# NURSING@GEORGETOWN'S Guide to a Healthy Pregnancy

with recommendations from Midwifery faculty

Julia Lange Kessler, DNP, CM, FACNM, and Mary Brucker, PhD, CNM, FACNM, FAAN

### Introduction

Having a baby is one of the most special occasions of many women's lives. However, the process can be complicated and stressful at times. During each month of pregnancy, the woman's body goes through drastic changes to adapt to and accommodate a growing baby. Besides understanding and coping with the physical hallmarks of each week, month, or trimester, an expectant mother must also manage her own life and prepare for a new member of the family.

This guide is designed to help future mothers plan and prepare for a healthy pregnancy by demystifying each step of the process, so they can focus on the joy of having a baby, without worrying about the complicated details.

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Please note that this guide is for informational purposes only. Individuals should consult their health care professionals before following any of the information provided. Nursing@ Georgetown does not endorse any organizations or web sites contained in this guide; however, every attempt has been made to select credible organizations and stable web sites.

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## **First Trimester**

At the start of a pregnancy, expectant mothers usually experience clear physical symptoms. These might be simple changes, like strong cravings or distaste for specific foods. Uncomfortable symptoms include heartburn, swollen or tender breasts, constipation, headaches, and morning sickness. It is common for women to start to gain weight; however, some do lose weight. As these changes happen, extreme fatigue may occur.<sup>1</sup>

Month 1 **WEEKS 1-4** 

The fertilized egg moves through the fallopian tube to the uterus. By day eight or nine, a cluster of cells that developed from the single-cell union of the egg and sperm, called the "blastocyst," attaches to the lining of the woman's uterus. High levels of estrogen and progesterone result in hormonal changes throughout the first trimester.<sup>2</sup> Estrogen thickens the lining of the uterus in preparation for the fertilized egg, and progesterone keeps the lining in place to maintain the pregnancy.<sup>3</sup>

## What to Expect

This increase in estrogen and progesterone may result in weight gain by the fourth week. A lot of women worry about gaining weight, but it is normal and very healthy to gain weight during pregnancy. It is also common to lose a small amount of weight during these early stages of pregnancy, but women should consult with their prenatal care provider if they feel that they are gaining or losing weight too quickly.<sup>4</sup> A woman with a normal body mass index (18.5 to 24.9) prior to conception should gain between 25 to 35 pounds by the end of her pregnancy.

**Prenatal care.** Ideally, a first visit to a prenatal care provider should occur prior to conception or as early in the pregnancy as possible. These providers check the expectant mother's health and embryonic development every few weeks. The frequency of visits increases toward the end of a pregnancy. While women can change their prenatal care providers at any time, it is ideal to have the same provider throughout the pregnancy, and some providers will not accept a woman for care if she is in her third trimester.

**Light, weekly exercise.** A great benchmark is 2.5 hours per week, but intense exercise should be avoided. Expectant mothers should be able to carry on a normal conversation while exercising.<sup>5</sup>

**Dietary changes.** KidsHealth.org outlines recommended additions and reductions to what an expectant mother should eat. A healthy diet includes vegetables, fruits, lean meats, whole-grain breads, and only some low-fat dairy products. A general guideline for expectant mothers is to add approximately 300 extra calories to their daily intake; however, this may vary depending on their pre-pregnancy weight, level of activity, and if they are carrying more than one baby. Alcohol and nicotine should be eliminated, and caffeine should be decreased as much as possible.<sup>6</sup>

**Supplements.** Women should ask their providers about the right combination, but the recommendations may include:

- 400 micrograms of folic acid per day to help prevent certain types of birth defects, approximately one month before getting pregnant. Natural sources of folic acid include leafy green vegetables like kale and spinach, orange juice, or enriched grains. However, these natural resources do not substitute for the supplement of folic acid.<sup>7</sup>
- 1,000 milligrams of calcium per day to prevent calcium loss in the mother's bones as it is diverted to the developing embryo. Natural sources include soymilk, fortified orange juice, cereals, dark green vegetables, tofu, and low-fat dairy products like milk and yogurt.<sup>8</sup>



During the second month of pregnancy, the placenta begins to form in the uterus. The placenta is an organ that develops during pregnancy and attaches to the wall of the uterus as the embryo grows into a fetus. The placenta nourishes the embryo with oxygen and nutrients and removes waste from its blood. The embryo's spinal cord and brain begin to form, and its limbs start to grow. By the end of the second month, the major internal organs of the fetus have begun to develop.<sup>9</sup>

