

# First Steps Nutrition Modules

## Module 4 – Medical Nutrition Therapy for Specific Conditions

### ***Introduction***

An existing medical condition, or one that is acquired during pregnancy, is a risk factor generally for both mother and infant. Medical nutrition therapy (MNT) is often required for conditions that are associated with pregnancy. Usually, collaboration with other health care providers (multi-discipline and/or multi-agency) is required, and referral to other providers needed in some instances.

MNT is within the scope of practice of the First Steps dietitian. The First Steps Policy and Procedure Manual includes “Medical Conditions” as a risk factor, and describes minimal intervention. Read the guidelines for medical conditions in general. Several conditions are reviewed in this module.

The Institute of Medicine presents MNT for medical issues in a functional framework (IOM, 1992), with attention to:

- Estimating nutrient requirements
- Adapting to changing needs
- Physical and physiologic limitations, especially GI (e.g., is client about to handle feedings by mouth? by tube? Are special formulas needed?)
- Effects of medical therapies on nutrition (e.g., medications that cause mineral losses, vomiting, diarrhea; affect method of feeding)
- Summarizing and tracking pertinent nutritional data

*Estimated time to complete this module: 60 minutes.*

### **Learning Objectives**

Participants will be able to:

- Describe the medical risks and nutritional implications of some common complications associated with pregnancy
- Describe basic medical nutrition therapy for some common complications associated with pregnancy: gestational diabetes, hypertensive disorders, overweight, underweight

### **Read more: Guidelines for Evaluating Medical Conditions**

*MNT is within the scope of practice of the First Steps dietitian. The First Steps Policy and Procedure Manual includes “Medical Conditions” as a risk factor, and describes minimal intervention.*

#### **Evaluate**

- *Review the client’s health history*
- *Observe and record any negative physical health symptoms or client complaints discovered or discussed during a visit*
- *Determine the current status of the medical condition/symptoms and management by the obstetrical care provider*
- *Review and record any treatment prescribed or self-administered to decrease symptoms and/or prevent complications during the maternity cycle*
- *Explore the client’s understanding of the medical condition/symptoms, treatment and the potential effects it may have on pregnancy, health, and infant outcomes*

#### **Inform**

- *Share preventive health information and self-care methods that may enhance her ability to cope with the condition/symptoms and follow any prescribed treatment regimes*
- *Review basic health care messages including “danger signs” during pregnancy*

#### **Act**

- *Document risk factor on care plan*
- *Refer to MSS Nurse regarding any emergent or increasing symptoms of physical distress or discomfort*
- *Consult with the obstetrical care provider regarding emergent symptoms and/or emergency room when symptoms require immediate attention*
- *Case conference and develop a plan with interdisciplinary team when medical conditions are complex, infectious, or chronic*
- *Determine a lead for complex medical issues, based on the client’s needs, team members’ knowledge of the condition, and relationship with the client*

#### **Ongoing Follow-up and Outcomes**

- *Continue to follow issues as needed and make referrals*
- *Document any communications with medical providers*
- *Document outcomes on the care plan, and if no changes occurred since the risk factor was identified, note why*

## **Outline**

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- II. GESTATIONAL DIABETES
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  - b. Medical Management
  - c. Medical Nutrition Therapy
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- III. HYPERTENSIVE DISORDERS
  - a. Medical Management
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    - i. Assessment, Anthropometric, Biochemical, Clinical/Medical, Dietary
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- IV. OVERWEIGHT
  - a. Medical Nutrition Therapy and Nutrition-related Implications
    - i. Assessment: Anthropometric, Biochemical, Clinical/Medical, Dietary
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- V. UNDERWEIGHT
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    - i. Assessment: Anthropometric, Biochemical, Clinical/Medical, Dietary
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- VI. SUBSTANCE ABUSE
  - a. Medical Nutrition Therapy and Nutrition-related Implications

- i. Assessment: Anthropometric, Biochemical, Clinical/Medical, Dietary
  - ii. Intervention
- b. Collaboration
- c. Resources
- d. Case Example

## VII. REFERENCES AND RESOURCES

## VIII. QUIZ

## ***Gestational Diabetes***

Gestational diabetes (GDM) is defined as “any degree of glucose intolerance with onset or first recognition during pregnancy.” (ADA, 2004) About 7% of pregnant women develop GDM in the US. GDM is associated with complications for the infant (macrosomia, large fetal size, neonatal hypoglycemia and jaundice, and obesity and glucose intolerance in late adolescence and adulthood) and mother (increased risk of difficult labor and delivery, hypertensive disorders, and increased risk of developing type 1 and/or type 2 diabetes after pregnancy).

For women with type 1 or type 2 diabetes before pregnancy, optimal glycemic control before conception is ideal; hyperglycemia during conception and during the first trimester is associated with congenital defects and spontaneous abortion.

### **Screening and Diagnosis**

Current recommendations from the American Diabetes Association suggest that women with risk factors for GDM (see below) should undergo glucose screening early in pregnancy. Women of average risk and women with high risk, but negative screening, should be tested between 24-28 weeks gestation. Glucose testing is not indicated for women with low risk (see below). (ACOG Practice Bulletin, 2001)

Generally, testing involves a two-step approach: (1) initial screening with a glucose challenge test, and (2) diagnostic oral glucose tolerance test.

### **Maternal Risk Factors**

Risk factors for GDM include:

- Marked obesity
- Personal history of GDM
- Glycosuria
- Strong family history of diabetes

Women at low risk (who do not necessarily require glucose screening) have all of the following characteristics:

- Age <25 years
- Weight normal before pregnancy (BMI <25)
- Not a member of an ethnic group with an increased prevalence of GDM or type 2 diabetes (e.g., Hispanic, African, Native American, South or East Asian, Pacific Island)
- No known diabetes in first-degree relatives
- No history of abnormal glucose tolerance
- No history of poor obstetric outcome

## Medical Management

Intensive treatment is recommended for women with GDM. This usually involves daily self-monitoring of blood glucose and medical nutrition therapy. Insulin is sometimes recommended; oral glucose-lowering agents are not usually used, and their safety during pregnancy requires more research. Insulin doses typically require adjustment throughout pregnancy because of increases in insulin antagonists and body mass. Moderate exercise is recommended for most women with GDM. Most women can continue to exercise as they did prior to pregnancy, unless limited by a medical condition (e.g., uterine contractions, fetal distress, or maternal hypertension).

## Medical Nutrition Therapy (MNT)

The goals for Medical Nutrition Therapy (MNT) for gestational diabetes include goals for a typical pregnancy (adequate nutrients to support maternal weight gain and fetal growth and development). In addition, MNT should focus on maintaining maternal blood glucose control and preventing ketosis. Special attention to appropriate rate of weight gain during pregnancy and weight management in the post-partum period is also recommended.

