RUTGERS
Robert Wood Johnson Medical Group
ROBERT WOOD JOHNSON MEDICAL SCHOOL

Division of Obstetrics, Gynecology, and Services
# Maternity Patient Resource Guide

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Welcome to Our Practice

Congratulations on your pregnancy. We are pleased you have chosen our Obstetric Team to care for you and your baby throughout your pregnancy. Our goal is to provide you and your baby with care that is centered on the needs of you and your family.

The Rutgers Robert Wood Johnson Medical Group Obstetrics Division is a group practice. A member of our staff is in Robert Wood Johnson University hospital 24 hours a day. This coverage is based on a rotating schedule.

The physician on call the day you go into labor will deliver your baby. Due to this rotating coverage, we encourage to meet with all of the physicians in the practice during the course of your prenatal care.

Robert Wood Johnson University Hospital is a teaching hospital. Residents and medical students work directly with our Obstetrical Team and may be involved in your care.

If you have any questions regarding the providers in our practice or the dynamics of our group practice explained above, please contact the Obstetrical Nurse Coordinator at (732)235-6143 or the Maternal Fetal Medicine Nurse Coordinator at 732-235-6698.

Additional information can be found on our website: http://umg.rwjmns.rutgers.edu/Public/clinical_services/default.asp?dept=obgyn

Office Locations
Clinical Academic Building (CAB)  
125 Paterson St, Suite 4200  
New Brunswick, NJ 08901  
Main Number: 732-235-6600  
Fax: 732-235-6650

Monroe Office  
18 Centre Drive, Suite 104  
Monroe, NJ 08831  
Phone: 609-655-5178  
Fax: 609-655-5284
DEPARTMENT OF OBSTETRICS, GYNECOLOGY, AND REPRODUCTIVE SCIENCES

IMPORTANT PHONE NUMBERS

General OB-GYN
General OB-GYN Appointments (732) 235-6600
General OB Nurse Coordinator (9:00am – 5:00pm*) (732) 235-6143

If you have a problem, concern, or are in labor weekdays after 5:00pm, Saturday, Sunday, or Legal Holiday, please call 732-235-6600 to reach the answer service who can contact the physician on call.

Ultrasound Appointments (732) 235-6600
Surgical Coordinator (732) 235-6975
Billing Questions - GE (66) 470-6626

Maternal Fetal Medicine
Maternal Fetal Medicine Appointments (732) 235-8006
Maternal Fetal Medicine Nurse Coordinator (8:30am – 4:00pm*) (732) 235-6698

If you have a problem, concern, or are in labor weekdays after 4:00pm, Saturday, Sunday, or Legal Holiday, please call 732-235-8006 to reach the answer service who can contact the physician on call.

Miscellaneous
WIC (Women, Infants, Children) (866) 446-5942
March of Dimes Resource Center (732) 952-9010
- www.marchofdimes.com

Community Education (732) 418-8110
(Prenatal Classes – Hospital Tours)

Robert Wood Johnson University Hospital
- Main Number (732) 828-3000
- Labor and Delivery (732) 937-8671
- Pre-Registration Office (732) 937-8863
Charletta Ayers, MD, MPH  
Associate Professor  
Director, Division of General OB/GYN  
Director of Obstetrics at RWJUH  
Board Certified: OB/GYN

Meir Olcha, MD  
Instructor  
Board Certified: OB/GYN

Adrian Balica, MD  
Assistant Professor  
Board Certified: OB/GYN and Internal Medicine

Nancy Phillips, MD  
Clinical Assistant Professor  
Board Certified: OB/GYN

Francis Cioffi, MD  
Associate Professor  
Board Certified: OB/GYN

Archana Pradhan, MD, MPH  
Associate Professor  
Board Certified: OB/GYN

Gary Ebert, MD  
Associate Professor  
Board Certified: OB/GYN

Veronica Rojas, MD  
Instructor  
Board Eligible

Juana Hutchinson-Colas, MD  
Assistant Professor  
Board Certified: OB/GYN

Aarthi Srinivasan, MD  
Instructor  
Board Eligible

Lena Merjanian, MD  
Instructor  
Board Certified: OB/GYN

Deanna Tikhonov, APN  
Women’s Health Nurse Practitioner  
Board Certified
OBSTETRICS FACULTY INFORMATION

Charletta A. Ayers, MD, MPH
Medical School: Temple University
Residency: Temple University
Special Interests: General OB/GYN, Adolescent gynecology, Menopausal women
Certification: Board Certified

Adrian C. Balica, MD
Medical School: University of Medicine and Pharmacy, Romania
Residency: OB/GYN – UMDNJ-Robert Wood Johnson Medical School
Special Interests: General OB/GYN, perimenopausal women’s health, minimally invasive
Certification: Board Certified – Internal Medicine and OB/GYN

Francis Cioffi, MD
Medical School: University of Medicine and Dentistry of New Jersey
Residency: New York Medical College Metropolitan Hospital Center
Special Interests: High-Risk Obstetrics, Community-Centered Obstetrical
Care Certification: Board Certified

Gary Ebert, MD
Medical School: UMDNJ-Robert Wood Johnson Medical School
Residency: Newark Beth Israel Medical Center
Special Interests: General OB/GYN, menstrual irregularities, contraception, minimally invasive
surgery
Certification: Board Certified

Juana Hutchinson-Colas, MD
Medical School: SUNY – Health Science Center (Downstate Medical School), New York
Residency: SUNY – Health Science Center, New York
Special Interests: Urogynecology and pelvic reconstructive surgery, Medical education
Certification: Board Certified

Lena L. Merjianian, MD
Medical School: UMDNJ-Robert Wood Johnson Medical School
Residency: OB/GYN – UMDNJ-Robert Wood Johnson Medical School
Special Interests: General OB/GYN, contraception, adolescent medicine, medical education
Certification: Board Certified

Meir Olcha, MD
Medical School: UMDNJ-Robert Wood Johnson Medical School
Residency: OB/GYN – UMDNJ-Robert Wood Johnson Medical School
Special Interests: General OB/GYN
Certification: Board Eligible
Nancy Phillips, MD  
Medical School: UMDNJ-Robert Wood Johnson Medical School  
Residency: Washington University Hospital  
Special Interests: General OB/GYN, menopausal issues, vulvodynia, irregular menstrual cycles  
Certification: Board Certified

Archana Pradhan, MD  
Medical School: Duke University School of Medicine  
Residency: Nassau University Medical Center  
Special Interests: General OB/GYN, medical education, contraception  
Certification: Board Certified

Veronica Rojas, MD  
Medical School: Stony Brook University School of Medicine  
Residency: Winthrop University Hospital  
Special Interests: General OB/GYN, GYN Oncology  
Certification: Board Eligible

Aarthi Srinivasan, MD  
Medical School: Rajiv Ghandhi University of Health Sciences, Karnataka  
Residency: St.John Hospital and Medical Center, Detroit, Michigan  
Special Interests: General OB/GYN, GYN Oncology  
Certification: Board Eligible

Deanna Tikhonov, APN  
Women’s Health Nurse Practitioner  
Education: The College of New Jersey – Bachelor of Science in Nursing  
University of Pennsylvania School of Nursing – Master of Science in Nursing  
Certification: Board Certified
## Robert Wood Johnson Medical Group
### MATERNAL FETAL MEDICINE

**Clinical Academic Building**
125 Paterson Street, New Brunswick, New Jersey 08901  
**Telephone** (732) 235-8006  
**Fax** (732) 235-6650  
**Emergencies** (732) 235-8006

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### Maternal Fetal Medicine Fellows

<table>
<thead>
<tr>
<th>Photo</th>
<th>Name</th>
<th>Title</th>
<th>Board Certified:</th>
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<tr>
<td><img src="image" alt="Todd Rosen, MD" /></td>
<td>Todd Rosen, MD</td>
<td>Chief, Division of Maternal Fetal Medicine</td>
<td>OB/GYN and Maternal Fetal Medicine</td>
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<tr>
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<td>Christina Duzyj-Buniak, MD</td>
<td>Assistant Professor</td>
<td>OB/GYN</td>
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<tr>
<td><img src="image" alt="Kristy Palomares, MD" /></td>
<td>Kristy Palomares, MD</td>
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<td>PGY-VI</td>
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<tr>
<td><img src="image" alt="William MacMillan, MD" /></td>
<td>William MacMillan, MD</td>
<td>Assistant Professor</td>
<td>OB/GYN and Maternal Fetal Medicine</td>
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Division of Maternal Fetal Medicine

Maternal Fetal Medicine Attending Physicians

Valeria M. Di Stefano, MD
Medical School: UMDNJ – Robert Wood Johnson Medical
School OB/GYN Residency: UMDNJ – Robert Wood Johnson Medical
School MFM Fellowship: Rutgers Robert Wood Johnson Medical School
Special Interests: Preterm labor, prenatal diagnosis
Certification: Board Certified: Obstetrics & Gynecology, Board Eligible: Maternal-Fetal Medicine

Christina M. Duzyl-Buniak, MD, MPH
Medical School: Columbia University School of Medicine
OB/GYN Residency: Yale New Haven
Hospital MFM Fellowship: Yale School of Medicine
Medicine Masters in Public Health: Yale School of Medicine
Special Interests: Placental abnormalities, surgical complications of pregnancy, multiple gestations
Certification: Board Certified: Obstetrics & Gynecology
Board Certified: Maternal-Fetal Medicine

William E. MacMillan, MD
Medical School: University of Wisconsin – Madison
OB/GYN Residency: University of Wisconsin Hospital & Clinics
MFM Fellowship: State University of New York – Stony Brook
Special Interests: Maternal medical disorders in pregnancy, fetal growth restriction, fetal anomalies
Certification: Board Certified: Obstetrics & Gynecology
Board Certified: Maternal-Fetal Medicine

Todd J. Rosen, MD (MFM Division Director)
Medical School: UMDNJ – New Jersey Medial School
OB/GYN Residency: Mount Sinai School of Medicine
MFM Fellowship: New York University School of Medicine
Special Interests: High-risk pregnancies, preterm labor, multiple gestations, recurrent pregnancy loss
Certification: Board Certified: Obstetrics & Gynecology
Board Certified: Maternal-Fetal Medicine

Maternal-Fetal Medicine Fellows

Mayra Cruz Ithier, MD
Medical School: University of Illinois
OB/GYN Residency: Bayfront Health, Florida
MFM Fellowship: Rutgers Robert Wood Johnson Medical School
Certification: Board Eligible: Obstetrics & Gynecology
MFM Fellowship – anticipated completion 06/30/201
Guadalupe Herrera-Garcia, DO (PGY-VI)
Medical School:  State Erie College of Osteopathic Medicine
OB/GYN Residency:  Sinal Hospital - Baltimore
MFM Fellowship:  Rutgers Robert Wood Johnson Medical School
Certification:  Board Eligible: Obstetrics & Gynecology
                  MFM Fellowship – anticipated completion 06/30/2017

Kristy T.S. Palomares, MD, PhD (PGY-VI)
Medical School:  Boston University School of Medicine
OB-GYN Residency:  UMDNJ – Robert Wood Johnson Medical School
MFM Fellowship:  Rutgers Robert Wood Johnson Medical School
Doctoral Program (PhD)  Boston University - College of Engineering
Special Interests:  Preterm labor, cervical insufficiency
Certification:  Board Eligible: Obstetrics & Gynecology
                  MFM Fellowship – anticipated completion 06/30/2016
OBSTETRIC CARE PRACTICE POLICIES

- The general schedule of prenatal appointments is as follows, the provider may adjust the schedule based on your individual needs during your pregnancy:
  
  - 8 – 28 weeks: Monthly
  - 28 – 36 weeks: Every two to three weeks
  - 36 weeks – Delivery: Weekly

- At the end of your visit, your provider will advise you to return to the office for your next visit in a certain amount of time. Get in the habit of making your next appointment at the end of your visit. **You will be responsible for scheduling all of your regular prenatal appointments.**

- Any special appointments with outside providers, such as ultrasounds and consultations, will be made for you by the OB Nurse Coordinator. **You will receive your appointment information in the mail.**

- We advise that you see the same provider for your first few visits. This will allow the doctor to obtain the majority of your labwork and establish a plan of care for the group to follow.

- **It is important that you meet all the providers in our group at least once.** Our physicians have a fixed schedule of hospital coverage. One of our physicians is in the hospital twenty-four hours a day, but you cannot predict which physician will be on-call when you arrive at the hospital. **Your care will be provided by both male and female physicians.**

- Our medical group **only** provides obstetrical care at **Robert Wood Johnson University Hospital.**

- Labwork is a very important part of your prenatal care. When a provider provides you with a slip to have blood drawn, it is extremely important that you have the labwork done within 7 days. **However, you will only be notified by phone to discuss abnormal results.** All normal labwork will be reviewed at your next prenatal visit.

- If you ever have any questions regarding your pregnancy or our practice, please contact the OB Nurse Coordinator at (732)235-6143.
OB TEST SCHEDULE

**INITIAL VISIT:**
Baseline Sonogram
PAP
Gonorrhea and Chlamydia Cultures
Urine Culture
CBC and DIFF with Platelets
Hep B Surface Antigen
Antibody Screen
Type and Rh
Rubella Igg Ab

**RPR**
**HIV**
**Hemoglobin Electrophoresis**
**Cystic Fibrosis**
**SMA**
**Fragile X**
**Early 1HR GTT (WHEN APPLICABLE)**
**Jewish Heritage Profile (OPTIONAL)**
**Counsyl Genetic Screening (OPTIONAL)**

**10 – 12 WEEKS:**
Chorionic Villus Sampling (OPTIONAL)

**12 – 13 WEEKS:**
Nuchal Lucency Ultrasound with PAPP-A (OPTIONAL)

**16 – 21 WEEKS:**
Tetra/Quad Screen (OPTIONAL)
Amniocentesis (OPTIONAL)

**19 WEEKS:**
Genetic Ultrasound with possible Amniocentesis (AMA)

**20 WEEKS:**
Level II Ultrasound

**26 – 28 WEEKS:**
CBC with platelets
1-Hour Glucose Tolerance Test (50 grams)
Antibody Screen (if Rh Negative)
3-Hour Glucose Tolerance Test (if Needed)
HIV

**36 WEEKS:**
Group B Strep Culture
Pregnancy is a time when women are very careful about what medications and food they take. The following medications are a list of common medicines that are safe to take at any time during your pregnancy

**For Heartburn:**
Elevate Head with pillow
Do not lie down immediately after eating
Do not eat after 6pm; avoid spicy, acidic or fried foods or food/drinks with caffeine
May take Tums, Maalox, Mylanta, Zantac or Prilosec
DO NOT TAKE ROLAIDS or ALKASELTZER

**For Nausea:**
Try eating small frequent meals
Avoid fatty/spicy foods
Eat ginger cookies, drink flat ginger ale
Vitamin B6 25 mg every 8 hrs
Benadryl or Unisom at bedtime

**For Constipation:**
Drink at least 8- (8oz) glasses of water each day
Increase fiber by eating whole grain foods, fresh fruits and vegetables
Small cup of warm prune juice
Fibercon, Miralax or Colace (take as directed on bottle) It may take up to one week before you have results from stool softeners
Senokot, Metamucil, milk of magnesia, Fleets enema. If constipation is not relieved by stool softeners or any of these medications, contact the office

**For Hemorrhoids**
Drink at least 8 (8oz) of water each day
Avoid constipation (see above)- don’t strain when you are on the toilet
Use TUCKS or witch hazel pads
Warm Sitz baths
Anusol HC or Preparation H cream/ointment
Ice pack applied to bottom (20 minutes on/20 minutes off)

**For Diarrhea:**
Clear liquids until diarrhea stops (sprite, ginger ale, Gatorade, Kool-Aid, tea, broth, Jell-O, popsicles or any other liquid you can see through.
BRAT diet – bananas, rice, applesauce, toast
Call office if there is no improvement in 24 hours

**For Headaches:**
-Tylenol or acetaminophen, regular or extra strength. Take as directed on bottle.
DO NOT USE: Ibuprofen, Aleve, Advil or Motrin

**For colds & cough:**
Notify office/MD if fever is greater than 100.4 (take temperature with thermometer)
Increase fluids
Room humidifier is effective
Saline Nasal spray may decrease congestion
Flonase
Robitussin DM for cough
Plain Sudafed
Claritin or Zyrtec
Plain Mucinex
Vicks Vapor Rub
Halls Cough drops
FINANCIAL POLICY

We would like to provide you with detailed information about our office financial policy.

- A global fee for obstetrical care and delivery has been established which includes prenatal care, delivery, and postpartum examination.
- Additional testing such as ultrasounds, non-stress tests, and laboratory tests are not included in this global fee. Payment is expected at time of the service if it not covered by your insurance carrier.
- Any office visit for a non-pregnancy related problem (Cold, Flu, Rash, ETC) may not be included in the global fee. Payment is expected at time of service.
- All hospital inpatient or outpatient services rendered prior to delivery are also an additional fee.
- At your first scheduled obstetrical visit we would like to request the following information:
  ➢ Insurance carrier identification card(s).
  ➢ Insurance carrier claim form(s) with patient’s portion completed.
  ➢ Referral, if necessary, from your primary care physician.
- If any payment arrangements need to be made, this can be discussed with the Front Desk Supervisor when you arrive for your first visit.
- For your added convenience we accept cash, personal check, Mastercard, or Visa.

We understand that questions can arise on financial matters and these should be discussed with GE Billing at (866)470-6626.
DIRECTIONS – HOW TO GET TO THE
RUTGERS ROBERT WOOD JOHNSON MEDICAL GROUP
CLINICAL ACADEMIC BUILDING (CAB)
125 Paterson Street Suite 4200
New Brunswick, New Jersey 08901
(732)235-6600

FROM NEW JERSEY TURNPIKE:
Take Exit 9 (New Brunswick). Take Route 18 North about two miles to the Route 27 South (Princeton) exit. Follow Route 27 for six traffic lights. At the 6th traffic light, make a left turn onto Paterson Street. Entrance to the CAB parking deck is on your right.

FROM ROUTE #1:
Take Route 18 North exit and follow directions as above under N.J. Turnpike.

FROM ROUTE #287:
Take Exit #10 (Route 527, New Brunswick). Follow Route 527 (Easton Ave.) for about six miles to the end, and make a right turn onto Route 27 South. At the 2nd traffic light make a left turn onto Paterson Street. Entrance to the CAB parking deck is on your right.

FROM GARDEN STATE PARKWAY NORTH:
Exit #130 (Route 1 South). Go about nine miles to Route 18 North. Take Route 18 North and follow directions above under New Jersey Turnpike.

FROM GARDEN STATE PARKWAY SOUTH:
Exit #105 (Route 18 North). Stay on Route 18 North for approximately a half-hour drive until you pass the New Jersey Turnpike entrance. Then follow directions on Route 18 North above under N.J. Turnpike.

NOTE: Entrance to the Clinical Academic Building is across the street from the entrance to Paterson Street CAB parking deck.

ADDITIONAL VISITOR PARKING INFORMATION:
Parking rates in the parking deck are subject to change. Valet parking is available at the entrance to the CAB for an extra fee.

Parking for physically challenged individuals is available in the Paterson Street CAB deck. To occupy a physically challenged space, you must have a special state placard or license plate.
DIRECTIONS TO:
Rutgers Robert Wood Johnson Medical Group Monroe Office
18 Centre Drive
Monroe Township, New Jersey 08831
Phone: (609)655-2411

Directions from points north via the Garden State Parkway/NJ Turnpike:

Take the Garden State Parkway South. Then, take exit 129 off the Parkway (I-95/NJ Turnpike). Follow the signs toward the NJ Turnpike South. Take Exit 8A towards Jamesburg. Merge onto CR-612 E/Rt. 32 East. Turn Right onto Applegarth Road. Make the first left on Centre Drive. Make the first right into 18 Centre Drive.

Directions from points east via Route 18:

Take Route 18 North. Take exit 29 towards CR-520/Tennent Road. Merge onto CR-3/Tennent Road. Turn right at Bridge Road/CR-520. Turn left at CR-520/Texas Road. Continue to follow Texas Road (turns into Matchaponix Avenue). Continue on Matchaponix Avenue (turns into Pergola Avenue). Continue on CR-612/Pergola Avenue. Turn right at Buckelow Avenue/CR-522/CR-612. Turn left at CR-612 Forsgate Drive. Turn left onto Applegarth Road. Make first left onto Centre Drive. Make first right into 18 Centre Drive.

Directions from points east via I-95:

Take I-195 West. Follow the signs toward the NJ Turnpike. Take the NJ Turnpike North. Take Exit 8A towards Jamesburg. Merge onto CR-612 E/Rt. 32 E. Turn right onto Applegarth Road. Make the first left onto Centre Drive. Make the first right into 18 Centre Drive.

Directions from points south via the Garden State Parkway:

Take the Garden State Parkway North to I-195 West. Follow Directions from points east via I-195.
DIRECTIONS TO ROBERT WOOD JOHNSON
UNIVERSITY HOSPITAL
1 Robert Wood Johnson Place
New Brunswick, New Jersey 08901
TELEPHONE NUMBER: (732)828-3000

From the New Jersey Turnpike:
Take Exit 9 (New Brunswick) and proceed on Route 18 North, about two miles to Route 27 South (Princeton Exit). Follow Route 27 to the fourth traffic light (by the railroad station). Turn right onto Easton Avenue, and make the second left onto Somerset Street. Proceed one block to the “Y” intersection of Little Albany Street and Somerset Street. Bear left onto Little Albany Street, (between the Cancer Institute of NJ and RWJUH). The entrance to the hospital’s parking deck is on the right, just past the Emergency Department sign.

From Route 1:
Take Route 18 North and follow the directions as listed above.

From the Garden State Parkway (Points North):
Exit at Route 1 (Exit 130). Proceed about nine miles north. Follow the directions listed above.

From the Garden State Parkway (Points South):
Exit Route 287 (New Brunswick, Exit #10, formerly Exit #6). Follow Route 527 (Easton Avenue) for about six (6) miles until you see a railroad overpass. (Just after the intersection of Easton Avenue and Somerset Street). Make a right onto Little Albany Street. The hospital’s parking deck is 75 yards on the left.

***Labor & Delivery is located on the 3rd floor in the Tower Building***
First Trimester

Contents:

- Routine Tests in Pregnancy
- How Your Baby Grows During Pregnancy
- Nutrition During Pregnancy
- Morning Sickness
- Exercise During Pregnancy
- Skin Conditions During Pregnancy
- Travel During Pregnancy
- Bleeding in Pregnancy
- Tobacco, Alcohol, Drugs and Pregnancy
- A Father’s Guide to Pregnancy
- Later Childbearing
- Vaginal Birth after Cesarean Delivery: Deciding on a Trial of Labor After Cesarean Delivery
- Immunization and Pregnancy
- Fish and Shellfish Advice (US food and Drug Administration)
- Newborn Screening Information
Routine Tests in Pregnancy

- Why are tests done during pregnancy?
- What tests are done early in pregnancy?
- What is a CBC and what can the results show?
- What is blood typing and what can the results show?
- What is a urinalysis and what can the results show?
- What is a urine culture test and what can the results show?
- What is rubella and what do test results for this disease show?
- What are hepatitis B and hepatitis C and what do test results for these diseases show?
- Which STD tests are done in pregnant women?
- Why are all pregnant women tested for HIV?
- Which pregnant women should be tested for TB?
- What tests are performed later in pregnancy?
- When will I be tested for Rh antibodies?
- What is a glucose screening test and what can the results show?
- What is GBS and why are pregnant women tested for it?
- What happens if my GBS screening test result is positive?
- What is the difference between screening tests and diagnostic tests for birth defects?
- What is the first step in screening for birth defects?
- What is a carrier test?
- What are other types of screening tests for birth defects that can be performed during pregnancy?
- What are the types of diagnostic tests for birth defects that can be performed during pregnancy?
- Can I choose whether or not to have testing for birth defects?
- Glossary

Why are tests done during pregnancy?
A number of lab tests are suggested for all women as part of routine prenatal care. These tests can help find conditions that can increase the risk of complications for you and your fetus.

What tests are done early in pregnancy?
The following lab tests are done early in pregnancy:

- Complete blood count (CBC)
- Blood type
• Urinalysis
• Urine culture
• Rubella
• Hepatitis B and hepatitis C
• Sexually transmitted diseases (STDs)
• Human immunodeficiency virus (HIV)
• Tuberculosis (TB)

What is a CBC and what can the results show?
A CBC counts the numbers of different types of cells that make up your blood. The number of red blood cells can show whether you have a certain type of anemia. The number of white blood cells shows how many disease-fighting cells are in your blood, and the number of platelets can reveal whether you have a problem with blood clotting.

What is blood typing and what can the results show?
Results from a blood type test can show if you have the Rh factor. The Rh factor is a protein that can be present on the surface of red blood cells. Most people have the Rh factor—they are Rh positive. Others do not have the Rh factor—they are Rh negative. If your fetus is Rh positive and you are Rh negative, your body can make antibodies against the Rh factor. In a future pregnancy, these antibodies can damage the fetus’s red blood cells.

What is a urinalysis and what can the results show?
Your urine may be tested for red blood cells (to see if you have urinary tract disease), white blood cells (to see if you have a urinary tract infection), and glucose (high levels may be a sign of diabetes). The amount of protein also is measured. The protein level early in pregnancy can be compared with levels later in pregnancy. High protein levels in the urine may be a sign of preeclampsia, a serious complication that usually occurs later in pregnancy or after the baby is born.

What is a urine culture test and what can the results show?
A urine culture tests your urine for bacteria, which can be a sign of a urinary tract infection.

What is rubella and what do test results for this disease show?
Rubella (sometimes called German measles) can cause birth defects if a woman is infected during pregnancy. Your blood is tested to check whether you have had a past infection with rubella or if you have been vaccinated against this disease. If you have not had rubella previously or if you have not been vaccinated, you should avoid anyone who has the disease while you are pregnant because it is highly contagious. If you have not had the vaccine, you should get it after the baby is born, even if you are breastfeeding. You should not be vaccinated against rubella during pregnancy.

What are hepatitis B and hepatitis C and what do test results for these diseases show?
Hepatitis B and hepatitis C viruses infect the liver. Pregnant women who are infected with hepatitis B or hepatitis C virus can pass the virus to their babies. All pregnant women are tested for hepatitis B virus infection. If you have risk factors, you also may be tested for the hepatitis C virus.

Which STD tests are done in pregnant women?
All pregnant women are tested for syphilis and chlamydia early in pregnancy. Syphilis and chlamydia can cause complications for you and your baby. If you have either of these STDs, you will be treated during pregnancy and tested again to see if the treatment has worked. If you have risk factors for gonorrhea (you are aged 25 years or younger or you live in an area where gonorrhea is common), you also will be tested for this STD.

Why are all pregnant women tested for HIV?
If a pregnant woman is infected with HIV, there is a chance she can pass the virus to her baby. HIV attacks cells of the body’s immune system and causes acquired immunodeficiency syndrome (AIDS). If you are pregnant and infected with HIV, you can be given medication and take other steps that can greatly reduce the risk of passing it to your baby.

Which pregnant women should be tested for TB?
Women at high risk of TB (for example, women who are infected with HIV or who live in close contact with someone who has TB) should be tested for this infection.

What tests are performed later in pregnancy?
The following tests are done later in pregnancy:
• A repeat CBC
• Rh antibody test
• Glucose screening test
• Group B streptococci (GBS)

When will I be tested for Rh antibodies?
If you are Rh negative, your blood will be tested for Rh antibodies between 28 weeks and 29 weeks of pregnancy. If you do not have Rh antibodies, you will receive Rh Immunoglobulin. This shot prevents you from making antibodies during the rest of your pregnancy. If you have Rh antibodies, you may need special care.

What is a glucose screening test and what can the results show?
This screening test measures the level of glucose (sugar) in your blood. A high glucose level may be a sign of gestational diabetes. This test is usually done between 24 weeks and 28 weeks of pregnancy. If you have risk factors for diabetes or had gestational diabetes in a previous pregnancy, screening may be done in the first trimester of pregnancy.

