any weight loss below pregravid weight during 1st trimester  
 or weight loss  $\geq 2$  pounds in 2nd or 3rd trimesters  
 Excessive weight gain =  $\geq 7$  pounds/month. Use 1 month = 4 weeks

WIC #124 (REV. 2/99)

## PRENATAL WEIGHT GAIN GRID



Inadequate weight gain = weight below the appropriate line  
 or any weight loss below pregravid weight during 1st trimester  
 or weight loss  $\geq 2$  pounds in 2nd or 3rd trimesters

Excessive weight gain =  $\geq 7$  pounds/month. Use 1 month = 4 weeks

## Part III: Dietary Indicators of Nutritional Need



Teens: In WIC women  $\leq 17$  years of age are considered a teen when making dietary recommendations.

### Nutritional Needs of Pregnancy

While a pregnant woman does not have to eat for two, she does have to eat more calories and certain nutrients than a non-pregnant woman.

Every pregnant woman can make sure that her baby gets the best possible start by eating a good diet. In WIC we use the *Food Guide Pyramid for Pregnant Women* to help women learn how to meet the nutritional needs of pregnancy. It is a sensible, easy-to-follow guide that encourages women to choose foods they like which are appropriate for their culture. The Food Guide Pyramid (shown on page 30) includes recommendations about serving sizes and amounts for pregnant women and teens. These guidelines are available to help WIC staff educate the pregnant woman about her diet.

Take a few minutes to study the Pyramid for the pregnant participant. Notice that there are different recommendations for pregnant women and pregnant teens.

Women consuming the minimum number of servings recommended on the Food Guide Pyramid, plus a moderate amount of added sugars and fats, would receive approximately 1800-2000 calories. The recommendations for energy for the average pregnant woman is an additional 300 calories /day above what they normally consume in the non-pregnant state. In order to meet the increased energy (calorie) and nutrient needs of pregnancy, most women are encouraged to eat the middle to the top of the range of servings recommended for fruits, vegetables, breads, and cereals.

In general, the Food Guide emphasizes:

- increasing the number of servings of foods high in complex carbohydrates (Bread, Cereals, Rice and Pasta group);
- consuming at least 5 servings of fruits and vegetables a day;
- decreasing fat intake; and

#### Dietary Indicators of Nutritional Need

- limiting less nutrient-dense foods, like sugar.
- For pregnant women, servings of the protein-rich foods and milk products are increased to meet the special needs of pregnancy.

In the pyramid, the foods are grouped together because they are good sources of similar nutrients. Thus foods within a group may be “exchanged” for one another and the average quality of the diet will remain adequate.

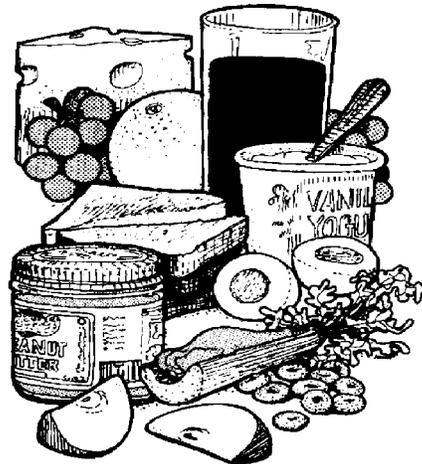
The Daily Food Guide Screening Tool follows the Food Guide Pyramid. Use this tool to assess the adequacy of the pregnant woman’s diet. Remember that the number of servings listed are the minimum recommended number. Refer to the Level I Diet Screening Module for more details on diet assessment and your role in diet education and counseling.

#### **Inadequate Diet**

Nutrition Risk Factor #81

Using the “Daily Food Guide screening Tool” – a deficiency in one or more servings from any food group.

Objective, low risk

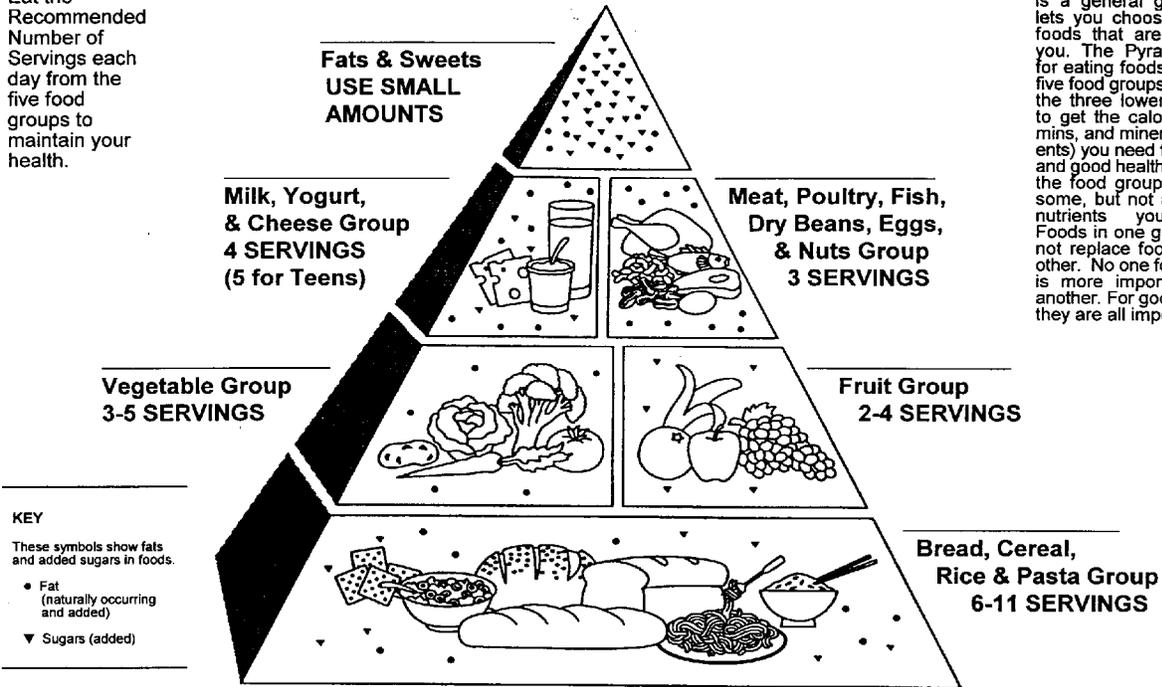


# FOOD GUIDE PYRAMID

*A Guide to Daily Food Choices for Pregnant and Breastfeeding Women*

Eat the Recommended Number of Servings each day from the five food groups to maintain your health.

The Food Guide Pyramid is a general guide that lets you choose healthy foods that are right for you. The Pyramid calls for eating foods from the five food groups shown in the three lower sections to get the calories, vitamins, and minerals (nutrients) you need for growth and good health. Each of the food groups provide some, but not all of, the nutrients you need. Foods in one group cannot replace foods in another. No one food group is more important than another. For good health, they are all important.



**KEY**  
 These symbols show fats and added sugars in foods.  
 • Fat (naturally occurring and added)  
 ▼ Sugars (added)

Adapted from: U.S. Department of Agriculture and the U.S. Department of Health and Human Services  
 Colorado Department of Public Health & Environment/Nutrition Services WIC #113

MY GOAL IS: \_\_\_\_\_

## What Counts as 1 Serving?

The amount you eat may be more than one serving. For example, a dinner portion of spaghetti would count as 2 or 3 servings.

Bread, Cereal, Rice, & Pasta Group	Vegetable Group	Fruit Group	Milk, Yogurt, & Cheese Group	Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group	Fats & Sweets
1 slice of bread ½ cup of cooked rice or pasta ½ cup of cooked cereal ¼ cup of ready-to-eat cereal 4-5 crackers 1 tortilla (6") 1½ cups popped corn ½ English muffin or bagel 1 roll/muffin 1 hamburger/hot dog bun 1 pancake or waffle (5")	½ cup of chopped raw or cooked vegetables 1 cup of leafy raw vegetables	1 piece of fruit or melon wedge ¼ cup of juice ½ cup of canned fruit ¼ cup of dried fruit	1 cup of milk or yogurt 1½ ounce of natural cheese 2 ounces of processed cheese 1½ cups of ice cream or frozen yogurt 1½ cups cottage cheese	2-3 ounces of cooked lean meat, poultry, or fish 2 hot dogs 1 cup of cooked beans 2 eggs ¼ c or 4 tablespoons of peanut butter ½ cup tuna salad 1 cup tofu ½ cup seeds	Eat in moderation

### A Closer Look at Fat and Sugar

The tip of the Food Guide Pyramid contains the fats and sweets. These foods include salad dressing, cream, butter, margarine, sugar, candy, soda pop, sweet desserts, and some snack and fast foods. These foods provide calories but not many vitamins and minerals. They can be used in moderation to add variety to your diet once you have chosen foods from the other food groups.

When choosing foods for a healthful diet, consider the fat and sugar that might be in foods in the other food groups—for example, French fried potatoes. Fat and sugar is not just in the tip of the Pyramid, but it is also hidden in many of the fast and convenience foods we eat. The best idea is to choose foods from the five groups of the Pyramid that are as close to natural as possible—not precooked, boxed, or bagged. That way it is easiest to choose a healthful diet without a lot of added fat, sugar, and salt. Foods already processed are often more expensive than those you fix yourself.

Some pregnant women may need foods that are high in fat or calories to improve the growth of their baby. The WIC staff will let you know if this applies to you.

**FOR STAFF USE ONLY**

**DAILY FOOD GUIDE SCREENING TOOL  
ADULT**

**Recommended  
Minimum # of Servings**

	Preg & BF Adult PP Teen	Preg & BF Teen (Ages 11-17)	Adult PP
<b>DAIRY PRODUCTS</b>			
1 c milk (whole, 2%, skim) 1/3 c powdered milk 1/2 c canned evaporated milk	1 1/2 c cottage cheese 1 c yogurt 1/2 c ice cream/frozen yogurt	1 1/2 oz natural cheese 2 oz processed cheese 1 c buttermilk	<b>4</b> <b>5</b> <b>3</b>
<b>MEAT/MEAT ALTERNATIVES</b>			
<b>Animal Proteins</b>			
2 eggs 2 hot dogs 1/2 c. tuna salad	2-3 oz cooked meat, fish, poultry, game, (1 small hamburger, 1 chicken leg, 1 lean chop, 2 slices meat) 4 oz lunch meat		<b>3</b> <b>3</b> <b>3</b>
<b>Vegetable Proteins</b>			
1/4 c peanut butter 1/2 c nuts 1 c tofu (8 oz)	1 c cooked beans, lentils, dried peas 1/2 c seeds (sunflower, pumpkin, sesame)		
<b>BREAD AND CEREAL</b>			
1 slice bread 1/2 c cooked hot cereal 3/4 c cold cereal 1/2 c rice/noodles/pasta	4-5 crackers 1/4 c wheat germ 1 tortilla (6") 1 1/2 c popped corn	1/2 English muffin/bagel 1 roll/muffin 1/2 hot dog/hamburger bun 1 pancake or waffle (5")	<b>6</b> <b>6</b> <b>6</b>
<b>FRUITS AND VEGETABLES</b>			
<i>Recommended daily servings include 1 serving from the Vitamin A group and 1 serving from the Vitamin C group. 1 serving equals 1 c raw leafy and 1/2 c chopped vegetables, 1 medium, 3/4 c juice, 1/2 c cooked or canned, or 1/4 c dried.</i>			
<b>Vitamin A Fruits and Vegetables</b>			
apricots broccoli cantaloupe (1/4) carrots	chili sauce (red) collards } "greens" kale	mango (1/2) papaya pepper (1 c red) pumpkin	spinach sweet potato winter squash
<b>Vitamin C Fruits and Vegetables</b>			
broccoli Brussels sprouts cantaloupe (1/4) chili sauce (green)	grapefruit orange orange/grapefruit juice papaya (1/2)	pepper (1/2 c raw green/red) strawberries (1/2 c) vitamin C enriched juices	
<b>Other Fruits and Vegetables</b>			
apple avocado bamboo shoots banana beets bok choy	cabbage cauliflower celery corn cucumber grapes	grape juice green beans lettuce mushrooms onion peach	pear peas pineapple potato potatoes, fried raisins/dried fruits
sprouts tangerine tomato turnips watermelon zucchini			
<b>OTHER FOODS AND BEVERAGES</b>			
soft drinks fruit drinks Kool-aid coffee/tea	cookies/cakes pies/pastries/donuts sugar candy jam/jelly	butter/margarine mayonnaise oil salad dressing gravy sour cream	sausage bacon chips/ pretzels pickles
<b>No Minimum Recommendation</b>  <b>Provides Minimal Nutrition High in Fat &amp; Calories (count as <u>other foods</u>)</b>			

Adapted from a nutrition guide for pregnant women developed by Ventura (CA) County Health Department. Reproduced by permission. Nutrition Services, Colorado Department of Public Health & Environment.

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**Calorie:** A unit in which energy is measured. Food energy is measured in **kilocalories** (thousands of calories). Most people simply refer to these units as “calories.”

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## Calories

Extra dietary energy is required to meet the increased growth needs of pregnancy. A pregnant woman with a normal pre-gravid weight needs an extra 300 calories each day to meet the special needs of the fetus and the changes in her body. It is important that this increase in calories come from nutrient dense food. (Nutrient-dense food is defined as food with a great amount of protein, vitamins, and minerals for a set amount of calories.) 300 calories is not a great deal of extra food. A peanut butter sandwich on whole grain bread and an apple or a 12-ounce can of soda and ten slices of French fried potatoes will supply about 300 calories. The sandwich and apple are far superior because along with their 300 calories, they provide far more nutrients (hence are nutrient-dense).

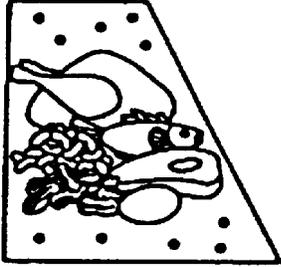
A woman who was underweight before she became pregnant will need to increase her calories above 300 per day to gain the amount of weight needed to assure a healthy pregnancy. A woman pregnant with twins will need even more calories. Women who are physically active during pregnancy are likely to have energy requirements higher than those of sedentary women.

Other women become less active in pregnancy, choosing to sit rather than stand more often. Studies show these behaviors are possibly energy saving which is why some women may end up putting on more weight than they expected.

Too many calories consumed and not enough energy expended can lead to excess weight gain.

Why are calories so important? Calories provide energy for the body to function. If the extra energy needs are not met, the body uses protein to provide the needed energy. The main function of protein is supposed to be for tissue building (skin, muscles, etc), not for energy. Tissue building is a critical need of the developing fetus and for changes in the pregnant woman's body. Additional calories allow protein to be available for its most important function.

## Protein



As the pregnancy begins, protein is needed to build all the tissues that will support the fetus. This includes the placenta, amniotic fluid, the breast, uterus and the extra amount of blood that will be needed. Protein is also essential for the growth and development of the fetus. The increased need for protein can be met by adding one additional serving of protein rich food to the daily meals. Inadequate protein in the woman's diet alone can lead to a low birth weight for an infant.