### ***Read more: Goals of medical nutrition therapy for diabetes and gestational diabetes***

1. *To attain and maintain optimal metabolic outcomes, including*
  - *blood glucose levels in the normal range or as close to normal as is safely possible to prevent or reduce the risk for complications of diabetes*
  - *a lipid and lipoprotein profile that reduces the risk for macrovascular disease*
  - *blood pressure levels that reduce the risk for vascular disease*
2. *To prevent and treat the chronic complications of diabetes; modify nutrient intake and lifestyle as appropriate for prevention and treatment of obesity, dyslipidemia, cardiovascular disease, hypertension, and nephropathy*
3. *To improve health through healthy food choices and physical activity*
4. *To address individual nutritional needs, taking into consideration personal and cultural preferences and lifestyle while respecting the individual's wishes and willingness to change*

*The goals of MNT that apply to specific situations include one related to pregnancy and lactation:*

- *For pregnant or lactating women, to provide adequate energy and nutrients needed for optimal outcomes*

*From: Franz et al, 2004*

## Medical Nutrition Therapy: Assessment

### Anthropometric

Weight and height should be monitored as usual. If there are concerns about slow weight gain, the use of concentrated sweets to enhance weight gain should be avoided.

### Biochemical

Blood glucose (typically measured 4 times per day – before breakfast and after each meal)

#### Goals for GDM:

Fasting and premeal: 60-105 mg/dl

1-hour post prandial: <140 mg/dl

2-hours post prandial: <120 mg/dl

Consider if access to monitoring equipment/supplies; ability

Glycosolated hemoglobin (HbA1C) – reflects average blood glucose levels for 4-6 weeks; often monitored monthly during pregnancy

Fructosamine – reflects average blood glucose levels for about 2 weeks

Urine ketones (may be monitored if type 1 diabetes)

### Read more: Ketosis

*Ketosis occurs when the liver's glycogen stores are depleted, and the body makes glucose from fatty acids and amino acids. Severe ketosis is called ketoacidosis. It is accompanied by dehydration, lethargy, nausea and/or vomiting, confusion, tachycardia, and hypotension, and can progress to coma. In addition to maternal effects, ketoacidosis has been associated with toxicity to the developing fetus. Ketonemia (ketones in the blood) is indicated by measuring ketones in the urine (ketonuria). Ketotic breath (fruity, with an acetone smell) is another indicator of ketoacidosis.*

*Urine ketones are generally checked daily, in the fasting state (usually first morning urine) and during the day when meals are missed, if the client is ill, or if blood glucose levels are >200 mg/dl.*

#### Potential Causes of Ketosis in Women with GDM

- *Inadequate energy or carbohydrate intake*
- *Omission of meals or snacks*
- *Prolonged intervals between meals (e.g., >10 hours between bedtime snack and breakfast)*
- *Possible worsening of glucose status, with blood glucose >200 mg/dl*
- *Illness (if on insulin therapy)*
- *Inadequate insulin dose*

## **Clinical**

Document any symptoms related to hypo- or hyperglycemia. Document the insulin dose.

## **Dietary**

Past adherence to meal plan

Estimated energy needs based on diet history and rate of weight gain, activity level, and correction of ketosis.

## **Medical Nutrition Therapy: Intervention**

An individualized meal plan should be developed that incorporates the client's:

- Pre-pregnancy weight, weight gain goals
- Physical activity level
- Usual food pattern, food preferences
- Lifestyle, work schedule, restaurant eating habits

Food intake (specifically energy and carbohydrates) should be distributed into small, frequent meals and snacks (e.g., 3 meals, 2-4 snacks each day). An evening snack usually needed to prevent ketosis overnight.

In general, restriction of carbohydrates to 35-40% of total energy intake decreases maternal blood glucose levels. For women who are obese (BMI >30), restriction to ~25 kcal/kg is recommended to reduce hyperglycemia and plasma triglycerides. (ADA, 2004) The California Sweet Success program suggests the following energy composition:

- 40-50% total energy as carbohydrate
- 15-20% total energy as protein
- 30-40% total energy as fat

***Read more: See a sample menu that follows these guidelines***

*The sample menu below follows the guidelines of the California Sweet Success Program:*

- *40-50% total energy as carbohydrate*
- *15-20% total energy as protein*
- *30-40% total energy as fat*



| <b>Meal</b>            | <b>Amount of Carbohydrate</b> | <b>Foods</b>  |
|------------------------|-------------------------------|---|
| <i>Breakfast</i>       | <i>15-30 grams</i>            | <ul style="list-style-type: none"> <li>• 2 scrambled eggs</li> <li>• 1 slice wheat toast with 1 Tablespoon butter</li> <li>• 1/2 grapefruit</li> </ul>  |
| <i>Morning Snack</i>   | <i>15-30 grams</i>            | <ul style="list-style-type: none"> <li>• 1/2 cup cottage cheese</li> <li>• 10 wheat crackers</li> </ul>   |
| <i>Lunch</i>           | <i>45-60 grams</i>            | <ul style="list-style-type: none"> <li>• 1 egg salad sandwich</li> <li>• 1/2 cup carrot sticks</li> <li>• 1 Tablespoon ranch dressing</li> <li>• 8 ounces nonfat milk</li> </ul>                        |
| <i>Afternoon Snack</i> | <i>15-30 grams</i>            | <ul style="list-style-type: none"> <li>• 4 ounces yogurt</li> <li>• 1 cup peaches (canned in water)</li> </ul>  |
| <i>Dinner</i>          | <i>45-60 grams</i>            | <ul style="list-style-type: none"> <li>• 3 ounces lean beef</li> <li>• 3/4 cup stir fry vegetables</li> <li>• 3/4 cup rice</li> <li>• 2 cups green salad with 2 Tablespoons Italian dressing</li> </ul> |
| <i>Bedtime Snack</i>   | <i>15-30 grams</i>            | <ul style="list-style-type: none"> <li>• 2 corn tortillas</li> <li>• 1 ounce cheddar cheese</li> </ul>  |

Table 4-1. Sample menu based on the guidelines of the California Sweet Success Program

The recommended approach is to begin with strict carbohydrate control and liberalize if self-monitored blood glucose levels (SMBG) are consistently <130-140 mg/d at 1-hour post prandial or <120 mg/dl at 2-hours post prandial.

To maintain good blood glucose control, carbohydrates (including simple sugars) are often limited. Use of alternative sweeteners should also be discussed; they are safe for use with people with diabetes when consumed within acceptable daily intake (ADI) levels established by the FDA. No adverse effects have been reported from use of artificial sweeteners such as aspartame, saccharin, acesulfame potassium, and sucralose during pregnancy and lactation, but some women choose to avoid them. Soluble fiber may help to regulate blood glucose levels (e.g., legumes, oats, bran, and raw fruits and vegetables).

Carbohydrate seems to be less tolerated (have a greater effect on blood glucose levels) in the morning than throughout the rest of the day. Limiting morning carbohydrate to 15-30

g at breakfast and <25% of daily carbohydrate intake before noon is suggested. This will probably require that little or no fruit, milk, and processed cereals be eaten in the morning.