What is GBS and why are pregnant women tested for it?
GBS is a type of bacteria that lives in the vagina and rectum. Many women carry GBS and do not have any symptoms. GBS can be passed to a baby during birth. Most babies who get GBS from their mothers do not have any problems. A few, however, become sick. This illness can cause serious health problems and even death in newborn babies. GBS usually can be detected with a routine screening test that is given between 35 weeks and 37 weeks of pregnancy. For this test, a swab is used to take samples from the vagina and rectum.

What happens if my GBS screening test result is positive?
If your GBS test result is positive, antibiotics can be given during labor to help prevent the baby from becoming infected.

What is the difference between screening tests and diagnostic tests for birth defects?
Screening tests are done during pregnancy to assess the risk that the fetus has certain common birth defects. A screening test cannot tell whether the baby actually has a birth defect. There is no risk to the fetus with having screening tests.

Diagnostic tests actually can detect many, but not all, birth defects caused by defects in a gene or chromosomes (see FAQ094 Genetic Disorders). Diagnostic testing may be done instead of screening if a couple has a family history of a birth defect, belongs to a certain ethnic group, or if the couple already has a child with a birth defect. Diagnostic tests also are available as a first choice for all pregnant women, including those who do not have risk factors. Some diagnostic tests carry risks, including a small risk of pregnancy loss.

What is the first step in screening for birth defects?
Screening for birth defects begins by assessing your risk factors. Early in your pregnancy, your health care provider may give you a list of questions to find out whether you have risk factors, such as a personal or family history of birth defects, belonging to certain ethnic groups, maternal age of 35 years or older, or having preexisting diabetes. In some situations, you may want to visit a genetic counselor for more detailed information about your risks.

What is a carrier test?
A carrier test can show if you or your partner carry a gene for a certain disorder, such as cystic fibrosis. Carrier tests can be done before or during pregnancy. Carrier testing often is recommended if you or your partner have a genetic disorder, have a child with a genetic disorder, have a family history of a genetic disorder, or belong to an ethnic group that has an increased risk of specific disorders. Also, cystic fibrosis carrier screening is offered to all women of reproductive age because it is one of the most common inherited disorders.

What are other types of screening tests for birth defects that can be performed during pregnancy?
Screening tests include an ultrasound exam in combination with blood tests that measure the levels of certain substances in the mother's blood.

What are the types of diagnostic tests for birth defects that can be performed during pregnancy?
Diagnostic tests for birth defects include amniocentesis, chorionic villus sampling, and a targeted ultrasound exam.

Can I choose whether or not to have testing for birth defects?
Whether you want to be tested is a personal choice. Knowing beforehand allows the option of deciding not to continue the pregnancy. If you choose to continue the pregnancy, it can give you time to prepare for having a child with a particular disorder and to organize the medical care that your child may need. Your health care provider or a genetic counselor can discuss the options with you and help you decide.
Glossary

Acquired Immunodeficiency Syndrome (AIDS): A group of signs and symptoms, usually of severe infections, occurring in a person whose immune system has been damaged by infection with human immunodeficiency virus (HIV).

Amniocentesis: A procedure in which a needle is used to withdraw and test a small amount of amniotic fluid and cells from the sac surrounding the fetus.

Anemia: Abnormally low levels of blood or red blood cells in the bloodstream. Most cases are caused by iron deficiency, or lack of iron.

Antibiotics: Drugs that treat certain types of infections.

Antibodies: Proteins in the blood produced in reaction to foreign substances, such as bacteria and viruses that cause infection.

Bacteria: One-celled organisms that can cause infections in the human body.

Carrier: A person who shows no signs of a particular disorder but could pass the gene on to his or her children.

Cells: The smallest units of a structure in the body; the building blocks for all parts of the body.

Chlamydia: A sexually transmitted disease caused by bacteria that can lead to pelvic inflammatory disease and infertility.

Chorionic Villus Sampling: A procedure in which a small sample of cells is taken from the placenta and tested.

Chromosomes: Structures that are located inside each cell in the body and contain the genes that determine a person’s physical makeup.

Cystic Fibrosis: An inherited disorder that causes problems in digestion and breathing.

Diabetes: A condition in which the levels of sugar in the blood are too high.

Fetus: The developing organism in the uterus from the ninth week of pregnancy until the end of pregnancy.

Gene: A segment of DNA that contains instructions for the development of a person’s physical traits and control of the processes in the body. Genes are the basic units of heredity and can be passed down from parent to offspring.

Genetic Counselor: A health care professional with special training in genetics and counseling who can provide expert advice about genetic disorders and prenatal testing.

Gestational Diabetes: Diabetes that arises during pregnancy.

Glucose: A sugar that is present in the blood and is the body's main source of fuel.

Gonorrhea: A sexually transmitted disease that may lead to pelvic inflammatory disease, infertility, and arthritis.

Human Immunodeficiency Virus (HIV): A virus that attacks certain cells of the body's immune system and causes acquired immunodeficiency syndrome (AIDS).

Preeclampsia: A condition of pregnancy in which there is high blood pressure and protein in the urine.

Prenatal Care: A program of care for a pregnant woman before the birth of her baby.

Rh Factor: A protein that can be present on the surface of red blood cells.

Rh Immunoglobulin: A substance given to prevent an Rh-negative person's antibody response to Rh-positive blood cells.

Sexually Transmitted Diseases (STDs): Diseases that are spread by sexual contact, including chlamydia, gonorrhea, human papillomavirus infection, herpes, syphilis, and infection with human immunodeficiency virus (HIV, the cause of acquired immunodeficiency syndrome [AIDS]).

Syphilis: A sexually transmitted disease that is caused by an organism called Treponema pallidum; it may cause major health problems or death in its later stages.

Trimester: Any of the three 3-month periods into which pregnancy is divided.

Tuberculosis (TB): A contagious infection that usually affects the lungs in humans.

Ultrasound Exam: A test in which sound waves are used to examine internal structures. During pregnancy, it can be used to examine the fetus.

If you have further questions, contact your obstetrician–gynecologist.

FAQ133: Designed as an aid to patients, this document sets forth current information and opinions related to women’s health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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How Your Baby Grows During Pregnancy

- How does pregnancy begin?
- How long does a normal pregnancy last?
- How does the uterus change during pregnancy?
- What happens during the first month of pregnancy?
- What happens during the second month of pregnancy?
- What happens during the third month of pregnancy?
- What happens during the fourth month of pregnancy?
- What happens during the fifth month of pregnancy?
- What happens during the sixth month of pregnancy?
- What happens during the seventh month of pregnancy?
- What happens during the eighth month of pregnancy?
- What happens during the ninth month of pregnancy?
- Glossary

How does pregnancy begin?

Fertilization, the union of an egg and a sperm, is the first step in a complex series of events that leads to pregnancy. Fertilization takes place in the fallopian tube. During the next few days, the fused egg and sperm move through the fallopian tube to the lining of the uterus. There it implants and starts to grow.

The cluster of cells that reaches the uterus will become the fetus and the placenta. The placenta functions as a life-support system during pregnancy. It delivers oxygen, nutrients, and hormones from mother to fetus.

How long does a normal pregnancy last?

A normal pregnancy lasts about 280 days (about 40 weeks), counting from the first day of your last menstrual period. A normal range, however, is from as few as 259 days to as many as 294 days (37–42 weeks). The 40 weeks of pregnancy are divided into three trimesters. Each trimester lasts about 12–13 weeks each (or about 3 months).

How does the uterus change during pregnancy?

During pregnancy, the lining of a woman's uterus thickens and its blood vessels enlarge to nourish the fetus. As pregnancy progresses, the uterus expands to make room for the growing baby. By the time your baby is born, your uterus will be many times its normal size.

What happens during the first month of pregnancy?

During the first month of pregnancy, the following occurs:
- The fertilized egg attaches to the lining of the uterus. Some of these cells will grow into a baby. Other cells will form the placenta.
- Arms and legs begin to form.
- The brain and spinal cord begin to form.
- The heart and lungs begin to develop. The heart begins to beat near the end of this month.
What happens during the second month of pregnancy?
During the second month of pregnancy, the following occurs:

- Eyelids form, but remain closed.
- The inner ear begins to develop.
- Bones appear.
- Ankles, wrists, fingers, and toes form.
- The genitals begin to develop.
- By the end of the month, all major organs and body systems have begun to develop.

What happens during the third month of pregnancy?
During the third month of pregnancy, the following occurs:

- Twenty buds for future teeth appear.
- All internal parts are formed, but are not fully developed.
- Fingers and toes continue to grow. Soft nails begin to form.
- Bones and muscles begin to grow.
- The intestines begin to form.
- The backbone is soft and can flex.
- The skin is almost transparent.
- The hands are more developed than the feet.
- The arms are longer than the legs.

What happens during the fourth month of pregnancy?
During the fourth month of pregnancy, the following occurs:

- Eyebrows, eyelashes, and fingernails form.
- Arms and legs can flex.
- External sex organs are formed.
- The skin is wrinkled and the body is covered with a waxy coating (vernix) and fine hair (lanugo).
- The placenta is fully formed.
- The outer ear begins to develop.
- The fetus can swallow and hear.
- The neck is formed.
- Kidneys are functioning and begin to produce urine.

What happens during the fifth month of pregnancy?
During the fifth month of pregnancy, the following occurs:

- The sucking reflex develops. If the hand floats to the mouth, the fetus may suck its thumb.
- The fetus is more active. You may be able to feel movement.
- The fetus sleeps and wakes regularly.
- Nails grow to the tips of the fingers.
- The gallbladder begins producing bile, which is needed to digest nutrients.
- In girls, the eggs have formed in the ovaries.
- In boys, the testicles begin to descend from the abdomen into the scrotum.

What happens during the sixth month of pregnancy?
During the sixth month of pregnancy, the following occurs:

- Real hair begins to grow.
- The brain is rapidly developing.
- The eyes begin to open.
- Finger and toe prints can be seen.
- The lungs are fully formed, but not yet functioning.
What happens during the seventh month of pregnancy?
During the seventh month of pregnancy, the following occurs:

- The eyes can open and close and sense changes in light.
- Lanugo begins to disappear.
- The fetus kicks and stretches.
- The fetus can make grasping motions and responds to sound.

What happens during the eighth month of pregnancy?
During the eighth month of pregnancy, the following occurs:

- With its major development finished, the fetus gains weight very quickly.
- Bones harden, but the skull remains soft and flexible for delivery.
- The different regions of the brain are forming.
- Taste buds develop and the fetus can taste sweet and sour.
- The fetus may now hiccup.

What happens during the ninth month of pregnancy?
During the ninth month of pregnancy, the following occurs:

- The fetus usually turns into a head-down position for birth.
- The skin is less wrinkled.
- The lungs mature and are ready to function on their own.
- Sleeping patterns develop.
- The fetus will gain about 1/2 pound per week this month.

Glossary

Egg: The female reproductive cell produced in and released from the ovaries; also called the ovum.
Fertilization: Joining of the egg and sperm.
Fetus: The developing offspring in the uterus from the ninth week of pregnancy until the end of pregnancy.
Hormones: Substances produced by the body to control certain functions.
Placenta: Tissue that provides nourishment to and takes waste away from the fetus.
Sperm: A male cell that is produced in the testes and can fertilize a female egg cell.

If you have further questions, contact your obstetrician-gynecologist.
Nutrition During Pregnancy

- How can I plan healthy meals during pregnancy?
- How does MyPlate work?
- What are the five food groups?
- Are oils and fats part of healthy eating?
- Why are vitamins and minerals important in my diet?
- How can I get the extra amounts of vitamins and minerals I need during pregnancy?
- What is folic acid and how much do I need daily?
- Why is iron important during pregnancy and how much do I need daily?
- Why is calcium important during pregnancy and how much do I need daily?
- Why is vitamin D important during pregnancy and how much do I need daily?
- How much weight should I gain during pregnancy?
- Can being overweight or obese affect my pregnancy?
- Can caffeine in my diet affect my pregnancy?
- What are the benefits of including fish and shellfish in my diet during pregnancy?
- What should I know about eating fish during pregnancy?
- How can food poisoning affect my pregnancy?
- What is listeriosis and how can it affect my pregnancy?
- Glossary

How can I plan healthy meals during pregnancy?
Planning healthy meals during pregnancy is not hard. The United States Department of Agriculture has made it easier by creating www.choosemyplate.gov. This web site helps everyone from dieters and children to pregnant women learn how to make healthy food choices at each mealtime.

How does MyPlate work?
With MyPlate, you can get a personalized nutrition and physical activity plan by using the "SuperTracker" program. This program is based on five food groups and shows you the amounts that you need to eat each day from each group during each trimester of pregnancy. The amounts are calculated according to your height, prepregnancy weight, due date, and how much you exercise during the week. The amounts of food are given in standard sizes that most people are familiar with, such as cups and ounces.
What are the five food groups?
1. Grains—Bread, pasta, oatmeal, cereal, and tortillas are all grains.
2. Fruits—Fruits can be fresh, canned, frozen, or dried. Juice that is 100% fruit juice also counts.
3. Vegetables—Vegetables can be raw or cooked, frozen, canned, dried, or 100% vegetable juice.
4. Protein foods—Protein foods include meat, poultry, seafood, beans and peas, eggs, processed soy products, nuts, and seeds.
5. Dairy—Milk and products made from milk, such as cheese, yogurt, and ice cream, make up the dairy group.

Are oils and fats part of healthy eating?
Although they are not a food group, oils and fats do give you important nutrients. During pregnancy, the fats that you eat provide energy and help build many fetal organs and the placenta. Most of the fats and oils in your diet should come from plant sources. Limit solid fats, such as those from animal sources. Solid fats also can be found in processed foods.

Why are vitamins and minerals important in my diet?
Vitamins and minerals play important roles in all of your body functions. During pregnancy, you need more folic acid and iron than a woman who is not pregnant.

How can I get the extra amounts of vitamins and minerals I need during pregnancy?
Taking a prenatal vitamin supplement can ensure that you are getting these extra amounts. A well-rounded diet should supply all of the other vitamins and minerals you need during pregnancy.

What is folic acid and how much do I need daily?
Folic acid, also known as folate, is a B vitamin that is important for pregnant women. Taking 400 micrograms of folic acid daily for at least 1 month before pregnancy and 600 micrograms of folic acid daily during pregnancy may help prevent major birth defects of the baby’s brain and spine called neural tube defects. It may be hard to get the recommended amount of folic acid from food alone. For this reason, all pregnant women and all women who may become pregnant should take a daily vitamin supplement that contains the right amount of folic acid.

Why is iron important during pregnancy and how much do I need daily?
Iron is used by your body to make a substance in red blood cells that carries oxygen to your organs and tissues. During pregnancy, you need extra iron—about double the amount that a nonpregnant woman needs. This extra iron helps your body make more blood to supply oxygen to your baby. The daily recommended dose of iron during pregnancy is 27 milligrams, which is found in most prenatal vitamin supplements. You also can eat iron-rich foods, including lean red meat, poultry, fish, dried beans and peas, iron-fortified cereals, and prune juice. Iron also can be absorbed more easily if iron-rich foods are eaten with vitamin C-rich foods, such as citrus fruits and tomatoes.

Why is calcium important during pregnancy and how much do I need daily?
Calcium is used to build your baby’s bones and teeth. All women, including pregnant women, aged 19 years and older should get 1,000 milligrams of calcium daily; those aged 14–18 years should get 1,300 milligrams daily. Milk and other dairy products, such as cheese and yogurt, are the best sources of calcium. If you have trouble digesting milk products, you can get calcium from other sources, such as broccoli; dark, leafy greens; sardines; or a calcium supplement.

Why is vitamin D important during pregnancy and how much do I need daily?
Vitamin D works with calcium to help the baby’s bones and teeth develop. It also is essential for healthy skin and eyesight. All women, including those who are pregnant, need 600 international units of vitamin D a day. Good sources are milk fortified with vitamin D and fatty fish such as salmon. Exposure to sunlight also converts a chemical in the skin to vitamin D.

How much weight should I gain during pregnancy?
The amount of weight gain that is recommended depends on your health and your body mass index before you were pregnant. If you were a normal weight before pregnancy, you should gain between 25 pounds and 35 pounds during pregnancy. If you were underweight before pregnancy, you should gain more weight than a woman who was a normal weight before pregnancy. If you were overweight or obese before pregnancy, you should gain less weight.

Can being overweight or obese affect my pregnancy?
Overweight and obese women are at an increased risk of several pregnancy problems. These problems include gestational diabetes, high blood pressure, preeclampsia, preterm birth, and cesarean delivery. Babies of overweight and obese mothers also are at greater risk of certain problems, such as birth defects, macrosomia with possible birth injury, and childhood obesity.

Can caffeine in my diet affect my pregnancy?
Although there have been many studies on whether caffeine increases the risk of miscarriage, the results are unclear. Most experts state that consuming fewer than 200 milligrams of caffeine (one 12-ounce cup of coffee) a day during pregnancy is safe.
What are the benefits of including fish and shellfish in my diet during pregnancy?

Omega-3 fatty acids are a type of fat found naturally in many kinds of fish. They may be important factors in your baby's brain development both before and after birth. To get the most benefits from omega-3 fatty acids, women should eat at least two servings of fish or shellfish (about 8-12 ounces) per week and while pregnant or breastfeeding.

What should I know about eating fish during pregnancy?

Some types of fish have higher levels of a metal called mercury than others. Mercury has been linked to birth defects. To limit your exposure to mercury, follow a few simple guidelines. Choose fish and shellfish such as shrimp, salmon, catfish, and pollock. Do not eat shark, swordfish, king mackerel, or tilefish. Limit white (albacore) tuna to 6 ounces a week. You also should check advisories about fish caught in local waters.

How can food poisoning affect my pregnancy?

Food poisoning in a pregnant woman can cause serious problems for both her and her baby. Vomiting and diarrhea can cause your body to lose too much water and can disrupt your body's chemical balance. To prevent food poisoning, follow these general guidelines:

- Wash food. Rinse all raw produce thoroughly under running tap water before eating, cutting, or cooking.
- Keep your kitchen clean. Wash your hands, knives, countertops, and cutting boards after handling and preparing uncooked foods.
- Avoid all raw and undercooked seafood, eggs, and meat. Do not eat sushi made with raw fish (cooked sushi is safe). Food such as beef, pork, or poultry should be cooked to a safe internal temperature.

What is listeriosis and how can it affect my pregnancy?

Listeriosis is a type of food-borne illness caused by bacteria. Pregnant women are 13 times more likely to get listeriosis than the general population. Listeriosis can cause mild, flu-like symptoms such as fever, muscle aches, and diarrhea, but it may also not cause any symptoms. Listeriosis can lead to miscarriage, stillbirth, and premature delivery. Antibiotics can be given to treat the infection and to protect your unborn baby. To help prevent listeriosis, avoid eating the following foods during pregnancy:

- Unpasteurized milk and foods made with unpasteurized milk
- Hot dogs, luncheon meats, and cold cuts unless they are heated until steaming hot just before serving
- Refrigerated pate and meat spreads
- Refrigerated smoked seafood
- Raw and undercooked seafood, eggs, and meat

Glossary

**Antibiotics**: Drugs that treat certain types of infections.

**Body Mass Index**: A number calculated from height and weight that is used to determine whether a person is underweight, normal weight, overweight, or obese.

**Cesarean Delivery**: Delivery of a baby through surgical incisions made in the mother's abdomen and uterus.

**Gestational Diabetes**: Diabetes that arises during pregnancy.

**Macrosomia**: A condition in which a fetus grows very large.

**Miscarriage**: Loss of a pregnancy that occurs before 20 weeks of pregnancy.

**Neural Tube Defects**: Birth defects that result from incomplete development of the brain, spinal cord, or their coverings.

**Nutrients**: Nourishing substances supplied through food, such as vitamins and minerals.

**Preeclampsia**: A condition of pregnancy in which there is high blood pressure and protein in the urine.

**Preterm**: Born before 37 weeks of pregnancy.

**Trimester**: Any of the three 3-month periods into which pregnancy is divided.

If you have further questions, contact your obstetrician–gynecologist.

FAQ001: Designed as an aid to patients, this document sets forth current information and opinions related to women's health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variables, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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Morning Sickness

- What is morning sickness?
- What causes morning sickness?
- How long should I expect morning sickness to last?
- What are the effects of morning sickness on pregnancy?
- When is morning sickness considered severe?
- Is there a cure for morning sickness?
- What can I do to ease my symptoms of morning sickness?
- Are there any herbal supplements that can help?
- How are severe symptoms of morning sickness treated?
- Glossary

What is morning sickness?
Nausea and vomiting that happen during pregnancy, especially during the first part of pregnancy, often are called "morning sickness." Despite its name, morning sickness can occur at any time of the day.

What causes morning sickness?
Although no one is certain what causes morning sickness, increasing levels of hormones during pregnancy may play a role.

How long should I expect morning sickness to last?
In most women, symptoms of nausea and vomiting are mild and go away after the middle of pregnancy.

What are the effects of morning sickness on pregnancy?
Most mild cases of nausea and vomiting do not harm your health or your baby's health. Morning sickness does not mean your baby is sick.

When is morning sickness considered severe?
Morning sickness is considered severe if you cannot keep any food or fluids down and begin to lose weight. This condition is called hyperemesis gravidarum.

Is there a cure for morning sickness?
There is no cure for morning sickness. Some research suggests that women who are taking a multivitamin supplement regularly at the time they become pregnant are less likely to have severe cases of morning sickness.

What can I do to ease my symptoms of morning sickness?
If you experience morning sickness, there are several things you can do that might help you feel better. You may need to try more than one of these remedies:
- Get plenty of rest.
- Avoid smells that bother you.
- Eat five or six small meals each day instead of three large meals.
• Eat a few crackers before you get out of bed in the morning to help settle your stomach.
• Eat small snacks high in protein (such as a glass of milk or a cup of yogurt) throughout the day.
• Avoid spicy foods and fatty foods.

Are there any herbal supplements that can help?
Ginger may be helpful for some women. Taking three 250-milligram capsules of ginger a day plus another capsule right before bed may help relieve nausea. Remember to talk with your health care provider before taking any herbal medication or supplement or trying any treatment. You also can try ginger ale or ginger tea made with real ginger.

How are severe symptoms of morning sickness treated?
Your health care provider will first find out whether your nausea and vomiting are due to morning sickness or if there is another medical cause. If other causes are ruled out, certain medications can be given. Vitamin B<sub>6</sub> may be suggested first. Doxylamine, a medication found in over-the-counter sleep aids, may be added if vitamin B<sub>6</sub> alone does not relieve symptoms. Drugs that combat nausea and vomiting may be prescribed. If you are dehydrated from loss of fluids, you may need to receive fluids through an intravenous (IV) line.

Glossary

Hormones: Substances produced by the body to control the functions of various organs.

Hyperemesis Gravidarum: Severe nausea and vomiting during pregnancy that can lead to loss of weight and body fluids.

If you have further questions, contact your obstetrician–gynecologist.

FA0126: Designed as an aid to patients, this document sets forth current information and opinions related to women's health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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Exercise During Pregnancy

- What are some of the benefits of exercise during pregnancy?
- What changes occur in the body during pregnancy that can affect my exercise routine?
- What forms of exercise are safe during pregnancy?
- What forms of exercise should be avoided?
- What should I be aware of when exercising during pregnancy?
- What are the warning signs that I should stop exercising?
- How can I get back into exercising after the baby is born?
- Glossary

What are some of the benefits of exercise during pregnancy?
Becoming active and exercising at least 30 minutes on most, if not all, days of the week can benefit your health during pregnancy in the following ways:
- Helps reduce backaches, constipation, bloating, and swelling
- May help prevent or treat gestational diabetes
- Increases your energy
- Improves your mood
- Improves your posture
- Promotes muscle tone, strength, and endurance
- Helps you sleep better

Regular activity also helps keep you fit during pregnancy and may improve your ability to cope with labor. This will make it easier for you to get back in shape after the baby is born.

What changes occur in the body during pregnancy that can affect my exercise routine?
The hormones produced during pregnancy cause the ligaments that support your joints to become relaxed. This makes the joints more mobile and more at risk of injury. The extra weight in the front of your body during pregnancy shifts your center of gravity and places stress on joints and muscles, especially those in the pelvis and lower back. This can make you less stable, cause back pain, and make you more likely to lose your balance and fall, especially in later pregnancy. The extra weight you are carrying will make your body work harder than before you were pregnant.

What forms of exercise are safe during pregnancy?
Certain sports are safe during pregnancy, even for beginners:
- Walking is a good exercise for anyone.
- Swimming is great for your body because it works so many muscles.
- Cycling provides a good aerobic workout.
- Aerobics is a good way to keep your heart and lungs strong.
- If you were a runner before you became pregnant, you often can keep running during pregnancy, although you may have to modify your routine.
What forms of exercise should be avoided?
In general, activities in which there is a high risk of falling, such as gymnastics, water skiing, and horseback riding, should be avoided. Some racquet sports also increase the risk of falling because of your changing balance. Other sports to avoid include the following:

- Downhill snow skiing—Your change in balance may put you at greater risk of injuries and falls. Also, you may be at risk of altitude sickness, an illness caused by breathing air that contains less oxygen.
- Contact sports, such as hockey, basketball, and soccer—These sports can result in harm to you and your baby.
- Scuba diving—Scuba diving can put your baby at risk of decompression sickness, a serious illness that results from changes in the pressure surrounding the body.

What should I be aware of when exercising during pregnancy?
The changes in your body can make certain positions and activities risky for you and your baby. While exercising, try to avoid activities that call for jumping, jarring motions, or quick changes in direction that may strain your joints and cause injury.

There are some risks from becoming overheated during pregnancy. This may cause loss of fluids and lead to dehydration and problems during pregnancy.

When you exercise, follow these general guidelines for a safe and healthy exercise program:

- After the first trimester of pregnancy, avoid doing any exercises on your back.
- If it has been some time since you have exercised, start slowly. Begin with as little as 5 minutes of exercise a day and add 5 minutes each week until you can stay active for 30 minutes a day.
- Avoid brisk exercise in hot, humid weather or when you have a fever.
- Wear comfortable clothing that will help you to remain cool.
- Wear a bra that fits well and gives lots of support to help protect your breasts.
- Drink plenty of water to help keep you from overheating and dehydrating.
- Make sure you consume the daily extra calories you need during pregnancy.

What are the warning signs that I should stop exercising?
Stop exercising and call your health care provider if you have any of these symptoms:

- Vaginal bleeding
- Dizziness or feeling faint
- Increased shortness of breath
- Chest pain
- Headache
- Muscle weakness
- Calf pain or swelling
- Uterine contractions
- Decreased fetal movement
- Fluid leaking from the vagina

How can I get back into exercising after the baby is born?
Walking is a good way to get back into exercising. Brisk walks several times a week will prepare you for more strenuous exercise when you feel up to it. Walking has the added advantage of getting both you and the baby out of the house for exercise and fresh air. As you feel stronger, consider more vigorous exercise.

Glossary

**Gestational Diabetes**: Diabetes that arises during pregnancy; it results from the effects of hormones and usually subsides after delivery.

If you have further questions, contact your obstetrician—gynecologist.
Skin Conditions During Pregnancy

- What are some of the common skin changes that occur during pregnancy?
- What causes these skin changes during pregnancy?
- Why do dark spots and patches appear on the skin during pregnancy?
- What are stretch marks?
- Is acne common during pregnancy?
- How can I treat my skin if I get acne during pregnancy?
- Can over-the-counter medications be used during pregnancy to treat acne?
- Can prescription medications be used during pregnancy to treat acne?
- What causes spider veins?
- What causes varicose veins?
- Can I prevent varicose veins?
- What changes to my hair may occur during pregnancy?
- What hair changes may I experience after childbirth?
- What nail changes can I expect during pregnancy?
- What are some uncommon skin changes that can occur during pregnancy?
- What is pruritic urticarial papules and plaques of pregnancy (PUPPP)?
- What is prurigo of pregnancy?
- What is pemphigoid gestationis?
- What is intrahepatic cholestasis of pregnancy (ICP)?
- Glossary

What are some of the common skin changes that occur during pregnancy?