Many protein-rich foods also contain other essential nutrients such as iron, vitamin B6 and zinc. Both animals and some plants provide excellent sources of protein. Animal sources of protein such as whole fat milk and red meats can provide excessive fat if eaten regularly. For normal and overweight women who are gaining adequate weight, encourage consumption of lean animal products, lowfat and nonfat dairy products and vegetable proteins (such as legumes).

## Water



The need for water during pregnancy is as important as during the non-pregnant state. Water weight makes up about  $\frac{2}{3}$  of the weight gained during pregnancy. There is no reason to restrict water, rather the recommendation is for 6-8 glasses of water or other liquids per day.

Most women have some edema or swelling or puffiness in the ankles and feet during the last months of pregnancy. Pregnant women should never use diuretics or "water pills" because these can cause a dangerous imbalance in the sodium and potassium levels in the baby. Edema will be discussed later in this module.

 <b>SELF-CHECK #3</b>		<b>PRENATAL NUTRITION</b>
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**Questions**

Answers are located on pages 93-97.

- Fill in the blanks below indicating the number of daily servings recommended for pregnant women and pregnant teens for each of the six food groups.

Food Group	Recommended Minimum Number of Daily Servings for Pregnant Teens	Recommended Minimum Number of Daily Servings for Pregnant Women
Dairy Products		
Meat/Meat Alternatives		
Breads & Cereals		
Total Fruits & Vegetables		
Vitamin A-rich		
Vitamin C-rich		
Other		

- Identify which group the following foods are located:
 

cottage cheese _____	oranges _____
corn tortilla _____	broccoli _____
apples _____	crackers _____
tuna _____	yogurt _____
pinto beans _____	peanut butter _____
fig newtons _____	lemonade _____

Place a T (for True) or an F (for False) in the space to the left of each of the following statements:

- \_\_\_\_\_ Some women may put on more weight than they expected during pregnancy because they become less active.
- \_\_\_\_\_ Water should be restricted in pregnancy when a woman has edema.

## Iron Needs During Pregnancy

Of all the minerals needed in greater amounts during pregnancy, iron is the one that is almost impossible to get enough of from the diet alone. The need for iron during pregnancy is very high. Even though a woman's body conserves more iron than usual during pregnancy by not menstruating, and absorbing iron at three times its normal rate, she still needs additional iron.

### Iron Deficiency During Pregnancy

Let's focus on what happens when there is not enough iron in the body. Iron is needed to form hemoglobin, a protein found in red blood cells. Hemoglobin assists in carrying oxygen to the body cells and carbon dioxide back to the lungs. Hemoglobin combined with oxygen gives blood its red color. If an iron deficiency exists, then sufficient amounts of hemoglobin are not formed, and the final result is that less oxygen is carried to all parts of the body.

This condition is called iron-deficiency anemia. It is characterized by the production of smaller, light-colored red blood cells. A woman who is anemic will look pale; she may complain of fatigue, listlessness, and irritability. She may also report that her appetite has dropped and that she has headaches and dizziness.

We can determine if there is enough hemoglobin in the blood by doing a hematocrit test. A hematocrit test measures the amount of red blood cells in the blood after centrifugation. A low hematocrit can indicate an iron deficiency. There is another lab test which is a direct measurement of the hemoglobin content of the blood. This is called a hemoglobin level. A low hemoglobin level can also indicate an iron deficiency.

In our discussion of weight gain during pregnancy, we mentioned that several pounds can be accounted for by an increase of blood volume and other fluids. Because a woman's blood volume increases dramatically throughout pregnancy, her hematocrit may actually drop during the second and third trimesters. Her red blood cells are essentially diluted. This drop is normal. However, extra iron is required during pregnancy to form new red blood cells which are needed to carry oxygen to and carbon dioxide from the baby's tissues and to provide an extra supply of blood to compensate for the losses of delivery.



**Anemia:** A condition where the blood does not contain the proper amount of hemoglobin or erythrocytes (red blood cells). When this is due to the lack of iron in the body, the condition is called **iron-deficiency anemia**.

#### **Anemia Nutrition Risk Factors**

- #45 Anemia - Refer to "Hematocrit or Hemoglobin Levels Indicating Risk" tables\* (Low risk)
- #46 Severe Anemia - Hematocrit levels low enough to necessitate a medical referral\* (High risk)

Objective Risk Factors

\*Locate tables in Colorado WIC Procedure Manual and WIC Mini-Manual

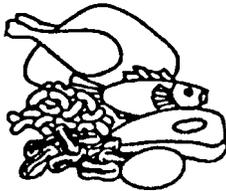
**Morbidity:** Sickness, or a condition resulting from disease.

**Mortality:** Death.

**Inadequate Iron Supplementation**

Nutrition Risk Factor #92  
 Pregnant woman not taking 30 mg of iron daily.  
 Subjective, low risk

Heme: The iron-holding part of the hemoglobin and myoglobin (muscle cell) proteins.



Anemia during pregnancy is associated with the delivery of low birth weight infants and increases the risk of infant mortality. Anemia late in pregnancy is a predictor of pre-term delivery. Many women begin pregnancy without enough iron stores to meet the needs of pregnancy. For these reasons, a daily supplement of 30 mg of ferrous iron is recommended during pregnancy. This supplement should be prescribed by the doctor or other primary care provider and is usually contained in the prenatal vitamin/ mineral supplement.

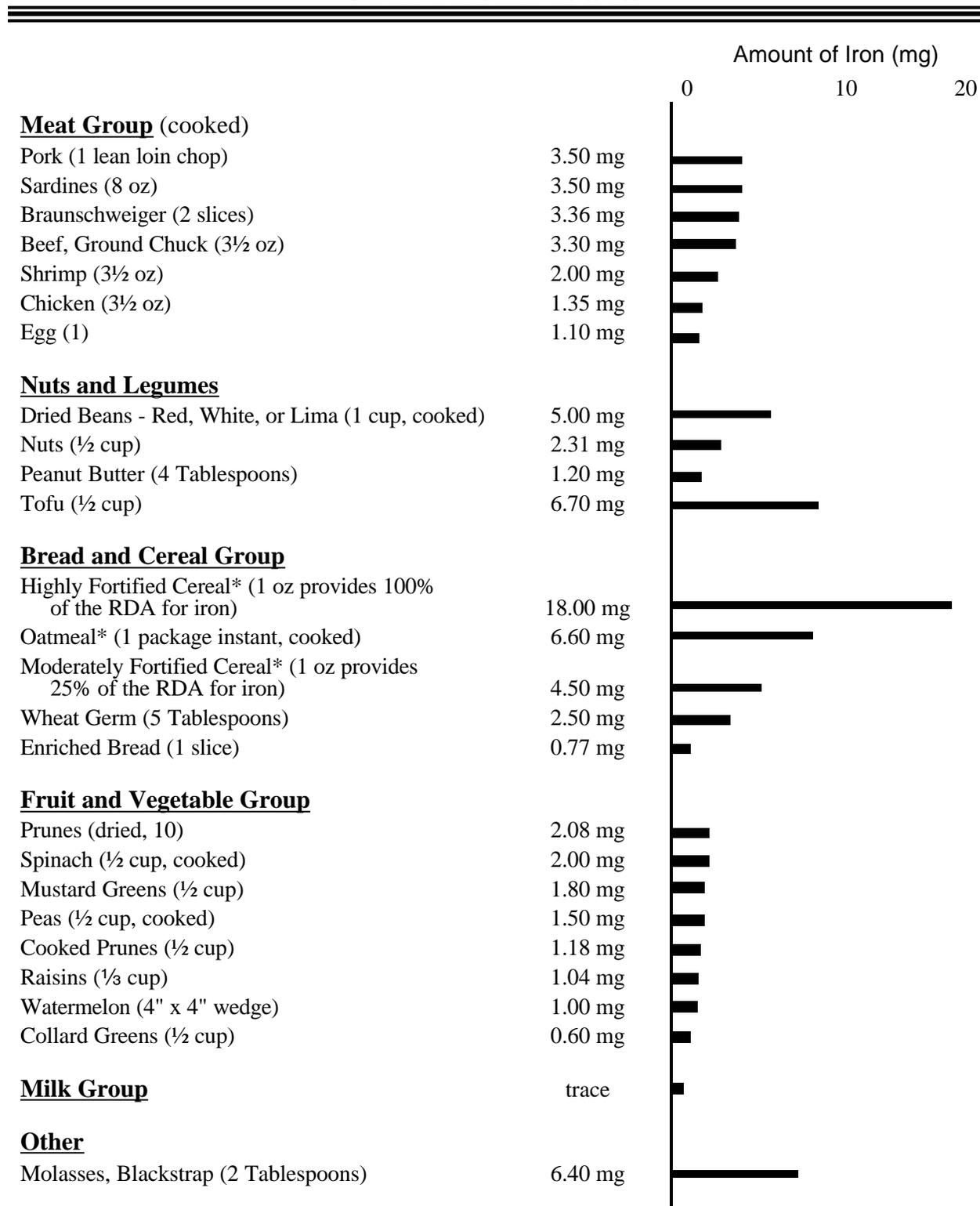
Iron Content in Foods

The following is a list of foods and their iron content. The black bars visually indicate the amount of iron in milligrams in each food. Note that some foods contain much more iron than others, and that milk is a very poor source of iron. Most of the iron in animal products (heme-iron) is better absorbed by the body than the iron in plant products (non-heme iron). Even though some plant foods may contain more iron than animal foods, the absorption may be much less.

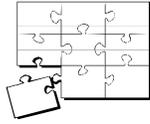
One way to increase the body's absorption of iron from meals containing vegetables and grains is to eat them with a meat or a vitamin-C rich food at the same meal. Thus, it is important to get enough vitamin C each day. Foods high in vitamin C include oranges, and orange juice, grapefruit and grapefruit juice, strawberries, cantaloupe, and broccoli. However, taking vitamin C-rich foods with iron supplements does not enhance iron absorption. Another way to slightly increase the amount of iron in a person's diet is to cook with an iron skillet.

Some substances in foods inhibit the absorption of iron including tannins (in tea), phytates (in bran), oxalic acid (in spinach), and calcium. Again, by eating meat or vitamin C at the same meal you can help limit the effect of these inhibitors.

## Food Sources of Iron



\* Iron fortification is different for each cereal. READ THE LABEL to find out the amount of iron contained in a box of cereal. For a cereal to be approved by the WIC Program, it must contain a minimum of 28 mg of iron per 100 g of dry cereal. This is equivalent to 8 mg of iron per 1 oz serving of cereal.



**Neural Tube Defects (NTDs) and Folate: Questions and Answers**

*What are NTDs?* Serious birth defects that affect the brain and spinal cord.

*Who is at risk for having a baby with neural tube defects?* Any woman of childbearing age.

*What causes neural tube defects?* Researchers are not exactly sure, however inadequate nutrition (especially folate), poverty, diabetes, obesity, drugs and alcohol use have been linked.

*How much folate do women need daily?* The US Public Health Service recommends that women (not pregnant) consume 400 micrograms of folic acid.

*Are there any health risks associated with folate supplements?* Folate is safe, but it is recommended that total daily intake from supplements be limited to less than 1,000 micrograms. A consistent, high intake of folate can disguise the signs of a vitamin B12 deficiency.

**Concentrated Food Sources of Folate**

8 oz orange juice	75 mcg
1 cup dark leafy greens	100 mcg
8 strawberries	100 mcg
½ cup cooked (dried) beans	100 mcg
1 oz breakfast cereal	100 mcg

**Your Role**

Because a pregnant woman can easily become anemic, it is important to encourage her to eat high-iron foods, as well as take her prenatal vitamin supplement which contains iron. To improve the absorption of iron, it is best to recommend supplements be taken with juice or water (not milk, tea, or coffee) and between meals or at bedtime. If the participant reports that she is nauseated, it may be taken with meals.

A history of poor dietary intake of iron, heavy blood loss or frequent pregnancies are the best indicators for iron deficiency. Women with low hematocrit or hemoglobin values should receive education on the recommendations for iron supplementation and dietary sources of iron. They should be referred to their health care provider if they are not receiving iron in either a prenatal vitamin/mineral supplement or individual iron supplement.

**Folic Acid Needs During Pregnancy**

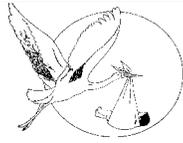
Folic acid, also known as folacin, is a B vitamin that is necessary for normal cell growth and healthy blood. A pregnant woman needs extra folacin because of her increased blood volume and the needs of the growing fetus. Like iron, folacin is needed to produce red blood cells. Folacin is important in normal fetal growth and development. Mothers who do not get enough folacin may have a baby that is too small. Getting enough folacin before conception and early in pregnancy can help prevent neural tube defects (NTD), such as spina bifida. Any woman who does not get enough folate is at higher risk for NTD (see side box).

The recommended intake for folate during pregnancy is 600 micrograms/day of dietary folate equivalents (DFE). Dietary folate equivalents include folate intake from food and synthetic folic acid. The goal is for women to consume the RDA for non-pregnant women (400 micrograms/day) from the diet and supplement diet with synthetic folic acid. Prenatal vitamins should include 100-400 micrograms of folic acid.

Foods naturally rich in folate include orange juice, strawberries, cantaloupe, dark green leafy vegetables, asparagus, broccoli, and cooked dried beans and peas. Foods fortified with folic acid that are also excellent sources include breakfast cereals, enriched bread, rice, or pasta.



**SELF-CHECK #4**



**PRENATAL NUTRITION**

**Questions**

Answers are located on pages 93-97.

1. What two nutrients, which function in the formation of new blood cells, need to be especially supplemented during pregnancy?

- a. \_\_\_\_\_
- b. \_\_\_\_\_

2. Describe some of the symptoms of woman who is anemic (i.e., has iron-deficiency anemia).

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

3. Fill in each blank with the correct word:

- a. A \_\_\_\_\_ test measures the amount of red blood cells in the blood.
- b. Vitamin \_\_\_\_\_ helps the body absorb iron.

4. List 5 iron-rich foods.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

5. At what time of pregnancy is it most important that a woman has an adequate intake of folic acid to prevent neural tube defects? \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Stop now and check your answers.**

## Calcium Needs During Pregnancy

Calcium is important for everyone, but especially for the pregnant woman and her baby. Calcium is needed for strong bones and teeth, blood clotting and enzyme activity. It is also essential for the nerves, heart, and muscles to develop and work properly.

The fetus is totally dependent on the mother for calcium needs. Fortunately, during pregnancy a woman can efficiently absorb calcium from the foods she eats. In cases where the woman's dietary intake has 3 servings of calcium with food daily, an adequate supply of calcium is available while the fetus is developing.

The calcium recommendations for pregnancy are 1,000 mg/day for women 19 years and older and 1,300 mg/day for women less than 18 years. A cup of milk has about 300 mg of calcium.