When blood glucose levels are not maintained in the goal range (indicated by self-blood glucose monitoring logs, or glycosylated hemoglobin), a detailed diet history should be obtained. If needed, the diet plan should be adjusted, and/or strategies developed to increase adherence to the plan.

Instruction/education should be individualized to the client's needs and may include one of the following:

- Exchange lists (<http://www.diabetes.org/nutrition-and-recipes/nutrition/exchangelist.jsp>)
- Food Guide Pyramid with instruction on portion sizes (<http://www.diabetes.org/nutrition-and-recipes/nutrition/foodpyramid.jsp>) The American Diabetes Association's Diabetes Food Pyramid groups foods based on carbohydrate and protein content.
- Menu planning
- Carbohydrate counting (<http://www.diabetes.org/for-parents-and-kids/diabetes-care/carb-count.jsp>) This webpage is written for families of children with diabetes, but describes how people may use carbohydrate counting as a component of management)

Information about portion sizes should be provided.

It is important to maintain an adequate intake, even when there is nausea and vomiting. Small, frequent, low-fat meals, with liquids between meals, may minimize symptoms of morning sickness. For severe vomiting, the lost meal may be replaced with 50 g carbohydrate as juice or regular soft drinks (usually about 12 ounces).

## **Post-partum Considerations**

Women with GDM should be monitored for hyperglycemia at least 6 weeks postpartum, and then at least every 3 years thereafter. Nutrition education should focus on maintaining a healthy weight and recognizing the symptoms of hyperglycemia, since women with GDM are at increased risk for developing diabetes. Family planning is especially important for women with diabetes; hyperglycemia during conception and during the first trimester is associated with congenital defects and spontaneous abortion.

Breastfeeding is not contraindicated for women with gestational, type 1, or type 2 diabetes. (Stage et al, 2006) For women who remain on insulin, food patterns may need more frequent adjustment, and evening and/or late-night snacks may be needed.

## **Collaboration**

An interdisciplinary approach is most effective. (Franz et al, 2002) The inter- or multi-disciplinary team can include health care providers from a number of agencies. The following providers may be included:

- Primary care provider
- Obstetrical care providers
- MSS team member (RN, BHS)
- Hospital and/or WIC dietitian (or other community provider)
- Specialty clinic

## **Resources**

### **It's Never Too Early to Prevent Diabetes**

<http://www.ndep.nih.gov>

This website includes tip sheets in English and Spanish for children at risk for type 2 diabetes, and a booklet for adults to help women and their families make healthy food choices. The website also encourages individuals to be more physically active to help prevent or delay type 2 diabetes.

### **Gestational Diabetes and Low-Calorie Sweeteners: Answers to Common Questions**

<http://ific.org/publications/brochures/gestdiabetes.cfm>.

This publication includes information about the use of artificial sweeteners during pregnancy.

### **Case Example: Maureen**

Maureen is a 26-year old woman who was identified as having gestational diabetes at 28 weeks gestation. A glucose challenge test indicated the need for further testing, and an oral glucose tolerance test was used to confirm the diagnosis.

Maureen's pre-pregnancy BMI was 28, indicating overweight. She is working closely with the First Steps team to manage her condition:

- she monitors blood glucose levels 4 times per day (before meals)
- she checks her urine for ketones
- she is seen by the dietitian and nurse weekly; adjustments are made to her food pattern based on the week's blood glucose levels

So far, Maureen has not needed insulin to maintain blood glucose levels within the desired range. If she needs insulin, the First Steps team will coordinate referrals to a specialty care center, where she can be followed by an endocrinology team.

## **Hypertensive Disorders**

Hypertensive disorders occur in about 12 to 22% of pregnancies. There are four major hypertensive disorders in pregnancy, each with different clinical features, risk factors, and associated risks:

- Preeclampsia (also called pregnancy-induced hypertension and toxemia) is hypertension and proteinuria that begins after 20 weeks gestation, in a woman who previously had normal blood pressure. (This is different than eclampsia, which is the development of grand mal seizures in a woman with preeclampsia.)
- Chronic hypertension is hypertension that developed before 20 weeks gestation, or that continues longer than 12 weeks postpartum
- Preeclampsia superimposed upon chronic hypertension is the onset of proteinuria (after 20 weeks gestation) in a woman with chronic hypertension
- Gestational hypertension is mild hypertension without proteinuria that develops in the latter part of pregnancy. Some women with gestational hypertension will develop preeclampsia during the course of the pregnancy

### **Diagnostic Criteria for Hypertensive Disorders in Pregnancy**

| <b>Disorder</b>                                     | <b>Hypertension (&gt;140/90)</b>              | <b>Proteinuria</b> |
|---|---|--------------------|
| Preeclampsia (pregnancy-induced hypertension)       | After 20 weeks gestation                      | +                  |
| Chronic hypertension                                | Before 20 weeks, or after 12 weeks postpartum |                    |
| Preeclampsia superimposed upon chronic hypertension | Before 20 weeks                               | + after 20 weeks   |
| Gestational hypertension                            | During the latter part of pregnancy           |                    |

Table 4-2. Diagnostic criteria for hypertensive disorders in pregnancy

Risk factors for preeclampsia include:

- First pregnancy (excluding miscarriages)
- Overweight
- Hypertension, renal disease, lupus, or diabetes prior to pregnancy
- Multiple gestation
- Family history of preeclampsia (sister or mother)
- Previous preeclampsia
- Maternal age <20 and >35-40 years

In most cases preeclampsia does not lead to serious complications, however, severe preeclampsia can lead to stroke, heart failure, or liver or kidney damage. It is also associated with fetal growth restriction, preterm delivery, and miscarriage. This section focuses primarily on preeclampsia.

## **Medical Management**

For most women, medical management of preeclampsia involves blood pressure monitoring, monitoring of renal and liver function, and fetal monitoring (growth and activity, amniotic fluid volume, and blood flow).

Bedrest is often recommended, but no studies support its effectiveness for most women. Antihypertensive medications are not generally used, unless blood pressure is significantly elevated (e.g., diastolic >105-100 or systolic >150 mmHg) or other factors are present (e.g., secondary hypertension, end-organ damage, history of stroke). Early delivery is considered in some cases (e.g., women with severe hypertension or pregnancy complications).

## **Medical Nutrition Therapy and Nutrition-related Implications: Assessment**

The nutrition goals for preeclampsia are the same as those for a typical pregnancy. There are a few additional factors to consider, however.