Many women notice changes to their skin, nails, and hair during pregnancy. Some of the most common changes include the following:

- Dark spots on the breasts, nipples, or inner thighs
- Melasma—brown patches on the face around the cheeks, nose, and forehead
- Linea nigra—a dark line that runs from the navel to the pubic hair
- Stretch marks
- Acne
- Spider veins
- Varicose veins
- Changes in nail and hair growth
What causes these skin changes during pregnancy?
Some are due to changes in hormone levels that occur during pregnancy. For most skin changes, however, health care providers are not sure of the exact cause.

Why do dark spots and patches appear on the skin during pregnancy?
Dark spots and patches are caused by an increase in the body's melanin—a natural substance that gives color to the skin and hair. Dark spots and melasma usually fade on their own after you have the baby. Some women, however, may have dark patches that last for years. To help prevent melasma from getting worse, wear sunscreen and a wide-brimmed hat every day when you are outside.

What are stretch marks?
As your belly grows during pregnancy, your skin may become marked with reddish lines called stretch marks. By the third trimester, many pregnant women commonly have stretch marks on the abdomen, buttocks, breasts, or thighs. Using a heavy moisturizer may help keep your skin soft, but it will not help get rid of stretch marks. Most stretch marks fade after the baby is born, but they may never disappear completely.

Is acne common during pregnancy?
Many women have acne during pregnancy. Some already have acne and notice that it gets worse during pregnancy. Other women who may always have had clear skin will develop acne while they are pregnant.

How can I treat my skin if I get acne during pregnancy?
If you get acne during pregnancy, take these steps to treat your skin:
- Wash your face twice a day with a mild cleanser and lukewarm water.
- If you have oily hair, shampoo every day and try to keep your hair off your face.
- Avoid picking or squeezing acne sores to lessen possible scarring.
- Choose oil-free cosmetics.

Can over-the-counter medications be used during pregnancy to treat acne?
Over-the-counter products containing the following ingredients can be used during pregnancy:
- Topical benzoyl peroxide
- Azelaic acid
- Topical salicylic acid
- Glycolic acid
If you want to use an over-the-counter product that contains an ingredient not on this list, contact your health care provider.

Can prescription medications be used during pregnancy to treat acne?
Some prescription acne medications should not be used while you are pregnant:
- Hormonal therapy—Several medications that block specific hormones can be used to treat acne. Their use during pregnancy is not recommended due to the risk of birth defects.
- Isotretinoin—This drug is a form of vitamin A. It may cause severe birth defects in fetuses, including intellectual disabilities, life-threatening heart and brain defects, and other physical deformities.
- Oral tetracyclines—This antibiotic can cause discoloration of the baby's teeth if it is taken after the fourth month of pregnancy and also can affect the growth of the baby's bones as long as the medication is taken.
- Topical retinoids—These medications are a form of vitamin A and are in the same drug family as isotretinoin. Unlike isotretinoin, topical retinoids are applied to the skin, and the amount of medication absorbed by the body is low. However, it is generally recommended that use of these medications be avoided during pregnancy. Some retinoids are available by prescription. However, other retinoids can be found in some over-the-counter products. Read labels carefully.

What causes spider veins?
Hormonal changes and the higher amounts of blood in your body during pregnancy can cause tiny red veins, known as spider veins, to appear on your face, neck, and arms. The redness should fade after the baby is born.

What causes varicose veins?
The weight and pressure of your uterus can decrease blood flow from your lower body and cause the veins in your legs to become swollen, sore, and blue. These are called varicose veins. Varicose veins also can appear on your vulva and in your vagina and rectum (usually called hemorrhoids). In most cases, varicose veins are a cosmetic problem that will go away after delivery.
Can I prevent varicose veins?
Although you cannot prevent them, there are some things you can do to ease the swelling and soreness and prevent varicose veins from getting worse:

- Be sure to move around from time to time if you must sit or stand for long periods.
- Do not sit with your legs crossed for long periods.
- Prop your legs up on a couch, chair, or footstool as often as you can.
- Exercise regularly—walk, swim, or ride an exercise bike.
- Wear support hose.
- Avoid constipation by eating foods high in fiber and drinking plenty of liquids.

What changes to my hair may occur during pregnancy?
The hormone changes in pregnancy may cause the hair on your head and body to grow or become thicker. Sometimes women grow hair in areas where they do not normally have hair, such as the face, chest, abdomen, and arms. Your hair should return to normal within 6 months after giving birth.

What hair changes may I experience after childbirth?
About 3 months after childbirth, most women begin to notice hair loss from the scalp. This happens because hormones are returning to normal levels, which allows the hair to return to its normal cycle of growing and falling out. Your hair should grow back completely within 3-6 months.

What nail changes can I expect during pregnancy?
Some women find that their nails grow faster during pregnancy. Others notice that their nails split and break more easily. Like the changes to your hair, those that affect your nails will ease after birth.

What are some uncommon skin changes that can occur during pregnancy?
Certain uncommon skin conditions can arise during pregnancy. They can cause signs and symptoms, including bumps and itchy skin.

What is pruritic urticarial papules and plaques of pregnancy (PUPPP)?
In this condition, small, red bumps and hives appear on the skin later in pregnancy. The bumps can form large patches that can be very itchy. These bumps usually first appear on the abdomen and can spread to the thighs, buttocks, and breasts. It is not clear what causes PUPPP. It usually goes away after you give birth.

What is prurigo of pregnancy?
With prurigo of pregnancy, tiny, itchy bumps that look like insect bites can appear almost anywhere on the skin. This condition can occur anytime during pregnancy and usually starts with a few bumps that increase in number each day. It is thought to be caused by changes in the immune system that occur during pregnancy. Prurigo can last for several months and may even continue for some time after the baby is born.

What is pemphigoid gestationis?
Pemphigoid gestationis is a rare skin condition that usually starts during the second and third trimesters of pregnancy or sometimes right after childbirth. With this condition, blisters appear on the abdomen, and in severe cases, the blisters can cover a wide area of the body. It is thought to be an autoimmune disorder. There is a slightly increased risk of pregnancy problems with this condition, including preterm birth and a smaller-than-average baby.

What is intrahepatic cholestasis of pregnancy (ICP)?
Intrahepatic cholestasis of pregnancy (ICP) is the most common liver condition that occurs during pregnancy. The main symptom of ICP is severe itching in the absence of a rash. Itching commonly occurs on the palms of the hands and soles of the feet, but it also can spread to the trunk of the body. Symptoms usually start during the third trimester of pregnancy but often go away a few days after childbirth. ICP may increase the risk of preterm birth and other problems, including, in rare cases, fetal death.

Glossary
Antibiotic: A drug that treats certain types of infections.
Autoimmune Disorder: A condition in which the body attacks its own tissues.
Hormone: A substance made in the body by cells or organs that controls the function of cells or organs. An example is estrogen, which controls the function of female reproductive organs.
Immune System: The body’s natural defense system against foreign substances and invading organisms, such as bacteria that cause disease.
Linea Nigra: A line running from the navel to pubic hair that darkens during pregnancy.
Melasma: A common skin problem that causes brown to gray-brown patches on the face. Also known as "chloasma" or "mask of pregnancy."

Rectum: The last part of the digestive tract.

Trimester: Any of the three 3-month periods into which pregnancy is divided.

Uterus: A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

Vagina: A tube-like structure surrounded by muscles leading from the uterus to the outside of the body.

Vulva: The external female genital area.

If you have further questions, contact your obstetrician–gynecologist.

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Travel During Pregnancy

• When is the best time to travel during pregnancy?
• What should I know about planning long car trips during pregnancy?
• What should I know about airplane travel while pregnant?
• What should I know when planning a trip on a ship during pregnancy?
• How can I prepare for a trip out of the country while pregnant?
• What should I be aware of when traveling out of the country?
• What health care preparations should I make before traveling while pregnant?

When is the best time to travel during pregnancy?
The best time to travel is probably the middle of your pregnancy—between weeks 14 and 28. Most common pregnancy emergencies usually happen in the first and third trimesters. After 28 weeks, it may be harder for you to move around or sit for a long time.

What should I know about planning long car trips during pregnancy?
During a car trip, make each day's drive brief. Try to limit driving to no more than 5 or 6 hours each day. Be sure to wear your seat belt every time you ride in a motor vehicle, even if your car has an air bag (see the FAQ Car Safety for You and Your Baby). Plan to make frequent stops to move around and stretch your legs.

What should I know about airplane travel while pregnant?
Some domestic airlines restrict travel during the last month of pregnancy or require a medical certificate; others discourage travel after 36 weeks of pregnancy. If you are planning an international flight, the cutoff point for traveling with international airlines is often earlier.

When traveling by air, you can take the following steps to help make your trip as comfortable as possible:

• If you can, book an aisle seat, so that it is easy to get up and stretch your legs during a long flight.
• Avoid gas-producing foods and carbonated drinks before your flight.
• Wear your seatbelt at all times. The seatbelt should be belted low on the hipbones, below your belly.
• If you are prone to nausea, your health care provider may be able to prescribe anti-nausea medication.

What should I know when planning a trip on a ship during pregnancy?
It may be a good idea, just in case, to ask your health care provider about which medications are safe for you to carry along to calm seasickness. Seasickness bands are useful for some people, although there is little scientific evidence that they work. These bands use acupressure to help ward off an upset stomach.

Another concern for cruise ship passengers is norovirus infection. Noroviruses are a group of viruses that can cause severe nausea and vomiting for 1 or 2 days. They are very contagious and can spread rapidly throughout cruise ships. People can become infected by eating food, drinking liquids, or touching surfaces that are contaminated with the virus. Before you book a cruise, you may want to check whether your ship has passed a health and safety inspection conducted by the Centers for Disease Control and Prevention (CDC).
How can I prepare for a trip out of the country while pregnant?

If you are planning a trip out of the country, your health care provider can help you decide if travel outside the United States is safe for you and advise you about what steps to take before your trip. The CDC also is a good resource for travel alerts, safety tips, and up-to-date vaccination facts for many countries. While you are pregnant, you should not travel to areas where there is risk of malaria, including Africa, Central and South America, and Asia.

What should I be aware of when traveling out of the country?

When travelling out of the country, make sure to follow these tips:

- The safest water to drink is tap water that has been boiled for 1 minute (3 minutes at altitudes higher than 6,000 feet). Bottled water is safer than unboiled tap water, but because there are no standards for bottled water, there is no guarantee that it is free of germs that can cause illness. Carbonated beverages and drinks made with boiled water are safe to drink.
- Do not put ice made from unboiled water in your drinks. Do not drink out of glasses that may have been washed in unboiled water.
- Avoid fresh fruits and vegetables unless they have been cooked or if you have peeled them yourself.
- Do not eat raw or undercooked meat or fish.

What health care preparations should I make before traveling while pregnant?

If you are traveling in the United States, locate the nearest hospital or medical clinic in the place you are visiting. If you are traveling internationally, the International Association for Medical Assistance to Travelers (IAMAT) has a worldwide directory of doctors. The doctors in the country you are visiting may not speak English, so bring a dictionary of the language spoken with you. Another tip is to register with an American embassy or consulate after you arrive at your destination. These agencies may be helpful if you need to leave the country because of an emergency.

If you have further questions, contact your obstetrician–gynecologist.
Bleeding During Pregnancy

- What can cause bleeding during pregnancy?
- How is bleeding during early pregnancy checked?
- When does miscarriage happen?
- What are the signs and symptoms of miscarriage?
- Is treatment needed after a miscarriage?
- What is an ectopic pregnancy?
- What risks are associated with ectopic pregnancy?
- How common are ectopic pregnancies and who is at risk?
- What causes bleeding late in pregnancy?
- What is placental abruption?
- What is placenta previa?
- Can bleeding be a sign of labor?
- Glossary

What can cause bleeding during pregnancy?
Vaginal bleeding or spotting during pregnancy can have many causes. Some are serious and some are not. Bleeding may occur early or late in pregnancy.

Many women have vaginal spotting or bleeding in the first 12 weeks of pregnancy. Bleeding of the cervix may occur during sex. An infection of the cervix also can cause bleeding. Slight bleeding often stops on its own.

However, bleeding during pregnancy may mean something more serious. You may have a higher chance of going into labor too early (preterm labor), having an infant who is born too small, or having a miscarriage.

How is bleeding during early pregnancy checked?
If you are bleeding in early pregnancy, your health care provider may do a pelvic exam. You will be asked how much blood you have passed and how often bleeding has occurred. Your health care provider also will ask whether you have had any pain, and if so, its location and severity.

A blood test may be done to measure human chorionic gonadotropin (hCG). This substance is made by your body during pregnancy. You may have more than one test because hCG levels increase throughout pregnancy. Your blood type also will be checked to see if you need treatment for Rh sensitization. Ultrasound may be used to find the cause of the bleeding. Sometimes the cause is not found.

When does miscarriage happen?
Miscarriage can occur any time in the first half of pregnancy. Most often it occurs in the first 13 weeks. It happens in about 15–20% of pregnancies.

What are the signs and symptoms of miscarriage?
The following signs and symptoms may indicate a miscarriage:
- Vaginal bleeding
• Cramping pain felt low in the abdomen (often stronger than menstrual cramps)
• Tissue passing from the vagina

Many women who have vaginal bleeding have little or no cramping. Sometimes the bleeding stops and pregnancy goes on. Other times the bleeding and cramping may become stronger, leading to miscarriage.

**Is treatment needed after a miscarriage?**

If some tissue stays in the uterus, bleeding often continues. Your health care provider may then recommend one or more treatment options. Medication may be used to help you pass the tissue. The tissue may be removed by *dilation and curettage (D&C)*. It also may be removed by a suctioning device. This is called suction curettage. Sometimes more than one option is needed.

**What is an ectopic pregnancy?**

An *ectopic pregnancy* occurs when the fertilized egg does not implant in the uterus. Instead, it implants somewhere else, often in one of the *fallopian tubes*. An ectopic pregnancy causes pain and bleeding early in pregnancy.

**What risks are associated with ectopic pregnancy?**

A major risk with this type of pregnancy occurs if the fallopian tube ruptures. A rupture needs prompt treatment. There may be internal bleeding. Blood loss may cause weakness, fainting, pain, shock, or death.

**How common are ectopic pregnancies and who is at risk?**

Ectopic pregnancies are much less common than miscarriages. They occur in about 1 in 60 pregnancies. Women are at a higher risk if they have had

• an infection in the fallopian tubes (such as pelvic inflammatory disease)
• a previous ectopic pregnancy
• tubal surgery

**What causes bleeding late in pregnancy?**

Common problems that cause light bleeding include an inflamed cervix or growths on the cervix. These may be treated with medication.

Heavy bleeding usually involves a problem with the *placenta*. The two most common causes at this time are placental abruption and placenta previa. Preterm labor also can cause such bleeding.

**What is placental abruption?**

The placenta is attached to the uterine wall. It may detach from the wall before or during labor. This may cause vaginal bleeding. It often causes pain, even if bleeding is light or not seen. When the placenta becomes detached, the fetus may get less oxygen. Prompt care is needed.

**What is placenta previa?**

When the placenta lies low in the uterus, it may cover the cervix. That means it partly or completely blocks the opening. This is called placenta previa. It may cause vaginal bleeding. This type of bleeding often occurs without pain.

**Can bleeding be a sign of labor?**

Late in pregnancy, vaginal bleeding may be a sign of labor. A small amount of mucus and blood is passed from the cervix just before or at the start of labor. This is called "bloody show." It is common. It is not a problem if it happens within 3 weeks of your due date. If it happens earlier, you may be going into preterm labor. Other signs of preterm labor include the following:

• Vaginal discharge
• Change in type of discharge (watery, mucus, or bloody)
• Increase in amount of discharge
• Pressure in the pelvis or lower abdomen
• Low, dull backache
• Stomach cramps, with or without diarrhea
• Regular contractions or uterine tightening

If you have any of these signs or symptoms, contact your health care provider right away.

**Glossary**

*Cervix*: The lower, narrow end of the uterus, which protrudes into the vagina.

*Dilation and Curettage (D&C)*: A procedure in which the cervix is opened and tissue is gently scraped or suctioned from the inside of the uterus.
**Ectopic Pregnancy:** A pregnancy in which the fertilized egg begins to grow in a place other than inside the uterus, usually in one of the fallopian tubes.

**Fallopian Tubes:** Tubes through which an egg travels from the ovaries to the uterus.

**Human Chorionic Gonadotropin (hCG):** A hormone produced during pregnancy; its detection is the basis for most pregnancy tests.

**Miscarriage:** Early pregnancy loss.

**Placenta:** Tissue that provides nourishment to and takes waste away from the fetus.

**Rh Sensitization:** A condition in which an Rh-negative mother makes antibodies that attack the Rh factor, a protein on red blood cells.

**Ultrasound:** A test in which sound waves are used to examine internal structures. During pregnancy, it can be used to examine the fetus.

**Uterus:** A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

If you have further questions, contact your obstetrician-gynecologist.

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Tobacco, Alcohol, Drugs, and Pregnancy

- Why is smoking dangerous during pregnancy?
- How can smoking during pregnancy put my baby at risk?
- How can secondhand smoke affect my baby during pregnancy?
- What help is available if I want to quit smoking?
- Can I use nicotine gum or the patch to help me quit smoking when I am pregnant?
- Why is drinking during pregnancy dangerous for my baby?
- What are fetal alcohol spectrum disorders?
- What is fetal alcohol syndrome?
- What amounts of alcohol can cause FAS?
- Is there an amount of alcohol that is safe to drink during pregnancy?
- What is illegal drug use?
- How can my drug use affect my baby during pregnancy?
- How can drug use affect my baby after he or she is born?
- Why is it important to tell my health care provider if I have used drugs during pregnancy?
- Will the results of my drug tests be kept confidential?
- What are some of the problems related to substance abuse?
- What is addiction?
- Why is it important for pregnant women who are addicted to certain drugs, including pain medications and narcotics, to seek treatment to quit rather than quit on their own?
- Can I take my prescription medication during pregnancy?
- Can I take over-the-counter medications during pregnancy?
- Glossary

Why is smoking dangerous during pregnancy?
If you smoke during pregnancy, your baby is exposed to harmful chemicals such as tar, nicotine, and carbon monoxide. Nicotine causes blood vessels to constrict, so less oxygen and nutrients reach the fetus. Carbon monoxide decreases the amount of oxygen the baby receives.

How can smoking during pregnancy put my baby at risk?
The risks of preterm birth and problems with the way the placenta attaches to the uterus are increased in women who smoke during pregnancy. Also, infants born to women who smoke during pregnancy tend to be
smaller than those born to nonsmokers. They are more likely to have asthma, colic, and childhood obesity. They also have an increased risk of dying from sudden infant death syndrome (SIDS).

How can secondhand smoke affect my baby during pregnancy?
Breathing secondhand smoke—smoke from cigarettes smoked by other people nearby—can increase the risk of having a low birth weight baby by as much as 20%. Infants who are exposed to secondhand smoke have an increased risk of SIDS and are more likely to have respiratory illnesses than those not exposed to secondhand smoke.

What help is available if I want to quit smoking?
If you are pregnant and you smoke, tell your health care provider. He or she can help you find support and quitting programs in your area. You also can call the national “quit line” at 1-800-Quit-Now.

Can I use nicotine gum or the patch to help me quit smoking when I am pregnant?
Nicotine replacement (such as nicotine gum or the patch) or prescription medications for quitting smoking need to be used with caution during pregnancy. Over-the-counter nicotine replacement products should be used only if other attempts to quit have not worked and you and your health care provider have weighed the known risks of continued smoking against the possible risks of these products. Smokeless tobacco, electronic cigarettes, and nicotine gel strips are not safe substitutes for cigarettes.

Why is drinking during pregnancy dangerous for my baby?
When a pregnant woman drinks alcohol, it quickly reaches the fetus through the placenta. In an adult, the liver breaks down the alcohol. A baby’s liver is not fully developed and is not able to break down alcohol.

What are fetal alcohol spectrum disorders?
“Fetal alcohol spectrum disorders” is a term that describes different effects that can occur in infants when a woman drinks during pregnancy. These effects may include physical, mental, behavioral, and learning disabilities that can last a lifetime.

What is fetal alcohol syndrome?
Fetal alcohol syndrome (FAS) is the most severe alcohol spectrum disorder. FAS can cause growth problems, mental or behavioral problems, and abnormal facial features.

What amounts of alcohol can cause FAS?
FAS is most likely to occur in infants whose mothers drank heavily (3 or more drinks per occasion or more than 7 drinks per week) and continued to drink heavily throughout pregnancy, but it also can occur with lesser amounts of alcohol use. Even moderate alcohol use during pregnancy (defined as one alcoholic drink per day) can cause lifelong learning and behavioral problems in the child.

Is there an amount of alcohol that is safe to drink during pregnancy?
There is no safe level of alcohol use during pregnancy. Alcohol can affect the fetus throughout pregnancy. It is best not to drink at all while you are pregnant. If you did drink alcohol before you knew you were pregnant, you can reduce the risk of further harm to the baby by stopping drinking.

What is illegal drug use?
Illegal drug use includes the use of heroin, cocaine, methamphetamines, and marijuana and use of prescription drugs for a nonmedical reason.

How can my drug use affect my baby during pregnancy?
A drug’s effects on the fetus depend on many things: how much, how often, and when during pregnancy it is used. The early stage of pregnancy is the time when main body parts of the fetus form. Using drugs during this time in pregnancy can cause birth defects and miscarriage. During the remaining weeks of pregnancy, drug use can interfere with the growth of the fetus and cause preterm birth and fetal death.

How can drug use affect my baby after he or she is born?
Drugs used after the baby is born can be passed to the baby through breast milk.

Why is it important to tell my health care provider if I have used drugs during pregnancy?
It is important to be honest so that you get the help you need for yourself and your unborn baby. Drug testing of your hair or urine during pregnancy or during labor may be done if your health care provider suspects that you have used certain substances and if you have a complication during pregnancy or delivery that suggests drug use. The baby also can be tested after birth.
Will the results of my drug tests be kept confidential?
Some states consider drug use during pregnancy to be a form of child abuse. In some states, if a drug test result shows that you have used certain substances, it must be reported to state authorities. You should be informed about this testing and consent to it before it is done. How your consent is obtained also varies from state to state.

What are some of the problems related to substance abuse?
These problems include work, relationship, and family issues; drunk-driving arrests and car crashes; or medical problems caused by the substance. Substance abuse can lead to dependence (addiction).

What is addiction?
Addiction is a disease with three or more of the following signs and symptoms:

- Tolerance—Not having the same effect with continued use of the same amount and the need to use greater amounts of the substance to get “high”
- Withdrawal symptoms after stopping use of the substance
- Using larger amounts of the substance or using it over a longer period
- Desire or unsuccessful attempts to cut down or control substance use
- Spending a great deal of time using or obtaining the substance or recovering from its use
- Reducing or giving up important social, work, or recreational activities because of substance use
- Continuing to use the substance despite knowing that you have a problem
- Making excuses to continue using the drug instead of meeting your home or work responsibilities

Why is it important for pregnant women who are addicted to certain drugs, including pain medications and narcotics, to seek treatment to quit rather than quit on their own?
Withdrawal from these drugs can cause miscarriage or other harm to the fetus.

Can I take my prescription medication during pregnancy?
Some prescription medications are safe to take during pregnancy. Others have known risks. If you are taking a prescription medication and become pregnant, tell your health care provider. Do not stop taking a medication prescribed for you without first talking to your health care provider.

Can I take over-the-counter medications during pregnancy?
Medicines sold over the counter, including herbal supplements and vitamins, can cause problems during pregnancy. Pain relievers such as aspirin and ibuprofen may be harmful to a fetus. Check with your health care provider before taking any over-the-counter drug.

Glossary

**Fetal Alcohol Syndrome (FAS):** A pattern of physical, mental, and behavioral problems in the baby that are thought to be due to alcohol abuse by the mother during pregnancy.

**Fetus:** The developing organism in the uterus from the ninth week of pregnancy until the end of pregnancy.

**Miscarriage:** Loss of a pregnancy that occurs before 20 weeks of pregnancy.

**Nutrients:** Nourishing substances supplied through food, such as vitamins and minerals.

**Oxygen:** A gas that is necessary to sustain life.

**Placenta:** Tissue that provides nourishment to and takes waste away from the fetus.

**Preterm:** Born before 37 weeks of pregnancy.

**Sudden Infant Death Syndrome (SIDS):** The unexpected death of an infant in which the cause is unknown.

**Uterus:** A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

If you have further questions, contact your obstetrician–gynecologist.

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A Father's Guide to Pregnancy

- How long does pregnancy last?
- What is a “due date”?
- What happens during the first trimester?
- What happens during the second trimester?
- What happens during the third trimester?
- Is sex OK during pregnancy?
- What if I smoke?
- Should I attend my partner's prenatal care visits?
- What tests will my partner have at her first prenatal care visit?
- When is an ultrasound exam done?
- What other tests may be included in prenatal care visits?
- What can I do to help prepare for labor and delivery?
- What should I expect during labor?
- How can I help my partner during labor and delivery?
- What will my partner experience during the postpartum period?
- What is postpartum depression?
- What are symptoms of postpartum depression?
- How can I bond with the baby during breastfeeding?
- When can I and my partner have sexual intercourse after the baby is born?
- Glossary

How long does pregnancy last?
Pregnancy lasts about 40 weeks, which is equal to 9 months. The 9 months of pregnancy are divided into three 3-month periods called trimesters.

What is a “due date”?
The due date that you are given by your partner's health care provider is only an estimate of when the baby will be born. To calculate a due date, try this simple formula: take the date of the first day of your partner's last menstrual period and subtract 3 months. Then add 7 days to get the due date.

What happens during the first trimester?
During the first trimester, most women need more rest. Women in early pregnancy also may have symptoms of nausea and vomiting. Although commonly known as "morning sickness," these symptoms can occur at any time during the day or night.
What happens during the second trimester?
For most women, the second trimester of pregnancy (weeks 14–28) is the time they feel the best. As the woman's body adjusts to being pregnant, she usually begins to feel better physically. Her energy level improves, and morning sickness usually goes away.

What happens during the third trimester?
In the third trimester of pregnancy (weeks 28–40), your partner may feel some discomfort as the baby grows larger and her body gets ready for the birth. She may have trouble sleeping, walking quickly, and doing routine tasks.

Is sex OK during pregnancy?
Unless your partner's health care provider has told her otherwise, you and your partner can have sex throughout the entire 9 months. Also, there are other ways to be intimate during her pregnancy. Cuddling, kissing, fondling, mutual masturbation, and oral sex can fill the void until you can have intercourse again.

What if I smoke?
Not smoking around your partner is important because the chemicals in secondhand cigarette smoke can harm your baby before and after it is born. Babies exposed to secondhand smoke have an increased risk of developing asthma and sudden infant death syndrome.

Should I attend my partner's prenatal care visits?
It may be helpful for you to go to some of your partner's prenatal visits. At one of the early visits, you and your partner will be asked about your personal and family health histories. If you have a strong family history of a certain disease, you may have a gene for the disease that can be passed to your baby. Be sure that your partner knows your history if you cannot be there.

What tests will my partner have at her first prenatal care visit?
Your partner may have these tests and exams at the first visit:

- Complete physical exam with blood and urine tests
- A pelvic exam
- Blood pressure, height, and weight measurements

All pregnant women are tested for human immunodeficiency virus (HIV) and syphilis. Many women also receive routine tests for other sexually transmitted diseases.

When is an ultrasound exam done?
Most women receive an ultrasound examination at 18–20 weeks of pregnancy. This exam gives an estimate of the actual age of the fetus and checks the baby's development. It also may be possible to find out the baby's sex.