## What to Expect

Physical changes associated with the first trimester can include fatigue, nausea, frequent urination, and breast tenderness. Cramps are also likely at this stage of pregnancy as the uterus expands and ligaments begin to stretch to accommodate the baby.<sup>10</sup> Light bleeding or spotting is common at this stage of pregnancy, but if the expectant mother experiences heavy bleeding, she should immediately contact her prenatal care provider. This could be a sign of miscarriage, which happens in 10 to 15 percent of pregnancies and is most likely to occur during the first trimester.<sup>11</sup>

#### **FIRST TRIMESTER**

## **Considerations for Care**

**Routine tests.** The U.S. Department of Health and Human Services' Office on Women's Health (OWH)<sup>12</sup> recommends tests for the following conditions that, if passed from mother to the baby, can cause complications:

- Infectious diseases
- Rubella
- Hepatitis B and C
- Tuberculosis (TB)

The OWH also recommends the following:

- Urinalysis and urine culture, which can show if a woman has a urinary tract infection or diabetes;
- Complete blood count (CBC), which can identify if the mother has anemia or issues with blood clotting;
- Blood type and Rh test, which shows if a woman's body can produce antibodies that can damage blood cells in future pregnancies.

**Prenatal vitamins.** Some women may have already starting taking prenatal vitamins, which usually contain:

- Vitamin D and calcium to help the fetus's bones, teeth, eyes, and skin form and grow;
- Iron to make a component of red blood cells that carries oxygen throughout the body. Expectant mothers need almost twice as much iron as women who are not pregnant.<sup>13</sup>

**Rest**. The National Sleep Foundation recommends that pregnant women rest for eight hours each night and schedule time for naps.<sup>14</sup> The American Pregnancy Association suggests that expectant mothers rest on the left side of their body to increase the flow of blood and nutrients to the baby.<sup>15</sup>

**Dental care.** About 25 percent of women experience gingivitis during pregnancy due to unusual hormone activity. Apart from being painful, pregnancy gingivitis can lead to periodontitis, triggering premature birth and low birth weight.<sup>16, 17</sup> Women should not delay seeing a dentist just because they are pregnant. Pregnancy is actually a good reason to seek dental care.

#### **FIRST TRIMESTER**

## Month 3 WEEKS 9-12

Transitioned from the embryo stage to the fetus stage, the baby begins to develop fingers, toes, soft nails, and intestines. Buds form for future teeth, and bones and muscles begin to take shape. The fetus has skin, but it is still thin and transparent. As changes occur, the woman's uterus moves from the bottom of her pelvis to the front of the abdomen.<sup>18</sup>

## What to Expect

The shift in the uterus positions the fetus so that a pregnant woman will start to "show." The mother may be able to hear a heartbeat during her doctor's visit at this point in the pregnancy. The fetus is about the size of a lemon, and small features like ears and eyelids begin to develop. Sex organs begin to form as well, but it is still too early to determine the sex via ultrasound.<sup>19</sup>

## Did You know?

A woman's hair sometimes feels (and is) thicker while she is pregnant. Higher than normal levels of estrogen during pregnancy prevent hair from shedding at a regular rate, so hair will have more body and fullness than it normally does.<sup>23</sup>



**Chorionic villus (CV) sampling**. CV is taken from the wall of the placenta and is used to check for genetic diseases, birth defects, and other issues during pregnancy. This is usually done between weeks 10 and 13.<sup>20</sup>

**Weight management.** Some weight gain is expected by month three. Light exercise and a healthy diet are essential for the mother and the fetus. The Mayo Clinic details how much weight gain is considered appropriate.

**Nuchal translucency screening.** This assessment evaluates the risk of Down syndrome. The test can also detect other genetic issues and is best to conduct between weeks 10 and 12.<sup>21</sup>

**Constipation relief.** Bowel movements become less regular because of the changes in hormones that cause the pregnant woman's muscle fibers to relax, reducing intestinal contractions. The growing uterus can impede digestion as well. Drinking a large bottle of mineral water and eating plenty of fiber (25 to 35 grams) every day will help, as will walking for 30 minutes after eating.<sup>22</sup>

# **Second Trimester**

This trimester can be easier than the first when it comes to physical discomfort. Some symptoms from the first trimester-like nausea and fatigueare still present, but typically they are less noticeable. Most women experience new sensations, such as body aches in the back, groin, thigh, and abdomen. Sometimes expectant mothers develop melasma, or darkened skin, around their nipples or patches of darker skin on the sides of the upper half of their face, which is sometimes referred to as the "mask of pregnancy." It is normal and harmless, but women should consult their prenatal care providers about any skin discolorations in order to rule out other possible conditions.<sup>24</sup>



The fetus grows eyebrows, eyelashes, and fingernails and develops a neck. Kidneys begin to function and start to produce urine. The fetus is now able to swallow, and the placenta is fully formed.<sup>25</sup>