### **Anthropometric**

Rapid weight gain (e.g., >2 lb/week or 6 lb/month) may suggest preeclampsia

### **Biochemical**

Hematorcrit may be elevated due to hemoconcentration associated with preeclampsia

Additional tests may be indicated, including renal function tests (BUN, serum creatinine, creatinine clearance tests) and monitoring for proteinuria

### **Clinical/Medical**

- Fundal height progression will provide information about fetal growth restriction
- Blood pressure will naturally fall in the first trimester and continue to be low until mid-pregnancy, then increase to non-pregnant values in the third trimester; a single systolic blood pressure reading of >140 mmHg before 20 weeks gestation indicates increased risk of preeclampsia
- Non-dependent edema (e.g., swollen eyes, puffy fingers and hands) can be indicative of preeclampsia and requires immediate medical referral; dependent edema (seen in the ankles and feet) is normal in pregnancy
- Symptoms of neurologic dysfunction, which require immediate attention, include headaches, blurred vision, and tendon hyperreflexia
- If antihypertensive medications or diuretics are prescribed, evaluate potential nutrient-medication interactions

## **Dietary**

Calcium intake (dairy, non-dairy, and supplements)

### **Medical Nutrition Therapy and Nutrition-related Implications: Intervention**

Low dietary calcium may increase risk of hypertension during pregnancy. Several small trials have shown decreases in risk of hypertension with calcium supplementation. (Hofmeyr, et al, 2006; Atallah, 2002). Calcium intakes greater than 4000 mg per day can cause calcium toxicity.

Supplementation with vitamins C and E has also been suggested to reduce the risk of preeclampsia; a recent study showed no benefit. (Rumbold, 2006) Another study showed a link between a food pattern high in fiber, potassium, magnesium, and calcium and lower rates of preeclampsia. (Frederick et al, 2006)

Restriction of sodium intake is sometimes recommended to reduce risk of preeclampsia. A Cochrane Review found no evidence to support this recommendation. (Duley et al, 2005)

Certain counseling and nutrition intervention strategies require special consideration for pregnant women with hypertensive disorders. In general, nutrition interventions may be able to help prevent preeclampsia (or its progression), and the dietitian can assist in medical interventions through the early detection of symptoms. Once the condition has progressed, however, medical therapies that are beyond the scope of nutrition practice are often needed.

## **Collaboration**

The inter- or multi-disciplinary team can include health care providers from a number of agencies. The following providers may be included:

- MSS team members
- WIC
- Obstetrical care provider
- Other health/community services

## **Case Example**

Roxanne is a 24-year old woman with preeclampsia. The dietitian working with Roxanne made a point to assess Roxanne's calcium intake and to watch for non-dependent edema at each visit, in addition to providing counseling about general nutrition. During a routine appointment, the dietitian noticed that Roxanne's eyes, fingers, and hands were "puffy." After consultation with the nurse, an urgent referral to Roxanne's OB provider was made.

## **Overweight**

Obesity increases the risk of some pregnancy complications, including hypertension, gestational diabetes, and obstetrical complications during delivery. It seems that these complications are not decreased by weight loss or slowed weight gain. In fact, the best pregnancy outcomes are associated with maternal weight gain that is at the lower range of what is recommended for all pregnant women. Levels of gain at the upper end of the range seem to be associated with macrosomia:

- Lack of weight gain: increases risk for delivery of infants <3000 g
- Weight gain >35 pounds: increases risk for delivery of infants >4000 g (Edwards, 1996)

Nutrition counseling is needed to ensure appropriate weight gain goals and nutrient intakes.

Criteria for overweight and obesity: (IOM, 1990)

- Overweight – prepregnancy body weight 20-30% above standard weight for height or prepregnancy BMI of 26 to 29
- Obesity - prepregnancy body weight 31% or more above standard weight for height or prepregnancy BMI >29

## **Medical Nutrition Therapy and Nutrition-related Implications**

The goal of medical nutrition therapy is not weight loss, but weight gain that allows for adequate fetal growth, without increasing maternal adipose tissue.

### **Assessment**

#### **Anthropometric**

Record pregravid weight, and weigh and plot weight on “overweight” or 120% prenatal weight gain chart.

An overall weight gain between 15-25 pounds is recommended. Weight loss or no gestational weight gain is more common among obese women (11%) than among women who are not obese (1%). (Edwards, 1996)

Evaluate client’s expectations about weight gain for this pregnancy

#### **Biochemical**

No special biochemical measurements are indicated, however women who are overweight are at increased risk for developing gestational diabetes, so pay particular attention to the results of the glucose tolerance test.

## **Clinical/Medical**

Evaluation of clinical or medical factors does not generally require anything special. Women who are overweight are at increased risk for some medical conditions (e.g., gestational diabetes, preeclampsia), so associated conditions should be considered. In addition, particular attention should be paid to:

- Fundal height progression, or sonogram results showing macrosomia
- Prenatal care provider's recommendations concerning weight gain during pregnancy
- Prepregnancy weight, gestational weight gain, and birth outcomes for previous pregnancies
- History of eating disorder diagnosis or treatment
- Lifestyle data (e.g., activity level, recreational preferences, sedentary behaviors)
- Psychosocial issues (e.g., depression, boredom, social support)
- Previous bariatric surgery has nutrition-related implications. See Module 3 for more information.

## **Dietary**

Evaluation of an individual's intake will require the same general process for women who are overweight or who have normal weights. Some issues that may require focus are highlighted below.

- Evaluate overall quality and quantity of food intake, including usual intake of fats and sweets, fast or convenience foods, and processed snack foods
- Discuss where food is usually consumed and the mealtime environment
- Is the client currently doing anything to limit weight gain during this pregnancy?
- Is there a history of difficulties with body image, weight loss, dieting, or energy restriction?

## **Intervention**

Details of the nutrition care plan for a woman who is overweight will depend on her individual circumstances, priorities, and resources. Some strategies for specific issues are reviewed below.

### **Excessive weight gain (>6 pounds per month)**

Encourage client to select priorities for intervention and behavioral changes that are acceptable to her

### **Evidence of fetal macrosomia**

The following dietary modifications may be helpful, depending on the individual's food patterns:

- Reduce the amount of sweetened beverages (e.g., soda, juice, sweet tea) consumed
- Decrease the amount of fat consumed from fried foods, fast food, snacks, and dairy products



- Institute a regular meal pattern, including 3 meals per day; skipping meals can contribute to weight gain by stimulating appetite and overeating

### **Low weight gain (<2 pounds per month after the first trimester)**

Help the client understand that total weight gain of at least 15 pounds (but not more than 25 pounds) will give her baby the best chance of a good birthweight

### **Weight loss**

- Assess for adequate protein intake, and work to improve the quality of protein sources in the diet, and the nutrient density of foods
- Work with the client to institute a regular meal pattern (e.g., 3 meals, 3 snacks per day) by setting small, achievable, incremental goals
- If medical provider has recommended weight loss, emphasize nutritional quality of food choices, to provide an adequate intake for mother and baby. Communicate nutrition findings with medical provider. Monitor weight progression.

### **Sedentary lifestyle**

Encourage walking or swimming for at least 30 minutes 3 or more days per week. If more strenuous types of exercise are being considered, encourage client to discuss plans with her OB care provider.

### **Collaboration**

The inter- or multi-disciplinary team can include health care providers from a number of agencies. The following providers may be included:

- MSS team members
- RD at WIC
- RD at medical agency
- Primary care provider, referral for specialty care, if eating disorder is a consideration

### **Case Example: Sarah**

Sarah is a 28-year old woman who is 17 weeks pregnant. She has struggled with weight since early adolescence. Her pre-pregnancy BMI was 30, and she has gained about 5 pounds since then. Sarah's goal during pregnancy is not to gain any additional weight, and she says she would be pleased if she lost some weight. She has stopped drinking colas (was drinking about 24 ounces per day) and now eats 2 meals each day, instead of snacking all day.