What other tests may be included in prenatal care visits?
Later prenatal care visits may include the following tests and exams:

- Checking the baby's heart rate
- Measuring your partner's blood pressure
- Testing her urine for signs of gestational diabetes
- Measuring her weight
- Measuring the height of the uterus to gauge the baby's growth
- Checking the position of the fetus
- Screening tests for birth defects
- Blood test to screen for gestational diabetes
- Screening test for group B streptococcus

What can I do to help prepare for labor and delivery?
You can help prepare for labor and delivery by taking the following steps:

- Enroll in childbirth classes.
- Take a tour of the hospital.
- Install an infant car seat.

What should I expect during labor?
Labor happens in three stages. It may last between 10 hours and 20 hours. If an emergency occurs during labor or delivery, you may be asked to leave the room. Although there may not be time to explain why at that moment, someone will explain the reasons to you later.
How can I help my partner during labor and delivery?
Although your partner is the one giving birth, there is plenty you can do to help during labor and in the delivery room:

- Help distract your partner during the first stage of labor.
- Unless she has been told to stay in bed, take short walks with your partner.
- Time her contractions.
- Offer to massage her back and shoulders between contractions.
- Help her with the relaxation techniques you learned in childbirth class.
- Encourage her during the pushing stage.

What will my partner experience during the postpartum period?
The postpartum period is the first 6 weeks after birth. Most women will feel tired and sore for a few days to a few weeks after childbirth. Women who have had a cesarean delivery may take longer to heal. Also, having a new baby in the house can be stressful. You, your partner, and any other children you have need to adjust to a new lifestyle.

What is postpartum depression?
It is very common for new mothers to feel sad, upset, or anxious after childbirth. Many new mothers have mild feelings of sadness called postpartum blues or “baby blues.” When these feelings are more extreme or last longer than a week or two, it may be a sign of a more serious condition known as postpartum depression. Postpartum depression also can occur several weeks after the birth. Women with a history of depression are at greater risk of this condition.

What are symptoms of postpartum depression?
A new mother may be developing—or already have—postpartum depression if she has any of the following signs and symptoms:

- The baby blues do not start to fade after about 1 week, or the feelings get worse.
- She has feelings of sadness, doubt, guilt, or helplessness that seem to increase each week and get in the way of normal functions.
- She is not able to care for herself or her baby.
- She has trouble doing tasks at home or on the job.
- Her appetite changes.
- Things that used to bring her pleasure no longer do.
- Concern and worry about the baby are too intense, or interest in the baby is lacking.
- Anxiety or panic attacks occur. She may be afraid to be left alone with the baby.
- She fears harming the baby.
- She has thoughts of self-harm or suicide.

How can I bond with the baby during breastfeeding?
Some fathers feel left out when watching the closeness of breastfeeding. But if your partner has chosen to breastfeed, there are ways you can share in these moments:

- Bring the baby to her for feedings.
- Burp and change the baby afterward.
- Cuddle and rock the baby to sleep.
- Help feed your baby if your partner pumps her breast milk into a bottle.

When can I and my partner have sexual intercourse after the baby is born?
There is no set “waiting period” before a women can have sex again after giving birth. Some health care providers recommend waiting 4–6 weeks. The chances of a problem occurring, like bleeding or infection, are small after about 2 weeks following birth. If your partner has had an episiotomy or a tear during birth, the site may be sore for more than a week and she may be told not to have intercourse for a while.

Glossary
Episiotomy: A surgical incision made into the perineum (the region between the vagina and the anus) to widen the vaginal opening for delivery.
Gene: A DNA “blueprint” that codes for specific traits, such as hair and eye color.
Gestational Diabetes: Diabetes that arises during pregnancy.
**Human Immunodeficiency Virus (HIV):** A virus that attacks certain cells of the body's immune system and causes acquired immunodeficiency syndrome (AIDS).

**Pelvic Exam:** A physical examination of a woman's reproductive organs.

**Sexually Transmitted Diseases:** Diseases that are spread by sexual contact, including chlamydial infection, gonorrhea, human papillomavirus infection, herpes, syphilis, and infection with human immunodeficiency virus (HIV, the cause of acquired immunodeficiency syndrome [AIDS]).

**Syphilis:** A sexually transmitted disease that is caused by an organism called Treponema pallidum; it may cause major health problems or death in its later stages.

**Trimesters:** The three 3-month periods into which pregnancy is divided.

**Ultrasound:** A test in which sound waves are used to examine internal structures. During pregnancy, it can be used to examine the fetus.

**Uterus:** A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

**If you have further questions, contact your obstetrician-gynecologist.**
Vaginal Birth After Cesarean Delivery:  
Deciding on a Trial of Labor After Cesarean Delivery

- What is a vaginal birth after cesarean delivery (VBAC)?
- What is a trial of labor after cesarean delivery (TOLAC)?
- What are the some of the benefits of a TOLAC?
- What are the risks of a TOLAC?
- Why is the type of uterine incision used in my previous cesarean delivery important?
- What other factors should be considered when deciding whether to have a TOLAC?
- Whatever I decide, are there things that can happen during pregnancy or labor that may change my delivery plan?
- Glossary

What is a vaginal birth after cesarean delivery (VBAC)?
If you have had a previous cesarean delivery, you have two choices about how to give birth again:
- You can have a scheduled cesarean delivery
- You can give birth vaginally. This is called a vaginal birth after cesarean delivery (VBAC).

What is a trial of labor after cesarean delivery (TOLAC)?
A trial of labor after cesarean delivery (TOLAC) is the attempt to have a vaginal birth after cesarean delivery.

What are the some of the benefits of a TOLAC?
Compared with a planned cesarean delivery, a successful TOLAC is associated with the following benefits:
- No abdominal surgery
- Shorter recovery period
- Lower risk of infection
- Less blood loss

If you want to have more children, VBAC may help you avoid problems linked to multiple cesarean deliveries. These problems include hysterectomy, bowel or bladder injury, and certain problems with the placenta.

What are the risks of a TOLAC?
With TOLAC, the risk of most concern is the possible rupture of the cesarean scar on the uterus or the uterus itself. Although a rupture of the uterus is rare, it is very serious and may harm both you and your baby. If you are at high risk of rupture of the uterus, TOLAC should not be tried.

Why is the type of uterine incision used in my previous cesarean delivery important?
Some types of uterine incisions are more likely to cause rupture of the uterus than others. Low transverse (side to side) incisions carry the least chance of rupture. Women who have had one or two previous cesarean deliveries with this type of
delivery are more likely to have a successful trial of labor.
incision can try TOLAC. High vertical (up and down) incisions carry the most chance of rupture. Women who have this type of incision should not try TOLAC.

**What other factors should be considered when deciding whether to have a TOLAC?**

In deciding whether to have a TOLAC, you should consider several factors in addition to the type of Incision. These factors include whether you want more children, whether you have certain complications, and the hospital where the birth will take place:

- Future deliveries—Multiple cesarean deliveries are associated with additional potential risks.
- Prior uterine rupture—If you had this complication in a previous pregnancy, TOLAC is not advised.
- A pregnancy problem or a medical condition that makes vaginal delivery risky
- Type of hospital—The hospital in which you have a TOLAC should be prepared to deal with emergencies that may arise.

**Whatever I decide, are there things that can happen during pregnancy or labor that may change my delivery plan?**

Be prepared for changes to your delivery plan. If you have chosen TOLAC, things can happen during pregnancy and labor that alter the balance of risks and benefits. For example, you may need to have your labor induced, which can reduce the chances of a successful vaginal delivery and perhaps increase the chance of complications during labor. In the event that circumstances change, you and your health care provider may want to reconsider your decision.

If you have chosen a repeat cesarean delivery, in some situations, TOLAC may be advised. For example, if you have planned a cesarean delivery but go into labor before your scheduled surgery, it may be best to consider TOLAC if you are far along in your labor and your baby is healthy.

**Glossary**

**Cesarean Delivery:** Delivery of a baby through incisions made in the mother's abdomen and uterus.

**Hysterectomy:** Removal of the uterus.

If you have further questions, contact your obstetrician–gynecologist.

**FA0870:** Designed as an aid to patients, this document sets forth current information and opinions related to women's health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to institution or type of practice, may be appropriate.

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Later Childbearing

- Why is there a concern about having a child later in life?
- How does age affect fertility?
- What specific health concerns are there for later childbearing?
- How can high blood pressure affect pregnancy?
- How can diabetes affect pregnancy?
- Do older women have an increased risk of having a child with a birth defect?
- What kinds of testing can be done during pregnancy to detect birth defects in the fetus?
- Are older women at greater risk of having a multiple pregnancy?
- What risks are associated with multiple pregnancy?
- What are the possible complications during labor and delivery for older women?
- What can I do before Pregnancy to increase my chances of having a healthy baby?
- What can I do during pregnancy to increase my chances of having a healthy baby?
- Glossary

Why is there a concern about having a child later in life?

Becoming pregnant after age 35 years can present a challenge. Also, having a child later in life has certain risks. These risks may affect a woman’s health as well as her baby’s health.

How does age affect fertility?

Fertility in women starts to decrease at age 32 years and becomes more rapid after age 37 years. Women become less fertile as they age because they begin life with a fixed number of eggs in their ovaries. This number decreases as they grow older. Eggs also are not as easily fertilized in older women as they are in younger women. Problems that can affect fertility, such as endometriosis and uterine fibroids, become more common with increasing age as well.

What specific health concerns are there for later childbearing?

Older women are more likely to have pre-existing health problems than younger women. For example, high blood pressure is a condition that is more common in older women (see the FAQ Preeclampsia and High Blood Pressure During Pregnancy). If you are older than 35 years, you also are more likely to develop high blood pressure and related disorders for the first time during pregnancy. The risk of developing diabetes or gestational diabetes increases with age as well (see the FAQ Gestational Diabetes).

How can high blood pressure affect pregnancy?

High blood pressure poses risks that include problems with the placenta and the growth of the fetus.

How can diabetes affect pregnancy?

If you have diabetes, you are at greater risk of having a child with birth defects. The risks of high blood pressure, miscarriage, and macrosomia, a condition in which the fetus grows too large, are increased as well.
Do older women have an increased risk of having a child with a birth defect?
The overall risk of having a child with a birth defect is small. However, the risk of having a child with a birth defect caused by missing, damaged, or extra chromosomes is increased in older women.

What kinds of testing can be done during pregnancy to detect birth defects in the fetus?
Screening tests assess the risk that a baby will be born with certain disorders. All pregnant women should be offered screening tests for birth defects. Diagnostic tests show whether the baby actually has a certain disorder. Diagnostic tests are available for some, but not all, inherited defects and many chromosomal disorders. They include a targeted ultrasound exam, amniocentesis, and chorionic villus sampling. Diagnostic tests can be done instead of screening if a couple is at increased risk of certain birth defects based on age or personal or family history.

Are older women at greater risk of having a multiple pregnancy?
Older women have a higher risk of multiple pregnancy than younger women. In addition, some fertility treatments carry an increased risk of multiple pregnancy.

What risks are associated with multiple pregnancy?
Multiple pregnancy can cause serious problems, including preterm birth, preeclampsia, fetal growth problems, and gestational diabetes. The risk and severity of these problems increase with the number of babies.

What are the possible complications during labor and delivery for older women?
Older women are at increased risk of preterm labor and preterm birth (see the FAQs Preterm [Premature] Labor and Birth and Early Preterm Birth). Babies born preterm can have serious short-term and long-term health problems. The risk of stillbirth also is greater in women who are older than 35 years.

Women who are in their 30s are more likely to need a cesarean delivery than women who are in their 20s. Like any major surgery, cesarean delivery involves risks. Risks include infection, injury to organs such as the bowel or bladder, and reactions to the anesthesia used. These problems occur in a small number of women and usually are easily treated (see the FAQ Cesarean Birth).

What can I do before pregnancy to increase my chances of having a healthy baby?
• See your health care provider for a preconception care checkup (see the FAQ Good Health Before Pregnancy: Preconception Care).
• Eat a healthy diet.
• Take 0.4 milligrams of folic acid daily to help reduce the risk of having a baby with a neural tube defect.
• Exercise regularly.
• Lose weight if you are overweight or obese.
• Stop smoking, drinking alcohol, and taking illegal drugs.
• Avoid contact with substances in your home or workplace that could be harmful during pregnancy.

What can I do during pregnancy to increase my chances of having a healthy baby?
Continue to take good care of yourself during pregnancy, and get early and regular prenatal care. At each prenatal care visit, your health care provider will monitor your health and your baby’s health and manage any problems should they arise.

Glossary
Amniocentesis: A procedure in which a needle is used to withdraw and test a small amount of amniotic fluid and cells from the sac surrounding the fetus.
Cesarean Delivery: Delivery of a baby through incisions made in the mother's abdomen and uterus.
Chorionic Villus Sampling: A procedure in which a small sample of cells is taken from the placenta and tested.
Chromosomes: Structures that are located inside each cell in the body and contain the genes that determine a person’s physical makeup.
Diabetes: A condition in which the levels of sugar in the blood are too high.
Endometriosis: A condition in which tissue similar to that normally lining the uterus is found outside of the uterus, usually on the ovaries, fallopian tubes, and other pelvic structures.
Fetus: The developing offspring in the uterus from the ninth week of pregnancy until the end of pregnancy.
Fibroids: Benign growths that form in the muscle of the uterus.
Gestational Diabetes: Diabetes that arises during pregnancy.
Miscarriage: Early pregnancy loss.
Neural Tube Defect: A birth defect that results from incomplete development of the brain, spinal cord, or their coverings.
**Ovaries:** Two glands, located on either side of the uterus, that contain the eggs released at ovulation and that produce hormones.

**Placenta:** Tissue that provides nourishment to and takes waste away from the fetus.

**Preeclampsia:** A condition of pregnancy in which there is high blood pressure and protein in the urine.

**Prenatal Care:** A program of care for a pregnant woman before the birth of her baby.

**Preterm:** Born before 37 weeks of pregnancy.

**Stillbirth:** Delivery of a dead baby.

**Ultrasound:** A test in which sound waves are used to examine internal structures. During pregnancy, it can be used to examine the fetus.

If you have further questions, contact your obstetrician–gynecologist.

**FAQ960:** Designed as an aid to patients, this document sets forth current information and opinions related to women’s health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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Immunization & Pregnancy

Vaccines help keep a pregnant woman and her growing family healthy.

Before pregnancy

Before becoming pregnant, a woman should be up-to-date on routine adult vaccines. This will help protect her and her child. Live vaccines should be given a month or more before pregnancy. Inactivated vaccines can be given before or during pregnancy, if needed.

During pregnancy

- **Flu Vaccine**
  It is safe, and very important, for a pregnant woman to receive the inactivated flu vaccine. A pregnant woman who gets the flu is at risk for serious complications and hospitalization. To learn more about preventing the flu, visit the CDC website [www.cdc.gov/flu](http://www.cdc.gov/flu).

- **Tdap Vaccine**
  Women should get adult tetanus, diphtheria and acellular pertussis vaccine (Tdap) during each pregnancy. Ideally, the vaccine should be given between 27 and 36 weeks of pregnancy.

- **Travel**
  Many vaccine-preventable diseases, rarely seen in the United States, are still common in other parts of the world. A pregnant woman planning international travel should talk to her health professional about vaccines. Information about travel vaccines can be found at CDC's traveler's health website at [www.cdc.gov/travel](http://www.cdc.gov/travel).

- **Childhood Vaccines**
  Pregnancy is a good time to learn about childhood vaccines. Parents-to-be can learn more about childhood vaccines from the CDC parents guide and from the child and adolescent vaccination schedules. This information can be downloaded and printed at [www.cdc.gov/vaccines](http://www.cdc.gov/vaccines).

After pregnancy

It is safe for a woman to receive routine vaccines right after giving birth, even while she is breastfeeding. A woman who has not received the new vaccine for the prevention of tetanus, diphtheria and pertussis (Tdap) should be vaccinated right after delivery. Vaccinating a new mother against pertussis (whooping cough) reduces the risk to her infant too. Also, a woman who is not immune to measles, mumps and rubella and/or varicella (chicken pox) should be vaccinated before leaving the hospital. If inactivated influenza vaccine was not given during pregnancy, a woman should receive it now because it will protect her infant. LAIV may be an option.

Visit CDC's website at [www.cdc.gov](http://www.cdc.gov) for more information. Or get an answer to your specific question by e-mailing cdcinfo@cdc.gov or calling 800-CDC-INFO (232-4636) - English or Spanish
What You Need to Know About Mercury in Fish and Shellfish: EPA and FDA Advice For Women Who Might Become Pregnant, Women Who are Pregnant, Nursing Mothers

March 2004

Fish and shellfish are an important part of a healthy diet. Fish and shellfish contain high-quality protein and other essential nutrients, are low in saturated fat, and contain omega-3 fatty acids. A well-balanced diet that includes a variety of fish and shellfish can contribute to heart health and children's proper growth and development. So, women and young children in particular should include fish or shellfish in their diets due to the many nutritional benefits.

However, nearly all fish and shellfish contain traces of mercury. For most people, the risk from mercury by eating fish and shellfish is not a health concern. Yet, some fish and shellfish contain higher levels of mercury that may harm an unborn baby or young child's developing nervous system. The risks from mercury in fish and shellfish depend on the amount of fish and shellfish eaten and the levels of mercury in the fish and shellfish. Therefore, the Food and Drug Administration (FDA) and the Environmental Protection Agency (EPA) are advising women who may become pregnant, pregnant women, nursing mothers, and young children to avoid some types of fish and eat fish and shellfish that are lower in mercury.

By following these 3 recommendations for selecting and eating fish or shellfish, women and young children will receive the benefits of eating fish and shellfish and be confident that they have reduced their exposure to the harmful effects of mercury.

1. Do not eat Shark, Swordfish, King Mackerel, or Tilefish because they contain high levels of mercury.
2. Eat up to 12 ounces (2 average meals) a week of a variety of fish and shellfish that are lower in mercury.
   - Five of the most commonly eaten fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish.
   - Another commonly eaten fish, albacore ("white") tuna has more mercury than canned light tuna. So, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of albacore tuna per week.
3. Check local advisories about the safety of fish caught by family and friends in your local lakes, rivers, and coastal areas. If no advice is available, eat up to 6 ounces (one average meal) per week of fish you catch from local waters, but don't consume any other fish during that week.

Follow these same recommendations when feeding fish and shellfish to your young child, but serve smaller portions.
Frequently Asked Questions about Mercury in Fish and Shellfish:

1. "What is mercury and methylmercury?"
   Mercury occurs naturally in the environment and can also be released into the air through industrial pollution. Mercury falls from the air and can accumulate in streams and oceans and is turned into methylmercury in the water. It is this type of mercury that can be harmful to your unborn baby and young child. Fish absorb the methylmercury as they feed in these waters and so it builds up in them. It builds up more in some types of fish and shellfish than others, depending on what the fish eat, which is why the levels vary.

2. "I'm a woman who could have children but I'm not pregnant - so why should I be concerned about methylmercury?"
   If you regularly eat types of fish that are high in methylmercury, it can accumulate in your blood stream over time. Methylmercury is removed from the body naturally, but it may take over a year for the levels to drop significantly. Thus, it may be present in a woman even before she becomes pregnant. This is the reason why women who are trying to become pregnant should also avoid eating certain types of fish.

3. "Is there methylmercury in all fish and shellfish?"
   Nearly all fish and shellfish contain traces of methylmercury. However, larger fish that have lived longer have the highest levels of methylmercury because they've had more time to accumulate it. These large fish (swordfish, shark, king mackerel and tilefish) pose the greatest risk. Other types of fish and shellfish may be eaten in the amounts recommended by FDA and EPA.

4. "I don't see the fish I eat in the advisory. What should I do?"
   If you want more information about the levels in the various types of fish you eat, see the FDA food safety website or the EPA website.

5. "What about fish sticks and fast food sandwiches?"
   Fish sticks and "fast-food" sandwiches are commonly made from fish that are low in mercury.

6. "The advice about canned tuna is in the advisory, but what's the advice about tuna steaks?"
   Because tuna steak generally contains higher levels of mercury than canned light tuna, when choosing your two meals of fish and shellfish, you may eat up to 6 ounces (one average meal) of tuna steak per week.

7. "What if I eat more than the recommended amount of fish and shellfish in a week?"
   One week's consumption of fish does not change the level of methylmercury in the body much at all. If you eat a lot of fish one week, you can cut back for the next week or two. Just make sure you average the recommended amount per week.

8. "Where do I get information about the safety of fish caught recreationally by family or friends?"
   Before you go fishing, check your Fishing Regulations Booklet for information about recreationally caught fish. You can also contact your local health department for information about local advisories. You need to check local
advisories because some kinds of fish and shellfish caught in your local waters may have higher or much lower than average levels of mercury. This depends on the levels of mercury in the water in which the fish are caught. Those fish with much lower levels may be eaten more frequently and in larger amounts.

For further information about the risks of mercury in fish and shellfish call the U.S. Food and Drug Administration's food information line toll-free at 1-888-SAFEFOOD or visit FDA's Food Safety website. For further information about the safety of locally caught fish and shellfish, visit the Environmental Protection Agency’s Fish Advisory website or contact your State or Local Health Department. For information on EPA’s actions to control mercury, visit EPA's mercury website.

U.S. Food and Drug Administration
10903 New Hampshire Avenue
Silver Spring, MD 20993
Ph. 1-888-INFO-FDA (1-888-463-6332)
State of New Jersey Department of Health

New Born Screening

Frequently Asked Questions

What is Newborn Screening?

Newborn screening is a comprehensive program that includes testing, follow-up of results, and if necessary, examination and treatment by a qualified specialist. Early detection and treatment of the disorders on the newborn screening panel can prevent life long disabilities, including mental retardation, developmental disabilities, and life threatening infections. Without treatment permanent disability, and even death, can occur.

Is Newborn Screening testing required?

All babies born in New Jersey are required by law to be tested for fifty-four (54) disorders within 48 hours of birth. One heel prick provides enough blood to test for all fifty-four disorders.

Is Newborn Screening a new program?

No. New Jersey began testing for Phenylketonuria (PKU), a metabolic disease, in 1964. Since that time, newborn screening has expanded to include detection for more than fifty disorders. Currently, all U.S. states mandate newborn testing for PKU, Congenital Hypothyroidism, Congenital Adrenal Hyperplasia, Galactosemia, and Sickle Cell Anemia.

How is the screening performed?

All screening tests are performed on a tiny blood sample, obtained by pricking the heel of your baby. Samples are usually taken at the hospital before your baby is discharged home. The sample is allowed to air dry and is then submitted to the Newborn Screening Laboratory for testing. Any abnormal results are reported to the Newborn Screening and Genetic Services program for follow-up activities.

What are the limitations?

The tests performed are ‘screening’ tests and are different from diagnostic tests. The screen cannot detect all inborn errors of metabolism. The test may fail to identify some babies with these disorders, and some babies who test positive may not actually have the disorder. Sometimes babies who are born prematurely, who are underweight at birth, or who may have received a blood transfusion can test positive, but not have the disorder. Your baby’s doctor may want to repeat the newborn screening test or do other testing to check the results.
What if my baby needs a retest? Does that mean that my baby has the disorder?

Not necessarily. There are several reasons why your baby may need to be retested. Some of those reasons may include:

- Your baby was less than 24 hours old at the time the first blood sample was taken
- The blood sample was collected while the baby was receiving special formula or was on medication
- The sample did not contain enough blood or the blood was not taken properly
- Your baby was premature or underweight
- The results were very close to normal and a retest is needed to rule out the disorder

How will I learn my baby’s results?

Make sure that your birth hospital and your baby’s doctor have your correct address and phone number. Your baby’s test results will be sent to your baby’s doctor and to the hospital where the sample was taken. You should ask your baby’s doctor for the test results when you bring the baby in for his/her first checkup. If your baby needs a retest you will be notified by your baby’s doctor or you will get a letter from the Newborn Screening Laboratory or the Newborn Screening Follow-up Program. If your baby does need a retest, get it done right away.

Can I say NO to the test?

An exception is made when parents object on the grounds that the tests are against their religious beliefs or practices. A signed statement to this effect must be recorded in the baby’s hospital record.

How much does it cost me?

There is no charge to the patient for the state newborn screening test.

How can I get more information?

For more information on Newborn Screening in New Jersey you can contact the Newborn Screening Follow-up Program at (609) 292-1582.

The following websites have information regarding newborn screening:

CENTERS FOR DISEASE CONTROL AND PREVENTION
http://www.cdc.gov/

NATIONAL INSTITUTES OF HEALTH
www.nih.gov/health

MARCH OF DIMES
http://www.modimes.org/

NATIONAL NEWBORN SCREENING AND GENETIC RESOURCERCENTER
http://www.genes-r-us.uthscsa.edu/

SAVE BABIES THROUGH SCREENING FOUNDATION
What disorders are included on the newborn screening panel?

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<thead>
<tr>
<th>Disorder Name</th>
<th>Abbreviation</th>
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<tbody>
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<td><strong>Fatty Acid Oxidation Disorders</strong></td>
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<tr>
<td>2,4-Dienoyl-CoA reductase deficiency</td>
<td>DERED</td>
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<td>Carnitine palmitoyltransferase I deficiency</td>
<td>CPT I</td>
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<tr>
<td>Carnitine palmitoyltransferase II deficiency</td>
<td>CPT II</td>
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<tr>
<td>Carnitine/acylcarnitine translocase deficiency</td>
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<td>Glutaric acidemia type II</td>
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<td>Long chain 3-Hydroxyacyl-CoA dehydrogenase deficiency</td>
<td>LCHAD</td>
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<td>Long chain acyl-CoA dehydrogenase deficiency</td>
<td>LCAD</td>
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You can get more information on these 54 disorders by clicking here:
http://www.acmg.net/resources/policies/ACT/condition-analyte-links.htm

or here:

http://www.savebabies.org/professionals/diseasedescriptions.html
Second Trimester

Contents:

- Important Phone Numbers
- Easing Back Pain During Pregnancy
- Gestational Diabetes
- High Blood Pressure
- Cord Blood Banking and Licensed Cord Blood Stem Cell Agencies
- Rutgers RWJMG Pediatrician List
Easing Back Pain During Pregnancy

What causes back pain during pregnancy?
Back pain in pregnancy has many possible causes. It is usually caused by strain on the back muscles. In mid-pregnancy, when your uterus becomes heavier, your center of gravity changes. Your posture changes in response. Most women begin to lean backward in the later months of pregnancy, which makes their back muscles work harder.

Weakness of the abdominal muscles also can cause back pain. The abdominal muscles normally support the spine and play an important role in the health of the back. During pregnancy, these muscles become stretched and may weaken, causing some back pain. These changes also make you more prone to injury when you exercise.

Pregnancy hormones may contribute to back pain. To make your baby's passage through your pelvis easier, a hormone relaxes the ligaments in the strong, weight-bearing joints in the pelvis. This loosening makes the joints more flexible, but it can cause back pain if the joints become too mobile.

What can I do to prevent back pain during pregnancy?
To help prevent or ease back pain, be aware of how you stand, sit, and move. Here are some tips that may help:

- Wear low-heeled (but not flat) shoes with good arch support.
- Ask for help when lifting heavy objects.
- When standing for long periods, place one foot on a stool or box.
- If your bed is too soft, have someone help you place a board between the mattress and box spring.
- Do not bend over from the waist to pick things up—squat down, bend your knees, and keep your back straight.
- Sit in chairs with good back support, or use a small pillow behind the low part of your back.
- Try to sleep on your side with one or two pillows between your legs for support.

What can I do to ease back pain?
Apply heat or cold to the painful area or massage it. Exercises for the back can help lessen backache. They strengthen and stretch muscles that support the back and legs and promote good posture—keeping the muscles of the back, abdomen, hips, and upper body strong. These exercises not only will help ease back pain but also will help prepare you for labor and delivery. Staying active during pregnancy can help with back pain. Water exercise and walking are safe to do during pregnancy and are great for the back.

When should I contact my health care provider about back pain?
If you have severe pain, or if pain persists for more than 2 weeks, you should contact your health care provider. Do not try to treat yourself. Back pain also can be caused by other problems. Back pain is one of the main symptoms of preterm labor. You also should contact your health care provider if you are having fever, burning during urination, or vaginal bleeding.
If you have further questions, contact your obstetrician–gynecologist.