## What to Expect

The expectant mother may begin to feel less nausea than in past months, although heartburn and constipation may become more of an issue. Blood flow starts to increase in this month, which is normal, but a side effect can be unexpected bleeding in places like the gums or nose.<sup>26</sup>

**Amniocentesis.** Amniocentesis is the removal of amniotic fluid for testing fetal genetics, lung development, and other physical conditions. If the expectant mother chooses to get an amniocentesis, it is usually done between weeks 14 and 16. The procedure is expensive, invasive, and optional,<sup>27</sup> so expectant mothers should consult with their health care provider and read the Mayo Clinic's list of reasons for having an amniocentesis.<sup>28</sup>

**Itching combined with other symptoms.** It is normal to experience sensations like numb or tingling hands and itchy palms or feet. However, if itching is combined with jaundice, nausea, or loss of appetite, pregnant women should call their prenatal care provider as soon as possible. This could signal a serious liver issue.<sup>29</sup>

**Sudden or extreme swelling.** Severe swelling in the ankles, fingers, and face can be a symptom of preeclampsia, indicating high blood pressure and protein in the urine. Women should consult their prenatal care provider if this occurs.<sup>30</sup>



This is the month when the fetus becomes active, sleeping and waking daily. A waxy coating called "vernix" and fine hair called "lanugo" now cover the festus's entire body. The gallbladder is fully formed and producing bile, which helps the fetus digest nutrients.<sup>31</sup>

## What to Expect

The pregnant woman will start to "show" if she has not already, and with development in full swing, the fifth month of pregnancy is often when expectant mothers sense the fetus move for the first time. The sensation is typically described as butterflies in the stomach. The fetus is formed enough that sex can usually be determined with an ultrasound.<sup>32</sup>

**Stretchmarks.** Throughout a pregnancy, the body releases cortisol to increase the amount of collagen in a woman's skin. The extra collagen allows skin to stretch as the fetus grows. Many women find that the application of cocoa butter products helps relieve itchiness and stretch marks associated with pregnancy; however, so far, there is no strong evidence that creams are effective at preventing stretch marks. <sup>33 34</sup>

**Midpregnancy ultrasound**. This is a common time to check in on the fetus, and expectant mothers should ask their prenatal care providers whether or not one is needed, and if so, when. <sup>35</sup>

#### SECOND TRIMESTER

## Month 6 WEEKS 21-24

New functions are developing, and the fetus opens its eyes and grows real hair. At this point, its brain is developing rapidly. Lungs have formed, but they are not yet able to function.<sup>36</sup>

## What to Expect

Symptoms from months four and five generally continue. The expectant mother's breasts will likely start to produce drops of milk, called "colos-trum." Some women also experience Braxton-Hicks contractions, which are painless practice squeezes by the uterus to prepare for the baby's delivery. These contractions are normal and do not indicate preterm labor. However, women who experience painful and consistent contractions should consult their prenatal care provider.<sup>37</sup>

## **Did You Know?**

A woman's feet can permanently change size during pregnancy. Between 60 to 70 percent of women's feet grew longer and wider during pregnancy according to a 2013 study from the University of Iowa.<sup>56</sup>



**Routine tests.** Tests during this stage of the pregnancy may include a second complete blood count, an Rh antibody test, and a glucose screening to check for signs of gestational diabetes.<sup>38</sup>

**Pediatrician interviews.** Expectant mothers should allow enough time to find the best pediatrician for their baby before they give birth, and should begin looking during the second trimester. **Childbirth classes.** Classes are a great way for new mothers and couples to learn about stages of labor, anatomy, postpartum care, breastfeeding, and infant care, among other topics.<sup>39</sup> The best time for a class is late in the second trimester or early in the third trimester, so women can put what they have learned into practice with care providers.<sup>40</sup>

# **Third Trimester**

Some of the physical symptoms from the second trimester will persist, and some women will need to urinate more often during this final trimester. This is because the fetus is getting bigger and moving around more, which puts pressure on certain organs. The cervix also becomes thinner and softer at this stage, which helps with dilation, secondary to pressure from the fetus's head. Many women will experience new side effects that include:<sup>42</sup>

- Shortness of breath
- Difficulty sleeping
- Hemorrhoids
- Contractions (which can be a sign of real or false labor)

- Tender breasts
- Leaking of colostrum (or "premilk") from the breasts
- The baby moving lower in the abdomen (also known as "dropping")





The fetus starts to kick and stretch, can make grasping motions, and responds to sound. The eyes now open and close and sense changes in light.<sup>43</sup>

## What to Expect

The uterus continues to expands as the fetus grows, and side effects from months four to six generally continue.<sup>44</sup>

THIRD TRIMESTER

### **Considerations for Care**

**Vaccinations.** Vaccinate against pertussis (whooping cough), flu, and tetanus. Expectant mothers should also consult their prenatal care providers about vaccinations for Hepatitis A and B. If traveling, there may be a need to vaccinate against preventable diseases that are rare in the United States but still common in other countries.<sup>45</sup>

**Legal and financial.** Women anticipating childbirth should write or update their will, purchase or update life insurance, and update beneficiaries to retirement and other accounts.