### **Is Sarah's current rate of weight gain appropriate? Why or why not?**

Sarah's prepregnancy BMI (30) meets IOM criteria for obesity. Weight gain throughout pregnancy should be at least 15 pounds. Her current rate of weight gain is appropriate so far.

**Is Sarah's approach to weight management realistic? Why or why not?**

Sarah has made some nice changes to her food pattern (e.g., decreasing her soda intake), but may need some help understanding a healthy approach to weight management during pregnancy. Eating only 2 meals per day is probably not the best approach, and Sarah may need some help planning meals and snacks.

Weight loss during pregnancy is not healthy for her infant, and a gain of at least 15 pounds is recommended. The dietitian should discuss the risks associated with inadequate weight gain, as well strategies for weight maintenance post-partum.

**Are you concerned about her intake?**

As discussed previously, Sarah should be congratulated on the changes she has already made. Concerns and areas which can be improved include:

- Food pattern (2 meals per day vs. several meals and snacks)
- Overall nutritional adequacy

In addition to intake, physical activity could be discussed.

**Case Example: JoAnn**

JoAnn is a 24-year old woman who is 20 weeks pregnant; this is her second pregnancy. She gained about 45 pounds during her first pregnancy, and did not get back to her pre-pregnancy weight. Her BMI at the start of this pregnancy was 28.5. Over the last 2 months, she has gained about 15 pounds. She is not too concerned about gaining weight, since most women in her family are heavier after having children. JoAnn works full-time. She often snacks on things she buys from the vending machine, so she can work through lunch and accrue overtime pay.

**What should the dietitian consider as JoAnn's nutritional status is assessed and as a plan is developed?**

Considerations for JoAnn include:

- Extra attention for for hypertension, diabetes, macrosomia
- Regular meals, problem-solving at work
- Nutritional adequacy of intake
- Appropriate rate of weight gain; discuss risks of excessive weight gain to JoAnn and to baby
- Physical activity

## ***Underweight***

Maternal underweight in pregnancy is associated with increased risk for infants with low birthweights and other complications, including anemia, antepartum hemorrhage, and premature rupture of the membranes. (IOM, 1992) Although the risks are significant, underweight is less likely to be identified as a risk factor than overweight. Important roles for dietitians include identifying women who are at-risk, and helping to assure positive birth outcomes.

Factors Associated with Low Prenatal Weight Gain (Hickey et al, 1997; Wells et al, 2006; Hickey, 2000)

- Underweight (pre-pregnancy BMI <19.8)
- Obesity (pre-pregnancy BMI >29)
- Pregnancy-related nausea
- Preterm labor
- Education <12 years
- Smoking and alcohol use
- Unwanted pregnancy
- Caring for more than one preschool-aged child at home
- Not using own car for errands
- Working more than 40 hours per week

Unless there is an underlying medical cause for underweight, no medical management is generally indicated.

### **Medical Nutrition Therapy and Nutrition-related Implications**

The nutrition goals for women who are underweight are the same as those for a typical pregnancy. Ensuring an adequate intake of energy and other nutrients may require more attention, however.

#### **Assessment**

##### **Anthropometric**

Accurate measurements of weight and height are essential in identifying women who are underweight, and also in monitoring the effectiveness of the interventions.

##### **Biochemical**

No special biochemical measurements are indicated.

##### **Clinical/Medical**

- Is there a history of an eating disorder, or behaviors associated with disordered eating?
- Is nausea and vomiting interfering with an adequate intake?

- Are there other physical reasons preventing an adequate intake? (e.g., oral lesions, preexisting conditions)

### **Dietary**

What is interfering with an adequate intake? (e.g., access to food, lack of time, food choices that are not nutrient-dense, major oral health issues)

### **Intervention**

As with all MNT, intervention for underweight during pregnancy should focus on the identified reasons for the problem, and should be developed based on the client's goals, priorities, and resources. Some general strategies for specific contributors to underweight are discussed below.

### **Inadequate intake**

Address specific barriers to food consumption:

- Resources to purchase sufficient food – refer to available resources (e.g., WIC, Food Stamps, food banks, etc.)
- Transportation to purchase food – identify neighborhood resources, periodic shopping trips, bus routes
- Lack of food preparation skills, storage facilities – work on simple methods for quick meals that require little preparation
- Lack of nutrition knowledge – offer strategies for increasing energy density of food (e.g., added peanut butter, cheese, margarine or butter)
- Lack of motivation – monitor fetal growth with client, through fundal height measurements or ultrasound reports

Set small goals to increase meal pattern (3 meals, 2-3 snacks per day)

Consider oral dietary supplement (such as Ensure®) when other strategies fail and fetal risk is demonstrated by poor growth parameters

Maintain regular contact until problem is resolved. Provide frequent encouragement and positive reinforcement for changes

### **Excessive physical activity**

Help client set realistic goals for decreasing activity or adjusting energy intake to meet needs

### **Nausea and vomiting**

- See Module 2 for specific suggestions related to food pattern
- Consider stress as a factor, work with psychological referrals as indicated
- When vomiting persists into the second and third trimesters, consult with OB provider to discuss appropriate intervention

**Stress, depression, lack of social support**

Work with psychosocial referrals as indicated. Refer to maternity case management, when available.

**Collaboration**

The inter- or multi-disciplinary team can include health care providers from a number of agencies. The following providers may be included:

- MSS team members
- Other medical care agencies (e.g., WIC) to coordinate care
- Obstetrical provider
- Mental health care providers

**Case Example: Lindsey**

Lindsey is a 24-year old woman who was underweight prior to pregnancy. She wants to give her baby the best opportunity, and she sees pregnancy as a good opportunity to improve her overall health.

RD provides healthy eating and meal pattern recommendations that are specific to Lindsey's situation. These include:

- a referral to the WIC program
- suggestions for increasing the energy density of foods
- recommendations for fitting 3 meals and 2-3 snacks into Lindsey's busy day
- a discussion about the importance of social supports and a referral to the behavioral health specialist

## **Substance Abuse**

Substance abuse during pregnancy has a direct negative effect on fetal growth and development. Tobacco is the most commonly abused drug during pregnancy, causing more than 15% of cases of low birthweight in a large multicenter study. (Shiono, et al, 1995) Alcohol use during pregnancy is considered the leading cause of preventable mental retardation in infants, and also contributes to low birthweight and delayed motor development. Dietitians can help clients by providing referrals for treatment programs and nutrition counseling to improve health behaviors.