FAQ115: Designed as an aid to patients, this document sets forth current information and opinions related to women’s health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to institution or type of practice, may be appropriate.

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Gestational Diabetes

- What is gestational diabetes?
- What is diabetes mellitus?
- What causes gestational diabetes?
- Will I be tested for gestational diabetes?
- If I develop gestational diabetes, will I always have diabetes mellitus?
- Who is at risk of gestational diabetes?
- How can gestational diabetes affect pregnancy?
- What are the risks to babies born to mothers with gestational diabetes?
- What are the long-term effects of gestational diabetes for both mothers and babies?
- If I have gestational diabetes, how can I control it?
- If I have gestational diabetes, will I have to take medication?
- Will gestational diabetes affect the delivery of my baby?
- If I had gestational diabetes, is there anything I should do after my pregnancy?
- Glossary

What is gestational diabetes?

Gestational diabetes is diabetes mellitus that develops in women for the first time during pregnancy. Some women found to have gestational diabetes actually may have had mild diabetes before pregnancy that was not diagnosed.

What is diabetes mellitus?

Diabetes mellitus (also called "diabetes") is a condition that causes high levels of glucose in the blood (see the FAQ Diabetes and Women). Glucose is a sugar that is the body's main source of energy. Health problems can occur when glucose levels are too high.

What causes gestational diabetes?

Gestational diabetes is caused by a change in the way a woman's body responds to insulin during pregnancy. Insulin is a hormone. It moves glucose out of the blood and into the body's cells where it can be turned into energy. During pregnancy, a woman's cells naturally become slightly more resistant to insulin's effects. This change is designed to increase the mother's blood glucose level to make more nutrients available to the baby. The mother's body makes more insulin to keep the blood glucose level normal. In a small number of women, even this increase is not enough to keep their blood glucose levels in the normal range. As a result, they develop gestational diabetes.

Will I be tested for gestational diabetes?

All pregnant women are screened for gestational diabetes. You may be asked about your medical history and risk factors or you may have a blood test to measure the level of glucose in your blood. This test usually is done between 24 weeks and 28 weeks of pregnancy. It may be done earlier if you have risk factors.
If I develop gestational diabetes, will I always have diabetes mellitus?
For most women, gestational diabetes goes away after childbirth. However, they remain at high risk of having diabetes later in life. For women who had mild diabetes before pregnancy, it is a lifelong condition.

Who is at risk of gestational diabetes?
Gestational diabetes is more likely in women who

- are older than 25 years
- are overweight
- have had gestational diabetes before
- have had a very large baby
- have a close relative with diabetes
- have had a stillbirth in a previous pregnancy
- are African American, American Indian, Asian American, Hispanic, Latina, or Pacific Islander

How can gestational diabetes affect pregnancy?
Gestational diabetes increases the risk of having a very large baby (a condition called macrosomia) and possible cesarean birth. High blood pressure and preeclampsia are more common in women with gestational diabetes.

What are the risks to babies born to mothers with gestational diabetes?
Babies born to mothers with gestational diabetes may have problems with breathing, low glucose levels, and jaundice. With proper prenatal care and careful control of glucose levels, the risk of these problems decreases.

What are the long-term effects of gestational diabetes for both mothers and babies?
Women who have had gestational diabetes are at higher risk of having diabetes in the future, as are their children. Women with gestational diabetes will need to have regular diabetes testing after pregnancy. Their children also will need to be monitored for diabetes risks.

If I have gestational diabetes, how can I control it?
If you have gestational diabetes, you will need to keep your blood glucose level under control. Controlling your blood glucose level may require daily tracking of your glucose level, eating healthy foods, exercising regularly, and sometimes, taking medications.

If I have gestational diabetes, will I have to take medication?
Gestational diabetes often can be controlled with diet and exercise. If diet and exercise are not enough, medication may be needed to control your blood glucose level. Some women may take oral medications; others may need insulin.

Will gestational diabetes affect the delivery of my baby?
Most women with gestational diabetes are able to have a vaginal birth but are more likely to have a cesarean delivery than women without diabetes to prevent delivery problems. Labor also may be induced (started by drugs or other means) earlier than the due date.

If I had gestational diabetes, is there anything I should do after my pregnancy?
You should have a test for diabetes 6–12 weeks after you give birth. If your postpartum glucose test result is normal, you need to be tested for diabetes every 3 years. Your child also should be checked throughout childhood for risk factors for diabetes, such as obesity.

Glossary
*Cesarean Birth*: Birth of a baby through surgical incisions made in the mother's abdomen and uterus.
*Diabetes Mellitus*: A condition in which the levels of sugar in the blood are too high.
*Gestational Diabetes*: Diabetes that arises during pregnancy.
*Glucose*: A sugar that is present in the blood and is the body's main source of fuel.
*Hormone*: A substance made in the body by cells or organs that controls the function of cells or organs. An example is estrogen, which controls the function of female reproductive organs.
*Insulin*: A hormone that lowers the levels of glucose (sugar) in the blood.
*Jaundice*: A buildup of bilirubin that causes a yellowish appearance.
* Macrosomia*: A condition in which a fetus grows very large.
*Preeclampsia*: A condition of pregnancy in which there is high blood pressure and protein in the urine.
*Stillbirth*: Delivery of a dead baby.
If you have further questions, contact your obstetrician–gynecologist.

FAQ177: Designed as an aid to patients, this document sets forth current information and opinions related to women's health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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Preeclampsia and High Blood Pressure During Pregnancy

- What is blood pressure?
- How can high blood pressure affect pregnancy?
- What is chronic high blood pressure?
- How is chronic high blood pressure managed during pregnancy?
- I have chronic high blood pressure. Are there steps I can take before pregnancy to make pregnancy safer?
- What is gestational hypertension?
- What is preeclampsia?
- What causes preeclampsia?
- What happens if a woman has preeclampsia?
- How is preeclampsia treated?
- Glossary

What is blood pressure?

Blood pressure is vital for the body's circulatory system—the heart, arteries, and veins—to function. It is created in part by the steady beating of the heart. Each time the heart contracts, or squeezes, it pumps blood into the arteries. The arteries carry the blood to the body's organs. The veins return it to the heart.

Small arteries, called arterioles, also affect blood pressure. These blood vessels are lined with a layer of muscle. When the blood pressure is normal, this muscle is relaxed and the arterioles are dilated (open) so that blood can flow through them easily. However, if a signal is sent to increase the blood pressure, the muscle layer tightens and the arterioles narrow. This makes it harder for the blood to flow. The pressure then increases in the arteries. This is called high blood pressure. High blood pressure also is called hypertension.

How can high blood pressure affect pregnancy?

When a woman has high blood pressure in pregnancy, it may cause less blood to flow to the placenta. The fetus receives less of the oxygen and nutrients it needs. This can cause the growth of the fetus to slow down.

What is chronic high blood pressure?

When high blood pressure has been present for some time before pregnancy, it is known as chronic, or essential, hypertension. This condition remains during pregnancy and after the birth of the baby. It is vital that chronic hypertension be controlled because it can lead to health problems such as heart failure or stroke.

How is chronic high blood pressure managed during pregnancy?

During pregnancy, chronic hypertension also may affect the growth of the fetus. If you take medication to control your blood pressure, your health care provider will determine whether it is safe to use during pregnancy. Many women with chronic hypertension can stop taking medication during pregnancy because their blood pressure returns to normal. Other women need to continue treatment during their pregnancies. In some cases, a woman may need to switch to a different medication that still helps control her blood pressure, but is safe to use during pregnancy.
I have chronic high blood pressure. Are there steps I can take before pregnancy to make pregnancy safer?
The following steps may help make pregnancy safer:
• Lose weight through diet and exercise.
• Take blood pressure medication as prescribed.
• Ask your health care provider if your medication is safe to use during pregnancy.

What is gestational hypertension?
When high blood pressure first occurs during the second half of pregnancy, it is known as gestational hypertension. This type of high blood pressure goes away soon after the baby is born. You may need to see your health care provider more often to have your blood pressure checked. When gestational hypertension occurs with other findings, it is called **preeclampsia**.

What is preeclampsia?
Preeclampsia is a serious medical condition affecting all organs of the body. For example, preeclampsia causes stress on the kidneys, which results in increased amounts of protein in the woman’s urine. Other signs of preeclampsia may include:
• Headaches
• Visual problems
• Rapid weight gain
• Swelling (edema) of the hands and face

What causes preeclampsia?
It is not known why some women get preeclampsia. However, some women are at a higher risk than others. The risk of developing preeclampsia is increased in women who
• are pregnant for the first time
• have had preeclampsia in a previous pregnancy
• have a history of chronic hypertension
• are 35 years or older
• are carrying more than one fetus
• have certain medical conditions such as diabetes or kidney disease
• are obese
• are African American
• have certain immune disorders, such as lupus, or blood diseases

What happens if a woman has preeclampsia?
A woman with preeclampsia may need to stay in the hospital so that she and her baby can be monitored. In some cases, the baby may be delivered early. When preeclampsia becomes severe, the woman’s organs can be damaged, including the kidneys, liver, brain, heart, and eyes. In some cases, seizures will occur. This is called **eclampsia**.

How is preeclampsia treated?
If preeclampsia develops, the only real cure is having the baby. The decision to deliver the baby depends on the risks to the woman and to the baby. Labor may occur naturally or labor may be induced (brought on). Sometimes a **cesarean birth** is needed depending on the health of the woman and baby.
Before deciding to deliver your baby early, your health care provider may wait to see if your condition improves. During labor you may be given medication to help prevent seizures or decrease your blood pressure.

Glossary

**Cesarean Birth:** Delivery of a baby and the placenta through an incision made in a woman’s abdomen and uterus.

**Eclampsia:** Seizures occurring in pregnancy and linked to high blood pressure.

**Placenta:** Tissue that provides nourishment to and takes away waste from the fetus.

**Preeclampsia:** A condition of pregnancy in which there is high blood pressure, and protein is present in the urine.

If you have further questions, contact your obstetrician–gynecologist.

**FAQ034:** Designed as an aid to patients, this document sets forth current information and opinions related to women’s health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to institution or type of practice, may be appropriate.

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Cord Blood Banking

- What is cord blood?
- What are stem cells?
- How are cord blood stem cells used?
- What are the limits to stem cell use?
- How is cord blood stored?
- How do public cord blood banks operate?
- How do private cord blood banks operate?
- How is cord blood collected?
- What are some situations when it is not possible to collect cord blood?
- What should be considered when deciding whether to store cord blood?
- Glossary

What is cord blood?

Cord blood is blood from the baby that is left in the umbilical cord and placenta after birth. It contains cells called hematopoietic (blood-forming) stem cells that can be used to treat some diseases.

What are stem cells?

Most cells can make copies only of themselves. A skin cell can make another skin cell, for example. Stem cells are like blank slates. They can mature into different kinds of cells. The blood-forming stem cells found in cord blood make new blood cells to replace old ones in the body.

How are cord blood stem cells used?

Blood-forming stem cells in cord blood can be used to treat some types of illnesses, such as disorders of the blood, immune system, and metabolism. They also are used to offset the effects that cancer treatments have on the immune system.

Stem cells occur in places other than cord blood. They are found in blood and bone marrow in adults and children. Using cord blood to treat disease has some benefits over using bone marrow. For example, it is harder to collect bone marrow than it is to collect cord blood. Collecting bone marrow poses some risks and can be painful for the donor.

What are the limits to stem cell use?

Stem cells are not a "miracle cure." Only a few diseases can be treated with stem cells. There also are other limitations:

- If a baby is born with a genetic disease, the stem cells from the cord blood cannot be used for treatment because they will have the same genes that cause the disorder.
- A child's stem cells cannot be used to treat that child's leukemia, a cancer of the blood. However, stem cells from a healthy child can be used like any other donated organ to treat another child's leukemia. The recipient and donor are carefully matched to make sure that the stem cells will work.

How is cord blood stored?

Cord blood is kept in one of two types of banks: public or private. They differ in important ways that may affect your choice.
How do public cord blood banks operate?
Public cord blood banks operate like blood banks. Cord blood is collected for later use for anyone who needs it. The stem cells in the donated cord blood can be used by anyone who "matches." The cord blood is tracked in a database so that a unit can be found quickly when needed. Public banks do not charge to collect cord blood.

Donors to public banks must be screened before birth. Screening entails a detailed medical history of the mother and father and their families. The goal is to learn of any blood or immune system disorders or other problems. Donors also are asked about their lifestyles. Many people will not meet these screening standards.

How do private cord blood banks operate?
Private banks store cord blood for "directed donation." The blood is held for use in treating your baby or relatives. Private banks most often charge a yearly fee for storage. There also will be a fee for collecting the cord blood. Some doctors may have a financial or other conflict of interest in a private bank.

How is cord blood collected?
Cord blood is collected by your health care provider or the staff at the hospital where you give birth. Not all hospitals offer this service. Some charge a separate fee that may or may not be covered by insurance. The process used to collect cord blood is simple and painless. After the baby is born, the umbilical cord is clamped. Blood is drawn from the cord with a needle that has a bag attached. After the bag is sealed, the placenta is delivered. The process takes about 10 minutes.

What are some situations when it is not possible to collect cord blood?
Sometimes, not enough cord blood can be collected. This problem can occur if the baby is premature or if there is more than one baby and they share a placenta. It also can occur for no reason. If an emergency occurs during delivery, it may not be possible to collect cord blood.

Problems with the mother may not allow any cord blood to be collected. These problems make it more likely for cord blood to carry an infection:
- Herpes or genital warts
- Infection of the placenta or amniotic fluid

What should be considered when deciding whether to store cord blood?
There are some points to think about when making a decision about storing cord blood:
- Many diseases cannot be treated with a person's own stem cells.
- The chance that cord blood stem cells will be needed to treat your child or a relative is very low—about 1 in 2,700. However, research is being done into new uses for stem cells. Research also may uncover new ways of treating disease that do not involve stem cells.
- Currently, it is not known how long cord blood can successfully be stored.
  - If you decide to store cord blood, you will need to choose a cord blood bank. Listed are some questions to ask yourself when deciding on a bank:
    - What will happen to the cord blood if a private bank goes out of business?
    - Can you afford the collection fee and yearly storage fee for a private bank?
    - What are your options if results of the screening tests show you cannot donate to a public bank?

Glossary
Cells: The smallest units of a structure in the body, the building blocks for all parts of the body.
Bone Marrow: The spongy tissue in bone cavities that produces new blood cells.
Genes: DNA "blueprints" that code for specific traits, such as hair and eye color.
Immune System: The body's natural defense system against foreign substances and invading organisms, such as bacteria that cause disease.
Metabolism: The physical and chemical processes in the body that maintain life.
Placenta: Tissue that provides nourishment to and takes waste away from the fetus.
Umbilical Cord: A cordlike structure containing blood vessels that connects the fetus to the placenta.

If you have further questions, contact your obstetrician—gynecologist.
Licensed Cord Blood Stem Cell Agencies

CorCell, Inc.
1411 Walnut St.
Philadelphia, PA 19102
(215) 864-0400
www.corcell.com

Cord Blood Registry
1200 Bayhill Dr., Suite 301 (3rd floor)
San Bruno, CA 94066
(888) 932-6568
www.cordblood.com

Cord Partners, Inc.
501 Santa Monica Blvd, Suite 700
Santa Monica, CA 90401
(310) 432-4090

Coriell Institute for Medical Research
403 Haddon Ave
Camden, NJ 08103
(856) 966-7377
www.coriell.org

Cryo-Cell International, Inc.
700 Brooker Creek Blvd, Suite 1800
Oldsmar, FL 34677
(813) 749-2100
*Donations Accepted*
www.cryo-cell.com

Cryobank International
270 Northlake Blvd, Suite 1012
Altamonte Springs, FL 32701
(800) 869-8608
www.lifeforcecryobanks.com

Cryobank For Oncologic & Reproductive Donors
100 Crystal Run Rd, Suite 102
Middletown, NY 10941
(845) 692-2673

Eli Katz Umbilical Cord Blood Program
102 Chestnut Ridge Rd.
Montvale, NJ 07645
(866) SAVCORD - (866-728-2673)
*Donations Accepted*
www.communitybloodservices.org

Lifebank
45 Horsehill Rd, Suite 107
Cedar Knolls, NJ 07927
(877) 543-3226
*Donations Accepted*
www.lifebankusa.com
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**General Pediatrics**
One Worlds Fair Drive  
Somerset, NJ 08873  
Appointments: (732) 235-7883

**Family Medicine at Monument Square**
317 George St.  
New Brunswick, NJ 08901  
Appointments: (732) 235-8993

**Child Health Institute of New Jersey**
Pediatric Specialties  
89 French Street,  
New Brunswick, NJ 08901  
Appointments: (732) 235-6230
Third Trimester

Contents:

- Suitcase Suggestions
- Preterm Labor and Birth
- How to Tell When Labor Begins
- Pain Relief During Labor and Delivery
- Group B Streptococcus and Pregnancy
- What to Expect After Your Due Date
- Labor Induction
- Newborn Circumcision
Third Trimester

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- Pain Relief During Labor and Delivery
- Group B Streptococcus and Pregnancy
- What to Expect After Your Due Date
- Labor Induction
- Newborn Circumcision
Suitcase Suggestions

For Labor:
- One or two bed pillows
- Portable CD player with headphones and CDs/iPod
- Lip balm
- Cards, books and writing material
- Focal point
- Watch or clock with a second hand
- Lollipops and/or hard candy
- Camera, film and video recorder
- Hair tie and/or barrette
- Soft, warm socks
- Lotion or oil for massage
- Change for phone and/or vending machines
- Phone numbers of people you want to call after birth
- Health insurance card and Identification
- Name, address and phone number of pediatrician

For Postpartum:
Mom:
- Pajamas (2 sets)
- Panties (4 pair)
- Form-fitting nursing bras (2)
- Socks (2 pair)
- Slippers, flip-flops and robe
- Toiletries (Deodorant, Shampoo/Conditioner, Toothbrush, Toothpaste, Brush, Hair Dryer, etc)
- Clothes for trip home (Clothes that fit in 7th month, loose, comfortable)

Baby:
- Receiving blanket
- Pacifier (if desired)
- Clothes for trip home (weather appropriate)
- Car seat

REMINDERS:
- Checkout is 11am on the day of your discharge
- Please remember to take home your sitz bath, peri bottle, donut, and any other supplies given to you during your hospital stay. You will need these items to continue your care at home.
Preterm (Premature) Labor and Birth

- What is preterm labor?
- What is preterm birth?
- Why is preterm birth a concern?
- Which preterm babies are at greatest risk of health problems?
- What are risk factors for preterm birth?
- Can anything be done to prevent preterm birth if I am at high risk?
- What are the signs and symptoms of preterm labor and what should I do if I have any of them?
- How is preterm labor diagnosed?
- If I have preterm labor, will I have a preterm birth?
- What happens if my preterm labor continues?
- What are corticosteroids?
- What is magnesium sulfate?
- What are tocolytics?
- What happens if my labor does not stop?
- Glossary

What is preterm labor?
Preterm labor is defined as regular contractions of the uterus resulting in changes in the cervix that start before 37 weeks of pregnancy. Changes in the cervix include effacement (the cervix thins out) and dilation (the cervix opens so that the fetus can enter the birth canal).

What is preterm birth?
When birth occurs between 20 weeks of pregnancy and 37 weeks of pregnancy, it is called preterm birth.

Why is preterm birth a concern?
Preterm birth is a concern because babies who are born too early may not be fully developed. They may be born with serious health problems. Some health problems, like cerebral palsy, can last a lifetime. Other problems, such as learning disabilities, may appear later in childhood or even in adulthood.

Which preterm babies are at greatest risk of health problems?
The risk of health problems is greatest for babies born before 34 weeks of pregnancy. But babies born between 34 weeks and 37 weeks also are at risk.

What are risk factors for preterm birth?
Factors that increase the risk of preterm birth include the following:
- Having a previous preterm birth
- Having a short cervix
• Short interval between pregnancies
• History of certain types of surgery on the uterus or cervix
• Certain pregnancy complications, such as multiple pregnancy and vaginal bleeding
• Lifestyle factors such as low prepregnancy weight, smoking during pregnancy, and substance abuse during pregnancy

Can anything be done to prevent preterm birth if I am at high risk?
If you have had a prior preterm birth and you are planning another pregnancy, a preconception care checkup can help you get in the best possible health before you become pregnant. When you become pregnant, be sure to start prenatal care early. You may be referred to a health care provider who has expertise in managing high-risk pregnancies. In addition, you may be given certain medications or other treatment to help prevent preterm birth if you have risk factors. Treatment is given based on your individual situation and your risk factors for preterm birth.

What are the signs and symptoms of preterm labor and what should I do if I have any of them?
Call your health care provider right away if you notice any of these signs or symptoms:
• Change in type of vaginal discharge (watery, mucus, or bloody)
• Increase in amount of discharge
• Pelvic or lower abdominal pressure
• Constant low, dull backache
• Mild abdominal cramps, with or without diarrhea
• Regular or frequent contractions or uterine tightening, often painless
• Ruptured membranes (your water breaks with a gush or a trickle of fluid)

How is preterm labor diagnosed?
Preterm labor can be diagnosed only when changes in the cervix are found. Your health care provider may perform a pelvic exam to see if your cervix has started to change. You may need to be examined several times over a period of a few hours. Your contractions also may be monitored.
Your health care provider may do certain tests to determine whether you need to be hospitalized or if you need immediate specialized care. A transvaginal ultrasound exam may be done to measure the length of your cervix. The level of a protein called fetal fibronectin in the vaginal discharge may be measured. The presence of this protein is linked to preterm birth.

If I have preterm labor, will I have a preterm birth?
It is difficult for health care providers to predict which women with preterm labor will go on to have preterm birth. Only about 10% of women with preterm labor will give birth within the next 7 days. For about 30% of women, preterm labor stops on its own.

What happens if my preterm labor continues?
If your preterm labor continues, how it is managed is based on what is thought to be best for your health and your baby’s health. When there is a chance that the baby would benefit from a delay in delivery, certain medications may be given. These medications include corticosteroids, magnesium sulfate, and tocolytics.

What are corticosteroids?
Corticosteroids are drugs that cross the placenta and help speed up development of the baby’s lungs, brain, and digestive organs. Corticosteroids are most likely to help your baby when they are given between 24 weeks of pregnancy and 34 weeks of pregnancy.

What is magnesium sulfate?
Magnesium sulfate is a medication that may be given if you are less than 32 weeks pregnant, are in preterm labor, and are at risk of delivery within the next 24 hours. This medication may help reduce the risk of cerebral palsy that is associated with early preterm birth.

What are tocolytics?
Tocolytics are drugs used to delay delivery for a short time (up to 48 hours). They may allow time for corticosteroids or magnesium sulfate to be given or for you to be transferred to a hospital that offers specialized care for preterm infants. In addition to its role in protecting against cerebral palsy, magnesium sulfate also can be used as a tocolytic drug.

What happens if my labor does not stop?
If your labor does not stop and it looks like you will give birth to your baby early, you and the baby usually will be cared for by a team of health care providers. The team may include a neonatologist, a doctor who specializes in treating problems in newborns. The care your baby needs depends on how early he or she is born. High-level neonatal intensive care units (NICUs) provide this specialized care for preterm infants.
Glossary

Cerebral Palsy: A long-term disability of the nervous system that affects young children in which control of movement or posture is abnormal and is not the result of a recognized disease.

Cervix: The lower, narrow end of the uterus at the top of the vagina.

Corticosteroids: Hormones given to help fetal lungs mature, for arthritis, or for other medical conditions.

Fetal Fibronectin: A protein produced during pregnancy.

Fetus: The developing organism in the uterus from the ninth week of pregnancy until the end of pregnancy.

Magnesium Sulfate: A drug that may help prevent cerebral palsy when it is given to women in preterm labor who are at risk of delivery before 32 weeks of pregnancy.

Neonatologist: A doctor who specializes in the diagnosis and treatment of disorders that affect newborn infants.

Pelvic Exam: A physical examination of a woman's reproductive organs.

Placenta: Tissue that provides nourishment to and takes waste away from the fetus.

Prenatal Care: A program of care for a pregnant woman before the birth of her baby.

Tocolytics: Medications used to stop or slow preterm labor.

Transvaginal Ultrasound: A type of ultrasound in which a device specially designed to be placed in the vagina is used.

Uterus: A muscular organ located in the female abdomen that contains and nourishes the developing embryo and fetus during pregnancy.

If you have further questions, contact your obstetrician–gynecologist.

FAQ087: Designed as an aid to patients, this document sets forth current information and opinions related to women's health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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How to Tell When Labor Begins

- What happens when labor begins?
- What is false labor?
- How can I tell the difference between true labor and false labor?

What happens when labor begins?
As labor begins, the cervix opens (dilates). The uterus, which contains muscle, contracts at regular intervals. When it contracts, the abdomen becomes hard. Between the contractions, the uterus relaxes and becomes soft. Up to the start of labor and during early labor, the baby will continue to move.

Certain changes also may signal that labor is beginning. You may or may not notice some of them before labor begins:

<table>
<thead>
<tr>
<th>Sign</th>
<th>What It Is</th>
<th>When It Happens</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling as if the baby has dropped lower</td>
<td>Lightening. This is known as the &quot;baby dropping.&quot; The baby's head has settled deep into your pelvis.</td>
<td>From a few weeks to a few hours before labor begins</td>
</tr>
<tr>
<td>Increase in vaginal discharge (clear, pink, or slightly bloody)</td>
<td>Show. A thick mucus plug has accumulated at the cervix during pregnancy. When the cervix begins to dilate, the plug is pushed into the vagina.</td>
<td>Several days before labor begins or at the onset of labor</td>
</tr>
</tbody>
</table>

What is false labor?
Your uterus may contract off and on before "true" labor begins. These irregular contractions are called false labor or Braxton Hicks contractions. They are normal but can be painful at times. You might notice them more at the end of the day.

How can I tell the difference between true labor and false labor?
Usually, false labor contractions are less regular and not as strong as true labor. Sometimes the only way to tell the difference is by having a vaginal exam to look for changes in your cervix that signal the onset of labor.

One good way to tell the difference is to time the contractions. Note how long it is from the start of one contraction to the start of the next one. Keep a record for an hour. It may be hard to time labor pains accurately if the contractions are slight. Listed as follows are some differences between true labor and false labor:
### Differences Between False Labor and True Labor

<table>
<thead>
<tr>
<th>Type of Change</th>
<th>False Labor</th>
<th>True Labor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timing of contractions</td>
<td>Often are irregular and do not get closer together (called Braxton Hicks contractions)</td>
<td>Come at regular intervals and, as time goes on, get closer together. Each lasts about 30–70 seconds.</td>
</tr>
<tr>
<td>Change with movement</td>
<td>Contractions may stop when you walk or rest, or may even stop with a change of position</td>
<td>Contractions continue, despite movement</td>
</tr>
<tr>
<td>Strength of contractions</td>
<td>Usually weak and do not get much stronger (may be strong and then weak)</td>
<td>Increase in strength steadily</td>
</tr>
<tr>
<td>Pain of contractions</td>
<td>Usually felt only in the front</td>
<td>Usually starts in the back and moves to the front</td>
</tr>
</tbody>
</table>

If you have further questions, contact your obstetrician–gynecologist.

*FA0004: Designed as an aid to patients, this document sets forth current information and opinions related to women’s health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to institution or type of practice, may be appropriate.

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Medications for Pain Relief During Labor and Delivery

- What are the types of pain-relieving medications that can be used during labor and delivery?
- What are systemic analgesics?
- What are the risks of systemic analgesia?
- What is local anesthesia?
- What are regional analgesia and regional anesthesia?
- What is an epidural block?
- How long does an epidural take to work?
- Will I be able to move or feel anything after receiving an epidural?
- What are the risks of an epidural?
- What is a spinal block?
- Will I be able to move or feel anything after receiving a spinal block?
- What are the risks of a spinal block?
- What is a combined spinal–epidural (CSE) block?
- Will I be able to move after receiving a CSE block?
- What are the risks of a CSE block?
- What is general anesthesia?
- How is general anesthesia given?
- What are the risks of general anesthesia?
- Glossary

What are the types of pain-relieving medications that can be used during labor and delivery?