**Zika.** Expectant mothers planning to travel should consider avoiding the countries and territories with reported active transmission of the Zika virus. Zika has been linked with microcephaly, a serious birth defect where a baby's head is smaller than normal, resulting in a brain that is not properly developed and is susceptible to chronic conditions.<sup>46</sup> Pregnant women can refer to the CDC map and list of countries and territories with reported active transmissions of Zika.

THIRD TRIMESTER

## Month 8 WEEKS 29-32

At this stage, the fetus will quickly gain weight, as most of the major developments are complete. The bones harden, except for the skull, which stays soft and flexible for birth. The fetus has developed taste buds and may occasionally hiccup.<sup>47</sup>

## What to Expect

Some women notice varicose veins-blue or red swollen veins (usually on the legs)-and hemorrhoids, which are varicose veins on the rectum. It is normal for pregnant women to urinate a bit when they laugh or sneeze because the uterus is putting pressure on the bladder.<sup>48</sup>

## **Did You Know?**

By about month eight, fetuses can taste sweet and sour. One study found that babies whose mothers drank a lot of carrot juice during pregnancy had a preference for carrot juice.<sup>41</sup>



**GBS testing.** Group B streptococci (also known as "GBS" or "group B strep") is a type of bacteria that lives in the vagina and rectum and can be passed from mother to baby. Women with GBS often do not show symptoms, so the test is important. While group B strep is generally harmless for adults, it can cause life-threatening conditions in the baby, including breathing difficulty.<sup>49</sup>

**Preregistration.** Expectant mothers planning to give birth at a hospital can pre-register their name and insurance information. This does not reserve a date, but it cuts down on paperwork the day of the labor.<sup>50</sup> Women who plan to give birth at home will be visited by a birth attendant (physician or Nurse-Midwife) around this time. Women planning on using a hospital or birth center should consider visiting the location before labor so that they are familiar with the area and facility when the time comes.

**Air travel.** Week 36 is the last week an expectant mother can fly aboard a plane.<sup>51</sup> After that, pregnant women risk going into labor midflight.

**Baby safety at home.** Parents will want to check the U.S. Consumer Product Safety Commission web site to see if their baby's crib conforms to safety standards and check for recalls; remove all blankets, pillows, and stuffed animals from the crib to prevent suffocation; make sure smoke and carbon monoxide detectors are working and placed in the correct locations; and ensure that handrails are securely installed in the home.<sup>52</sup>



The fetus now maintains a head-down position and drops lower in the pelvis in advance of delivery. The skin, brain, and lungs continue to develop and prepare to function outside of the uterus. The fetus gains about half a pound per week in the last month.<sup>54</sup>

## What to Expect

As the fetus moves into the lower part of the uterus, constipation and heartburn should subside. However, many of the earlier pregnancy symptoms continue, including frequent urination, shortness of breath, fatigue, and trouble sleeping.<sup>55</sup> As hormones increase, patience may lessen, which is a typical part of the pregnancy experience, as is the expectant mother's need to clean, or "nest."

**Weekly checkups.** Expectant mothers will see prenatal care providers every week to monitor weight gain and blood pressure.

**Movement tracking.** Providers generally ask pregnant patients to keep track of fetal movements and to alert them if the fetus moves less than usual.<sup>55</sup>

**Transportation.** Install an infant car seat following safety tips from the CDC.

**Hospital preparation.** With no certainty of when labor will start, expectant mothers need to prepare. If a woman plans to give birth in a hospital or birth center, she should pack a "go bag." For a home birth, the room needs to be ready in advance. A provider's phone number should be kept in a convenient place or saved in a mobile phone. If a woman is already a mother, arrangements should be made for child care.

# Conclusion

Each month of pregnancy has its own unique challenges. The body undergoes drastic physical changes, and the logistics of life become increasingly complicated in preparation for having a new person in the household. However, when expectant mothers know what lies ahead and begin to prepare, they can have a happy and healthy pregnancy, fully enjoying the new life they bring into the world.

For those who want to dedicate their careers to women's or family health, Nursing@Georgetown provides online master of science degrees, with specializations for Nurse-Midwifery/Women's Health Nurse Practitioners, Women's Health Nurse Practitioners, and Family Nurse Practitioners. These programs train students to provide primary, prenatal, and postpartum treatment and all of the other care women and families need when preparing for and having a child.

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GEORGETOWN UNIVERSITY School of Nursing & Health Studies NURSING@GEORGETOWN