

Expect *the* Best

Second Edition

**YOUR GUIDE TO
HEALTHY EATING
BEFORE, DURING, AND
AFTER PREGNANCY**



Elizabeth M. Ward, MS, RD

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Contents

Foreword	v
Acknowledgements	vii
Introduction	1
1 Prepregnancy: Starting from a Healthy Place	5
2 Great Expectations: How Eating Healthy Food Is Good for You and Your Baby	36
3 MyPlate Plans: What to Eat Before, During, and After Pregnancy	89
4 Your Pregnancy: Expect the Best	122
5 The Fourth Trimester: After the Baby Arrives	158
6 Food Safety and Other Concerns: Before, During, and After Pregnancy	178
7 Common Concerns and Special Situations	199
8 Quick and Delicious Recipes	218
References	304
Resources	318
Index	322

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Foreword

As a pediatrician, mom, and former director of a newborn nursery, I feel a special fondness for new and expectant moms and newborn babies. That's why I'm thrilled to be able to recommend the second edition of *Expect the Best*, by Elizabeth Ward, featuring the expertise of the Academy of Nutrition and Dietetics, our nation's leading group of nutrition professionals.

The journey into parenthood is one of the best times in life to focus on nutrition, for both yourself and your baby. The months and years before pregnancy offer the opportunity to quit vices such as smoking cigarettes, and to improve your diet in small ways that can make a big difference. It's challenging to make lifestyle changes, but it may be easier to try to improve knowing that good habits before and during pregnancy can affect both you and your child in a positive way long after he or she is born.

Filled with recommendations and information on a wide range of topics—including calories and weight gain, vitamins and minerals, exercise before, during, and after delivery, food safety, and the importance of healthy habits for expectant dads—this edition also features more than 60 easy, healthy recipes (nearly 40 of which are new) for time-crunched

parents and parents-to-be. Above all, *Expect the Best* is informative, non-judgmental, and realistic, providing up-to-date knowledge to help you and your growing family start on your healthful journey and to stay on track when life gets busy.

I wish you the *best* as you put your *best* pregnancy foot forward and give your child the *best* start in life with the help of this new edition of *Expect the Best!*

—Jennifer Shu, MD, FAAP
Pediatrician and coauthor of
Heading Home with Your Newborn and *Food Fights*

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Acknowledgements

For me, writing a book is kind of like having a baby. I remember only the good parts and forget any discomforts, which is why I am able to do it again!

This is my second time around with *Expect the Best*. You would think that writing another edition of your own book would be a breeze, and, in some respects it was. I love the subject matter, and I could talk about it all day. But the author in me fretted as much as any parent over the details, because I wanted to deliver the most complete, current, and interesting pregnancy nutrition book.

Fortunately, I had a lot of help. *Expect the Best* has the backing of the Academy of Nutrition and Dietetics, the world's largest organization of food and nutrition professionals. The Academy counts many experienced pregnancy and breastfeeding experts among their ranks of more than one hundred thousand credentialed practitioners. I am grateful that five registered dietitian nutritionists agreed to review drafts of *Expect the Best*, which made it a better resource for parents, and for those thinking about having a baby. I know that the reviewers took the utmost care to insure the accuracy of the information and to make it enjoyable for you to read. Thank you to Petra Lusche, MA, RDN/LD, IBCLC, CPT; Kim

Upton, RD; Hillary Wright, MEd, RD, LDN; Kathleen Zelman, MPH, RD; and one anonymous reviewer. You know who you are!

A big thank you goes out to the moms who spoke with me about their pregnancies. Their wisdom and perspective bring to life the advice that's doled out in *Expect the Best*. These seasoned parents offer tips and advice that you'll find useful and, at times, even humorous.

Writing a book is a group effort, and *Expect the Best* version 2.0 wouldn't have been possible without the expert editing, gentle guidance, and endless patience of Betsy Hornick, MS, RDN, and Allison Watzman at the Academy. I can't thank you enough for your expertise.

And last, but never least, I'd like to acknowledge my husband and children, who supported me on yet another book-writing adventure that made for long days in the office. I am also grateful to my family for sampling all the new recipes in *Expect the Best* and for offering tips to improve them so that you and your family can enjoy the book to its fullest.

Introduction

Maybe this is your first pregnancy, and having a baby is new to you. Perhaps you're an experienced parent, but you haven't had a child in a few years, and you're wondering what's new about the best way to eat before and during pregnancy. You could be breastfeeding an infant and thinking of having another baby in the near future. No matter what your situation, you're in the right place!