In general, there are two types of pain-relieving drugs: 1) **analgesics** and 2) **anesthetics**. Analgesics relieve pain without total loss of feeling or muscle movement. They are used to lessen pain but usually do not stop pain completely. Anesthetics block all feeling, including pain.

What are systemic analgesics?

**Systemic analgesics** act on the whole nervous system, rather than a specific area, to lessen pain. They will not cause you to lose consciousness. These medications often are used during early labor to allow you to rest.

Systemic analgesics usually are given as a shot. Depending on the type of medication, the shot is given into either a muscle or a vein. In patient-controlled analgesia, you can control the amount of medication you receive through an intravenous (IV) line. This is a small tube that is placed into a vein through which medications or fluids are given.

What are the risks of systemic analgesia?

Systemic pain medicine can have side effects, such as nausea, feeling drowsy, or having trouble concentrating. Sometimes another drug is given along with a systemic analgesic to relieve nausea. Systemic analgesics can affect the baby's heart rate temporarily. It can be more difficult to detect fetal heart rate problems when these drugs are used. High doses of these
drugs can cause you to have breathing problems and also can slow down the baby’s respiratory system, especially right after delivery.

**What is local anesthesia?**

*Local anesthesia* is the use of drugs that affect only a small area of the body. Local anesthetics provide relief from pain in that area. Local anesthetics are injected into the area around the nerves that carry feeling to the vagina, vulva, and perineum. The drugs are given just before delivery. They also are used when an episiotomy needs to be done or when any vaginal tears that happened during birth are repaired.

**What are regional analgesia and regional anesthesia?**

*Regional analgesia* and *regional anesthesia* act on a specific region of the body. Depending on the types of drugs that are used, they can lessen or block pain below the waist. They include the epidural block, spinal block, and combined spinal–epidural (CSE) block.

**What is an epidural block?**

An epidural block (sometimes referred to as “an epidural”) is the most common type of pain relief used during labor and delivery in the United States. In an epidural block, medication is given through a tube placed into the lower back.

An epidural block can be used during labor and for a vaginal delivery or cesarean delivery. For labor and vaginal delivery, a combination of analgesics and anesthetics may be used. This combination of drugs causes some loss of feeling in the lower areas of your body, but you remain awake and alert. You should be able to bear down and push your baby through the birth canal. For a cesarean delivery, the dose of anesthetic may be increased. This causes loss of sensation in the lower half of your body. An epidural also can be used for postpartum sterilization.

**How long does an epidural take to work?**

Because the medication needs to be absorbed into several nerves, it may take a short time for it to take effect. Pain relief should begin within 10–20 minutes after the medication has been injected.

**Will I be able to move or feel anything after receiving an epidural?**

You can move with an epidural, but you may not be able to walk around. Although an epidural block will make you more comfortable, you still may be aware of your contractions. You also may feel your health care provider’s exams as labor progresses.

**What are the risks of an epidural?**

Although it is rare, an epidural block can cause the following side effects:

- Decrease in blood pressure—An epidural can cause your blood pressure to decrease. This, in turn, may slow the baby’s heartbeat.
- Fever—Some women develop a low-grade fever as a normal reaction to an epidural.
- Headache—If the covering of the spinal cord is pierced while the tube is being placed and spinal fluid leaks out, you can get a bad headache. This happens rarely.
- Soreness—After delivery, your back may be sore for a few days.

Serious complications with epidurals are very rare:

- There is a small risk that the anesthetic medication could be injected into one of the veins in the epidural space. This can cause dizziness, rapid heartbeat, a funny taste, or numbness around the mouth when the epidural is placed.
- If anesthetic enters your spinal fluid, it can affect your breathing muscles and make it hard to breathe.

**What is a spinal block?**

A spinal block—like an epidural block—is a form of regional pain relief. A small amount of medication is injected into the spinal fluid. Depending on the drugs used, it can be used for regional analgesia or anesthesia. It starts to relieve pain quickly, but it lasts for only an hour or two.

**Will I be able to move or feel anything after receiving a spinal block?**

You may be numb after receiving a spinal block and will need assistance moving.

**What are the risks of a spinal block?**

A spinal block can cause the same side effects as an epidural block.

**What is a combined spinal–epidural (CSE) block?**

A CSE block is another form of regional pain relief. It has the benefits of both a spinal block and an epidural block. The spinal part acts quickly to relieve pain. The epidural part provides continuous pain relief. Lower doses of medication can be used with a CSE block than with an epidural block for the same level of pain relief.
Will I be able to move after receiving a CSE block?
The CSE block sometimes is called a "walking epidural." Depending on your hospital's policy, you may be able to walk for a short distance after the block is in place. For example, you may be able to walk a few feet to the bathroom with assistance. However, some hospitals and birthing centers require women who receive any type of pain relief to remain in bed.

What are the risks of a CSE block?
A CSE has the same risks as an epidural block.

What is general anesthesia?
*General anesthesia* causes you to lose consciousness so that you do not feel pain. It usually is used only for emergency situations during childbirth.

How is general anesthesia given?
It is given through an IV line or through a mask. After you are asleep, your anesthesiologist will place a breathing tube into your mouth and windpipe.

What are the risks of general anesthesia?
A rare but major risk is aspiration of food or liquids from a woman's stomach into the lungs. Labor usually causes undigested food to stay in the stomach longer than usual. While you are unconscious, the contents of your stomach can come back into the mouth and go into the lungs. This can cause a lung infection (pneumonia) that can be serious. General anesthesia usually requires the placement of a breathing tube into the lungs to help you breathe while you are unconscious. Difficulty placing this tube is another risk. General anesthesia can cause the newborn baby's breathing rate to decrease. It also can make the baby less alert. In rare cases, the baby may need help breathing after birth.

Glossary
*Analgesics*: Drugs that relieve pain without loss of muscle function.
*Anesthetics*: Drugs that relieve pain by loss of sensation.
*Cesarean Delivery*: Delivery of a baby through surgical incisions made in the mother's abdomen and uterus.
*Combined Spinal–Epidural (CSE) Block*: A form of regional anesthesia or analgesia in which pain medications are administered into the spinal fluid (spinal block) as well as through a thin tube into the epidural space (epidural block).
*Epidural Block*: A type of regional anesthesia or analgesia in which pain medications are given through a tube placed in the space at the base of the spine.
*Episiotomy*: A surgical incision made into the perineum (the region between the vagina and the anus) to widen the vaginal opening for delivery.
*General Anesthesia*: The use of drugs that produce a sleep-like state to prevent pain during surgery.
*Local Anesthesia*: The use of drugs that prevent pain in a part of the body.
*Perineum*: The area between the vagina and the anus.
*Postpartum Sterilization*: A permanent procedure that prevents a woman from becoming pregnant, performed soon after the birth of a child.
*Regional Analgesia*: The use of drugs to relieve pain in a region of the body.
*Regional Anesthesia*: The use of drugs to block sensation in a region of the body.
*Spinal Block*: A type of regional anesthesia or analgesia in which pain medications are administered into the spinal fluid.
*Systemic Analgesics*: Drugs that provide pain relief over the entire body without causing loss of consciousness.
*Vagina*: A tube-like structure surrounded by muscles leading from the uterus to the outside of the body.
*Vulva*: The external female genital area.

If you have further questions, contact your obstetrician–gynecologist.
Group B Streptococcus and Pregnancy

- What is group B streptococcus (GBS)?
- What does it mean to be colonized with GBS?
- Why is GBS a concern for pregnant women?
- What are the types of GBS infection in newborns?
- What are early-onset GBS infections?
- What are late-onset GBS infections?
- Can these infections be prevented in newborns?
- When are pregnant women tested for GBS?
- What if the test results are positive?
- What if I am allergic to penicillin?
- What if I already had a baby who had a GBS infection?
- What if I am having a planned cesarean birth?
- Glossary

What is group B streptococcus (GBS)?
Group B streptococcus is one of the many types of bacteria that live in the body and usually do not cause serious illness. It is found in the digestive, urinary, and reproductive tracts of men and women. In women, it can be found in the vagina and rectum. GBS is not a sexually transmitted disease. Also, although the names are similar, GBS is different from group A streptococcus, the bacteria that causes “strep throat.”

What does it mean to be colonized with GBS?
A person who has the bacteria but shows no symptoms is said to be colonized. The number of bacteria that a person has may change over time. A person colonized with a large number of bacteria may have low levels of bacteria months or years later. It also is possible for the number of bacteria to decrease to levels that cannot be detected.

Why is GBS a concern for pregnant women?
Most pregnant women who are colonized with GBS have no symptoms or health effects. A small number may develop a urinary tract infection or infection of the uterus caused by GBS. The most serious health effect is that a woman colonized with GBS late in her pregnancy can pass it to her baby.

What are the types of GBS infection in newborns?
There are two types of GBS infections in newborns: 1) early-onset infections and 2) late-onset infections. Both types of infections can be serious.

What are early-onset GBS infections?
Early-onset infections occur during the first week of life, generally within the first 24–48 hours after birth. These infections can occur as the baby moves through the birth canal of a woman who is colonized with GBS. Only a few babies who are exposed to GBS develop an infection. Certain factors, such as preterm birth, may increase the risk of a baby becoming
infected. The most common problems caused by early-onset GBS infections are lung infections, blood infections, and meningitis.

What are late-onset GBS infections?
These infections occur after the first 6 days of life. Late-onset infections may be passed from the mother to the baby during birth or they may be caused by contact with other people who are colonized with GBS. Late-onset infection can lead to meningitis and other diseases, such as pneumonia.

Can these infections be prevented in newborns?
GBS testing late in pregnancy and treatment during labor can help prevent early-onset infections. However, it does not prevent late-onset infections. It is important to recognize the signs and symptoms of late-onset GBS infection in your baby:

- Slowness or inactivity
- Irritability
- Poor feeding
- Vomiting
- High fever

If your baby has any of these signs or symptoms, contact your pediatrician right away.

When are pregnant women tested for GBS?
To help prevent early-onset GBS infection, women are tested for GBS late in pregnancy, between weeks 35 and 37. The test is called a culture. In this test, a swab is used to take a sample from the woman’s vagina and rectum. This procedure is quick and is not painful. The sample is sent to a lab where it is grown in a special substance.

What if the test results are positive?
If results of the culture test are positive, showing that GBS is present, you most likely will receive treatment with antibiotics during labor to help prevent GBS from being passed to your baby. Antibiotics help get rid of some of the bacteria that can harm the baby during birth. The antibiotics work only if they are given during labor. If treatment is given earlier in pregnancy, the bacteria may regrow and be present during labor. Penicillin is the antibiotic that is most often given to prevent early-onset GBS infection in newborns.

What if I am allergic to penicillin?
If you are allergic to penicillin, tell your health care provider before you are tested for GBS. Women with mild allergic reactions can take an antibiotic called cephalosporin. If you have had a severe reaction to penicillin, such as hives or anaphylaxis, the bacteria in the sample need to be tested to determine the choice of antibiotic.

What if I already had a baby who had a GBS infection?
If you had a previous baby with GBS infection or if your urine has GBS bacteria during this pregnancy, you are at high risk of passing GBS on to your baby during labor and delivery. You will receive treatment during labor to protect your baby from infection. You will not need to be tested between weeks 35 and 37 of pregnancy.

What if I am having a planned cesarean birth?
If you are having a planned cesarean birth, you do not need to receive antibiotics for GBS during delivery if your labor has not begun or the amniotic sac has not ruptured (your water has not broken). However, you should still be tested for GBS because labor may occur before the planned cesarean birth. If your test result is positive, your baby may need to be monitored for GBS infection after birth.

Glossary
Amniotic Sac: Fluid-filled sac in the mother’s uterus in which the fetus develops.
Anaphylaxis: An allergic reaction with symptoms ranging from hives and itching to breathing problems and shock. It can be life threatening for some people.
Antibiotics: Drugs that treat infections.
Cesarean Birth: Birth of a baby through incisions made in the mother’s abdomen and uterus.
Colonized: Having bacteria in your body that could cause illness, but having no symptoms of the disease.
Meningitis: Inflammation of the membranes of the brain or spinal cord.
Preterm: Born before 37 weeks of pregnancy.
Sexually Transmitted Disease: A disease that is spread by sexual contact, including chlamydia, gonorrhea, genital warts, herpes, syphilis, and infection with human immunodeficiency virus (HIV, the cause of acquired immunodeficiency syndrome [AIDS]).
Uterus: A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

If you have further questions, contact your obstetrician–gynecologist.

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What to Expect After Your Due Date

- What is the due date and what does it mean?
- What is postterm pregnancy?
- What are the risks associated with postterm pregnancy?
- What tests can be performed in cases of postterm pregnancy?
- What is electronic fetal monitoring?
- What is labor induction?
- How is labor induced?
- Glossary

What is the due date and what does it mean?

Your due date is used as a guide for checking your pregnancy's progress and the baby's growth and age. Health care providers often use more than one method to set the due date. Ultrasound performed between 18 weeks and 20 weeks of pregnancy often is used to help confirm the age of a fetus.

What is postterm pregnancy?

A postterm pregnancy is one that lasts 42 weeks or longer. Women who are having a baby for the first time or who have had postterm pregnancies before may give birth later than expected. However, the most common cause of postterm pregnancy is an error in calculating the due date. When a postterm pregnancy truly exists, the cause usually is unknown.

What are the risks associated with postterm pregnancy?

After 42 weeks, the placenta may not work as well as it did earlier in pregnancy. Also, as the baby grows, the amount of amniotic fluid may begin to decrease. Less fluid may cause the umbilical cord to become pinched as the baby moves or as the uterus contracts.

If pregnancy goes past 42 weeks, a baby has an increased risk of certain problems, such as dysmaturity syndrome, macrosomia, or meconium aspiration. There also is an increased chance of cesarean delivery.

What tests can be performed in cases of postterm pregnancy?

When a baby is not born by the due date, tests can help the health care provider check on the baby's health. Some tests, such as a kick count, can be done on your own at home. A kick count is a record of how often you feel your baby move. Others are done in the health care provider's office or in the hospital. These tests involve electronic fetal monitoring and include the nonstress test, biophysical profile, and contraction stress test.

What is electronic fetal monitoring?

Electronic fetal monitoring uses two belts placed around the mother's abdomen to hold instruments that measure fetal heart rate and the strength of uterine contractions. This method is used to perform the following tests for fetal well-being:

- Nonstress test—The mother pushes a button each time she feels the baby move. This causes a mark to be made on a paper recording of the fetal heart rate.
- Biophysical profile—This test combines the results of electronic fetal monitoring and an ultrasound exam. It checks the baby's heart rate (using the nonstress test) and estimates the amount of amniotic fluid. The baby's breathing, movement, and muscle tone also may be checked.
• Contraction stress test—The baby’s heart rate is measured when the mother’s uterus contracts. The contractions are induced, and changes in the fetus’s heart rate are noted.

What is labor induction?
Labor induction is the use of medication or other methods to bring on labor. Labor is induced to cause a pregnant woman’s cervix to open and to prepare for vaginal birth. Most health care providers wait 1–2 weeks after a woman’s due date before considering inducing labor.

How is labor induced?
Methods used to induce labor include:
• Ripening or dilating the cervix—Prostaglandins may be used to soften the cervix and to cause the uterus to contract. Special devices can be used to dilate the cervix.
• Stripping or sweeping the amniotic membranes—Your health care provider sweeps a finger over the thin membranes that connect the amniotic sac to the wall of your uterus. Women who have this procedure are more likely to have contractions and may go into labor within 48 hours.
• Rupturing the amniotic sac—Your health care provider makes a small hole in the amniotic sac to release the fluid ("breaking the water"). Most women go into labor within hours of their water breaking.
• Using oxytocin—This hormone, given through an intravenous (IV) tube in your arm, causes the uterus to contract.

Glossary

Amniotic Fluid: Water in the sac surrounding the fetus in the mother’s uterus.
Cesarean Delivery: Delivery of a baby through an incision made in the mother’s abdomen and uterus.
Dysmaturity Syndrome: A condition in which the fetus is malnourished. He or she is born with a long and lean body, an alert look on the face, lots of hair, long fingernails, and thin wrinkled skin.
Macrosomia: A condition in which a fetus grows very large.
Meconium Aspiration: A condition in which the baby inhales a greenish substance that builds up in the bowels of a growing fetus. This blocks the airways and causes the baby to gasp for air.
Placenta: Tissue that provides nourishment to and takes waste away from the fetus.
Prostaglandins: Chemicals that are made by the body that have many effects, including causing the muscle of the uterus to contract, usually causing cramps.
Ultrasound: A test in which sound waves are used to examine the fetus.
Umbilical cord: A cord-like structure containing blood vessels that connects the fetus to the placenta.
Uterus: A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

If you have further questions, contact your obstetrician–gynecologist.

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Labor Induction

- What is labor induction?
- Why is labor induced?
- What is the Bishop score?
- What is “ripening the cervix”?
- How is cervical ripening performed?
- What are prostaglandins?
- What devices are used to ripen and dilate the cervix?
- What is “stripping the membranes?”
- How can rupturing the amniotic sac bring on labor?
- When is amniotomy done?
- What is oxytocin?
- What are the risks associated with labor induction?
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What is labor induction?
Labor induction is the use of medications or other methods to bring on (induce) labor.

Why is labor induced?
Labor is induced to stimulate contractions of the uterus in an effort to have a vaginal birth. Labor induction may be recommended if the health of the mother or fetus is at risk. In special situations, labor is induced for nonmedical reasons, such as living far away from the hospital. This is called elective induction. Elective induction should not occur before 39 weeks of pregnancy.

What is the Bishop score?
To prepare for labor and delivery, the cervix begins to soften (ripen), thin out, and open. These changes usually start a few weeks before labor begins. Health care providers use the Bishop score to rate the readiness of the cervix for labor. With this scoring system, a number ranging from 0–13 is given to rate the condition of the cervix. A Bishop score of less than 6 means that your cervix may not be ready for labor.

What is “ripening the cervix”?
Ripening the cervix is a process that helps the cervix soften and thin out in preparation for labor. Medications or devices may be used to soften the cervix so it will stretch (dilate) for labor.

How is cervical ripening performed?
Ripening of the cervix can be done with prostaglandins or with special devices.

What are prostaglandins?
Prostaglandins are drugs that can be used to ripen the cervix. They are forms of chemicals produced naturally by the body. These drugs can be inserted into the vagina or taken by mouth. Some of these drugs are not used in women who have had a previous cesarean delivery or other uterine surgery to avoid increasing the possible risk of uterine rupture (tearing).
What devices are used to ripen and dilate the cervix?

*Laminaria* (a substance that absorbs water) can be inserted to expand the cervix. A catheter (small tube) with an inflatable balloon on the end also can be inserted to widen the cervix.

What is “stripping the membranes?”

Stripping the membranes is a way to induce labor. The healthcare provider sweeps a gloved finger over the thin membranes that connect the *amniotic sac* to the wall of your uterus. This action may cause your body to release prostaglandins, which soften the cervix and may cause contractions.

How can rupturing the amniotic sac bring on labor?

Rupturing the amniotic sac can start contractions. It also can make them stronger if they have already begun. The healthcare provider makes a small hole in the amniotic sac with a special tool. This procedure, called an *amniotomy*, may cause some discomfort.

When is amniotomy done?

Amniotomy is done to start labor when the cervix is dilated and thinned and the baby’s head has moved down into the pelvis. Most women go into labor within hours after the amniotic sac breaks (their “water breaks”).

What is oxytocin?

*Oxytocin* is a hormone that causes contractions of the uterus. It can be used to start labor or to speed up labor that began on its own. Contractions usually start in about 30 minutes after oxytocin is given.

What are the risks associated with labor induction?

With some methods, the uterus can be overstretched, causing it to contract too frequently. Too many contractions may lead to changes in the fetal heart rate, *umbilical cord* problems, and other problems. Other risks of cervical ripening and labor induction include the following:

- Infection in the mother or baby
- Uterine rupture
- Increased risk of cesarean birth
- Fetal death

Medical problems that were present before pregnancy or occurred during pregnancy may contribute to these complications.

Is labor induction always effective?

Sometimes labor induction does not work. A failed attempt at induction may mean that you will need to try another induction or have a cesarean delivery. The chance of having a cesarean delivery is greatly increased for first-time mothers who have labor induction, especially if the cervix is not ready for labor.

Glossary

*Amniotic Sac*: Fluid-filled sac in the mother’s uterus in which the fetus develops.

*Amniotomy*: Artificial rupture of the amniotic sac.

*Cervix*: The opening of the uterus at the top of the vagina.

*Cesarean Delivery*: Delivery of a baby through incisions made in the mother’s abdomen and uterus.

*Fetus*: The developing offspring in the uterus from the ninth week of pregnancy until the end of pregnancy.

*Laminaria*: A natural or artificial substance inserted in the cervix that expands when it absorbs water.

*Oxytocin*: A hormone used to help bring on contractions of the uterus.

*Prostaglandins*: Chemicals that are made by the body that have many effects, including causing the muscle of the uterus to contract, usually causing cramps.

*Umbilical Cord*: A cord-like structure containing blood vessels that connects the fetus to the placenta.

*Uterus*: A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

If you have further questions, contact your obstetrician—gynecologist.

FA0154: Designed as an aid to patients, this document sets forth current information and opinions related to women’s health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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Newborn Circumcision

- What is circumcision?
- When is circumcision performed?
- Is circumcision a required procedure?
- Is circumcision a common practice?
- Why do some parents choose to have their sons circumcised?
- Why do some parents choose not to have their sons circumcised?
- Are there any health benefits associated with circumcision?
- Are there any risks associated with circumcision?
- How is circumcision performed?
- What should I expect after my baby boy has been circumcised?
- How do I keep the circumcised area clean?
- If I decide not to have my son circumcised, how do I clean his penis and foreskin?
- Glossary

What is circumcision?
Circumcision is the surgical removal of the layer of skin, called the foreskin, that covers the glans (head) of the penis.

When is circumcision performed?
Circumcision on infants may be performed before or after the mother and baby leave the hospital. It only is performed if the baby is healthy. If the baby has a medical condition, circumcision may be postponed. Circumcision also can be performed on older children or adults. However, recovery may take longer when circumcision is done on an older child or adult. The risks of complications also are increased.

Is circumcision a required procedure?
Circumcision is an elective procedure. That means that it is the parents' choice whether to have their infant sons circumcised. It is not required by law or by hospital policy. Because it is an elective procedure, circumcision may not be covered by your insurance policy. To find out, call your insurance provider or check your policy.

Is circumcision a common practice?
Although many newborn boys in the United States are circumcised, the number of circumcisions has decreased in recent years. It is less common in other parts of the world.

Why do some parents choose to have their sons circumcised?
There are hygienic reasons for circumcision. Smegma is a thick white discharge containing dead cells. It can build up under the foreskin of males who are not circumcised. This can lead to odor or infection. However, a boy who has not been circumcised can be taught to wash his penis to get rid of smegma as a part of his bathing routine.

For some people, circumcision is a part of certain religious practices. Muslims and Jews, for example, have circumcised their male newborns for centuries. Others may choose circumcision so that the child does not look different from his father or other boys.
Why do some parents choose not to have their sons circumcised?

Some parents choose not to circumcise their sons because they are worried about the pain the baby may feel or the risks involved with the surgery. Others believe it is a decision a boy should make himself when he is older.

Are there any health benefits associated with circumcision?

Circumcised infants appear to have less risk of urinary tract infections than uncircumcised infants. The risk of urinary tract infection in both groups is low. It may help prevent cancer of the penis, a rare condition.

Some research suggests that circumcision may decrease the risk of a man getting *human immunodeficiency virus (HIV)* from an infected female partner. It is possible that circumcision may decrease the risk of passing HIV and other *sexually transmitted diseases* from an infected man to a female partner. At the present time, there is not enough information to recommend routine newborn circumcision for health reasons.

Are there any risks associated with circumcision?

Possible complications include bleeding, infection, and scarring. In rare cases, too much of the foreskin or not enough foreskin is removed. More surgery sometimes is needed to correct these problems.

How is circumcision performed?

Circumcision takes only a few minutes. During the procedure, the baby is placed on a special table. It is recommended that an *anesthetic* be used for pain relief. Various surgical techniques are used, but they follow the same steps:

- The penis and foreskin are cleaned.
- A special clamp is attached to the penis and the foreskin is removed.
- After the procedure, a bandage and petroleum jelly are placed over the wound to protect it from rubbing against the diaper.

What should I expect after my baby boy has been circumcised?

If your baby boy has been circumcised, a bandage with petroleum jelly may be placed over the head of the penis after surgery. The bandage typically falls off the next time the baby urinates. Some health care providers recommend keeping a clean bandage on until the penis is healed, while others recommend leaving it off. In most cases, the skin will heal in 7–10 days. You may notice that the tip of the penis is red and there may be a small amount of yellow fluid. This usually is normal.

How do I keep the circumcised area clean?

Use a mild soap and water to clean off any stuff that gets on the penis. Change the diapers often so that urine and stool do not cause infection. Signs of infection include redness that does not go away, swelling, or fluid that looks cloudy and forms a crust.

If I decide not to have my son circumcised, how do I clean his penis and foreskin?

If your baby boy has not been circumcised, washing the baby's penis and foreskin properly is important. The outside of the penis should be washed with a mild soap and water. Do not attempt to pull back the infant's foreskin. The foreskin may not be able to pull back completely until the child is about 3–5 years old. This is normal.

As your child gets older, teach your son how to wash his penis. He should pull back the foreskin and clean the area with soap and water. The foreskin then should be pushed back into place.

Glossary

_Anesthetic_: A drug used to relieve pain.

_Foreskin_: A layer of skin covering the end of the penis.

_Glans_: The head of the penis.

_Human Immunodeficiency Virus (HIV)_: A virus that attacks certain cells of the body's immune system and causes acquired immunodeficiency syndrome (AIDS).

_Sexually Transmitted Diseases_: Diseases that are spread by sexual contact, including chlamydia, gonorrhea, genital warts, herpes, syphilis, and infection with human immunodeficiency virus (HIV, the cause of acquired immunodeficiency syndrome [AIDS]).

_Smegma_: A whitish, cheesy substance normally built up and shed from under the male foreskin.

If you have further questions, contact your obstetrician–gynecologist.
Post Partum

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Postpartum care: What to expect after a vaginal delivery
By Mayo Clinic staff

Original Article: http://www.mayoclinic.com/health/postpartum-care/PR00142

Postpartum care: What to expect after a vaginal delivery

Your newborn may be your top priority — but postpartum care counts, too. From vaginal soreness to urinary problems, here’s what to expect as you recover from a vaginal delivery.

Pregnancy changes your body in more ways than you might have guessed, and it doesn't stop when the baby is born. After a vaginal delivery, taking good care of yourself is an essential part of postpartum care. Here's what to expect.

Vaginal Soreness
If you had an episiotomy or vaginal tear during delivery, the wound might hurt for a few weeks. Extensive tears might take longer to heal. In the meantime, you can help promote healing:

- Soothe the wound. Cool the wound with an ice pack, or place a chilled witch hazel pad — available in most pharmacies — between a sanitary napkin and the wound.
- Take the sting out of urination. Pour warm water over your vulva as you’re urinating. Press a clean pad firmly against the wound when you bear down for a bowel movement.
- Keep the wound clean. Use a squirt bottle filled with water to rinse the tissue between the vaginal opening and anus (perineum) after using the toilet.
- Sit down carefully. If sitting is uncomfortable, sit on a pillow or padded ring.

While you’re healing, expect the discomfort to progressively improve. Contact your health care provider if the pain intensifies, the wound becomes hot, swollen and painful, or you notice a pus-like discharge.

Vaginal Discharge
You'll have a vaginal discharge (lochia) for a number of weeks after delivery. Expect a bright red, heavy flow of blood for the first few days. If you've been sitting or lying down, you might notice a small gush when you stand up. The discharge will gradually taper off, changing from pink or brown to yellow or white. To reduce the risk of infection, use sanitary napkins rather than tampons.