For a few women it is not always easy to meet the recommended daily requirements from dairy products. Some women do not like milk. It is necessary, then, not only to stress the importance of calcium, but also to offer food choices other than regular milk that will help meet calcium needs. Chocolate milk and milk shakes are acceptable alternatives for many women who do not like the taste of milk. Adding cheese or powdered milk to foods like casseroles, meat loaves, mashed potatoes, and baked foods during preparation may also help satisfy calcium requirements. Some women like yogurt and are willing to make yogurt from the milk they receive on WIC.

## Lactose Intolerance

Lactose intolerance is a type of food intolerance—it's not an allergy. People should talk to their doctor about their symptoms rather than self-diagnosing the condition.

Women with lactose intolerance may limit their intake of milk because their body cannot digest the main sugar (lactose) in milk. Depending on the degree of lactose intolerance, people may be able to eat a variety of lactose containing foods. Some of the symptoms of lactose intolerance include gas, bloating, and diarrhea. Here are some tips to increase tolerance:

### Pregnant women should avoid soft cheeses

The USDA urges pregnant women not to eat soft cheeses because of the risk of contamination by the *Listeria* bacteria. Examples of soft cheeses include queso blanco, queso fresco, Brie, Camembert, and feta. *Listeria* bacteria can cause the illness, "listeriosis." Listeriosis usually shows up from one to six weeks after eating the contaminated food. The symptoms are flu-like and include fever, headache, nausea, and vomiting. The danger is if the fetus contracts the infection, it may die.

To protect the fetus encourage women to eat hard cheeses, such as cheddar, select only pasteurized dairy products and thoroughly cook soft cheeses to a temperature of 160 degrees or greater to kill the bacteria.

### Lactose Intolerance

Nutrition Risk Factor Medical Condition HN/MN Subjective risk

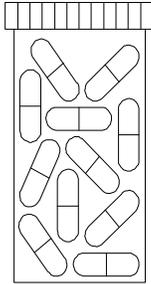
- Offer small servings of lactose-containing foods versus large servings.
- Eat dairy products with other foods instead of on an empty stomach.
- Eat active-culture foods (such as yogurt). The “friendly” bacteria in the cultures help break down lactose.
- Use enzyme tablets and lactose-reduced milks. These are available and can greatly increase tolerance. (The WIC Program provides lactose-reduced food packages.)
- Heated milk may be easier to digest than cold milk.
- Aged or hard cheeses are lower in lactose.

There are other foods that contain calcium and don't contain lactose such as greens, baked beans, canned fish with bones, and calcium-fortified foods (e.g. orange juice).

The following chart on calcium equivalents illustrates the various food sources of calcium and the portion sizes to be eaten in order to receive roughly the same amount of calcium that is contained in one cup of milk.

<b>Calcium Equivalent to One Cup (8 oz.) of Milk ( 300 mg)</b>	
Milk and Milk Products:	
Milk (whole, 2%, skim, buttermilk)	1 cup
Cheese	1 cup or 2 oz. processed
Powdered milk	1/3 cup
Evaporated milk	
Cottage cheese	1 1/2 cups 2 cups
Pudding or custard	
Ice cream	1 1/2 cups
Serving Size:	
Soy milk, calcium fortified	
Tofu processed with calcium salt	2 1/2" cube 3 cups
Dried beans, cooked	
Almonds	1 cup 3 oz.
Blackstrap molasses	
Corn tortillas processed with lime	7 medium

### Vitamin/Mineral Supplements During Pregnancy



tute of Medicine concludes that routine supplementation of chosen diet of whole grains, fruits, vegetables, protein provide adequate nutrition during pregnancy without WIC consume diets inadequate in vitamins and minerals, needed as an addition to a healthy diet. However, before dietary practices for all pregnant women should be com-mineral supplements.

quirement during pregnancy is too great to be met by diet “Iron Needs During Pregnancy.”

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For pregnant women who consume a balanced diet, iron is pregnant women who do not consume an adequate diet on a more than one fetus, heavy smokers, and substance abusers, starting the second trimester. The supplement should con-supplements):

- |          |           |
|----------|-----------|
| 30 mg    | 6         |
| Zinc:    | Folate:   |
| Copper:  | Vitamin C |
| Calcium: | Vitamin D |
|          | (200 IU)  |

---

Complete vegetarians - pregnant women who consume \_\_\_ animal products:

2.0

12

Women <25 years of age with calcium intake <600 mg - 600 mg calcium daily

Anemic Women - When anemic women are given therapeutic levels of iron (>30 mg/day), supplementation with 15 mg of zinc and 2 mg of copper is recommended because the iron may interfere with the absorption and utilization of those necessary trace elements.

NRF #97 Excessive Intake of Dietary Supplements, Vitamins or Minerals is defined as :

- pregnant women: intake of any more than a prenatal vitamin/mineral and/or an iron supplement recommended by a physician;
- postpartum women: daily intake of any more than a prenatal or one-a-day type vitamin/ mineral supplement or supplements recommended by a physician;
- infants: intake of any more than a one-a-day type infant vitamin/mineral drop or supplements recommended by a physician;
- children: daily intake of any more than an age-appropriate one-a-day type vitamin/ mineral supplement or supplements recommended by a physician.

Subjective, low risk

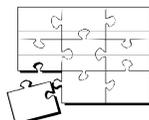
**Excessive Intake of Dietary Supplements, Vitamins or Minerals, as an Indicator of Nutritional Risk**

There are times when women in an effort to do the best they can for their health and fetus, may take additional vitamins or minerals. Yet certain vitamins and minerals can be toxic to the mother and/or fetus when taken in excess amounts. Toxic or unsafe levels of vitamins and minerals vary greatly from as little as a couple of times the Recommended Dietary Allowance (RDA) to many times the RDA. For example, WIC prenatal participants should be cautioned about taking over the counter vitamin preparations which contain 25,000 I.U.(International Units) or more of vitamin A per day. High vitamin A intake by pregnant women may cause birth defects. Supplements should contain no more than 5,000 IU/day of vitamin A.

For many vitamins and minerals there is inadequate research to determine toxic amounts. In general, it is safest to stay close to the RDA when taking daily supplements. Additionally, vitamin and mineral supplements do not take the place of a nutritionally adequate diet. Food provides the full variety of nutrients as well as fiber and other healthful substances.

**Your Role**

The WIC Pregnant Woman’s Nutrition Questionnaire asks if the woman is taking a daily prenatal vitamin as well as any other vitamins and minerals. If the woman replies “yes” to the other vitamins and minerals, she is to describe the supplements including the quantity and frequency with which they are taken.



Some additional questions to ask the woman to learn if she is taking a potentially excessive amount of a vitamin or mineral include,

*Why are you taking this supplement?*

*Who recommended that you take it?*

*Have you spoken with your prenatal provider about taking it?*

*How often do you take it?*

Intake of additional daily supplements that is not recommended by physician should be discouraged. Some reasons to discourage this are that safe upper limits for many vitamins and minerals are not yet known, and dietary supplements are not regulated by the Food and Drug Administration and therefore their safety for use in pregnancy has most likely not been well researched. Almost nothing is known about the long-term metabolic effects of consuming these substances. Advertising claims made for many supplements are not proven by scientific research.

Recommend to the woman that she stop taking the supplement until she discusses it with her prenatal provider at her next visit.

## Individual Dietary Preferences And Concerns

A last important point to remember when using the “Food Guide Pyramid” is that it may need to be modified according to an individual's dietary practices. There are many factors which play an important role in shaping a person's food habits, and these factors must be considered if dietary counseling is to be realistic and appropriate for a participant. WIC staff must make every effort to be knowledgeable about the ethnic food habits as well as the individual preferences and practices of WIC participants whom they serve.



A person's income level, cultural background, religious beliefs about food, climate, and philosophical attitudes toward food can all influence his or her eating habits. Recognize that a woman's food habits during pregnancy may reflect information that has been transmitted from generation to generation. For example, among Mexican-American women, certain foods may be eaten to modify a complication of pregnancy while other foods are avoided during pregnancy. Some women avoid milk because they believe that it will make their infants grow large and be difficult to deliver.

Some participants may be vegetarians with religious and/or personal philosophical beliefs about food. Use the Adult Vegetarian Daily Food Guide on page 47 to assess her diet.

The vegan diet which excludes all animal products can be used successfully in pregnancy, but demands close assessment, counseling, and surveillance to ensure nutrient adequacy. Unless a vegan is well educated about their diet, several nutrients are a concern, including calcium, iron, vitamin D, and vitamin B12. Vitamin B12 is of major importance because the only practical non-fortified food sources are from animal foods. The effects of a deficiency in pregnancy can be irreversible. Not everyone who adopts a vegan diet understands the importance of vitamin B12 and where it can be obtained. Vegetarian diets are often high in fiber and vegan diets are often very low in fat making it sometimes difficult for the woman to meet the caloric needs of pregnancy.

### Highly Restrictive Diets

Nutrition Risk Factor #86

Diets that are very low in calories or severely limit intake of entire food groups or important food sources of nutrients such as, but not limited to:

vegan diets, macrobiotic diets, very high protein/low carbohydrate diets

Subjective, moderate risk

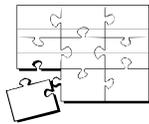
Participants with lower incomes need special attention since a nutritionally adequate diet is difficult to obtain when there is not enough money to purchase the necessary foods. Efforts should be made to provide education and information on topics such as budgeting, shopping, and meal planning. (Use, for example, the pamphlet “Smart Food Shopping Makes Sense,” available in English and Spanish from the Colorado Department of Public Health and Environment, or contact your local extension agency for other materials.) Refer low income participants to other food programs such as Food Stamps and community agencies such as food banks.

Finally, it is important to find out the participant's favorite foods, and to offer her ways to incorporate these foods into a balanced diet.

Diets that are very low in calories or that restrict entire food groups often lack the nutrients that are needed by pregnant women.

### Your Role

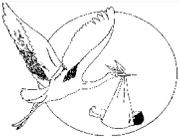
Collect information, eliciting the participant’s perspective of her diet. Assess the participant’s diet using a 24 hour diet recall or food frequency. Respond to her perspective without criticism. Keep in mind that, generally, the more restrictive the diet, the greater the nutritional risk; that nutrient adequacy or deficiency depends not on what a diet is *called* but on the foods consumed; and that nutrient needs can be met in a variety of ways, some of which are ways that may differ from our own. Summarize what the participant is doing right and suggest areas for improvement. Provide reasons for why your understanding is different and why changes may be beneficial to the infant and mother. Build a bridge between the participant and the WIC Program perspectives. Provide the participant with a handout that includes the missing information.



# ADULT VEGETARIAN DAILY FOOD GUIDE

## Recommended Minimum # of Servings

				Preg & BF Adult PP Teen	Preg & BF Teen (Ages 11-17)	Adult PP
<b>DAIRY PRODUCTS</b>						
1 c milk (whole, 2%, skim)		1 c yogurt		4	5	3
1 c buttermilk		1½ c cottage cheese				
1 c pasteurized kefir, goat's milk		1½ c ice cream/frozen yogurt				
⅓ c powdered milk		2 oz processed cheese				
½ c canned evaporated milk		1 c fortified soy milk				
<b>PROTEIN FOODS</b> <i>Eat one serving of a complete protein every day!</i>						
<b>Complete</b>		<b>Incomplete</b>				
1 c tofu		<u>Nuts/Seeds</u>	<u>Beans/Lentils</u>	3	3	3
4 oz. tempeh		½ c almonds, cashews,	1 c cooked dried beans,			
⅔ c cooked soybeans		walnuts, pinenuts	lentils, peas			
½ c soy flour		¼ c peanut and other	3 TB hummus			
2 eggs		nut butter				
2-3 oz fish, poultry		½ c sunflower, pumpkin, sesame seeds				
<b>BREADS AND CEREALS</b>						
½ c hot cereal	¼ c wheat germ		1 pancake/waffle (5")	6	6	6
¾ c cold cereal	1½ c popped corn		½ English muffin, bagel, pita			
½ c noodles/pasta	1 slice bread		1 roll, croissant, muffin			
½ c millet, barley, rice, kasha, other grains	1 tortilla (6")		1 hot dog/hamburger bun			
	4-5 crackers					
<b>FRUITS AND VEGETABLES</b>						
<i>Recommended daily servings include 1 serving from the Vitamin A group and 1 serving from the Vitamin C group. 1 serving equals 1 c raw leafy and ½ c chopped vegetables, 1 medium, ¾ c juice, ½ c cooked or canned, or ¼ c dried.</i>					5	
<b>Vitamin A Fruits and Vegetables</b>						
apricots	chili sauce (red)	mango (½)	spinach	1		
broccoli	collards	papaya	sweet potato			
cantaloupe (¼)	kale	pepper (1 c red)	watercress			
carrots	} "greens"	pumpkin	winter squash			
<b>Vitamin C Fruits and Vegetables</b>						
broccoli	grapefruit		pepper (½ c raw green/red)	1		
Brussels sprouts	orange		strawberries (½ c)			
cantaloupe (¼)	orange/grapefruit juice		vitamin C enriched juices			
chili sauce (green)	papaya (½)					
<b>Other Fruits and Vegetables</b>						
apple	cabbage	grape juice	peach	Count in Total Daily Servings		
avocado	cauliflower	green beans	pear			
bamboo shoots	celery	jicama	peas			
banana	corn	lettuce	pineapple			
beets	cucumber	mushrooms	potato			
bok choy	grapes	onion	raisins, other			
			dried fruits			
			sprouts			
			tangerine			
			tomato			
			turnips			
			watermelon			
			zucchini			
<b>OTHER FOODS</b> <i>Offer flavor, calories, or small amounts of nutrients</i>						
Brewer's yeast (folacin)		torula (protein, iron)	salad dressing, gravy			
miso (trace minerals)		butter, margarine, oil	honey, jam, syrup			
tahini, soy milk (protein)		sour cream, cream cheese	natto, soy sauce			

 <b>SELF-CHECK #5</b>		<b>PRENATAL NUTRITION</b>
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**Questions**

Answers are located on pages 93-97.

1. List two recommendations you might make to a woman who states she doesn't like the taste of milk.

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2. List three recommendations you might make to a woman who has lactose intolerance.

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Place a T (for True) or F (for False) in the space to the left of the following statement:

3. \_\_\_\_ If a pregnant woman takes a vitamin/mineral supplement, it is not important that she eats a well-balanced diet.
4. Name at least three factors which can influence an individual's eating habits and preferences.

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**Stop now and check your answers.**

## Part IV: Special Concerns During Pregnancy

Now that you've reviewed the three trimesters of pregnancy and the nutrients needed to support both the mother and fetus during this special time, let's look at some of the typical concerns that many pregnant women have during their pregnancy. Nausea and vomiting, heartburn and indigestion, and constipation are all common concerns.