Substance abuse during pregnancy is identified when 1) the client reports it, or 2) it is documented in the client's medical record (and the client gives permission to obtain her medical record). The following is a list of widely used substances which have a negative impact on the fetal growth and development:

- Alcohol (beer, wine, liquor)
- Tobacco (cigarettes, snuff, chewing tobacco)
- Illicit drugs (e.g., marijuana, cocaine, crack, heroin)
- Prescription and non-prescription drugs for medical or non-medical use (e.g., amphetamines, barbiturates, narcotics, tranquilizers, diet pills, cold medications, methadone, codeine, morphine or other opioids)
- Positive urine drug screen

### ***Read more: MSS Policy and Procedure Manual - Risk Factors and Minimal Interventions - Tobacco Use and Secondhand Smoke Cessation/Reduction***

*Addressing tobacco usage and exposure should be a brief part of every visit.*

#### ***Evaluate:***

- *Ask the client about her past and current tobacco use*
- *Ask the client about her current exposure to secondhand smoke, and about the environment(s) where the baby will be.*
- *Evaluate her readiness to change by using the following Stages of Change scale:*

***Not Ready to Quit:*** *Has no intention to quit within the next six months.*

*These clients may be uninformed of the dangers of tobacco. They may use tobacco as a coping mechanism. They may be unprepared or unwilling to deal with nicotine withdrawal symptoms. They may have been trying to quit, been unsuccessful and unwilling to try again at this time.*

***Thinking About Quitting:*** *Intends to quit within the next six months.*

*These clients have reasons to quit and reasons to keep smoking. They are aware of risks associated with their tobacco use, but are not ready to make a commitment to quit.*

**Ready to Quit:** *Is willing to set a Quit Date within the next 30 days.*

**Quitting:** *Has remained tobacco-free for less than six months.*

**Staying Quit:** *Has remained tobacco-free for more than six months.*

*These clients have already quit and are learning to live without tobacco. During this stage, relapse is still a danger.*

**Relapse:** *Is using tobacco again after a period of being tobacco-free.*

*Relapse is common, especially among postpartum women: 79-90% return to smoking within one year after delivery. Women often relapse due to the stress of the baby and as they return to their former social activities.*

**Inform:**

- *Tobacco education posters, tabletop signs, and other visible messages create an environment that makes asking about tobacco use a normal and expected part of a visit.*
- *If the woman is a pregnant/postpartum smoker, provide additional information tailored to her, including the American Cancer Society's magazines, Make Yours A Fresh Start Family.*
- *Depending upon her stage of change, offer the appropriate information, messages, handouts and assistance.*
- *Example for a client contemplating change: "As your provider, I need you to know that quitting smoking is the most important thing you can do to protect the health of your unborn baby. If you are thinking of quitting at this time, I can help you get started."*
- *Depending upon her situation, offer information about ways to eliminate secondhand smoke exposure and offer assistance that will support changes. For example: "It is OK to encourage people to smoke outdoors, which is a good way to protect you and your baby from secondhand smoke".*

**Act:**

- *Document risk factor on care plan*
- *Determine the client's willingness to make a quit attempt at the present time (for example, within the next 30 days).*
- *If the person is willing to make a quit attempt, provide assistance setting a Quit Date.*
- *If the person clearly states an unwillingness to make a quit attempt at the present time, you can offer support and appropriate information to get the person thinking about quitting.*
- *Client-specific information on tobacco use, secondhand smoke exposure, and assistance provided and recording of progress and outcomes should be documented*

*in each client's chart, as required in the Tobacco Cessation During Pregnancy Performance Measure.*

- *Case Conference with team members*

### **Ongoing Follow-up and Outcomes:**

*Follow-up may be as simple as an invitation to talk about quitting in the future. Or follow-up may be arranged for a specific time, such as when a pregnant woman returns for an appointment, or when the provider returns for a home visit. It is particularly important to arrange follow-up contact with a tobacco user who is making a quit attempt. Whenever possible, arrange the follow-up within a week after the individual's Quit Date.*

*During the follow-up contact:*

- *Ask about tobacco status.*
- *Congratulate individuals who are tobacco-free and support them in staying quit.*
- *Support people who have relapsed and help them in making a new quit attempt.*
- *Develop with the client, a post-pregnancy plan addressing the following:*

*How to remain tobacco free, or*

*How to continue to reduce tobacco use.*

*Keeping the newborn free from exposure to secondhand smoke.*

- *Support systems that are available to the client; e.g. Medical referral, Community resources, Washington State Quit line, Secondhand smoke materials, WIC, other.*
- *Document outcomes on the care plan, and if no changes occurred since the risk factor was identified note why.*

*This risk factor is one of the performance measures. When recording outcomes on the discharge summary, you are allowed to bill for completing the information for this risk factor. Additional information is available in the MSS/ICM Billing Instructions.*

### **Read more: MSS Policy and Procedure Manual - Risk Factors and Minimal Interventions - Alcohol and Substance Use Prior to and During Pregnancy**

#### **Evaluate:**

- *Note any pertinent history and client's verbal and non-verbal behavior suggesting alcohol/substance use.*
- *Assess the client's motivation to change substance use behavior including: frequency and type of use, client's concern regarding use, knowledge of the effects of substance use during pregnancy and stage of change regarding abstinence.*

#### **Inform:**

- *Offer health messages regarding substance use during pregnancy.*



- *Provide harm reduction health messages if client is unable to achieve abstinence during pregnancy.*

**Act:**

- *Document risk factor on care plan*
- *Support the client in her change process including: listening to understand her experience; problem solving together to reduce barriers to change; support and reinforce her sense of self-efficacy to make changes to achieve harm reduction or abstinence.*
- *Provide information and/or refer to chemical dependency resources including treatment, NA, AA, etc.*
- *Alert prenatal care provider of use and inform the client of this action.*
- *Alert CPS and hospital if use continues throughout pregnancy and inform the client of this action.*
- *Case conference with MSS team members.*

**Alcohol/substance use in the environment (partner, parent, grandparent, support person)**

- *Support the client in developing a safety plan for herself and her children if needed.*
- *Refer the client to a support program such as Al-Anon.*
- *Assess basic needs such as food and housing. Refer and advocate for linkages.*

**Ongoing follow-up and Outcomes:**

- *Observe the client and environment for signs of use at each encounter.*
- *Reassess the client periodically in pregnancy and post-pregnancy period for stage of change, progress and if abstinent, ability to maintain. Support problem solving and reinforcing self-efficacy through out.*

**Medical Nutrition Therapy and Nutrition-related Implications**

The nutrition goals for women with substance abuse problems are the same as those for a typical pregnancy. Special considerations that are sometimes associated with substance abuse are reviewed below

**Assessment**

**Anthropometric**

- *Women who abuse substances often obtain prenatal care later in pregnancy than other women, and may not know or remember LMP, pregravid weight, or weight gain pattern*
- *Women who smoke or abuse alcohol or drugs tend to have lower prepregnancy weights and tend to gain less weight during pregnancy than women who do not*

**Biochemical**

- Evaluate hemoglobin and hematocrit according to general hematological assessment guidelines and smoking status, if appropriate
- Urine screens for drug use may be included in the care process