Don’t be alarmed if you occasionally pass small blood clots. Contact your health care provider if:

- You soak a sanitary pad within an hour while lying down
- The discharge has a foul odor
- You pass clots larger than a golf ball
- You have a fever of 100.4 F (38 C) or higher
**Contractions**

You might feel contractions, sometimes called ‘after pains,’ during the first few days after delivery. These contractions — which often resemble menstrual cramps — help prevent excessive bleeding by compressing the blood vessels in the uterus. For reasons that aren’t entirely clear, these contractions tend to be stronger with successive deliveries. Your health care provider might recommend an over-the-counter pain reliever if necessary. Contact your health care provider if you have a fever or if your abdomen is tender to the touch. These signs and symptoms could indicate a uterine infection.

**Urination Problems**

Swelling or bruising of the tissues surrounding the bladder and urethra can lead to difficulty urinating. Fearing the sting of urine on the tender perineal area can have the same effect. Difficulty urinating usually resolves on its own. In the meantime, it might help to pour water across your vulva while you’re sitting on the toilet.

Contact your health care provider if you have any symptoms of a urinary tract infection. For example:

- It hurts to urinate
- You don’t think you’re emptying your bladder fully
- You have an unusually frequent urge to urinate

Pregnancy and birth stretch the connective tissue at the base of the bladder and can cause nerve and muscle damage to the bladder or urethra. You might leak urine when you cough, strain or laugh. Fortunately, this problem usually improves within three months. In the meantime, wear sanitary pads and do Kegel exercises to help tone your pelvic floor muscles.

To do Kegels, tighten your pelvic muscles as if you’re stopping your stream of urine. Try it for five seconds at a time, four or five times in a row. Work up to keeping the muscles contracted for 10 seconds at a time, relaxing for 10 seconds between contractions. Aim for at least three sets of 10 repetitions a day.

**Hemorrhoids and Bowel Movements**

If you notice pain during bowel movements and feel swelling near your anus, you might have hemorrhoids — stretched and swollen veins in the anus or lower rectum. To ease any discomfort while the hemorrhoids heal, soak in a warm tub and apply chilled witch hazel pads to the affected area. Your health care provider might recommend a topical hemorrhoid medication as well.

If you find yourself avoiding bowel movements out of fear of hurting your perineum or aggravating the pain of hemorrhoids or your episiotomy wound, take steps to keep your stools soft and regular. Eat foods high in fiber — including fruits, vegetables and whole grains — and drink plenty of water. It's also
helpful to remain as physically active as possible. Ask your health care provider about a stool softener or fiber laxative, if needed.

Another potential problem for new moms is the inability to control bowel movements (fecal incontinence) — especially if you had an unusually long labor. Frequent Kegel exercises can help. If you have persistent trouble controlling bowel movements, consult your health care provider.

**Sore Breasts and Leaking Milk**

Several days after delivery, your breasts might become heavy, swollen and tender. This is known as engorgement. To ease the discomfort, nurse your baby or use a breast pump to express milk. You might also want to apply cold washcloths or ice packs to your breasts. Over-the-counter pain relievers might help, too. To help prevent nipple pain, make sure that your baby latches on to your breast correctly. If you’re unsure or every feeding is painful, ask a lactation consultation for help.

If your breasts leak between feedings, wear nursing pads inside your bra to help keep your shirt dry. Change pads after each feeding and whenever they get wet.

If you’re not breast-feeding your baby, wear a firm, supportive bra. Compressing your breasts will help stop milk production. In the meantime, don’t pump your breasts or express the milk. This only tells your breasts to produce more milk.

**Hair loss and Skin Changes**

During pregnancy, elevated hormone levels put normal hair loss on hold. The result is often an extra-lush head of hair — but now it’s payback time. After delivery, your body sheds the excess hair all at once. Within six months, your hair will most likely be back to normal. In the meantime, shampoo only when necessary, and find a hairstyle that’s easy to maintain. Avoid curling irons and harsh chemicals. Stretch marks won’t disappear after delivery, but eventually they’ll fade from reddish purple to silver or white. Expect any skin that darkened during pregnancy — such as the line down your abdomen (linea nigra) — to slowly fade as well.

**Mood Changes**

Childbirth triggers a jumble of powerful emotions. Mood swings, irritability, sadness and anxiety are common. Many new moms experience a mild depression, sometimes called the baby blues. The baby blues typically subside within a week or two. In the meantime, take good care of yourself. Share your feelings, and ask your partner, loved ones or friends for help. If your depression deepens or you feel hopeless and sad most of the time, contact your health care provider. Prompt treatment is important.
Weight Loss
After you give birth, you'll probably feel flabby and out of shape. You might even look like you're still pregnant. Don't worry. This is perfectly normal. Most women lose more than 10 pounds during birth, including the weight of the baby, placenta and amniotic fluid. In the days after delivery, you'll lose additional weight from leftover fluids. After that, a healthy diet and regular exercise can help you gradually return to your pre-pregnancy weight.

The Post Partum Checkup
About six weeks after delivery, your health care provider will check your vagina, cervix and uterus to make sure you're healing well. He or she might do a breast exam and check your weight and blood pressure, too. This is a great time to talk about birth control, breast-feeding and how you're adjusting to life with a new baby. You might also ask about Kegel exercises to help tone your pelvic floor muscles. Above all, share any concerns you might have about your physical or emotional health. Chances are, what you're feeling is entirely normal. Look to your health care provider for assurance as you enter this new phase of life.

References:
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C-section recovery: What to expect
By Mayo Clinic staff

Original Article: http://www.mayoclinic.com/health/c-section-recovery/MY01978

C-section recovery: What to expect
Pregnancy and delivery cause major changes in your body. From abdominal pain to mood changes, here's what to expect during C-section recovery.

If you’re planning a Cesarean delivery or you want to be prepared in case you need to have a C-section, you might have questions about the recovery process. How much discomfort will you experience? How long will it take for your incision to heal? What breast-feeding positions might work best for you? Understand how to take care of yourself and your baby during C-section recovery.

Treat Your C-section Incision With Care
It takes about four to six weeks for a C-section incision to heal. During the C-section recovery process, discomfort and fatigue are common. To promote healing:

- **Take it easy.** Rest when possible. Try to keep everything that you and your baby might need within reach. For the first couple of weeks, avoid lifting anything heavier than your baby.
- **Support your abdomen.** Use good posture when you stand and walk. Hold your abdomen near the incision during sudden movements, such as coughing, sneezing or laughing.
- **Take medication as needed.** Your health care provider might recommend ibuprofen, acetaminophen (Tylenol, others) or other medications to relieve pain. Most pain relief medications are safe for breastfeeding women.
- **Drink plenty of fluids.** Drinking lots of fluids can help replace those lost during delivery and breastfeeding, as well as help prevent constipation. Remember to empty your bladder frequently to reduce the risk of urinary tract infections.

Look for Signs of Infection
Check your C-section incision for signs of infection. Contact your health care provider if:

- The incision is red, swollen or leaking discharge
- You have a fever higher than 100.4°F (38°C)
- You experience increasing pain around your incision

Experiment With Breast-Feeding Positions
You can begin breastfeeding almost immediately after the C-section. To minimize discomfort, place a pillow over the incision while holding your baby. Breast-feeding positions that work well during C-section recovery include:

- **Football hold.** Hold your baby at your side, with your elbow bent. With your open hand, support your baby's head and face him or her toward your breast. Your baby's back will rest on your
forearm. It might help to support your breast in a C-shaped hold with your other hand. For comfort, put a pillow on your lap and use a chair with broad, low arms.

- **Side-lying hold.** Lie on your side and face your baby toward your breast, supporting him or her with one hand. With the other hand, grasp your breast and touch your nipple to your baby's lips. Once your baby latches on, use one arm to support your own head and the other to help support the baby.

If you're having trouble breast-feeding during your C-section recovery or afterward, contact a lactation consultant for help.

**Manage Other Postpartum Signs and Symptoms**

While you're recovering from your C-section, remember that you're also recovering from pregnancy. Here's what to expect:

- **Vaginal discharge (lochia).** Expect a bright red, heavy flow of blood for the first few days after the C-section. It might contain a few small clots. The discharge will gradually taper off, becoming more watery and changing from pink or brown to yellow or white. To reduce the risk of infection, use sanitary napkins rather than tampons. Contact your health care provider if your bleeding soaks a sanitary pad each hour for two hours, you pass a clot larger than a golf ball, the discharge has a foul odor, or you have a fever of 100.4 F (38 C) or higher.

- **Contractions.** You might feel contractions, sometimes called afterpains, during the first few days after the C-section. These contractions — which often resemble menstrual cramps — help prevent excessive bleeding by compressing the blood vessels in the uterus. Your health care provider might recommend an over-the-counter pain reliever if necessary. Contact your health care provider if you have a fever or if your abdomen is tender to the touch. This could indicate a uterine infection.

- **Sore breasts.** Several days after the C-section, your breasts might become firm, swollen and tender. This is known as engorgement. To ease discomfort, nurse your baby, use a breast pump to express milk, or apply cold washcloths or ice packs to your breasts. Over-the-counter pain relievers might help, too. If you're not breast-feeding your baby, wear a firm, supportive bra — such as a sports bra. Compressing your breasts will help stop milk production. Don't pump or rub your breasts, which will cause your breasts to produce more milk.

- **Leaking milk.** If your breasts leak between feedings, wear nursing pads inside your bra to help keep your shirt dry. Change pads after each feeding and whenever they get wet.

- **Hair loss and skin changes.** During pregnancy, elevated hormone levels increase hair growth and put normal hair loss on hold. The result is often an extra-lush head of hair. After delivery, however, hair growth decreases and your body begins to shed the excess hair all at once. Hair loss typically stops within six months. At the same time, stretch marks typically fade from red to silver. Skin
darkening that can occur during pregnancy, such as dark patches on your face (chloasma), will also slowly fade.

- **Mood changes.** Childbirth can trigger mood swings, irritability, sadness and anxiety. Many new moms experience mild depression, sometimes called the baby blues. The baby blues typically subside within a week or two. In the meantime, take good care of yourself. Ask your partner, loved ones or friends for help and support. If your depression deepens or you feel hopeless and sad most of the time, contact your health care provider.

- **Postpartum depression.** If you experience severe mood swings, loss of appetite, overwhelming fatigue and lack of joy in life shortly after childbirth, you might have postpartum depression. Contact your health care provider if you think you might be depressed, especially if your signs and symptoms don't fade on their own, you have trouble caring for your baby or completing daily tasks, or you have thoughts of harming yourself or your baby.

- **Weight loss.** After your C-section, you'll probably feel out of shape. You might even look like you're still pregnant. Don't worry. This is normal. Most women lose more than 10 pounds during birth, including the weight of the baby, placenta and amniotic fluid. During your C-section recovery, you'll drop additional weight as your body gets rid of excess fluids. After that, a healthy diet and regular exercise can help you gradually return to your pre-pregnancy weight.

**The Post Partum Checkup**

About six weeks after delivery, your health care provider will check your abdomen, vagina, cervix and uterus to make sure you're healing well. In some cases, your health care provider might ask you to schedule the checkup earlier so that he or she can check your C-section incision. Your health care provider might do a breast exam and check your weight and blood pressure, too. Consider using this checkup as an opportunity to talk about birth control, breast-feeding and how you're adjusting to life with a new baby.

Also, be sure to discuss any questions or concerns you might have about your physical or emotional health. Your health care provider will likely be able to provide you with some advice and assurance as you adjust to life with your newborn.

References

Breastfeeding Your Baby

- How does breastfeeding benefit my baby?
- How does breastfeeding my baby benefit me?
- How long should I breastfeed my baby?
- How can I help my baby to begin breastfeeding?
- What can I do to help my baby latch on?
- How do I know if the baby is latched on correctly?
- When should I switch breasts during breastfeeding?
- How long should each breastfeeding session last?
- How can I tell when my baby is hungry?
- How often should I breastfeed my baby?
- How will I know when my baby is full?
- When is it okay to let my baby use a pacifier?
- What problems may I encounter while breastfeeding?
- What can I do to ensure that I provide the best nutrition for my baby and myself?
- What are some birth control methods that I can use while breastfeeding?
- What should I know about returning to work if I am breastfeeding?

How does breastfeeding benefit my baby?

Breastfeeding benefits your baby in the following ways:

- Breast milk provides the perfect mix of vitamins, protein, and fat that your baby needs to grow.
- The 
**colostrum**
that your breasts make during the first few days after childbirth helps your newborn's digestive system grow and function.
- Breast milk has **antibodies** that help your baby's **immune system** fight off viruses and bacteria.
- Breast milk is easier to digest than formula.
- Breastfeeding decreases the risk of **sudden infant death syndrome (SIDS)**.
- If your baby is born **preterm**, breast milk can help reduce the risk of many of the short-term and long-term health problems that preterm babies face.

How does breastfeeding my baby benefit me?

Breastfeeding is good for you for the following reasons:

- During breastfeeding, the hormone **oxytocin** is released. Oxytocin causes the uterus to contract and return to its normal size more quickly.
- Breastfeeding may help with postpartum weight loss.
• Women who breastfeed have lower rates of breast cancer and ovarian cancer than women who do not breastfeed. It also has been shown to reduce the risk of heart disease and rheumatoid arthritis.
• Breastfeeding saves time and money.

How long should I breastfeed my baby?
It is recommended that babies breastfeed exclusively at least for the first 6 months of life. Your baby can continue to breastfeed beyond his or her first birthday as long as you and your baby want to.

How can I help my baby to begin breastfeeding?
Babies are born with all the instincts they need to breastfeed. A healthy newborn usually is capable of breastfeeding without any specific help within the first hour of birth. Immediately after the birth, your baby should be placed in direct skin-to-skin contact with you if possible. A nurse or lactation consultant (a health care provider with special training in breastfeeding) can help you find a good position.

What can I do to help my baby latch on?
To begin breastfeeding, the baby needs to attach to or “latch on” to your breast. Cup your breast in your hand and stroke your baby’s lower lip with your nipple. This stimulates the baby’s rooting reflex. The rooting reflex is a baby’s natural instinct to turn toward the nipple, open his or her mouth, and suck. The baby will open his or her mouth wide (like a yawn). Pull the baby close to you, aiming the nipple toward the roof of the baby’s mouth. Remember to bring your baby to your breast—not your breast to your baby.

How do I know if the baby is latched on correctly?
The baby should have all of your nipple and a good deal of the areola in his or her mouth. The baby’s nose will be touching your breast. The baby’s lips also will be curled out on your breast. The baby’s sucking should be smooth and even. You should hear the baby swallow. You may feel a slight tugging. If the baby is not latched on well, start over. To break the suction, insert a clean finger between your breast and your baby’s gums. When you hear or feel a soft pop, pull your nipple out of the baby’s mouth.

When should I switch breasts during breastfeeding?
When your baby empties one breast, offer the other. Do not worry if your baby does not continue to breastfeed. The baby does not have to feed at both breasts in one feeding. At the next feeding, offer the other breast first.

How long should each breastfeeding session last?
Let your baby set his or her own schedule. Many newborns breastfeed for 10–15 minutes on each breast, but some may feed for longer periods. A baby who wants to breastfeed for a long time—such as 30 minutes on each side—may be having trouble getting enough milk or may be just taking his or her time to feed.

How can I tell when my baby is hungry?
When babies are hungry, they will nuzzle against your breast, make sucking motions, or put their hands to their mouths. Crying usually is a late sign of hunger.

How often should I breastfeed my baby?
It is recommended that you breastfeed at least 8–12 times in 24 hours, or about every 2–3 hours, in the baby’s first weeks of life.

How will I know when my baby is full?
When full, the baby will fall asleep or unlatch from your breast.

When is it okay to let my baby use a pacifier?
Until your baby gets the hang of breastfeeding, experts recommend limiting pacifier use to only a few instances. You may only want to give a pacifier to help with pain relief (while getting a shot, for instance). After about 4 weeks, when your baby is breastfeeding well, you can use the pacifier at any time. Pacifier use at nap or sleep times may help reduce the risk of SIDS.

What problems may I encounter while breastfeeding?
It is normal for minor problems to arise in the days and weeks when you first begin breastfeeding. If any of the following problems persist, call your health care provider or ask to see a lactation specialist:
• Nipple pain—Some soreness or discomfort is normal when beginning breastfeeding. Nipple pain or soreness that continues past the first week or does not get better usually is not normal. Nipple pain may be caused by the baby not getting enough of the areola into his or her mouth and instead sucking mostly on the nipple. Make sure the baby’s mouth is open wide and has as much of the areola in the mouth as possible. Applying a small amount of breast milk to the nipple may speed up the healing process. Try different breastfeeding positions to avoid sore areas.
• Engorgement—When your breasts are full of milk, they can feel full, hard, and tender. Once your body figures out just how much milk your baby needs, the problem should go away in a week or so. To ease engorgement, breastfeed more often to drain your breasts. Before breastfeeding, you can gently massage your breasts or express a little milk with your hand or a pump to soften them. Between feedings, apply warm compresses or take a warm shower to help ease the discomfort.
• Blocked milk duct—If a duct gets clogged with unused milk, a hard knot will form in that breast. To clear the blockage and get the milk flowing again, try breastfeeding long and often on the breast that is blocked. Apply heat with a warm shower, heating pad, or hot water bottle.

• Mastitis—If a blocked duct is not drained, it can lead to a breast infection called mastitis. Mastitis can cause flu-like symptoms, such as fever, aches, and fatigue. Your breast also will be swollen and painful and may be very warm to the touch. If you have these symptoms, call your health care provider. You may be prescribed an antibiotic to treat the infection. You may be able to continue to breastfeed while taking this medication.

What can I do to ensure that I provide the best nutrition for my baby and myself?
The following tips will help you meet the nutritional goals needed for breastfeeding:

• You need an extra 450–500 calories a day while breastfeeding.

• Your health care provider may recommend that you continue to take your prenatal multivitamin supplement while you are breastfeeding. The baby's health care provider may recommend that you give your baby 400 international units of vitamin D daily in drop form. This vitamin is essential for strong bones and teeth.

• Drink plenty of fluids and drink more if your urine is dark yellow. It is a good idea to drink a glass of water every time you breastfeed.

• Avoid foods that may cause stomach upset in your baby. Common culprits are gassy foods, such as cabbage, and spicy foods.

• Drinking caffeine in moderate amounts should not affect your baby. A moderate amount of caffeine is about 200 milligrams a day.

• If you want to have an occasional alcoholic drink, wait at least 2 hours after you drink to breastfeed.

• Always check with your health care provider before taking prescription or over-the-counter medications to be sure they are safe to take while breast feeding.

• Avoid smoking and using illegal drugs. Both can harm your baby. Taking prescription drugs (such as codeine, tranquilizers, or sleeping pills) for nonmedical reasons also can be harmful.

What are some birth control methods that I can use while breastfeeding?

Progestin—only methods, including pills, the implant, and the injection, can be started immediately after childbirth while you are still in the hospital. Methods that contain estrogen, such as combination birth control pills, the vaginal ring, and the skin patch, should not be used during the first month of breastfeeding. Estrogen may decrease your milk supply. Once breastfeeding is established, estrogen-containing methods can be used.

What should I know about returning to work if I am breastfeeding?

By law, your employer is required to provide a reasonable amount of break time and a place to express milk as frequently as needed for up to 1 year following the birth of a child. The space provided by the employer cannot be a bathroom, and it must be shielded from view and free from intrusion by coworkers or the public. You also will need a safe place to store the milk properly. During an 8-hour workday, you should be able to pump enough milk during your breaks.

Glossary

Antibiotic: A drug that treats infections.

Antibodies: Proteins in the blood produced in reaction to foreign substances, such as bacteria and viruses that cause infection.

Areola: The darker skin around the nipple.

Colostrum: A fluid secreted in the breasts at the beginning of milk production.

Estrogen: A female hormone produced in the ovaries.

Immune System: The body's natural defense system against foreign substances and invading organisms, such as bacteria that cause disease.

Oxytocin: A hormone used to help bring on contractions of the uterus.

Preterm: Born before 37 weeks of pregnancy.

Progestin: A synthetic form of progesterone that is similar to the hormone produced naturally by the body.

Sudden Infant Death Syndrome (SIDS): The unexpected death of an infant and in which the cause is unknown.

If you have further questions, contact your obstetrician–gynecologist.

FA0029: Designed as an aid to patients, this document sets forth current information and opinions related to women's health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be considered as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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Postpartum Depression

- What are the postpartum blues?
- How long do the postpartum blues usually last?
- What is postpartum depression?
- When does postpartum depression occur?
- What causes postpartum depression?
- If I think I have postpartum depression, when should I see my health care provider?
- How is postpartum depression treated?
- What are antidepressants?
- Can antidepressants cause side effects?
- Can antidepressants be passed to my baby through my breast milk?
- What happens in talk therapy?
- What are the types of talk therapy?
- What can be done to help prevent postpartum depression in women with a history of depression?
- What support is available to help me cope with postpartum depression?
- Glossary

What are the postpartum blues?
About 2-3 days after childbirth, some women begin to feel depressed, anxious, and upset. They may feel angry with the new baby, their partners, or their other children. They also may
- cry for no clear reason
- have trouble sleeping, eating, and making choices
- question whether they can handle caring for a baby
These feelings, often called the postpartum blues, may come and go in the first few days after childbirth.

How long do the postpartum blues usually last?
The postpartum blues usually get better within a few days or 1-2 weeks without any treatment.

What is postpartum depression?
Women with postpartum depression have intense feelings of sadness, anxiety, or despair that prevent them from being able to do their daily tasks.

When does postpartum depression occur?
Postpartum depression can occur up to 1 year after having a baby, but it most commonly starts about 1-3 weeks after childbirth.
What causes postpartum depression?

Postpartum depression probably is caused by a combination of factors. These factors include the following:

- Changes in hormone levels—Levels of estrogen and progesterone decrease sharply in the hours after childbirth. These changes may trigger depression in the same way that smaller changes in hormone levels trigger mood swings and tension before menstrual periods.
- History of depression—Women who have had depression at any time—before, during, or after pregnancy—or who currently are being treated for depression have an increased risk of developing postpartum depression.
- Emotional factors—Feelings of doubt about pregnancy are common. If the pregnancy is not planned or is not wanted, this can affect the way a woman feels about her pregnancy and her unborn baby. Even when a pregnancy is planned, it can take a long time to adjust to the idea of having a new baby. Parents of babies who are sick or who need to stay in the hospital may feel sad, angry, or guilty. These emotions can affect a woman’s self-esteem and how she deals with stress.
- Fatigue—Many women feel very tired after giving birth. It can take weeks for a woman to regain her normal strength and energy. For women who have had their babies by cesarean birth, it may take even longer.
- Lifestyle factors—Lack of support from others and stressful life events, such as a recent death of a loved one, a family illness, or moving to a new city, can greatly increase the risk of postpartum depression.

If I think I have postpartum depression, when should I see my health care provider?

If you think you may have postpartum depression, or if your partner or family members are concerned that you do, it is important to see your health care provider as soon as possible. Do not wait until your postpartum checkup.

How is postpartum depression treated?

Postpartum depression can be treated with medications called antidepressants. Talk therapy also is used to treat depression, often in combination with medications.

What are antidepressants?

Antidepressants are medications that work to balance the chemicals in the brain that control moods. There are many types of antidepressants. Drugs sometimes are combined when needed to get the best results. It may take 3–4 weeks of taking the medication before you start to feel better.

Can antidepressants cause side effects?

Antidepressants can cause side effects, but most are temporary and go away after a short time. If you have severe or unusual side effects that get in the way of your normal daily habits, notify your health care provider. You may need to try another type of antidepressant. If your depression worsens soon after starting medication or if you have thoughts of hurting yourself or others, contact your health care provider or emergency medical services right away.

Can antidepressants be passed to my baby through my breast milk?

If a woman takes antidepressants, they can be transferred to her baby during breastfeeding. The levels found in breast milk generally are very low. Breastfeeding has many benefits for both you and your baby. Deciding to take an antidepressant while breastfeeding involves weighing these benefits against the potential risks of your baby being exposed to the medication in your breast milk. It is best to discuss this decision with your health care provider.

What happens in talk therapy?

In talk therapy (also called psychotherapy), you and a mental health professional talk about your feelings and discuss how to manage them. Sometimes, therapy is needed for only a few weeks, but it may be needed for a few months or longer.

What are the types of talk therapy?

You may have one-on-one therapy with just you and the therapist or group therapy where you meet with a therapist and other people with problems similar to yours. Another option is family or couples therapy, in which you and your family members or your partner may work with a therapist.

What can be done to help prevent postpartum depression in women with a history of depression?

If you have a history of depression at any time in your life or if you are taking an antidepressant, tell your health care provider early in your prenatal care. Ideally, you should tell your health care provider before you become pregnant. Your health care provider may suggest that you begin treatment right after you give birth to prevent postpartum depression. If you were taking antidepressants before pregnancy, your health care provider can assess your situation and help you decide whether to continue taking medication during your pregnancy.
What support is available to help me cope with postpartum depression?

Support groups can be found at local hospitals, family planning clinics, or community centers. The hospital where you gave birth or your health care provider may be able to assist you in finding a support group. Useful information about postpartum depression can be found on the following web sites:

- National Women’s Health Information Center
  http://www.womenshealth.gov/mental-health/illnesses/postpartum-depression.html
- Postpartum Support International
  www.postpartumsupport.net
- Medline Plus

Glossary

Antidepressants: Medications that are used to treat depression.

Cesarean Birth: Birth of a baby through surgical incisions made in the mother’s abdomen and uterus.

Estrogen: A female hormone produced in the ovaries.

Hormone: A substance made in the body by cells or organs that controls the function of cells or organs. An example is estrogen, which controls the function of female reproductive organs.

Postpartum Blues: Feelings of sadness, fear, anger, or anxiety occurring about 3 days after childbirth and usually ending within 1–2 weeks.

Postpartum Depression: Intense feelings of sadness, anxiety, or despair after childbirth that interfere with a new mother’s ability to function and that do not go away after 2 weeks.

Progesterone: A female hormone that is produced in the ovaries and that prepares the lining of the uterus for pregnancy.

If you have further questions, contact your obstetrician–gynecologist.

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Getting in Shape After Your Baby Is Born

• What are the benefits of exercising after having a baby?
• When can I start exercising after having a baby?
• How do I get started with an exercise program?
• When should I add exercises besides walking?
• What resources are available?
• What are some basic tips for staying cool and comfortable while exercising?
• How can I warm up before exercising?
• What is my target heart rate?
• How can I cool down?

What are the benefits of exercising after having a baby?
Daily exercise can help restore muscle strength and firm up your body. Exercise can make you less tired because it raises your energy level and improves your sense of well-being.

During pregnancy, the muscles in your abdomen stretch. It takes time for good muscle tone to return. Exercising helps tighten these muscles.

When can I start exercising after having a baby?
Check with your doctor before starting an exercise program. You should start when you feel up to it and know you will keep it up. Follow the same guidelines as you did when you were pregnant. If you had a cesarean birth, a difficult birth, or complications, it may take a little while longer to feel ready to start exercising.

If you did not exercise during pregnancy, start with easy exercises and slowly build up to harder ones. If you exercised regularly throughout pregnancy, you have a head start. You should not try to resume your former pace right away, though.

How do I get started with an exercise program?
Walking is a good way to get back in shape. Brisk walks will prepare you for more vigorous exercise when you feel up to it. Walking is a good choice for exercise because the only thing you need is a pair of comfortable shoes. It is free, and you can do it almost any place or time.

Walking also is good because your baby can come along. The two of you can get out of the house for exercise and fresh air without needing to find child care. Seeing other people and being outside can help relieve stress and tension.

When should I add exercises besides walking?
As you feel stronger, think about trying more vigorous exercise. You will want to decide on exercises that meet your needs. A good program will make your heart and lungs stronger and tone your muscles.

There are special postpartum exercise classes that you can join. Your health care provider can help you find some good classes.