### Morning Sickness or Nausea

One of the most notorious problems during pregnancy is nausea and vomiting or morning sickness. It often occurs during the early months of pregnancy and usually disappears after the first trimester. The following pages contain some counseling suggestions to share that may be helpful to women suffering from morning sickness or nausea. Morning sickness does not always occur in the morning; many women experience nausea only in the evening or throughout the entire day. Nausea can be caused by strong odors and flavors, and particular foods. Some foods that often cause nausea include fried, fatty or spicy foods and drinks with caffeine like coffee and tea. Some odors that often cause nausea are cigarette smoke, gasoline, perfumes and many cooking odors.

Some women vomit during pregnancy. The vomiting can be so severe and happen so often that the pregnant woman may become dehydrated or lose weight. If severe enough, this condition is called hyperemesis gravidarum and requires medical attention.

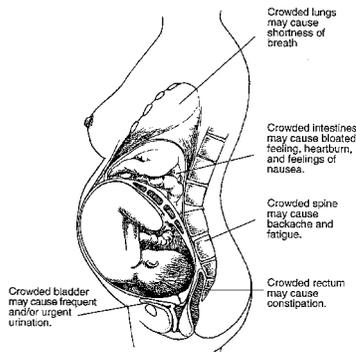
### Your Role

For women with nausea you can make these suggestions:

#### Before going to bed:

Be sure to have fresh air in the room.

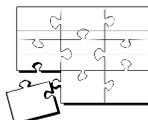
Place some dry, ready-to-eat cereal, crackers, or dry bread (e.g., toast) within reach of the bed.



### Hyperemesis Gravidarum

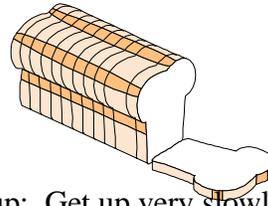
Nutritional Risk Factor #79

Defined as severe nausea and vomiting to the extent that the pregnant woman becomes dehydrated and acidotic as diagnosed by a physician and self reported by the participant. Subjective, high risk



Before getting up in the morning:

Eat some of the dry bread or cereal. A little jelly on the bread may make it taste better, but do not use butter or margarine.



When getting up: Get up very slowly, take several minutes. Avoid sudden movements when getting out of bed.

Before cooking breakfast: Eat some more dry bread or cereal a little while after you get up and before you cook breakfast. Open a window while you cook breakfast to get rid of the odor of cooking foods.

For Meals:

Eat several small meals a day instead of three large ones.

Women are more likely to feel nauseated when their stomach is empty.

- Sometime during the day try to eat a regular meal, but do not overeat.
- Eat slowly and try to eat while relaxed.
- The smell or taste of fresh lemon can sometimes help with nausea.

Foods to avoid:

Fats and greasy foods tend to upset the stomach. For this reason, avoid fried foods and foods cooked with grease, oils, or fatty meats. Minimize the following foods: butter, margarine, gravy, bacon, salt pork, oils, mayonnaise, salad dressings, pie crusts, pastries.

Strong smelling foods, such as cooked food, can increase nausea. Try preparing cold foods such as sandwiches or cereal.

Highly seasoned foods such as those cooked with garlic, onion, pepper, chili, and other spices may increase nausea. Eat foods that are lightly seasoned.

Between meals:

Drink sips of liquids frequently between meals. Drink milk, water, fruit juices, and soups.

When feeling nauseated, drink a small amount of: carbonated beverages, grapefruit juice, orange juice, or grape juice.

### **Heartburn**

Heartburn happens when the acidic digestive juices in the stomach back up and cause a burning feeling in the chest and throat. This usually happens during meals. It is a common during the second and third trimesters. It is called heartburn because it is felt near the heart, but it has nothing to do with the heart.

One cause of heartburn is the pressure on the stomach by the growing uterus and fetus. Another cause of heartburn is that the hormones of pregnancy relax the top part of the stomach so that the stomach contents flow back into the esophagus.

Over-the-counter drugs (such as antacid tablets) should never be used unless prescribed by a doctor. Instead, offer the following suggestions to a pregnant woman that may help relieve her heartburn:

- Eat 5 or 6 small meals per day.
- Limit fatty and fried foods.
- Limit or avoid coffee if it triggers heartburn.
- Avoid spicy foods.
- Wear clothes which are loose around the waist.
- Do not lie down when heartburn occurs because this can make it worse—instead walk after eating or at least remain seated for awhile. Avoid eating close to bedtime.

### **Constipation**

Constipation may occur during pregnancy due to the normal hormonal changes of pregnancy which makes the food move more slowly through the intestines. Lack of exercise or too little fiber or fluids in the diet can also promote this condition. Sometimes women who receive supplements with higher amounts of iron complain of constipation. Never encourage the use over-the-counter drugs, e.g., laxatives, to relieve constipation. Instead, offer the following suggestions which may help relieve constipation:

- Eat more fruits and vegetables, including the skins. Also try dried fruits or prune juice.
- Choose whole grain cereals and breads.
- Participate in light exercise regularly; daily if possible.
- Eat meals at regular times.
- Drink more liquids. It is recommended that pregnant women drink ample amounts of fluids (6-8 glasses of liquids daily) Liquids include water, milk, fruit juice, and soup. Select these liquids rather than pop or other low nutrient density fluids.



### **Fluid Retention and Swelling**

Almost 80 percent of all pregnant women have swollen ankles and feet some time during the third trimester. The swelling is called edema.

As the fetus grows, it puts pressure on the blood vessels that lead to the mother's legs. This causes the fluid from the blood to move into the surrounding tissues. This extra fluid flows to the lowest part of the body and collects in the ankles and the feet.

This may cause a woman to gain extra weight. It is not caused by eating too much food or calories.

In the past, women were often told to restrict their intake of sodium (as salt) and to take diuretics (drugs that increase water and sodium loss from the body) to reduce the fluid retention and swelling. We know now that pregnant women actually have a slight increased need for sodium because of the expanded blood volume.

Sodium is a mineral that is required by the body and must be supplied in the diet. Restricting sodium or using diuretics during pregnancy could result in a sodium deficiency in the pregnant woman. These practices should, therefore, be discouraged. Sodium restriction is no longer recommended, except in cases involving other physical problems.

**Pregnancy-induced Hypertension (PIH):** A condition characterized by acute elevation of blood pressure, edema, and proteinuria. Sometimes occurs in the latter half of pregnancy.

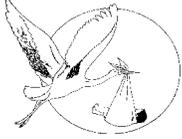
Excessive sodium use, however, should not be condoned for anyone, including the pregnant woman. A diet of primarily natural foods can be safely salted "to taste." Advise the participant with a diet containing large amounts of sodium that these foods should be used in moderation. Some foods with a high sodium content include potato chips, corn chips, canned soups,

## Special Concerns During Pregnancy

salad dressings, salted nuts, ham, luncheon meats, and bacon.

To help with the discomfort of swelling recommend that women put their feet up throughout the day, wear comfortable shoes and loose-fitting clothes.

Swelling or edema in other parts of the body, such as the eyelids and face, could be a sign of a more serious problem called Pregnancy-Induced Hypertension (PIH). Women with PIH need immediate medical attention.

 <b>SELF-CHECK #6</b>		<b>PRENATAL NUTRITION</b>
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**Questions**

Answers are located on pages 93-97.

1. Increasing exercise and consuming more liquids, whole grains, fruits, and vegetables would be appropriate suggestions for a person with which of the following conditions: (Circle the correct answers.)
  - a. Nausea
  - b. Constipation
  - c. Heartburn

Place a “T” (for True) or an “F” (for False) in the space to the left of each of the following statements:

2. (a)\_\_\_ A pregnant woman who suffers from heartburn should take antacid tablets from the drugstore without consulting her doctor first.  
(b)\_\_\_ A pregnant woman who suffers from constipation should use a laxative like Ex-Lax.
3. \_\_\_ Salt should be restricted for pregnant women who appear to be retaining water.
4. List at least three suggestions to relieve nausea during pregnancy.

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**Stop now and check your answers.**

## Substances that Affect the Pregnant Woman and Fetus

Other concerns of pregnancy that are not necessarily common to all women are described below.

### Pica: Craving Non-Food Items

#### Pica

Nutrition Risk Factor #64

Current or recent craving for or ingestion of non-food items, such as: clay, starch (laundry or corn starch), dirt, ashes, paint chips, large quantities of ice or baking soda.

Subjective, low risk

Sometimes pregnant women eat things that are not food, such as clay, laundry starch, or dirt. This is called pica; it is the craving for and eating of non-food items. Other non-food items which pregnant women may eat are ashes, charcoal, coffee grounds, paint chips, and Play-Doh. Excessive ice consumption is also included as pica. Ice is a food substance that is occasionally eaten by many individuals. However, pica is a condition for the person who consumes several trays of ice cubes daily.

The cause of pica is not known, but it has been related to certain nutritional deficiencies (especially zinc and iron) as well as culture, physiological changes in the body such as pregnancy, and mental states. Many women feel that their babies will not be normal unless they eat clay or dirt, just as their mothers and grandmothers believed.

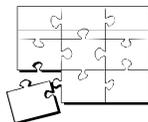
What's wrong with eating these things? Pica can lead to lead poisoning (when paint chips are eaten), anemia, poor nutrition (because the non-food item takes the place of nutritious food from the diet), stomach and intestinal blockage, and parasitic infections. Consumption of substances such as mothballs or paint chips can lead to toxic conditions that could result in death.

### Your Role

Discuss reasons why pica is a risk during pregnancy and help the participant to decide on some healthy changes she can make to avoid pica. These may include making sure she takes her prenatal vitamin prescribed by her health care provider and chooses healthy snacks to substitute for the non-food items. Encourage her to talk with her health care provider about the items she is eating.

### Caffeine

A great deal has been written recently about the hazards of consuming too much caffeine. Caffeine is a drug, and in many people it produces the side-effects of nervousness, difficulty in



**CAFFEINE CONTENT OF SELECTED BEVERAGES & FOODS**

Coffee (5 oz cup)	
Brewed . . . . .	95 mg
Instant . . . . .	65 mg
Tea (5 oz cup)	
Brewed . . . . .	40 mg
Instant . . . . .	30 mg
Iced (12 oz) . . . . .	70 mg
Cocoa (5 oz cup) . . . . .	4 mg
Chocolate Milk (8 oz) . . . . .	5 mg
Soft Drinks	
Cola (12 oz.) . . . . .	45 mg
Milk chocolate (1 oz.) . . . . .	6 mg

Source: FDA, Food Additive Chemistry Evaluation Branch.

sleeping, and frequent urination. Caffeine is found predominantly in coffee, tea, cocoa, chocolate, and some soft drink beverages. It is also contained in some prescription drugs and several over-the-counter drugs; e.g., some aspirin tablets and many cold preparations contain 360 mg of caffeine per tablet.

Studies of the safety of caffeine have been inconclusive. Some studies have shown large doses of caffeine cause birth defects in animals, however, there is no convincing evidence that it is associated with birth defects in humans. At this point caffeine consumption is not used as a nutrition risk factor for pregnancy women on the WIC Program. It appears that small amounts of caffeine (no more than 3 six-ounce cups of coffee per day) (<300 mg) are probably safe for the growing fetus. Since we do not know for sure if caffeine is safe for the pregnant woman, it is best to recommend that caffeine-containing products be limited during pregnancy. Use the chart in the side bar to help you identify how many milligrams of caffeine are contained in the foods and drinks listed. Note the serving size of each entry.

**Alcohol**

Alcohol is the second most widely used drug in the United States. Alcohol is easy to get and is so socially acceptable that most people don't consider it a drug. Alcohol contains ethanol, which decreases nerve and brain activity. For a pregnant woman and her fetus, this can have serious consequences, because it causes further slowing of body functions already affected by the hormonal changes of pregnancy.

The hormone progesterone relaxes the muscles and tissues of the digestive and circulatory system. If alcohol further relaxes these systems, the fetus will not receive adequate amounts of food and oxygen. Alcohol enters the fetal blood stream in the same concentration as the mother's blood. Because the fetus is so much smaller than the mother, alcohol has a much greater effect on the fetus compared to the mother.

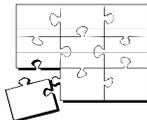
Even small amounts of alcohol consumed during a pregnancy can increase the risks of miscarriage, vaginal bleeding, early separation of the placenta from the uterus, and preterm labor.

**Use of Alcohol**

Nutrition Risk Factor #56  
 Defined as any current use of alcohol.  
 Objective, high risk

**Alcohol is the leading cause of mental retardation in our country today.**

**Fetal Alcohol Syndrome:** A syndrome related to alcohol use during pregnancy and characterized by prenatal and postnatal growth retardation, distinct facial anomalies, and mental deficiency.



*"Fetal alcohol syndrome is a tragedy that doesn't have to happen. Only you can make sure alcohol won't affect your baby."*

- A positive alcohol abuse prevention message

**Use of Cigarettes**  
Nutrition Risk Factor #55  
Defined as any daily smoking of cigarettes during current pregnancy.  
Objective, low risk

Alcohol is the leading cause of mental retardation in our country today. A woman who drinks excessive amounts of alcohol during her pregnancy, can have a baby with **Fetal Alcohol Syndrome (FAS)**. These babies often have low birth weights, mental retardation, heart defects, cleft palate, and face, arm, and leg deformities. The FAS child has difficulty learning.

Drinking moderate amounts of alcohol is also associated with an increased risk of physical and mental deficits in the newborn. Occasional "binge" drinking, especially in early pregnancy, is also unsafe for the developing fetus. Because there is no safe level of alcohol that a pregnant woman can drink without harming the fetus, alcohol should be avoided during pregnancy.

Warnings about the possible effects of alcohol are printed on every alcohol container and bottle. Pregnant women should be informed that it is dangerous to drink while pregnant.

Studies show the more alcoholic beverages a woman drinks, the greater the risk to her baby. Heavy drinkers may develop nutritional deficiencies and more serious diseases, like cirrhosis of the liver.

### Your Role

All women who currently report using alcohol while pregnant must be referred to the WIC nutritionist or nurse as soon as possible. If necessary, provide an informal referral to resources available in your community. Additionally, for more information on counseling and referring women who use alcohol refer to the Level I Module, "Providing Drug Abuse Information and Referrals in the WIC Program" Module. Occasional drinkers should be advised to stop drinking alcohol. Quitting at any time during pregnancy is beneficial.

Use the pamphlets "Substance Use...Effects on You and Your Family" and "Pregnant? Drugs and Alcohol Can Hurt Your Unborn Baby" when educating a pregnant woman who drinks alcohol.

Do not advise pregnant women who are heavy drinkers to stop on their own. This step should be taken only under the supervision of a physician or skilled alcohol treatment specialist. Educate on the effects of alcohol and make a referral to a resource for help.

## Tobacco

Pregnancy and the period before and after it provide a special window of opportunity when pregnant women have a unique motivation to quit smoking.