Clearly, you take great interest in doing your best as a parent or parent-to-be. You're reading this book, so you must be considering taking steps to help yourself and your child to a healthier future. When you have children, you want to do everything the "right" way. As the mother of three, I feel the same! It's easy to get confused by what you hear and read about healthy habits when you're preparing for pregnancy, or when you're pregnant or breastfeeding. It's comforting to know that following a balanced eating plan, along with engaging in other positive behaviors, can support your baby's well-being at birth and for years to come.

This is an exciting time to be having children because there is more information than ever about how you—and your partner—can have the healthiest baby possible. For example, we now know that fathers play a role in their future babies' health, and maybe not just in the way that

you think. Men who assume that their contribution to making a baby begins and ends at conception should think again, as research suggests that a dad's health habits before his partner's pregnancy influence his child even more than was previously believed. Having a child is more of a partnership than it appears!

Medical advances have made it possible for many couples to work through fertility problems and go on to have successful pregnancies, and research suggests that lifestyle habits may affect your chances of conceiving through assisted reproductive techniques such as IVF. Women are delivering healthy babies well after age thirty-five, and eating right and getting regular physical activity help older moms' pregnancies progress more smoothly. In fact, moms of all ages benefit from a healthy eating plan and the suggested amount of exercise—whether they are carrying one child, twins, or more.

GET PRIMED FOR PREGNANCY

It used to be that women waited for a positive pregnancy test to quit smoking, stop drinking alcohol, and improve their food choices. Not anymore. Taking care of yourself before conception encourages fertility and reduces problems during pregnancy. Ideally, you should work with your doctor, nurse practitioner, or certified nurse-midwife, as well as with a registered dietitian nutritionist (RDN), to adopt habits that help you manage health issues (for example, iron-deficiency anemia) for months or even years ahead of having a child.

The sooner you start working on your health, the better. About half of the pregnancies in the United States are unexpected, so it pays to be prepared for pregnancy. A balanced diet prior to pregnancy helps ensure that your body has certain nutrients, such as iron, available to your baby after you've conceived, and it's important for your good health, too. If your diet wasn't so great before you got pregnant, that's OK. Just take it from here, eating what you need for the stage you're in now.

Once you're pregnant, you become your child's sole source of nourishment. That sounds like a lot of responsibility, but it's also exciting! Understanding how the environment in the womb influences lifelong

well-being is a growing area of medical research that keeps turning up new discoveries. The notion that a mother can “program” her child’s health with what she eats, and with other lifestyle habits, may seem far-fetched, but it’s not. Of course, you don’t have complete control over your child’s development, but along with other healthy habits, adopting an eating plan built around nutrient-rich foods helps you sustain and replenish your nutrient reserves so that you and your baby thrive.

YOUR GUIDE TO A HEALTHIER PREGNANCY

Even if you’re already eating well and you’re physically active, the second edition of *Expect the Best* has plenty to offer you. Almost everything you need to know about a healthy lifestyle before, during, and after pregnancy is included in these pages, and it’s not limited to food and nutrition.

This latest version of *Expect the Best* takes the most recent research and recommendations about pregnancy and breastfeeding from the country’s top health organizations and translates them into easy-to-understand strategies for real life. The book explains in detail the Dietary Guidelines for Americans and MyPlate, a tool that serves up simple eating advice that will be useful for years to come. And *Expect the Best* emphasizes the best health habits to get ready to conceive a child.

More than 60 simple, nutritious, and delicious recipes in chapter 8 help you to live by experts’ eating advice, and you’ll see many recipes highlighted throughout the book as especially useful. In addition, real moms offer their tips and stories about pregnancy and breastfeeding experiences to help you better navigate this time of your life.

Here’s a preview of what’s ahead:

- The importance of achieving and maintaining a healthy weight before pregnancy, how much weight to gain when expecting and why, and postpregnancy weight-loss guidelines
- How much exercise you need in every stage of your life and every trimester, who should not work out during pregnancy, and what activities to avoid

- How diet and lifestyle affect your chances of conceiving a child
- What your male partner needs to do to increase his chances of fathering the healthiest child possible
- The nutrients necessary for your and your baby's well-being, before, during, and after pregnancy, why they matter, how much of them you need, and how to work them into an easy-to-follow eating plan that fits your lifestyle
- Realistic, balanced eating plans, whether you're thinking about having a baby, you're pregnant, or you're breastfeeding, and whether you want to gain weight, lose some pounds, or stay the same weight to prepare for motherhood
- How diet and lifestyle help you to dodge or manage the complications and discomforts of pregnancy
- Information about your diet and exercise during the "fourth trimester," the months immediately after delivering your child
- Food safety information to keep you healthy
- Dozens of resources on a range of topics, including childbirth, breastfeeding, infertility, and food safety

The information between these covers has been carefully reviewed for accuracy, and is backed by the Academy of Nutrition and Dietetics, the country's leading group of nutrition experts.