What resources are available?
Resources that may be helpful are local health and fitness clubs, community centers, local colleges, hospitals, and adult education programs. With any program you get involved in, make sure it is one you will keep doing. Exercise over time is more important than starting right away after birth.
What are some basic tips for staying cool and comfortable while exercising?

- Wear comfortable clothing that will help keep you cool.
- Wear a bra that fits well and gives plenty of support to help protect your breasts.
- Drink plenty of water.

How can I warm up before exercising?

Before you begin each exercise session, always warm up for 5–10 minutes. This light activity, such as slow walking, prepares your muscles for exercise. As you warm up, stretch your muscles to avoid injury. Hold each stretch for 10–20 seconds—do not bounce.

What is my target heart rate?

You should exercise so that your heart beats at the level that gives you the best workout. This is called your target heart rate. Your target heart rate is 50–85% of the average maximum heart rate for your age.

To check your heart rate, count the beats by feeling the pulse on the inside of your wrist. Count for 10 seconds. Multiply this count by 6 to get the number of beats per minute.

<table>
<thead>
<tr>
<th>Age</th>
<th>Target heart rate (beats per minute)</th>
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When you begin your exercise program, aim for the lower range of your target heart rate (50% of your maximum heart rate). As you get into better shape, slowly build up to the higher end of your target heart rate. After 6 months of exercise, you should be able to exercise at up to 85% of your maximum heart rate. But you do not need to exercise at 85% of your maximum heart rate to stay fit. You should aim to exercise about 20–30 minutes while in your target heart rate.

How can I cool down?

After exercising, cool down by slowing your activity. Cooling down allows your heart rate to return to normal levels. Cooling down for 5–10 minutes, followed by stretching, also helps prevent sore muscles.

If you have further questions, contact your obstetrician—gynecologist.

FAQ131: Designed as an aid to patients, this document sets forth current information and opinions related to women's health. The information does not dictate an exclusive course of treatment or procedure to be followed and should not be construed as excluding other acceptable methods of practice. Variations, taking into account the needs of the individual patient, resources, and limitations unique to the institution or type of practice, may be appropriate.

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Birth Control Pills

• How do birth control pills work?
• How effective are birth control pills in preventing pregnancy?
• What are the different types of birth control pills?
• What are continuous-dose pills?
• How do I start combination pills?
• How do I take 21-day combination pills?
• How do I take 28-day combination pills?
• How do I take 3-month combination pills?
• How do I take 1-year combination pills?
• Can other medications change the effectiveness of the combination pill?
• Are there benefits to taking the combination birth control pill?
• What are the risks of combination pill use?
• How do I take progestin-only pills?
• What are the benefits of progestin-only pills?
• Who should not take progestin-only pills?
• What should I do if I miss a pill?
• What side effects are associated with taking birth control pills?
• Glossary

How do birth control pills work?
Birth control pills contain hormones that prevent ovulation. These hormones also cause other changes in the body that help prevent pregnancy. The mucus in the cervix thickens, which makes it hard for sperm to enter the uterus. The lining of the uterus thins, making it less likely that a fertilized egg can attach to it.

How effective are birth control pills in preventing pregnancy?
With typical use, about 8 in 100 women (8%) will become pregnant during the first year of using this method. When used perfectly, 1 in 100 women will become pregnant during the first year. To be effective at preventing pregnancy, the pill must be taken every day at the same time each day.

What are the different types of birth control pills?
There are two basic types of birth control pills: 1) combination pills, which contain the hormones estrogen and progestin, and 2) progestin-only pills.

What are continuous-dose pills?
Continuous-dose pills are a type of combination pill. They also are called extended-cycle pills. These pills reduce the number of menstrual periods a woman has or stop them altogether.
How do I start combination pills?
There are different options for starting the combination pill. You can start taking the pill on the first day of your menstrual period. Another option is to start taking the pill on the Sunday after your menstrual period starts. With this method, you need to use a backup birth control method for the next 7 days of the first cycle. No matter which day you choose to start taking the pill, you will start each new pack of pills on the same day of the week as you started the first pack.

How do I take 21-day combination pills?
Take one pill at the same time each day for 21 days. Wait 7 days before starting a new pack. During the week you are not taking the pill, you will have bleeding.

How do I take 28-day combination pills?
Take one pill at the same time each day for 28 days. Depending on the brand, the first 21 pills or 24 pills contain estrogen and progestin. The remaining pills may be estrogen-only pills, pills that contain a dietary supplement but no hormones, or “inactive” (containing no hormones or supplements) pills. During the days you are taking the hormone-free pills, you will have bleeding.

How do I take 3-month combination pills?
Take one pill at the same time each day for 84 days. Depending on the brand, the last seven pills either contain no hormones or contain estrogen. With both brands, you will have bleeding on these days every 3 months.

How do I take 1-year combination pills?
Take one pill at the same time each day for a year. In time, bleeding will be less and may even stop.

Can other medications change the effectiveness of the combination pill?
Certain drugs may interfere with the effectiveness of the pill. These include two antibiotics (rifampin and griseofulvin), some seizure medications, and some drugs used to treat human immunodeficiency virus (HIV).

Are there benefits to taking the combination birth control pill?
The combination birth control pill has health benefits in addition to preventing pregnancy. The pill helps to keep bleeding cycles regular, lighter, and shorter and reduces cramps. It can be used in the treatment of certain disorders that cause heavy bleeding and menstrual pain, such as fibroids and endometriosis. Some pills may help control acne. Combination pills also may decrease the risk of cancer of the uterus and ovary and improve bone density during perimenopause.

What are the risks of combination pill use?
Combination birth control pills are safe for most women. However, they are associated with a small increased risk of deep vein thrombosis, heart attack, and stroke. The risk is higher in some women, including women older than 35 years who smoke more than 15 cigarettes a day or women who have multiple risk factors for cardiovascular disease, such as high cholesterol, high blood pressure, and diabetes. Discuss your individual risks for these complications with your health care provider before deciding to use combination birth control pills.

How do I take progestin-only pills?
The progestin-only pill comes in packs of 28 pills. All the pills in the pack contain hormones. One pill is taken per day. It is important to take progestin-only pills at the same time each day. If a pill is missed by more than 3 hours or if vomiting occurs after taking a pill, you should take another pill as soon as possible and use a backup method of contraception for the next 48 hours.

What are the benefits of progestin-only pills?
The progestin-only pill may be a better choice for women who have certain health problems, such as blood clots, and cannot take pills with estrogen. Progestin-only pills usually can be used soon after childbirth by women who are breastfeeding.

Who should not take progestin-only pills?
Progestin-only pills may not be a good choice for women who have certain medical conditions, such as liver tumors or lupus. Women who have breast cancer should not take progestin-only pills.

What should I do if I miss a pill?
You should know what to do if you miss a pill. The procedure differs with each type. Read the directions that come with your pills carefully. You also may want to call your health care provider. With some types of pills and depending on how many pills are missed, you may need to use a backup method of birth control or consider emergency contraception.

What side effects are associated with taking birth control pills?
When beginning any birth control pill, there is a high likelihood of breakthrough bleeding during the first few months of use. Breakthrough bleeding is a normal and usually temporary side effect as the body adjusts to a change in hormone levels. It may last longer than a few months with continuous-dose pills.
Most side effects are minor and often go away after a few months of use. There will likely be fewer side effects if the pill is taken at the same time every day. The most common side effects of using birth control pills include the following:

- Headache
- Breast tenderness
- Nausea
- Irregular bleeding
- Missed periods
- Weight gain (progestin-only pills)
- Anxiety or depression (progestin-only pills)
- Excessive body hair growth (progestin-only pills)
- Acne (progestin-only pills)

Glossary

**Antibiotics**: Drugs that treat infections.

**Breakthrough Bleeding**: Vaginal bleeding at a time other than the menstrual period.

**Cardiovascular Disease**: Disease of the heart and blood vessels.

**Cervix**: The opening of the uterus at the top of the vagina.

**Deep Vein Thrombosis**: A condition in which a blood clot forms in veins in the leg or other areas of the body.

**Emergency Contraception**: Methods that are used to prevent pregnancy after a woman has had sex without birth control, after the method she used has failed, or if a woman is raped. Emergency contraception methods include progestin-only pills, ulipristal, birth control pills taken in specific amounts, or a copper intrauterine device. The pills must be taken within 120 hours to reduce the risk of pregnancy.

**Endometriosis**: A condition in which tissue similar to that normally lining the uterus is found outside of the uterus, usually on the ovaries, fallopian tubes, and other pelvic structures.

**Estrogen**: A female hormone produced in the ovaries.

**Fibroids**: Benign growths that form in the muscle of the uterus.

**Hormones**: Substances produced by the body to control the functions of various organs.

**Human Immunodeficiency Virus (HIV)**: A virus that attacks certain cells of the body's immune system and causes acquired immunodeficiency syndrome (AIDS).

**Ovulation**: The release of an egg from one of the ovaries.

**Perimenopause**: The period around menopause that usually extends from age 45 years to 55 years.

**Progestin**: A synthetic form of progesterone that is similar to the hormone produced naturally by the body.

**Uterus**: A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

If you have further questions, contact your obstetrician–gynecologist.

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Implants, Injections, Rings, and Patches: Hormonal Birth Control Options

- What are hormonal birth control methods?
- How do hormonal birth control methods work?
- How effective are these methods?
- Do hormonal birth control methods protect against sexually transmitted diseases (STDs)?
- What is the contraceptive implant?
- What are the benefits, risks, and side effects of the contraceptive implant?
- What is the birth control injection?
- How often are injections given?
- What are the benefits, risks, and side effects of the injection?
- What is the vaginal ring?
- How is the ring used?
- What happens if the ring slips out?
- What are the benefits, risks, and side effects of the ring?
- What is the skin patch?
- How is the skin patch used?
- What are the benefits, risks, and side effects of the skin patch?
- Glossary

What are hormonal birth control methods?
Besides oral contraceptives (birth control pills) and the hormonal intrauterine device, there are several other forms of hormonal birth control: implants, injections, rings, and patches.

How do hormonal birth control methods work?
Hormonal birth control methods work by releasing hormones to prevent ovulation. The cervical mucus thickens, making it hard for sperm to reach the egg. The endometrium thins, making it less likely that a fertilized egg will attach to it.

How effective are these methods?
The number of women out of 100 who will become pregnant during the first year of typical use (when a method is used by the average person who does not always use the method correctly or consistently) of each of these methods is as follows:
- Implant—Less than 1 woman will become pregnant
- Injection—3 women will become pregnant
- Vaginal ring—8 women will become pregnant
- Skin patch—8 women will become pregnant
Do hormonal birth control methods protect against sexually transmitted diseases (STDs)?
Hormonal birth control methods do not protect against sexually transmitted diseases (STDs), including human immunodeficiency virus (HIV) (see the FAQ How to Prevent Sexually Transmitted Diseases). A male or female condom should be used with these methods to protect against STDs if you are at risk of STD infection.

What is the contraceptive implant?
A contraceptive implant is a single rod about the size of a matchstick. A health care provider inserts the implant under the skin with a special applicator.

What are the benefits, risks, and side effects of the contraceptive implant?
- **Benefits:**
  - The implant protects against pregnancy for up to 3 years.
  - If you wish to become pregnant, the implant can be removed easily by your health care provider, and fertility returns without delay.
  - The implant can be used by women who are breastfeeding.
- **Risks:**
  - Although rare, if pregnancy occurs while the implant is inserted, there is an increased risk of it being an *ectopic pregnancy.*
  - Problems with insertion of the implant, such as inserting the implant too deeply, are possible.
- **Possible side effects:**
  - Irregular bleeding.
  - Weight gain
  - Mood changes
  - Headache
  - Acne
  - Depression

What is the birth control injection?
An injection of depot medroxyprogesterone acetate (DMPA) provides protection against pregnancy for 3 months. Depot medroxyprogesterone acetate is a type of *progestin.*

How often are injections given?
Injections must be given every 3 months by a health care provider, and you must get the injection on time. The first one usually is given within the first 5 days after the start of your menstrual period.

What are the benefits, risks, and side effects of the injection?
- **Benefits:**
  - The injection may decrease the risk of endometrial cancer.
  - The injection may decrease the frequency of menstrual migraines.
  - It can be used by women who are breastfeeding.
- **Risks:**
  - Many women and teenagers have a decrease in bone density while using hormonal injections. Bone density appears to return to levels that are normal for the woman's age when the injections are stopped.
  - Women who have multiple risk factors for cardiovascular disease, like smoking, older age, or diabetes, may be at increased risk of *cardiovascular disease* while using the DMPA injection. This increased risk may last for some time after the method is stopped. Women with a history of stroke, vascular disease, or high blood pressure also may be at increased risk of cardiovascular disease while using this method.
- **Possible side effects:**
  - Delay in fertility after stopping DMPA: after you stop DMPA injections, fertility returns in about 10 months. For some women, it may take longer.
  - Irregular bleeding during the first 6–9 months of use
  - Weight gain
  - Headaches
  - Nervousness
  - Dizziness
  - Weakness or fatigue
What is the vaginal ring?
The vaginal ring is a flexible, plastic ring that you insert into the upper vagina. It releases estrogen and progestin. You do not need to visit your health care provider to have the ring inserted or removed, but a health care provider must prescribe it. You may need to use a backup method of birth control, such as a condom, for the first 7 days of use.

How is the ring used?
The ring is worn for 21 days, removed for 7 days, and then a new ring is inserted. During the week it is out, bleeding occurs. To use the ring as a continuous-dose form of birth control, remove the old ring and insert a new ring every 3 weeks with no ring-free week in between.

What happens if the ring slips out?
If the ring slips out, you should use a backup method of birth control for 7 days. If it slips out of place often, you may need to choose a different method of birth control.

What are the benefits, risks, and side effects of the ring?

- Benefits:
  - The ring may reduce pain during menstrual periods.
  - It may improve acne and reduce excess hair growth.
  - When used continuously (a new ring every 3 weeks), the ring can help prevent menstrual migraines.

- Risks:
  - There is a small increased risk of deep vein thrombosis (DVT), heart attack, and stroke. The risk is higher in some women, including women older than 35 years who smoke more than 15 cigarettes a day or women who have multiple risk factors for cardiovascular disease.
  - Discuss your individual risks for these complications with your health care provider.

- Possible side effects:
  - Vaginal infections and irritation
  - Vaginal discharge
  - Headaches
  - Weight gain
  - Nausea

What is the skin patch?
The contraceptive skin patch is a small (1.75 square inch) adhesive patch that is worn on the skin and releases estrogen and progestin into the bloodstream. It should not come off during regular activities, such as bathing, exercising, or swimming.

How is the skin patch used?
The patch is used on a 4-week or 28-day cycle. A patch is worn for a week at a time for a total of 3 weeks in a row. During the fourth week, a patch is not worn and bleeding occurs. After week 4, a new patch is applied and the cycle is repeated. To use the patch as a continuous-dose form of birth control, apply a new patch every week on the same day without skipping a week.

What are the benefits, risks, and side effects of the skin patch?

- Benefits:
  - The patch may improve acne and decrease unwanted excess hair growth.
  - Used continuously, it can reduce the frequency of menstrual migraines.

- Risks:
  - There is a small increased risk of DVT, heart attack, and stroke. The risk is higher in some women, including women older than 35 years who smoke more than 15 cigarettes a day or women who have multiple risk factors for cardiovascular disease.
  - Discuss your individual risks for these complications with your health care provider.

- Possible side effects:
  - Nausea
  - Headaches
  - Skin irritation

Glossary

Cardiovascular Disease: Disease of the heart and blood vessels.
Deep Vein Thrombosis (DVT): A condition in which a blood clot forms in the veins in the leg or other areas of the body.

Ectopic Pregnancy: A pregnancy in which the fertilized egg begins to grow in a place other than inside the uterus, usually in the fallopian tubes.

Endometrium: The lining of the uterus.

Estrogen: A female hormone produced in the ovaries.

Hormones: Substances produced by the body to control the functions of various organs.

Human Immunodeficiency Virus (HIV): A virus that attacks certain cells of the body's immune system and causes acquired immunodeficiency syndrome (AIDS).

Intrauterine Device: A small device that is inserted and left inside the uterus to prevent pregnancy.

Ovulation: The release of an egg from one of the ovaries.

Progestin: A synthetic form of progesterone that is similar to the hormone produced naturally by the body.

Sexually Transmitted Diseases (STDs): Diseases that are spread by sexual contact, including chlamydia, gonorrhea, human papillomavirus infection, herpes, syphilis, and infection with human immunodeficiency virus (HIV, the cause of acquired immunodeficiency syndrome [AIDS]).

If you have further questions, contact your obstetrician--gynecologist.

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Long-Acting Reversible Contraception (LARC): IUD and Implant

- What are long-acting reversible contraception (LARC) methods?
- How effective are LARC methods?
- How do LARC methods compare with other methods of contraception?
- What is the intrauterine device (IUD)?
- How does the IUD work?
- What are the benefits of the IUD?
- How is the IUD inserted?
- Will I feel anything when the IUD is inserted?
- What are possible side effects of use of the IUD?
- What are possible risks of use of the IUD?
- What is the birth control implant?
- How does the birth control implant work?
- What are the benefits of the birth control implant?
- How is the birth control implant inserted?
- How is the birth control implant removed?
- What are possible side effects of use of the birth control implant?
- What are possible risks of use of the birth control implant?
- Glossary

What are long-acting reversible contraception (LARC) methods?
Long-acting reversible contraception (LARC) methods include the *intrauterine device (IUD)* and the *birth control implant*. Both methods are highly effective in preventing pregnancy, last for several years, and are easy to use. Both are reversible—if you want to become pregnant or if you want to stop using them, you can have them removed at any time.

How effective are LARC methods?
The IUD and the implant are the most effective forms of reversible birth control available. During the first year of typical use, fewer than 1 in 100 women using an IUD or an implant will become pregnant. This rate is in the same range as that for sterilization.

How do LARC methods compare with other methods of contraception?
Over the long term, LARC methods are 20 times more effective than birth control pills, the patch, or the ring.
What is the intrauterine device (IUD)?
The IUD is a small, T-shaped, plastic device that is inserted into and left inside the uterus. There are two types of IUDs:

1. The hormonal IUD releases progestin. One hormonal IUD is approved for use for up to 5 years. Another is approved for use for up to 3 years.
2. The copper IUD does not contain hormones. It is approved for use for up to 10 years.

How does the IUD work?
Both types of IUDs work mainly by preventing fertilization of the egg by the sperm. The hormonal IUD also thickens cervical mucus, which makes it harder for sperm to enter the uterus and fertilize the egg, and keeps the lining of the uterus thin, which makes it less likely that a fertilized egg will attach to it.

What are the benefits of the IUD?
The IUD has the following benefits:

- Once it is in place, you do not have to do anything else to prevent pregnancy.
- No one can tell that you are using birth control.
- It does not interfere with sex or daily activities.
- It can be inserted immediately after an abortion, a miscarriage, or childbirth and while breastfeeding.
- Almost all women are able to use an IUD.
- If you wish to become pregnant or if you want to stop using it, you can simply have the IUD removed.
- The hormonal IUD helps decrease menstrual pain and heavy menstrual bleeding.
- The copper IUD also is the most effective form of emergency contraception.

How is the IUD inserted?
A health care provider must insert and remove the IUD. He or she will review your medical history and will perform a pelvic exam. To insert the IUD, the health care provider puts the IUD in a slender plastic tube. He or she places the tube into the vagina and guides it through the cervix into the uterus. The tube is withdrawn, leaving the IUD in place.

Will I feel anything when the IUD is inserted?
Insertion of the IUD may cause some discomfort. Taking over-the-counter pain relief medication before the procedure may help. The IUD has a string made of thin plastic threads. After insertion, the strings are trimmed so that 1–2 inches extend past the cervix into your vagina. The strings should not bother you.

What are possible side effects of use of the IUD?
With the copper IUD, menstrual pain and bleeding may increase. Bleeding between periods may occur. Both effects are common in the first few months of use. Pain and heavy bleeding usually decrease within 1 year of use.

Both hormonal IUDs may cause spotting and irregular bleeding in the first 3–6 months of use. The amount of menstrual bleeding and the length of the menstrual period usually decrease over time. Menstrual pain also usually decreases. A few women also may have side effects related to the hormones in these IUDs. These side effects may include headaches, nausea, depression, and breast tenderness.

What are possible risks of use of the IUD?
Serious complications from use of an IUD are rare. However, some women do have problems. These problems usually happen during or soon after insertion:

- The IUD may come out of the uterus. This happens in about 5% of users in the first year of using the IUD.
- The IUD can perforate (or pierce) the wall of the uterus during insertion. It is rare and occurs in only about 1 out of every 1,000 insertions.
- Pelvic inflammatory disease (PID) is an infection of the uterus and fallopian tubes. PID may cause scarring in the reproductive organs, which may make it harder to become pregnant later. The risk of PID is only slightly increased in the first 20 days after insertion of an IUD, but the overall risk still is low (fewer than 1 in 100 women).
- Rarely, pregnancy may occur while a woman is using an IUD.
- In the rare case that a pregnancy occurs with the IUD in place, there is a higher chance that it will be an ectopic pregnancy.
What is the birth control implant?
The birth control implant is a single flexible rod about the size of a matchstick that is inserted under the skin in the upper arm. It releases progestin into the body. It protects against pregnancy for up to 3 years.

How does the birth control implant work?
The progestin in the implant prevents pregnancy mainly by stopping ovulation. In addition, the progestin in the implant thickens cervical mucus, which makes it harder for sperm to enter the uterus and fertilize the egg. Progestin also keeps the lining of the uterus thin, making it less likely that a fertilized egg will attach to it.

What are the benefits of the birth control implant?
The implant has the following benefits:

- Once it is in place, you do not have to do anything else to prevent pregnancy.
- No one can tell that you are using birth control.
- It can be inserted immediately after an abortion, a miscarriage, or childbirth and while breastfeeding.
- It does not interfere with sex or daily activities.
- Almost all women are able to use the implant.
- If you wish to become pregnant or if you want to stop using it, you can simply have the implant removed.

How is the birth control implant inserted?
The implant is inserted into your arm by a health care provider. A small area on your upper arm is numbed with a local anesthetic. No incision is made. Your health care provider places the implant under the skin with a special inserter. The procedure takes only a few minutes.

How is the birth control implant removed?
To remove the implant, your health care provider again numbs the area. One small incision is made. The implant then is removed.

What are possible side effects of use of the birth control implant?
The most common side effect of the implant is unpredictable bleeding. For some women, these bleeding patterns improve over time. Some women have less menstrual pain while using the implant. In some women, bleeding stops completely. Other common side effects include mood changes, headaches, acne, and depression. Some women have reported weight gain while using the implant, but it is not clear whether it is related to the implant.

What are possible risks of use of the birth control implant?
Possible risks include problems with insertion or removal of the implant. These problems occur in less than 2% of women. Although rare, if a woman becomes pregnant while the implant is inserted, there is a slightly increased risk that it will be an ectopic pregnancy.

Glossary

**Birth Control Implant**: A small, single rod that is inserted under the skin in the upper arm by a health care provider. It releases a hormone and protects against pregnancy for up to 3 years.

**Cervix**: The lower, narrow end of the uterus at the top of the vagina.

**Ectopic Pregnancy**: A pregnancy in which the fertilized egg begins to grow in a place other than inside the uterus, usually in one of the fallopian tubes.

**Egg**: The female reproductive cell produced in and released from the ovaries; also called the ovum.

**Emergency Contraception**: Methods that are used to prevent pregnancy after a woman has had sex without birth control, after the method she used has failed, or if a woman is raped.

**Fertilization**: Joining of the egg and sperm.

**Intrauterine Device (IUD)**: A small device that is inserted and left inside the uterus to prevent pregnancy.

**Ovulation**: The release of an egg from one of the ovaries.

**Pelvic Exam**: A physical examination of a woman's reproductive organs.

**Pelvic Inflammatory Disease (PID)**: An infection of the uterus, fallopian tubes, and nearby pelvic structures.
**Progestin:** A synthetic form of progesterone that is similar to the hormone produced naturally by the body.

**Sperm:** A cell produced in the male testes that can fertilize a female egg.

**Sterilization:** A permanent method of birth control.

**Uterus:** A muscular organ located in the female pelvis that contains and nourishes the developing fetus during pregnancy.

**Vagina:** A tube-like structure surrounded by muscles leading from the uterus to the outside of the body.

If you have further questions, contact your obstetrician–gynecologist.

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Postpartum Sterilization

- What is sterilization?
- What is postpartum sterilization?
- What is the most common method of postpartum sterilization?
- When is postpartum sterilization performed?
- How is postpartum sterilization performed?
- How long does postpartum sterilization take?
- Are there risks associated with postpartum sterilization?
- What are the side effects of postpartum sterilization?
- What should I consider when choosing a sterilization method?
- Glossary

What is sterilization?
Sterilization is a permanent method of birth control. Sterilization for women is called tubal sterilization. In tubal sterilization, the fallopian tubes are closed off. Tubal sterilization prevents the egg from moving down the fallopian tube to the uterus and keeps the sperm from reaching the egg (see the FAQ Sterilization for Women and Men).

What is postpartum sterilization?
Postpartum sterilization is sterilization performed after the birth of a baby.

What is the most common method of postpartum sterilization?
The method used most often for postpartum sterilization is called tubal ligation. For women who have had a vaginal delivery, a small incision is made in the abdomen (a procedure called minilaparotomy). For women who have had a cesarean delivery, postpartum tubal ligation can be done through the same abdominal incision that was made for delivery of the baby.

When is postpartum sterilization performed?
After a woman gives birth, the fallopian tubes and the still-enlarged uterus are located just under the abdominal wall below the navel. Postpartum tubal ligation ideally is done before the uterus returns to its normal location, usually within a few hours or days following delivery. For women who have had a cesarean delivery, it is done right after the baby is born.

How is postpartum sterilization performed?
Postpartum sterilization is performed with regional anesthesia, general anesthesia, or local anesthesia. A small incision is made below the navel. If you had a cesarean delivery, tubal ligation is done through the incision that has already been made. The fallopian tubes are brought up through the incision. Usually, the tubes then are cut and closed with special thread. After the tubes are closed off, the incision below the navel is closed with stitches and a bandage.

How long does postpartum sterilization take?
The operation takes about 30 minutes. Having it done soon after childbirth usually does not make your hospital stay any longer.
Are there risks associated with postpartum sterilization?
In general, tubal sterilization is a safe form of birth control. It has a low risk of death and complications. The most common complications are those that are related to general anesthesia. Other risks include bleeding and infection.

What are the side effects of postpartum sterilization?
Side effects after surgery vary and may depend on the type of anesthesia used and the way the surgery is performed. You likely will have some pain in your abdomen and feel tired. The following side effects also can occur but are not as common:

- Dizziness
- Nausea
- Shoulder pain
- Abdominal cramps
- Gassy or bloated feeling
- Sore throat (from the breathing tube if general anesthesia was used)

If you have abdominal pain that does not go away after a few days, if pain is severe, or if you have a fever, contact your health care provider right away.

What should I consider when choosing a sterilization method?
Deciding on a method of sterilization involves considering the following factors:

- Personal choice
- Physical factors, such as weight
- Medical history

Sometimes previous surgery, obesity, or other conditions may affect which method can be used. You should be fully aware of the risks, benefits, and other options before making a choice.

Glossary

_Cesarean Delivery:_ Delivery of a baby through incisions made in the mother’s abdomen and uterus.

_Fallopian Tubes:_ Tubes through which an egg travels from the ovary to the uterus.

_General Anesthesia:_ The use of drugs that produce a sleep-like state to prevent pain during surgery.

_Local Anesthesia:_ The use of drugs that prevent pain in a part of the body.

_Minilaparotomy:_ A small abdominal incision used for a sterilization procedure, in which the fallopian tubes are closed off.

_Postpartum Sterilization:_ A permanent procedure that prevents a woman from becoming pregnant, performed soon after the birth of a child.

_Regional Anesthesia:_ The use of drugs to block sensation in certain areas of the body.

If you have further questions, contact your obstetrician-gynecologist.

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