The harmful effects of smoking and passive smoke on the general population are well documented. Nicotine is the active ingredient in tobacco. It is a stimulant that is mind-altering and addictive. The tar in cigarettes causes lung and other cancers.



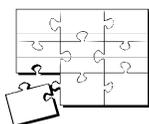
The primary goal of weight gain during pregnancy is to deliver a healthy weight baby. Smoking will make this goal harder to achieve. Why? When inhaling smoke, toxic substances such as carbon monoxide compete with oxygen; nicotine causes blood vessels to constrict, decreasing nutrient supply to the fetus; or indirectly smoking decreases appetite thus affecting weight gain. Smoking lowers the amount of oxygen that reaches the fetus through the placenta. As a result, babies of women who smoke tend to be smaller than average.

Women who smoke during pregnancy tend to have a higher percentage of low birth weight or premature babies and a higher percentage of spontaneous abortions (miscarriages).

A woman who quits smoking when she discovers she is pregnant reduces the chance of poor pregnancy outcome. If she quits by 4 months of pregnancy, her risk of having a low birth weight baby is similar to that of a non-smoker. If she quits at any time during pregnancy, she increases the chance of having a healthy baby. If a woman refuses to quit smoking during her pregnancy, encourage her to at least cut back until the baby is born.

## Your Role

Pregnant women who smoke should be strongly encouraged to quit smoking or cut down on the number of cigarettes smoked. The sooner the woman quits or cuts down on the number of cigarettes smoked, the better for her and her baby.



Refer to the “Providing Drug Abuse Information and Referrals in the WIC Program” Module for further explanations on counseling and making referrals for women who use cigarettes.

Pregnant women who smoke should try especially hard to gain enough weight and eat well since this may help some to prevent low birth weight babies. Smokers should eat at least the

recommended number of servings of vitamin A-rich and vitamin C-rich fruits and vegetables and protein foods because smoking is associated with lower intakes of vitamins A and C, folate, fiber, and iron.

Refer pregnant participants who smoke to smoking cessation programs in your community. In the meantime you can offer some suggestions:

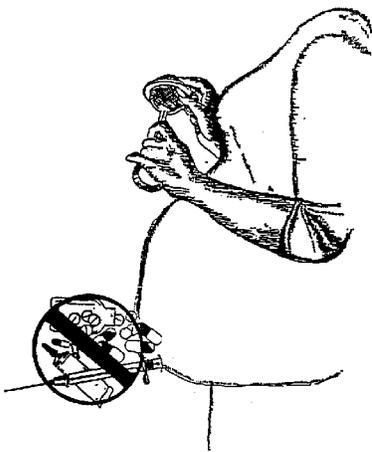
- ✓ Cut down on the number of cigarettes smoked each day.
- ✓ Take fewer puffs on each cigarette
- ✓ Smoke only one cigarette each set time period (for example, one hour)
- ✓ Change to a brand not as well liked
- ✓ Change to a low-nicotine brand
- ✓ Buy only one pack at a time
- ✓ Hide the ashtrays.
- ✓ Try eating low-calorie, nutritious snacks instead of smoking
- ✓ Ask family members and friends for their support, including not smoking around you
- ✓ Get into the habit of brushing your teeth immediately after eating.
- ✓ Drink several glasses of water a day.
- ✓ Try doing things with your hands instead of smoking, such as making things for the baby's room

### Drugs (Prescription, Over-the-Counter, "Street")

A woman who uses drugs during pregnancy puts herself and her fetus at a terrible risk. Many common drugs -- both prescription and over-the-counter--that are usually harmless can poison an unborn baby. Even megadoses of vitamins are dangerous to the growing fetus. Fetal toxicity with maternal overdose of five essential nutrients--vitamin A, vitamin D, vitamin C, B<sub>6</sub>, and iodine have been documented. Only medications approved by a physician for use during pregnancy should be taken.

Drugs are the most toxic to the fetus during the first half of pregnancy. During this time, organs and tissues (such as arms, heart, brain, kidneys) are being formed and are, therefore, more susceptible to malformation.

In addition, this is also the time when the woman may not realize she is pregnant. In the second part of pregnancy, drugs



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**Intrauterine growth retardation:** Retarded fetal growth resulting in a small for gestational age birth weight.

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may negatively affect the growth of the infant.

Street drugs (e.g., crack, cocaine, marijuana, speed, etc.) can be especially dangerous. They can cause addiction of the fetus, and severe withdrawal discomfort of the infant after birth. Infants born to addicted mothers are at greater risk for low birth weight, hepatitis, intrauterine growth retardation, and infant death.

### Crack/Cocaine

The use of crack, which is highly potent, purified form of cocaine, is becoming more and more common. Heavy cocaine use is associated with higher rates of miscarriage, premature labor, intrauterine growth retardation, and congenital anomalies. Individuals who are addicted crack users appear extremely underweight and nervous, and frequently complain of headaches and insomnia.

### **Your Role**

Since nutritional deficiencies may be present with substance users, it is important to provide diet counseling to improve food intakes.

Refer to the “Providing Drug Abuse Information and Referrals in the WIC Program” Module for further explanations on counseling and referring women who use illegal drugs.

Warn all pregnant women of the possible dangers of drug and alcohol use. Share information about resources available in your community. WIC staff must document in the WIC records that women are told about the dangers of using drugs. Drug or alcohol users must be referred to the WIC nutritionist or nurse. Heavy substance abusers may require referral to a community substance abuse program. For additional guidance refer to the High and Moderate Risk Protocols.

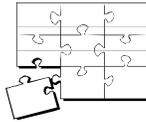
### **Lead**

Lead poisoning is a public health problem that is entirely preventable. It is most common in children, but can occur in adults as well. In pregnant women, lead crosses the placenta and can have a detrimental effect on a developing fetus. Lead poisoning is defined as a blood lead concentration of  $\geq 10$  microgram/deciliter.

The main sources of lead exposure in our environment are from residual deposits (such as in soil dust, old paint, and plaster) of

#### **Use of Illegal Drugs**

Nutrition Risk Factor #57  
Defined as any illegal drug use.  
Objective, high risk



#### **Elevated Blood Levels**

NRF #AB  
Blood lead level of  $\geq 10$  micrograms/deciliter within the past 12 months.  
Objective, moderate risk

preceding decades, certain occupations which involve lead, and imported containers used for serving or storing food or beverages which have lead as a component. Women who are at greater risks for lead poisoning are those who live in older homes, have pica (and are eating lead containing substances), and/or women who use lead containing imported containers for food storage or preparation.

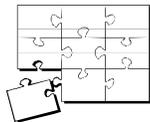
Adequate intake of calories, calcium, magnesium, iron, zinc, and various vitamins (e.g., thiamin, ascorbic acid, and vitamin E) decreases the absorption of lead in adults.

### **Your Role**

Occasionally a pregnant WIC participant will share with you that she is craving and eating clay. In this situation, women who may be exposed to lead may benefit from referrals to their health care provider for lead testing as well as information on how to reduce their exposure to lead. WIC staff can reinforce the nutrition principles of the Food Guide Pyramid to promote adequate intake of calories and nutrients which may help decrease the body's absorption of lead.

### Summary

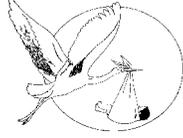
All pregnant women on WIC must be provided accurate and understandable information about the dangers of alcohol and drug use. Participants who report using alcohol and/or drugs must be informed that stopping the use of these substances increases the chances for a normal delivery and a healthy baby.



Stopping alcohol and/or drug use at any time, even late in pregnancy, can decrease harm to the developing fetus.



**SELF-CHECK #7**



**PRENATAL NUTRITION**

**Questions**

Answers are located on pages 93-97.

Place a “T” (for True) or an “F” (for False) in the space to the left of each of the following statements:

1. \_\_\_ During pregnancy, a safe level of alcohol intake is not more than one drink per day.
2. \_\_\_ Only medication approved by a physician for use during pregnancy should be taken.

Circle the correct response in the parentheses.

3. A woman who smokes during pregnancy increases her chances of delivering a (smaller or larger) than normal infant.
4. Place an “X” by the following substances which are used as nutrition risk factors for a pregnant woman on the WIC Program. Indicate if they are a low, moderate, or high risk condition.

_____ Pica	_____ Alcohol	_____ Cocaine
_____ Caffeine	_____ Tobacco	_____ Marijuana

**Stop now and check your answers.**

## Part V: Clinical Indicators of Nutritional Need

Pregnant women can have physical or medical conditions which increase their risk of poor nutrition and poor health. These conditions include:

- pregnancy at a young age
- closely spaced pregnancies
- multi-fetal gestation
- breastfeeding pregnant woman
- medical problems such as Gestational Diabetes, HIV
- past pregnancy problems

### **Pregnancy at a Young Age**

Most pregnant adolescents want to have a healthy baby. They want to be good mothers. Unfortunately, teens who become pregnant are typically at higher nutritional risk than women who are older. A very young teen (one who is within 2 years after menarche) may still be growing themselves, so the increased nutrient demands of pregnancy may compromise her own nutritional status. Studies suggest that adolescent pregnancy is associated with an increased incidence of anemia, infection, prematurity, high blood pressure, placental problems, and the delivery of low birth weight infants. Pregnant teens are least likely of all age groups to get early and regular prenatal care and are more likely to smoke while pregnant.

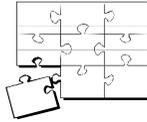
There may also be several social risk factors associated with teen pregnancy such as, non-acceptance of the pregnancy, body image, unfinished education, and living in an unstable family environment. These social factors can negatively influence a pregnant teen's nutritional status. A pregnant teen is also more likely to have poor eating habits, follow fad diets, and go for long periods without eating, like others in her age group.

Take a look again at the Daily Food Guide Screening Tool on page 31. Notice that pregnant teens have increased requirements for dairy products. The rest of the food pattern is the same as for other pregnant women. A teen whose body is still growing will have a higher need for calories than older women. Her weight gain should be closely monitored to help insure she is eating enough food.

**Pregnancy at a Young Age**  
 Nutrition Risk Factor # 40  
 Defined as less than 16 years at time of conception  
 Objective, high risk

Nutrition Risk Factor #41  
 Defined as 16 or 17 years at time of conception.  
 Objective, low risk

**Menarche:** The initiation of a female's first menstruation period.

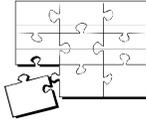


## Your Role

Working with pregnant teens is a challenge! There is so much a pregnant teen may need to learn—the importance of eating nutritious food, gaining an appropriate amount of weight, avoiding harmful substances, and taking care of herself.

How you present this information to the pregnant teen can make a difference in how successful you are in getting through to her. Some ways to help ensure an effective counseling session include:

1. Before you first talk with the teen:
  - Tell yourself you are going to see this participant as a unique individual with her own beliefs, values, personal traits, and lifestyle.
  - Approach her with understanding, compassion, empathy, patience, honesty, and enthusiasm.
  - Have an understanding of your own values, show concern without emotional involvement.
2. When you meet the teen, shake her hand. Treat her with respect. Introduce yourself.
3. Try to talk with the teen alone, without her mother or grandmother. If this is not possible on the first visit, then perhaps on the second.
4. Maintain confidentiality.
5. Get to know the teen beyond her nutrition information so that you can identify what area to begin working on. Ask questions about school, work, friends, etc. Generally, the more information can gather from the teen, the more effective the plan will be.
6. Avoid lecturing and giving too many instructions. Provide information and alternatives. Avoid using the word “should” because it is a guilt word that some teens associate with parents.
7. Ask questions in context. Explain why you are asking these questions. “We ask this of everyone.” Try to normalize the questions - “Some of the women we see here have used drugs. How about you?”
8. Use open-ended questions to avoid yes/no answers.



9. Talk in terms that teens will understand. Define new words and don't use words that are mostly used in WIC clinics, such as "cert appointments" and "hematocrits." The teen may talk in terms you don't understand. Ask the teen to define words and terms that you don't understand.
10. Take a neutral stand. Be aware of your own biases and don't push your own values.
11. Give suggestions on what she can do. Point out consequences of not doing certain things, such as not eating well.
12. Help teens predict behavior and discuss it with them. "You've told me you like to stop by the convenience store for something to eat after school. What kinds of nutritious and tasty snacks could you plan to buy next week?"
13. See teens often, although not necessarily for a long time at each contact.
14. Involve the father of the child when possible and appropriate.
15. By highlighting the positive, the negative will diminish. Thank the teen for coming in and keeping appointments.
16. Know your community resources. Let the teen know about available community services and referrals.
17. When possible, group discussion works well.

### **Closely-Spaced Pregnancies**

A woman who has an expected delivery date less than two years from the date her previous pregnancy ended has an indicator of nutritional need based on "pregnancy interval." This is known as short interconceptual period.

A woman who has been pregnant several times in a short period of time is more likely to have poor physical and nutritional status. There is a greater chance of having a poor pregnancy outcome, health problems for the mother, and a low birth weight infant.

Pregnancy stresses a woman's nutritional stores. She needs enough time between pregnancies to "rebuild" these stores.

### **Your Role**

#### **Closely-Spaced Pregnancies**

Nutrition Risk Factor # 43  
Defined as less than 24 months between the date of the last delivery, abortion, or miscarriage and the current EDD date.  
Objective, low risk factor

Follow normal pregnancy protocols discussed in Part VII. Use the short interconceptual period to reinforce to the woman the need for adequate nutritional and prenatal care.

### Multi-Fetal Gestation

Women carrying more than one fetus have a greater chance of having problems in pregnancy. A multiple pregnancy imposes increased nutritional needs due to greater fetal weight and the expansion of plasma blood volume. The mother's heart rate, breathing, kidney and liver functions are also affected. Multi-fetal pregnancies are associated with low birth weight, fetal growth restriction, placental and cord abnormalities, preeclampsia, anemia, shorter gestation, and an increased risk of infant mortality.

### Your Role

In addition to normal pregnancy protocols, these women may need education and counseling to ensure they get enough calories and nutrients for themselves and their fetuses, and that they gain enough weight.

Remember: A weight gain of 1.5 pounds/week for normal-weight women during the second half of a twin pregnancy is suggested.

### Breastfeeding Pregnant Woman

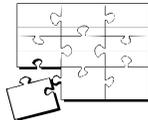
Breastfeeding during pregnancy can influence a woman's ability to meet the nutrient demands for her growing fetus and her nursing child. The hormones of pregnancy can also dramatically decrease a woman's milk supply, creating a situation where the breastfeeding infant will not get enough milk. Additionally, oxytocin (the hormone released during breastfeeding) can cause premature contractions which could lead to a premature birth. When a woman breastfeeds during pregnancy, she needs breastfeeding evaluation and special nutrition counseling.

#### Multi-fetal Gestation

Nutrition Risk Factor #83

Defined as a pregnant woman carrying more than one fetus, or postpartum women who carried more than one fetus in a most recent pregnancy.