### Clinical/Medical

- Emphasize the importance of regular prenatal medical care
- Consider history of previous deliveries with congenital conditions related to maternal substance abuse (known effects are summarized in the table below)
- Include evaluation for obvious clinical signs of malnutrition
- Consider HIV status
- Consider lifestyle data (including history and current use – frequency, amount, last use – and history and current use by others in household or family)

| Substance | Known effects of use during pregnancy   |
|-----------|---|
| Tobacco   | <ul style="list-style-type: none"> <li>• Reduced birthweight, length, head circumference</li> <li>• Altered auditory functioning contributing to lower reading and language scores (older, middle-class children)</li> </ul>  |
| Alcohol   | <ul style="list-style-type: none"> <li>• Fetal Alcohol Syndrome (FAS) – series of effects seen in the offspring of women who chronically drink to excess during pregnancy</li> <li>• Pre- or post-natal growth retardation with weight, length, or head circumference &lt;10th percentile for age</li> <li>• Neurologic abnormality, developmental delay, or intellectual impairment</li> <li>• Facial dysmorphism with at least 2 of the following: <ul style="list-style-type: none"> <li>• Microcephaly</li> <li>• Microphthalmia or short palpebral fissures</li> <li>• Poorly developed philtrum, thin upper lip, or flattening of maxillary area</li> </ul> </li> </ul> |
| Alcohol   | <ul style="list-style-type: none"> <li>• Fetal Alcohol Effects (FAE) – series of effects seen in the offspring of women with moderate or heavy use of alcohol during pregnancy</li> <li>• Any of the above abnormalities, without the full syndrome</li> <li>• May include irritability, sleep disturbances, poor feeding, facial dysmorphism, learning disabilities</li> </ul>   |
| Cocaine   | <ul style="list-style-type: none"> <li>• Prematurity</li> <li>• Low birthweight, length, and head circumference</li> <li>• Decreased state regulation (poor ability to regulate arousal), attention and responsiveness in the newborn period</li> <li>• Increased excitability at 3-week neurobehavioral performance</li> </ul>   |
| Heroin    | <ul style="list-style-type: none"> <li>• Spontaneous abortion, stillbirth</li> <li>• Prematurity</li> <li>• Intrauterine growth restriction</li> <li>• Infant addiction</li> </ul>  |
| Marijuana | <ul style="list-style-type: none"> <li>• Prematurity</li> </ul>   |

Table 4-3. Effects of selected substance use during pregnancy

### Dietary

Because maternal-fetal nutritional status is a significant factor in moderating impact of drug use on pregnancy outcome, diet assessment is important and should give special attention to:

- Food availability, access to food, and food purchasing, storage, and preparation resources
- Effect of drug use on appetite and intake

### **Intervention**

Interventions should be individualized to the client's needs. Some general recommendations for specific issues related to substance abuse are discussed below. Some have specific nutrition-related implications. Nutrition appointments may provide opportunities for intervention traditionally started by mental health professionals as well as the opportunity for identification of problems and referral.

#### **Active alcohol or illegal drug use**

- Refer to and encourage participation in drug/alcohol treatment program. In the State of Washington, all pregnant women have priority eligibility for live-in drug treatment.
- Encourage participation in Maternity Case Management
- Avoid making judgmental statements about the client's lifestyle
- Utilize a "Stages of Change Model" for assisting client to problem-solve about her substance use
- Reinforce and encourage all clients to remain drug-free
- Intervention for depression may be necessary before drug/alcohol treatment can be effective

#### **Smoking or exposure to tobacco smoke during pregnancy**

- Utilize a "Stages of Change Model" for client decision-making regarding when and how to reduce harm from tobacco.
- Refer to smoking cessation program, when client is ready
- If client is unable to stop smoking, but willing to limit use, attempt to reduce to 5 or fewer cigarettes per day
- Educate client about negative impact of tobacco use and environmental exposure on fetal growth and development
- If client lives with smokers, discuss importance of avoiding exposure of herself or her infant to secondhand smoke, and develop list (with client) on steps to take to avoid exposure

#### **Inadequate intake, weight loss or inadequate gain, anorexia**

- Ensure that client has access to food
- Assess possible effects of substances on appetite
- Discuss importance of prenatal weight gain and nutrition for healthy growth, physical and mental development of fetus
- Encourage use of prenatal vitamin and mineral supplement

- If client is unable to consume adequate energy and nutrient-dense foods, recommend a complete liquid or powdered nutritional supplement
- Evaluation for mental depression should be considered. Risk of depression is high among people with substance abuse problems, and may cause anorexia or loss of motivation to eat.

### **Preparation for parenting responsibilities**

- Cocaine-exposed neonates, with decreased state regulation, attention, and responsiveness, may interact negatively with caregiver (who may already have compromised parenting skills because of drug use, withdrawal symptoms, depression, or other factors)
- Reinforce the need for, and encourage client to remain drug-free
- If client has not yet had treatment for substance abuse, reassess readiness
- Refer client to parenting classes before the infant is born
- Drug use is often associated with less stable and more isolated living situations. Encourage eligible clients to MSS or ICM services. Referrals for housing and community support are important for parenting success.
- Encourage prenatal decision making about family planning and implementation as early as possible postpartum.

### **Infant feeding choice**

- Women who are otherwise drug-free but who continue to smoke, should be encouraged to breastfeed.
- Use of illegal drugs or alcohol is incompatible with breastfeeding
- Communicate with infant's primary care provider re: nutritional status

### **Collaboration**

The inter- or multi-disciplinary team can include health care providers from a number of agencies. The following providers may be included:

- MSS team members and medical provider (referral is required)
- Other medical care agencies (e.g., WIC) to coordinate care
- Substance abuse treatment resources – even if client is not yet ready to reduce or abstain at present
- Infant's primary care provider

### **Case Example: Kayla**

Kayla is a 20-year-old single woman, who came to her local WIC office seeking food assistance. She is living with a friend temporarily, but wants to find her own apartment. She works part time at a convenience store for minimum wage. Kayla is pregnant with her first baby and uncertain of her due date, but believes she is about four months pregnant. She has not received medical care for her pregnancy because she has no

medical insurance. Kayla does not know how to apply for medical/financial assistance, but has serious financial difficulties including “running low on food.”

Kayla says she experienced nausea and vomiting for about three months, and lost weight during that time. Her current weight is ten pounds more than her reported pre-pregnancy weight; her pre-pregnancy weight was appropriate for her height. Kayla says she smoked ½ pack of cigarettes per day, and is not concerned about the effects of smoking on the baby. Several of her friends smoked during their pregnancies and “their babies were fine.”

### **Where do you think Kayla falls on the Stages of Change scale?**

- a. not ready to quit
- b. thinking about quitting
- c. ready to quit
- d. quitting
- e. staying quit
- f. relapse

It seems that Kayla has no intention of quitting. She may be uninformed about the dangers of tobacco or may be unprepared to deal with nicotine withdrawal symptoms.

The dietitian can provide information to Kayla. One example is: "As your provider, I need you to know that quitting smoking is the most important thing you can do to protect the health of your unborn baby. If you are thinking of quitting at this time, I can help you get started.