Subjective, low risk

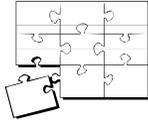


#### Breastfeeding Pregnant Woman

Nutrition Risk Factor #66

Defined as a pregnant woman currently breastfeeding another infant or child.

Subjective, low risk



## Your Role

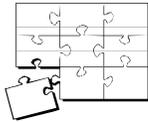
Discuss with the woman her feelings about breastfeeding while pregnant. This will help you to determine why she has decided to continue to breastfeed. Consider the child's age. Perhaps she is nursing a child out of habit. For the older child, who the mother prefers to wean, recommend the mother identify when the child requests to nurse and try to substitute nursing with another favorite activity. If the mother decides to continue breastfeeding because she feels that breastfeeding meets a real need, encourage the woman to talk to her health care provider as there are some medical reasons to consider weaning during pregnancy such as, uterine bleeding or pain, a history of premature delivery, and continued weight loss during pregnancy. If no medical contraindications exist, a well-nourished mother should be able to provide for the nutritional needs of the nursing child (over one year of age) and the unborn infant. It may be necessary for the mother to consume extra calories of nutrient dense foods to ensure that she continue to gain weight appropriately. Also let the mother know that many children wean themselves from breastfeeding during pregnancy.

## Medical Conditions

There is a long list of medical conditions that are considered nutrition risk factors on the WIC Program. All of these medical conditions must have been diagnosed by a physician or as self-reported by the participant, or be reported or documented by a physician or someone working under a physician's orders. The following is a general list of these conditions. (A more specific list to select which specific conditions are included is found in the Colorado WIC Procedure Manual and the Colorado WIC Mini-Manual.)

- Nutrient Deficiency Diseases
- Gastrointestinal Disorders
- Diabetes Mellitus
- Thyroid Disorders
- Hypertension
- Fetal Growth Restriction
- Infectious Diseases
- Food Allergies
- Celiac Disease
- Lactose Intolerance
- Eating Disorders
- Major Surgery or Burns
- Lupus Erythematosus
- Renal Disease

- Cancer or Cancer Treatment
- Central Nervous System Disorders
- Genetic or Congenital Disorders
- Inborn Errors of Metabolism
- Cardiorespiratory Diseases
- Heart Disease
- Cystic Fibrosis
- Asthma
- Clinical Depression
- Developmental Delays, Sensory or Motor Delays  
Interfering with the Ability to Eat
- Dental Problems

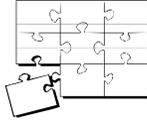


### Your Role

Individuals with these medical conditions can develop nutritional deficiencies. Deficiencies may result from a variety of reasons such as vomiting, chronic diarrhea, malnutrition, infections, poor absorption, and altered metabolism. The WIC Program provides key nutrients through foods and education that may help restore nutritional status and promote rehabilitation when nutrient losses are present. As with all nutrition risk factors, WIC staff assess dietary intake and growth or weight gain. WIC staff should provide education on eating a balanced diet using the Food Guide Pyramid and reinforce and educate on good eating habits. Staff can work with the participant to identify the best food package to meet the identified nutritional needs. For example, lactose reduced food packages or special formula packages.

These medical conditions are all high risk and require a referral to the WIC nutritionist or nurse at the initial certification visit. The WIC nutritionist or nurse will provide more in-depth assessment and counseling. They will develop a care plan which may have the participant follow up with them at the subsequent visit, or they may decide that the participant be followed by the paraprofessional staff. Depending upon the WIC nutritionist or nurse's assessment, the participant may have the same medical condition risked as either a high or moderate at future recertifications. Staff should also make referrals to community resources and health care providers when appropriate.





**Universal Precautions:** Limits occupational exposure to blood and other potentially infectious materials.

**Gestational Diabetes**  
Nutrition Risk Factor #80  
Presence of gestational diabetes as diagnosed by a physician and self reported by applicant/participant.  
Subjective, high risk

**Diabetes Mellitus:** A disorder of energy metabolism caused by a deficiency of insulin.

It is extremely important to recommend that all pregnant woman know their HIV status. Each clinic should have a list of places to refer women for HIV testing, treatment, and counseling.

Refer all HIV-infected women who are not under treatment to a health care provider. Additionally, because HIV is a high risk condition, refer HIV-positive women to the WIC nutritionist or nurse to evaluate their nutritional status and provide appropriate counseling.

Treat women with infectious diseases such as HIV and hepatitis just as you would non-infected participants. HIV cannot be spread through casual contact in the WIC clinic. When collecting hematocrits, use the same universal precautions (i.e., medical gloves, etc.) that are used for other participants. See your clinic supervisor if you are unaware of the methods used in universal precautions.

### **Gestational Diabetes**

Gestational Diabetes is a form of diabetes that appears during pregnancy. It usually begins about midway through the pregnancy. It is noted by an excess of glucose (a sugar that provides energy to the body) in the blood. In a normal pregnancy the body makes additional insulin (a hormone) to carry the body's glucose into the body's cells so that it can be used. Sometimes even this extra insulin is not enough, and the woman develops gestational diabetes. Most women with gestational diabetes have no symptoms.

Women with gestational diabetes have a greater risk of delivering a baby that is very large. Diet is very important for the treatment of gestational diabetes. The better a woman controls her diabetes the more likely she is to have a healthy baby without complications.

Women are typically screened for gestational diabetes between the 24th and 28th week of pregnancy. Once gestational diabetes is diagnosed most women can control their blood sugar with diet. Those who can't require insulin injections.

Once the baby is delivered, most women's blood sugar will return to normal. Women with gestational diabetes are at increased risk of developing diabetes mellitus later in life.

### **Your Role**

Follow normal prenatal nutrition protocols. Refer this woman to the RD/RN for high risk counseling.

**Complications of Previous**

**Pregnancy** - Presence of any of the following conditions during the last pregnancy:

Nutrition Risk Factor:

- AM gestational diabetes
- AN preterm delivery (37 weeks or before)
- AO delivery of low birth weight infant (5½ pounds or less)
- AP fetal death ( $\geq$  20 weeks gestation) or neonatal death (with 0-28 days of life)
- AQ delivery of an infant with neural tube defect or cleft palate or lip

**Complications of Previous Pregnancies**

A woman who had a certain medical problem in a past pregnancy may have an indicator for nutritional need. These problems include gestational diabetes, preterm delivery, delivery of a low birth weight infant, fetal death, or delivery of an infant with neural tube defect or cleft palate or lip.

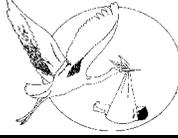
These women have a greater chance of having these problems happen in their current pregnancy.

**Note:**

A woman with gestational diabetes in a current pregnancy, who had gestational diabetes in a previous pregnancy, would be risked for both risk factors (NRF #80 and AM).



## SELF-CHECK #8



## PRENATAL NUTRITION

### Questions

Answers are located on pages 93-97.

1. List two reasons why a pregnant teen is at higher nutritional risk than older women.

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2. Put a check next to the factors below which present nutritional risks for pregnancy.
- a.  Mother is normal weight prior to conception.
  - b.  Inadequate prenatal weight gain.
  - c.  Inadequate diet.
  - d.  Medical conditions, such as iron-deficiency anemia and gestational diabetes.
  - e.  Mother is pregnant with more than one child.
  - f.  Mother is 45 years old.
  - g.  Mother is underweight prior to conception.
  - h.  Mother is 16 years old.

Place a “T” (for True) or an “F” (for False) in the space to the left of each of the following statements:

3.  Certain health conditions are considered to be nutritional risks, and these nutritional risks affect a woman's nutritional needs and/or her food habits. These women at risk need special consideration for nutrition counseling.
4.  Using drugs, alcohol, or cigarettes during pregnancy is okay because the mother's body can filter out harmful substances and they will not reach the fetus.

**Part VI: Social Indicators of Nutritional Need**

Some pregnant women are at nutritional risk based upon their living accommodations and/or their ability to take care of themselves. Situations where the WIC Program identifies the woman as being at nutritional risk include homelessness, migrancy, or recently placed in foster care. Generally in these situations where her shelter is temporary, the woman is less able to ensure that she has access to adequate nutritious food, food storage, and cooking facilities.

**Homelessness**  
 Nutrition Risk Factor #70  
 Objective, low risk

Homelessness

Homelessness is defined as a woman who lacks a fixed and regular night time residence; or whose primary night time residence is: a supervised publicly or privately operated shelter (including a welfare hotel, a congregate shelter, or a shelter for victims of domestic violence) designated to provide temporary living accommodations; an institution that provides a temporary residence for individuals intended to be institutionalized; a temporary accommodation in the residence of another individual not exceeding 365 days; or a public or private place not designed, or ordinarily used as, a regular sleeping accommodation for human beings.

**Migrancy**  
 Nutrition Risk Factor #71  
 Objective, low risk

Migrancy

Migrancy is defined as a woman whose family’s principal employment is in agriculture on a seasonal basis, who has been so employed within the last 24 months, and who establishes, for the purposes of such employment, a temporary abode.

**Foster Care**  
 Nutrition Risk Factor #94  
 Subjective, low risk

Foster Care

Foster care is defined as entering the foster care system during the previous 6 months or moving from one foster care home to another foster care home during the previous 6 months.

**Women with Limited Ability to Make Feeding Decisions and/or Prepare Food**  
 Nutrition Risk Factor #93  
 Subjective, low risk

Limited Abilities

Additionally, there are women with limited ability to make feeding decisions and/or prepare food. Examples may include individuals who are:

- mentally disabled/delayed and/or have a mental illness such as clinical depression (diagnosed by a physician or licensed psychologist);
- physically disabled to a degree which restricts or limits

- food preparation abilities; or
- currently using or having a history of abusing alcohol or other drugs.

Regarding the use of alcohol—a woman who drinks should not be assigned this risk factor unless the use of alcohol interferes with her ability to select and prepare food.

### **Your Role**

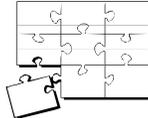
Follow the normal pregnancy protocols to identify nutritional needs. Discuss with the woman ways the WIC Program can assist her in meeting her nutritional needs.

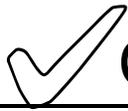
Work with the woman to select a food package that will fit her ability to store and prepare food.

For women who are homeless or migrants, find out if they are aware of local resources in the community. These families can often benefit from more than just WIC foods and education. You can help by giving families information about agencies that can help families with these challenges.

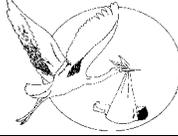
Occasionally a pregnant woman on the WIC Program will be in foster care. In a few cases it occurs with a pregnant teen who lives with a foster parent. Foster children have a high frequency of mental and physical problems that are often the result of abuse and neglect happening before foster care. They are often more likely to have inadequate nutrition. WIC staff can provide a baseline nutritional assessment of the participant and provide nutrition education as well as make referrals to resources to support the foster parent and participant's ability to have a healthy pregnancy.

Women who have limited ability to make feeding decisions and/or prepare food are at risk for neglecting their own nutritional needs. Certain physical handicaps, such as blindness or paraplegia, and mental illness, may limit her ability to prepare foods. WIC staff can provide education, referrals, and coordinate services to help the woman receive the assistance she needs to have a healthy pregnancy.





**SELF-  
CHECK #9**



**PRENATAL  
NUTRITION**

1. Name two reasons why being homeless or a migrant would put a pregnant woman at nutritional risk.

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**Now stop and check your answer on page 96.**

## Part VII: WIC Prenatal Protocols

Now that you have some background information on the:

- growth and development of the fetus;
- importance of adequate nutrition and weight gain during pregnancy;

let's review the Protocols for Normal Pregnancy.

Consider these protocols as steps for assessing the anthropometric and nutritional status of the pregnant woman at her certification visit and a summary of education points.

### Normal Pregnancy Protocol

#### I. Assessment at Certification Visit

- A. Check current height and weight and pregravid weight. Determine if pregravid underweight, normal, overweight, or obese. Plot pregravid and current weight on Prenatal Weight Gain Grid.
- B. Check hematocrit.
- C. Complete a Diet Assessment.
- D. Complete a Nutrition Questionnaire.
- E. Assign subjective Nutrition Risk Factors (NRFs).

#### II. Counseling Points (more NRFs will be covered in other parts of these protocols)

- A. Explain reasons for WIC eligibility. Describe NRFs.
- B. Review Nutrition Questionnaire for problems with nausea/vomiting and counsel as appropriate. Additional counseling on diet may need to be delayed until nausea subsides.
- C. Review questionnaire for problems with gas, constipation, heartburn, or diarrhea, and counsel as appropriate.
- D. Review diet recall. Prioritize diet inadequacies; counsel on only one or two at each contact.
- E. Encourage:
  1. A good prenatal diet based on the Food Guide Pyramid.
  2. Appropriate weight gain:

- a. Normal weight (BMI of 19.8 to 26.0) -- 25-35 pounds
  - b. Underweight (BMI <19.8) -- 28-40 pounds
  - c. Overweight (BMI of 26.1 to 29.0) -- 15-25 pounds
  - d. Obese (BMI >29.0) -- 15 pounds.
  - e. For twins -- 35-45 pounds and a rate of weight gain of 1.5 pounds/week for normal weight women during the second half of pregnancy.
  - f. For short women (under 62") encourage gain at the lower end of each range.
3. Use of prenatal vitamin/mineral supplements to include 30 mg of iron and 400 micrograms of folic acid. Encourage a diet rich in folate as a complement to the supplement.
  4. Prenatal care from a physician or clinic.
  5. Adequate fluids (6-8 cups/day).
- F. Advise all pregnant, postpartum, and breastfeeding women on the importance of knowing their HIV status.
1. Provide information regarding the risks of transmitting HIV from mother to baby during pregnancy and delivery and the importance of getting early medical treatment to reduce the risk to their baby.
  2. Provide referral information for local HIV testing, education, and counseling services.
  3. Inform all women that HIV-positive mothers should not breastfeed.
- G. Discourage and warn of the possible dangers of:
1. Use of alcohol, drugs, cigarettes.
  2. Use of medicines, including over-the-counter medications, unless prescribed by a physician who knows of the pregnancy.
  3. Exposure to secondhand tobacco smoke which can result in a smaller, less healthy baby.
- H. Ask participant what she has heard about breastfeeding.

1. **If participant seems interested in breastfeeding**, address any concerns or barriers to breastfeeding she may have. Dispel any myths. Determine her sources of support for breastfeeding. Discuss nipple evaluation and refer to prenatal provider if appropriate.
2. **If participant seems undecided about breastfeeding**, address any concerns or barriers to breastfeeding she may have. Dispel any myths. Discuss the advantages of breastfeeding. Determine her sources of support for breastfeeding. Discuss nipple evaluation and refer to prenatal provider if appropriate.
3. **If participant says she wants to bottle feed**, ask her how she came to that decision. Address concerns, barriers, myths. Discuss advantages of breastfeeding. Determine sources of support. If participant is possibly interested in breastfeeding, discuss nipple evaluation and refer to prenatal provider if appropriate.

### III. Behavior Change Goal Setting

Help participant prioritize the nutrition concerns and identify 1-2 nutrition activities or diet changes that the participant is willing to make to improve nutrition issues. Define specific goals -- what, how much, how often, and when?

### IV. Referral

- A. Prenatal care (if not receiving).
- B. Prenatal Plus
- C. Family Planning Services.
- D. Other community services as needed, such as Medicaid, La Leche League, child birth classes, Food Stamps, or Social Services.
- E. Drug or alcohol abuse treatment programs, as appropriate.

### V. Documentation

Document education provided, referrals made, pamphlets provided, client comments/follow up on goals and referrals, assessment/ counseling/plan, and behavior change goals set.

## VI. Follow up at Next Visit

### A. Low Risk Participants

1. At a minimum, check and plot weight at least one time each trimester. Optimally, weights should be taken at each WIC visit.
2. If woman is not receiving prenatal care, check weight and hematocrit at each trimester.
3. Review behavior change goal from previous visit. Praise participant for any attempted change.
4. Advise to continue eating a good prenatal diet.
5. If participant plans to breastfeed, discuss the following topics:
  - a. Prenatal breast preparation.
  - b. How to breastfeed.
    - Positioning and latch-on
    - Frequency of breastfeeding
    - Length of feedings
6. If participant is undecided about breastfeeding:
  - a. Ask participant if she has thought anymore about breastfeeding.
  - b. Determine barriers and address them.
  - c. Dispel myths.
  - d. Review advantages.
  - e. If participant is willing to hear more about breastfeeding, discuss the following topics:
    - (1) Prenatal breast preparation
    - (2) How to breastfeed
      - Positioning and latch-on
      - Frequency of feedings
      - Length of feedings
7. For the participant who plans to bottle feed:
  - a. Ask her if she has thought anymore about breastfeeding.
  - b. If she states that she will definitely bottle feed, support her decision.
  - c. If she appears open to the possibility of breastfeeding or is interested in hearing more about it, discuss the following topics:
    - (1) Prenatal breast preparation.
    - (2) How to breastfeed.
      - Positioning and latch-on
      - Length of feedings
8. Refer to Family Planning in third trimester.

9. Follow up on referrals as appropriate.

B. Moderate Risk Participants

Follow same steps as above plus have chart reviewed by the RD/RN after visit.

C. High Risk Participants

Schedule follow-up visit by RD/RN according to State Protocols within one to two months of initial visit.

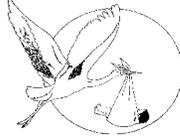
VII. Follow Up at Subsequent Visits

A. For the participant who plans to breastfeed, or is interested in learning more about it, discuss the following:

1. What the participant can do while in the hospital.
2. Positioning and latch-on (brief review).
3. What she can expect the first few weeks.
4. Clothing for nursing.
5. How to avoid common problems:
  - sore nipples
  - engorgement
6. Participant's sources of postpartum support.
7. Mention food package for exclusively breastfeeding women.



**SELF-  
CHECK #10**



**PRENATAL  
NUTRITION**

**Questions**

1. Without looking at the prenatal protocols just listed, see how many education points you can list.

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**Stop now and check your answer on page 96.**

## Part VIII: Postpartum Nutrition and General Guidelines

### Postpartum: the “Fourth” Trimester

The Postpartum period is a time of dramatic emotional and physical change for women, yet it is most often treated as an after-thought in nutrition and health care. We spend so much time talking about the baby we often forget the new mom’s needs.

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**Postpartum:** That period of time occurring after childbirth.

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Just as adequate nutrition is important during pregnancy, it is also important during the postpartum period. The postpartum period is that period of time after childbirth extending up to at least six months after delivery. A good diet during this time is needed to rebuild the nutrient stores that were depleted during pregnancy.

This section will review six healthy tips for new moms. It reviews the nutrient needs of the non-breastfeeding, post-partum woman. Although breastfeeding is the optimal way to feed an infant, some women may be unable to or may not choose to breastfeed. Refer to the Breastfeeding Module/ Resource Manual for the nutrient needs of the postpartum breastfeeding woman.

The postpartum period continues to be a special time for the mother and it is important to convey this message to her. The new mother will be experiencing many physical and emotional changes. Some of these changes may be linked to her nutritional status and diet. Thus, it is very important to stress the positive effects of good nutrition during this postpartum period.



Replenishing the body's nutrient stores is important for the health status of the mother. The nutrition questionnaire along with the diet assessment, anthropometric and hematocrit that you collect will help you to identify the factors that indicate a postpartum woman may be at nutritional risk. Many of the same nutrition risk factors of pregnancy will apply to the postpartum woman. Some of these include:

- being at a young age;
- being underweight postpartum;
- being overweight postpartum;
- having anemia;

- elevated blood lead;
- having closely spaced pregnancies;
- having complications during the most recent pregnancy;
- using drugs;
- following highly restrictive diets;
- specific medical conditions;
- having an inadequate diet;
- a multi-fetal pregnancy during the most recent pregnancy;
- having pica; and
- any of the social indicators of nutritional risk.

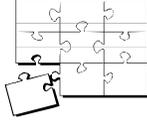
Your role in educating and counseling these women post-partum is similar to during pregnancy. There are only a few unique risk factors to the postpartum woman—they include high maternal weight gain during pregnancy and the definition for risk with the use of alcohol is different. These will be reviewed in this section of the module.

Equally important at this time is the fact that a mother's nutritional status after a pregnancy can affect the outcome of future pregnancies. So it is critical that the mother practice healthy nutrition habits even after the postpartum period since the benefits of her maintaining a good nutritional state are extended to her future pregnancies and children. For example, it is recommended that all women who can become pregnant take a multivitamin with folic acid daily, in addition to eating a healthy diet that includes foods rich in folic acid to help prevent neural tube defects.

### **Pregnancy Weight Gain**

During the first six weeks of the postpartum period, the woman's weight will not be a good indicator of whether the woman is truly overweight or not. She will still be retaining some of the extra body fluids that she produced during pregnancy. These extra body fluids helped to form the extra blood volume which was needed to nourish the baby and some of the extra tissues such as the uterus and breast tissues.

If a woman gained an adequate amount of weight during pregnancy, her postpartum weight will probably be more than her prepregnancy weight. Besides the maternal fluids just mentioned, she will most likely be carrying some extra fat. A review of studies found that the average postpartum weight retention (gained during pregnancy and not lost during the postpartum period) is about one kilogram (2.2 pounds) for each



### High Maternal Weight Gain

Nutrition Risk Factor AA

For singleton pregnancies only, total gestational weight gain during most recent pregnancy of :

- greater than 40 pounds for underweight women
- greater than 35 pounds for normal weight women
- greater than 25 pounds for overweight women
- greater than 20 pounds for obese women

Objective, low risk

### Losing Weight with High Protein Diets

There are several diets that promote weight loss by restricting carbohydrates and consuming unlimited fat and protein. Weight loss from these diets is initially due to rapid water loss. People are at risk for ketosis which can cause slight nausea, light-headedness, and fatigue. It may also worsen existing medical problems, such as gout and kidney disease. Pregnant women should avoid the diet because chronic ketosis in the mother could negatively affect the fetus.

There is no scientific evidence to suggest that these diets have any advantages over the more conventional diets for weight reduction. There is no magic panacea to weight loss; a calorie is still basically a calorie, and there must be a long-term deficit between calories eaten and calories burned if weight loss is to be maintained.

live birth (although there is a wide spread of the ranges of weight gain). This may help explain why the number of live births a woman has can influence her long term body weight by retaining a small amount of weight with each pregnancy.

### High Maternal Weight Gain

Higher weight gains during pregnancy are also associated with greater postpartum weight retention as seen at 6 month, 12 month, and 18 month weight checks as well as at the start of next pregnancies. The added health risks of being overweight or obese include heart disease, diabetes, gallbladder disease, sleep apnea, osteoarthritis, several reproductive cancers, infertility, and miscarriages. For these reasons, high maternal weight gain is a risk factor on the WIC Program. WIC staff have an opportunity to offer sound nutritional advice on diet and to encourage moderate and appropriate physical activity.

Most women will want to get back to their prepregnancy weight as soon as possible. Not realizing the importance of replenishing their nutrient stores during this postpartum per-iod, many will go on “crash” diets or adopt inadequate eat-ing patterns. Because of this, postpartum women should be counseled soon after delivery (or even before) about weight loss, the need to eat a balanced diet, and how they can sensibly achieve a desirable weight when it is appropriate.

Another good reason not to restrict calories severely during the postpartum period is because, generally, new mothers are already tired from the demands of a newborn baby. Going on a weight reduction diet puts even more demands on the mother's body.

During the weeks just following delivery some weight loss may occur naturally. This is fine as long as the weight loss does not exceed ½ to 1 pound per week and the woman is eating a well-balanced, nutritious diet. After a few months, and if it is necessary, a non-breastfeeding woman should be counseled on careful, slow weight loss while eating a variety of foods from the Food Guide Pyramid food groups.

### Your Role

Other suggestions that you may use when educating a woman how to lose weight include:

- Cut down on high-calorie foods such as cookies, cakes,

- candies, chips, and soda pop.
- Reduce fat intake by using:
  - little or no fat when cooking. Bake, broil, or steam.
  - lean meats, fish, and poultry
  - vegetable proteins such as dried beans and peas
  - nonfat, reduced fat, and/or lowfat dairy products
- Increase consumption of fresh fruits and raw vegetables and whole grains.
- Increase physical activity and exercise (See Healthy Tip #3).
- Consider a weight loss support group.
- Avoid fad diets or quick weight loss programs. Liquid diets or supplements should be avoided.
- Seek a professional for severe problems. Consult an RD for losing weight.

Being overweight can become an obstetrical complication should the woman become pregnant again. Overweight is also associated with other chronic diseases such as hyper-tension, some forms of cancer, diabetes, and heart disease.

### **Teen Postpartum Weight Loss**

Adolescents in the postpartum period should receive special attention regarding the weight loss issue. This age group may be more difficult to convince that they need to maintain a good diet during the postpartum period. Three to six months after delivery they still may be very unhappy with their weight, even though their new weight may be a result of their own normal growth and maturation that occurred during their pregnancy, and not due to the actual pregnancy itself.

It may help the teenager accept and understand her new weight if you take the time to thoroughly assess her prior and current weight status by looking at her prepregnancy weight, the total amount of weight she gained during pregnancy, and her current BMI.

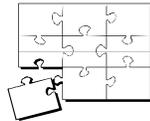
Encourage normal eating, active living, self-respect, and an appreciation for differences in body size.

**Use of Alcohol**

Nutrition Risk Factor #60

- routine current use of 2 or more drinks/day; or
- binge drinking, i.e., drinks 5 or more drinks on the same occasion on at least one day in the past 30 days.

Objective, low risk



**Use of Alcohol**

Women who choose to drink postpartum put themselves and their baby’s health at risk, particularly if they are drinking heavily. Alcohol may impair people’s judgement which can lead to accidents or injuries. Alcohol may become a substitute for nutritious food. Excess alcohol consumption depletes the body of nutrients, can destroy brain cells and can increase a person’s risk for diseases of the liver and pancreas and certain cancers.

**Your Role**

For women who drink alcohol, encourage moderation (such as one drink per day).

Offer information and referrals to all women—including those who report they cannot moderate their drinking. Remind all women who are capable of becoming pregnant that consuming alcohol can put a fetus at risk for birth defects. Unfortunately the harmful effects to a fetus often occur before a woman even knows she is pregnant.

**Healthy Tips for New Moms**

There are 6 “Healthy Tips” or educational messages that WIC staff can reinforce to the postpartum woman. They are: Eat Right, Eat Foods Rich in Folate Every Day, Be Active, See a Health Care Provider, Make Time for Being a New Mom, and Stay Smoke Free. Let’s examine these tips in more detail.

**Healthy Tip #1: Eat Right**

Help mothers choose diets that will be nutritionally adequate. Review the Food Guide Pyramid for postpartum women to help them in meal planning. The Pyramid (shown on page 88) includes recommendations about serving sizes and amounts. Particular attention should be given to consuming adequate amounts of calcium and iron, if the woman is found to be anemic.

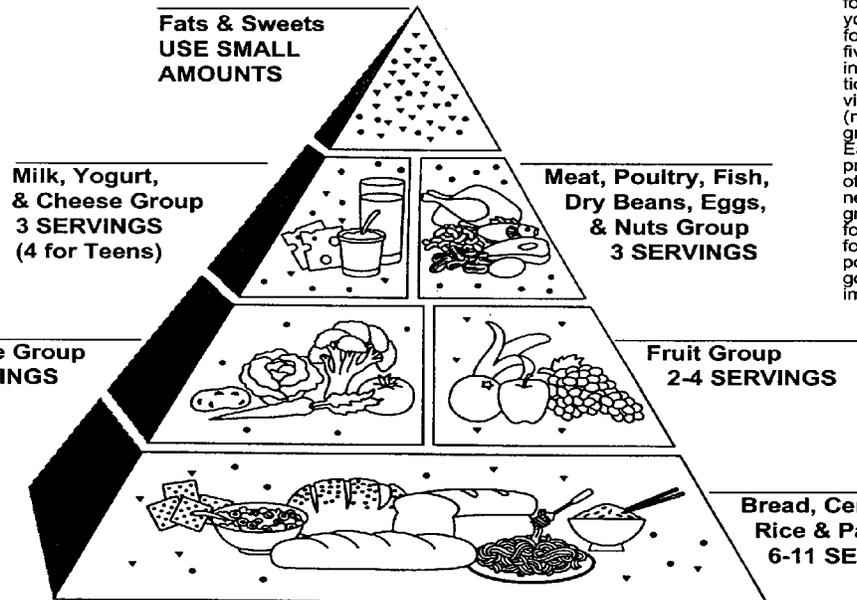
### **The Daily Food Guide Screening Tool**

Refer to the Daily Food Guide Screening Tool on page 31. Notice the recommended minimum number of servings for non-breastfeeding adult postpartum women. Even though the requirements are lower in some cases when compared to the requirements for the pregnant and breastfeeding woman, the importance of an adequate diet should not be overlooked. Notice the recommended minimum number of servings for non-breastfeeding postpartum teens is the same as adult pregnant and breastfeeding women.

# FOOD GUIDE PYRAMID

A Guide to Daily Food Choices for Postpartum Women

Eat the Recommended Number of Servings each day from the five food groups to maintain your health.



The Food Guide Pyramid is a general guide that lets you choose healthy foods that are right for you. The Pyramid calls for eating foods from the five food groups shown in the three lower sections to get the calories, vitamins, and minerals (nutrients) you need for growth and good health. Each of the food groups provide some, but not all of, the nutrients you need. Foods in one group cannot replace foods in another. No one food group is more important than another. For good health, they are all important.