The dietitian should document this risk factor on Kayla's care plan, offer support, and provide additional client-centered information. This should be discussed during Kayla's case conference.

### **Case Example: Marie**

Marie is a 25-year old woman who has abused alcohol. Referrals to appropriate treatment and counseling resources have been made.

The dietitian completes an assessment of Marie's nutritional status, and works with Marie to incorporate the following recommendations into a plan:

- appropriate rate of weight gain
- appropriate meal and snack pattern
- adequate macro- and micro-nutrient intake
- access to food, including purchasing, storage, and preparation resources

## **References and Resources**

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## **Resources**

### **Gestational Diabetes**

#### **It's Never Too Early to Prevent Diabetes**

<http://www.ndep.nih.gov>

This website includes tip sheets in English and Spanish for children at risk for type 2 diabetes, and a booklet for adults to help women and their families make healthy food choices and be more physically active to help prevent or delay type 2 diabetes.

**Gestational Diabetes and Low-Calorie Sweeteners: Answers to Common Questions**  
<http://ific.org/publications/brochures/gestdiabetes.cfm>.

This publication includes information about the use of artificial sweeteners during pregnancy.

### **Exchange lists**

<http://www.diabetes.org/nutrition-and-recipes/nutrition/exchangelist.jsp>

### **Food Guide Pyramid** with instruction on portion sizes

(<http://www.diabetes.org/nutrition-and-recipes/nutrition/foodpyramid.jsp>) The American Diabetes Association's Diabetes Food Pyramid groups foods based on carbohydrate and protein content.

**Carbohydrate counting** (<http://www.diabetes.org/for-parents-and-kids/diabetes-care/carb-count.jsp>) This webpage is written for families of children with diabetes, but describes how people may use carbohydrate counting as a component of management)

### **Substance Abuse**

**Pregnant Women Chemical Dependency/Abuse Information Resource Guide** (note: this links to a pdf) - DSHS Division of Alcohol and Substance Abuse (DASA)  
<http://www1.dshs.wa.gov/pdf/hrsa/dasa/PregnantWomenGuide.pdf>

**Guidelines for Screening for Substance Abuse During Pregnancy** - Washington State Department of Health - website also includes other resources  
[http://www.doh.wa.gov/cfh/mch/drug\\_and\\_alcohol\\_screening.htm](http://www.doh.wa.gov/cfh/mch/drug_and_alcohol_screening.htm)

### **Maternal Substance Abuse Screening Initiative and Guidelines**

<http://www.didyouask.org>

### **Fetal Alcohol Spectrum Disorders**

For more information about Fetal Alcohol Spectrum Disorders, visit these websites:

- <http://depts.washington.edu/fasdnp/>
- <http://depts.washington.edu/fasdwa/>
- <http://www.cdc.gov/ncbddd/fas/>

### **Drinking and Reproductive Health: A Fetal Alcohol Spectrum Disorders Prevention Tool Kit**

This continuing education activity presents strategies to help health professionals identify women who drink and risky levels and engage them in changing behavior to reduce their



risk for an alcohol-exposed pregnancy. Other materials include handouts for patients, screening tools, and counseling tips. Ordering information (no cost) at:  
[http://www.acog.org/from\\_home/misc/dept\\_pubs.cfm](http://www.acog.org/from_home/misc/dept_pubs.cfm).

## Quiz

1. Gestational diabetes is associated with increased risk of complications for the infant including:
  - a. hypertensive disorders
  - b. increased risk for type 1 diabetes
  - c. low birthweight, prematurity, and failure to thrive
  - d. macrosomia, neonatal hypoglycemia, and jaundice
  
2. Maternal risk factors for gestational diabetes include:
  - a. marked obesity
  - b. family history of diabetes
  - c. history of gestational diabetes
  - d. a and c only
  - e. all of the above
  
3. Medical management of gestational diabetes usually involves:
  - a. daily self-monitoring of blood glucose and medical nutrition therapy
  - b. daily self-monitoring of blood glucose and insulin
  - c. daily self-monitoring of blood glucose and oral glucose-lowering agents
  - d. medical nutrition therapy only
  
4. The California Sweet Success program suggests the following energy composition for management of gestational diabetes:
  - a. 35-60% total energy as carbohydrate, 30-40% as protein, 10-25% as fat
  - b. 40-50% total energy as carbohydrate, 15-20% as protein, 30-40% as fat
  - c. 60-70% total energy as carbohydrate, 15-20% as protein, 10-25% as fat
  - d. 65-75% total energy as carbohydrate, 10-20% as protein, 5-15% as fat
  
5. Post partum considerations for women with diabetes include all of the following, EXCEPT:
  - a. Family planning
  - b. Monitoring for hyperglycemia
  - c. Maintaining a healthy weight
  - d. Infant feeding, since breastfeeding is contraindicated

6. For most women, medical management of preeclampsia involves which of the following:

- a. antihypertensive medications
- b. early delivery
- c. monitoring of blood pressure, renal and liver function, and of the fetus
- d. supplemental sodium

7. A systolic blood pressure reading of >\_\_\_\_\_ mm Hg before 20 weeks gestation indicates increased risk of preeclampsia.

- a. 80
- b. 100
- c. 120
- d. 140

8. Which of the following statements is correct:

- a. Excessive dietary calcium intake may increase risk of hypertension during pregnancy.
- b. Restriction of dietary sodium will prevent preeclampsia.
- c. One study showed a link between a food pattern high in fiber, potassium, magnesium, and calcium and lower rates of preeclampsia.
- d. Many studies indicate that supplementation with vitamins C and E will reduce the risk of preeclampsia

9. Obesity increases the risk of some pregnancy complications. The best outcomes are associated with maternal weight gain that is:

- a. at the lower range of what is recommended for all pregnant women
- b. at the upper range of what is recommended for all pregnant women
- c. as low as possible
- d. greater than 35 pounds

10. The goal of medical nutrition therapy for overweight and obesity is:

- a. weight loss
- b. weight maintenance
- c. weight gain that allows for adequate fetal growth
- d. weight gain of at least 40 pounds

11. Factors associated with low prenatal weight gain include all of the following EXCEPT:

- a. underweight
- b. obesity
- c. unwanted pregnancy
- d. smoking and alcohol use
- e. low socioeconomic status

12. Medical nutrition therapy for underweight should include which of the following:

- a. recommendations for decreasing physical activity
- b. use of an energy-dense supplement, such as Ensure
- c. assessment of the cause(s) for inadequate intake
- d. referral for an endocrine work-up

13. Because maternal-fetal nutritional status is a significant factor in moderating the impact of drug use on pregnancy outcome, diet assessment is important and should give special attention to which of the following:

- a. food availability, access to food, and food purchasing, storage, and preparation resources
- b. use of a prenatal vitamin supplement
- c. possible effects of substances on appetite
- d. all of the above

14. True or false: Women who are otherwise drug-free but who continue to smoke should be encouraged to breastfeed.

- a. true
- b. false