**KEY**  
 These symbols show fats and added sugars in foods.  
 • Fat (naturally occurring and added)  
 ▼ Sugars (added)

Adapted from: U.S. Department of Agriculture and the U.S. Department of Health and Human Services

MY GOAL IS: \_\_\_\_\_

Colorado Department of Public Health & Environment/Nutrition Services WIC #178

## What Counts as 1 Serving?

► The amount you eat may be more than one serving. For example, a dinner portion of spaghetti would count as 2 or 3 servings.

Bread, Cereal, Rice, & Pasta Group	Vegetable Group	Fruit Group	Milk, Yogurt, & Cheese Group	Meat, Poultry, Fish, Dry Beans, Eggs, & Nuts Group	Fats & Sweets LIMIT CALORIES FROM THESE especially if you need to lose weight
1 slice of bread ½ cup of cooked rice or pasta ½ cup of cooked cereal ¾ cup of ready-to-eat cereal 4-5 crackers 1 tortilla (6") 1½ cups popped corn ½ English muffin or bagel 1 roll/muffin 1 hamburger/hot dog bun 1 pancake or waffle (5")	½ cup of chopped raw or cooked vegetables 1 cup of leafy raw vegetables	1 piece of fruit or melon wedge ¾ cup of juice ½ cup of canned fruit ¼ cup of dried fruit	1 cup of milk or yogurt 1½ ounce of natural cheese 2 ounces of processed cheese 1½ cups of ice cream or frozen yogurt 1½ cups cottage cheese	2-3 ounces of cooked lean meat, poultry, or fish 2 hot dogs 1 cup of cooked beans 2 eggs ¼ c or 4 tablespoons of peanut butter ½ cup tuna salad 1 cup tofu ½ cup seeds	

### A Closer Look at Fat and Sugar

The tip of the Food Guide Pyramid contains the fats and sweets. These foods include salad dressing, cream, butter, margarine, sugar, candy, soda pop, sweet desserts, and some snack and fast foods. These foods provide calories but not many vitamins and minerals. They can be used in moderation to add variety to your diet once you have chosen foods from the other food groups.

When choosing foods for a healthful diet, consider the fat and sugar that might be in foods in the other food groups—for example, French fried potatoes. Fat and sugar is not just in the tip of the Pyramid, but it is also hidden in many of the fast and convenience foods we eat. The best idea is to choose foods from the five groups of the Pyramid that are as close to natural as possible—not precooked, boxed, or bagged. That way it is easiest to choose a healthful diet without a lot of added fat, sugar, and salt. Foods already processed are often more expensive than those you fix yourself.



### **Healthy Tip #2: Eat Foods Rich in Folate Every Day**

As discussed previously, folate is a B vitamin that can help prevent birth defects of the brain and spinal cord called neural tube defects (NTDs) when taken before pregnancy. Since NTDs originate in the first month of pregnancy before many women know they are pregnant, it is important that the women have enough folate in her system before pregnancy. One way to ensure that women have an adequate intake of folate in addition to a healthy diet is to take a multivitamin with folic acid (another form of the vitamin) daily.

### **Healthy Tip #3 : Be Active**



Exercise is something which should be considered for all postpartum women. Make sure to encourage women to ask their health care provider first to find out when they can begin exercising. Usually a light, reasonable exercise regime, such as walking, can be suggested. Encourage the mom to take walks with the baby. Once exercise is approved by the health care provider, recommend that the mom try to exercise 3 to 4 times a week, starting at 10 minutes and working up to 20 to 30 minutes each time. A regular routine of exercise is very important to regaining body tone, encouraging weight loss, and improving a new mother's overall spirits.

### **Healthy Tip #4: See a Health Care Provider**

Encourage the postpartum mother to visit her prenatal provider about 6 weeks after delivery. This is an opportunity for the provider to check on the woman's recovery as well as to discuss birth control methods. Also, if the new mother is feeling sad or angry after the birth of her baby, she can talk with her provider about her feelings. The provider can offer resources to help her with the adjustments of having a new baby.

### **Healthy Tip #5: Make Time for Being a New Mom**

Once the baby arrives, often the attention is switched from the mom to caring for the new baby. Encourage the postpartum mom to take time for herself each day to help her to be a good mother and decrease stress. Some suggestions to offer include:

- Take a walk
- Take a warm bath

- Talk to a friend or relative
- Read a magazine or book

Since the new mother is probably tired with her routine dramatically altered, encourage her to fix meals that require little preparation time or better yet, to enlist the assistance of other adults in the household to help.

### **Healthy Tip #6: Stay Smoke Free**

Praise women who quit smoking during pregnancy! Not smoking is one of the best things they can do for themselves and their baby. Discourage exposure of secondhand smoke to the baby which can cause breathing difficulties and more respiratory and middle ear infections. Offer resources in the community to help the new mom stay smoke free particularly if she has previously used smoking to relieve stress.

### **Normal Postpartum Protocols**

Just as with pregnancy, the WIC Program has protocols for providing care to the postpartum woman. These protocols guide you through the assessment process and educational points of a certification visit. Let's review the protocols for normal postpartum nutrition education and counseling.

#### **I. Assessment at Certification Visit**

- A. Check weight (and height, if needed) and assess if underweight, normal weight, overweight, or obese.
- B. Check hematocrit.
- C. Complete a Diet Assessment.
- D. Complete a Nutrition Questionnaire.
- E. Assign subjective Nutrition Risk Factors (NRFs).

#### **II. Counseling Points**

- A. Explain reasons for WIC eligibility. Describe NRFs.
- B. Encourage:
  1. A good postpartum diet, based on the Food Guide Pyramid.
  2. Adequate fluids (6-8 cups/day).
  3. Rest, relaxation, and exercise.
  4. Postpartum check with physician or clinic.
- C. Discourage exposure of infant to secondhand tobacco smoke which can cause breathing difficulties and more respiratory and ear infections.
- D. Discuss woman's weight loss plans, if any. For first three months postpartum, weight loss should not be

greater than ½ to 1 pound per week. This time is needed for replenishment of body stores. Significant caloric restriction or rapid weight loss should be discouraged until after this period of rebuilding body stores.

- E. Review diet recall. Prioritize diet inadequacies; counsel on only one to two at each contact.
- F. Advise on the importance of knowing one's HIV status and make referral for testing.

III. Behavior Change Goal Setting

Help participant prioritize the nutrition concerns and identify 1-2 nutrition activities or diet changes that the participant is willing to make to improve nutrition issues. Define specific goals--what, how much, how often, and by when.

IV. Referral

Other community services as needed, such as Family Planning, Medicaid, parenting classes, Food Stamps, or Social Services. Drug or alcohol abuse treatment programs, as appropriate.

V. Documentation

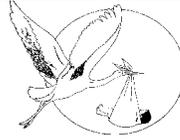
Document education provided, referrals made, pamphlets provided, client comments/follow up on goals and referrals, assessment/counseling/plan, and behavior change goals set.

VI. Follow up at Next Visit

- A. Review behavior change goal from previous visit.  
Praise participant for any attempted change. Advise to continue following good postpartum diet.
- B. Review woman's current weight and goals for weight loss as appropriate.
- C. Follow up on referrals as appropriate.



**SELF-CHECK #11**



**PRENATAL NUTRITION**

**Questions**

Answers are located on pages 93-97.

1. Why is it important for non-breastfeeding, postpartum women to consume an adequate diet?

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Place a “T” (for True) or an “F” (for False) in the space to the left of each of the following statements:

2. \_\_\_ During the postpartum period, a woman who does not breastfeed her baby needs the same number of daily servings of breads and cereals as the woman who is breastfeeding her baby.
3. \_\_\_ After the initial postpartum period of rebuilding body stores and after breastfeeding has been discontinued, a woman should then be encouraged to lose weight if it's necessary.
4. Name the 6 healthy tips to reinforce with postpartum women.

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**Now stop and check your answers**

## ✓SELF-CHECK ANSWERS

### Self-Check #1

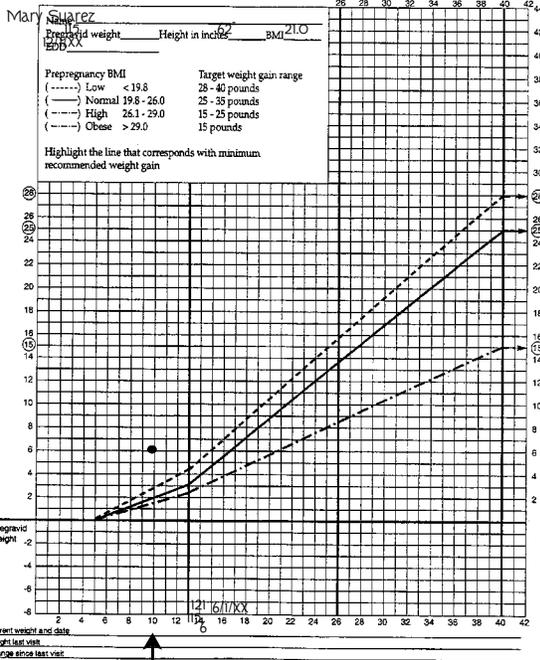
1. Any two of the following answers are correct:
  - a. To maintain mother's body tissues and nutrient stores.
  - b. To decrease the chance of complications and difficult deliveries, including prematurity, stillbirths, birth defects.
  - c. To decrease the chance of nervous system disorders and impaired mental development in the newborn.
  - d. To decrease the chances of having low birth weight infants.
  - e. To allow for the normal growth and development of the fetus.
2. F Low birth weight in infants is associated with an increased chance of illness and death during the perinatal period.
3. F While early prenatal care is very important, risk factor #65 is only assigned if a woman has not started her prenatal care by the second trimester (4th month of pregnancy or later).

### Self-Check #2

1.
  - a. 25-35 pounds
  - b. 28-40 pounds
  - c. 15-25 pounds
  - d. 15 pounds
2. False No one should attempt weight loss or maintenance during pregnancy. An overweight woman should gain between 15-25 pounds during pregnancy.
3. False Large and rapid shifts in weight during the last trimester may mean trouble. Weight gain should be slow and steady.
4. c

### Question #5

#### PRENATAL WEIGHT GAIN GRID



a.

a.

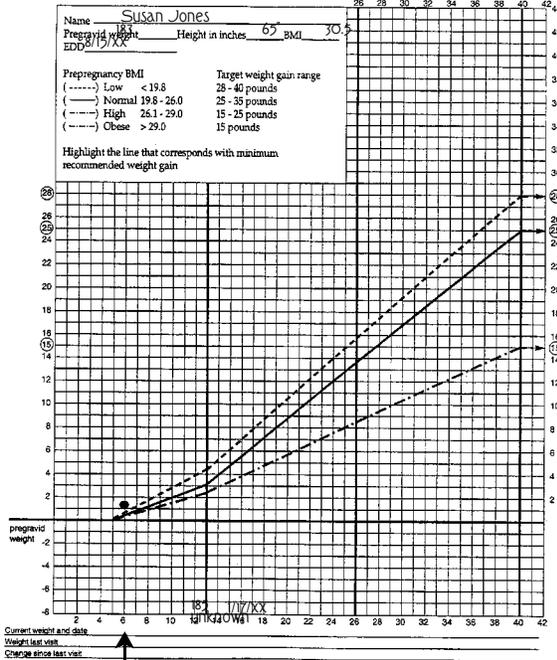
b.

c. 25 - 35 pounds

d. None apply because her prepregnancy weight is "normal," she is gaining slightly above her minimum weight gain line, and she has not gained more than 7 pounds in one month.

### Question #6

#### PRENATAL WEIGHT GAIN GRID



b.

c. 15 pounds

d. NRF #48  
 Because her prepregnancy BMI is 30.5, her weight category is obese.

### Self-Check #3

1.

Food Group	Recommended Minimum Number of Daily Servings for Pregnant Teens	Recommended Minimum Number of Daily Servings for Pregnant Women
Dairy Products	5	4
Meat/Meat Alternatives	3	3
Breads & Cereals	6	6
Total Fruits & Vegetables	5	5
Vitamin A-rich	1	1
Vitamin C-rich	1	1
Other	Use small amounts	Use small amounts

2.

cottage cheese	<u>Dairy</u>	oranges	<u>Vitamin C</u>
corn tortilla	<u>Breads &amp; Cereals</u>	broccoli	<u>Vitamin A</u>
apples	<u>Other Fruits &amp; Veg.</u>	crackers	<u>Breads &amp; Cereals</u>
tuna	<u>Meat/Meat Alt</u>	yogurt	<u>Dairy</u>
pinto beans	<u>Meat/Meat Alt</u>	peanut butter	<u>Meat/Meat Alt</u>
fig newtons	<u>Other Foods</u>	lemonade	<u>Other Beverages</u>

3. True.

4. False. There is no reason to restrict water during pregnancy.

#### **Self-Check #4**

1. Iron and folacin
2. A woman who is anemic will look pale; she will be tired, listless, irritable; she may report headaches, dizziness, and a drop in appetite.
3. a. hematocrit  
b. C
4. Look at the chart on page 37 for those foods which are high in iron.
5. Early in pregnancy (and preconceptually).

#### **Self-Check #5**

1. Try adding: flavoring to milk (chocolate, strawberry)  
powdered milk to casseroles and other foods
2. Offer small servings of lactose containing foods.  
Eat dairy products with other foods.  
Active-culture foods (such as yogurt) help break down lactose.  
Enzyme tablets and lactose reduced milks are available and can greatly increase tolerance. (The WIC Program provides lactose-reduced food packages.)  
Heated milk may be easier to digest than cold milk.  
Aged cheeses are lower in lactose.
3. False. Vitamin/mineral supplements do not take the place of a nutritionally adequate diet.
4. Any 3 of the following factors: income level, cultural background, religious beliefs, climate, philosophical attitudes about food.

**Self-Check #6**

1. b
2. (a) False A pregnant woman should not take any over-the-counter medications unless advised by her doctor.  
(b) False
3. False Salt should not be restricted because pregnancy increases the need for sodium, although excessive sodium use should not be condoned.
4. Refer to suggestions on pages 49-51 for a complete listing.

**Self-Check #7**

1. False No level of alcohol during pregnancy is considered safe.
2. True
3. Smaller. Smoking can reduce the birth weight of the infant.
4. 

<u>X low</u>	Pica	<u>X high</u>	Alcohol	<u>X high</u>	Cocaine
<u>(not)</u>	Caffeine	<u>X low</u>	Tobacco	<u>X high</u>	Marijuana

**Self-Check #8**

1. Any two of the following reasons: they may not have yet completed their own growth; poor eating habits; influence of social risk factors.
2. The following factors should be checked: b, c, d, e, g, h
3. True
4. False

**Self-Check #9**

1. Difficulty storing foods (fresh or frozen) would limit types of foods purchased.  
Limited access to cooking facilities.

**Self-Check #10**

1. (If you were not able to name at least 4 protocols, take some time to review the text before proceeding.)

### **Self-Check #11**

1. To replenish the body's nutrient stores that were depleted during pregnancy.
2. True
3. True
4. Review pages 86-90 to see which you remembered correctly.