Ultimately, you'll make up your own mind about what to eat before and during pregnancy and after delivery. *Expect the Best* will be there to inspire—and gently guide—you on your journey with reliable and realistic information.

6

Food Safety and Other Concerns: Before, During, and After Pregnancy

It's always a good idea to be mindful of the safety and the quality of the food you eat, but it's even more meaningful before and during pregnancy and when breastfeeding. You're more prone to getting sick from food during pregnancy because your immune system is weakened and your baby's immune system is underdeveloped, making it harder for both of you to fend off germs and bacteria that can make you ill. Breastfeeding women also need to stay healthy so that they can nourish their child.

You want to protect your child and yourself as much as possible. For the most part, food safety is in your hands. Armed with some basic knowledge, you can ward off exposure to problematic germs, bacteria, and other potentially harmful substances.

PROBLEMATIC BACTERIA AND OTHER SUBSTANCES

Food has all the qualities desired by bacteria and other substances that can make you sick: water, warmth, and nutrients. Since no food is considered completely sterile, it's always best to handle and store food

properly. Bacteria, viruses, and parasites can cause food-borne illness (sickness from eating tainted food), but bacteria are most often to blame. The following are some of the most worrisome bacteria (and other substances) for pregnant women.

Listeriosis

Listeriosis is an infection caused by *Listeria monocytogenes* (*Listeria*), a bacterium with the potential for serious consequences for a mother and her unborn child, including miscarriage, stillbirth, preterm labor, and illness or death in newborns. Pregnant women are about twenty times more likely than the general population to get listeriosis. About one-third of all listeriosis cases occur in pregnant women.

Pregnant women with listeriosis may not feel sick right away. Symptoms can take a few days or weeks to appear, and may be mild enough that you don't suspect listeriosis for causing your fever, chills, muscle aches, diarrhea, or upset stomach. If the infection spreads, you may have a headache, stiff neck, confusion, loss of balance, and convulsions. Call your health care provider immediately if you have any symptoms of listeriosis. An infection can be confirmed with a blood test, and you can take antibiotics to treat it. Babies born with listeriosis also receive antibiotics.

As bacteria go, *Listeria* is unusual. Most bacteria grow at temperatures above about forty degrees Fahrenheit, which is the maximum temperature (or should be) of your refrigerator, but *Listeria* can also grow below that temperature, although it reproduces more slowly at lower temperatures.

Listeria is capable of contaminating refrigerated, ready-to-eat deli meats and hot dogs, as well as fruits and vegetables, most notably sprouts, such as alfalfa. Adequate cooking and pasteurization kills *Listeria*. Cover foods well and clean up all refrigerator spills immediately to reduce the risk of spreading bacteria.

Head off listeriosis with these helpful tips:

- Heat hot dogs and luncheon meats, such as ham, turkey, and bologna, to steaming hot, 165°F.

- Avoid soft cheeses such as feta, Brie, Camembert, blue-veined cheese, *queso blanco*, *queso fresco*, and *queso panela*—unless they're made with pasteurized milk. Check the label to be certain.
- Don't eat refrigerated pâtés or meat spreads or refrigerated smoked seafood, including smoked salmon, trout, whitefish, cod, tuna, and mackerel. These products may be labeled *nova-style*, *lox*, *kippered*, *smoked*, or *jerky*. They are typically offered in the refrigerator section or sold at deli counters of grocery stores and delicatessens. It's fine to have these products if they are part of a properly cooked dish, such as a casserole.
- Avoid raw (unpasteurized) milk or foods that contain unpasteurized milk.
- Always rinse raw produce thoroughly under running tap water before eating.

Toxoplasmosis

Toxoplasmosis is caused by a parasite known as *Toxoplasma gondii* (*T. gondii*). If you get toxoplasmosis (which means that *T. gondii* is in your bloodstream) when you're pregnant, the parasite can pass through the placenta and harm your unborn child. In babies, toxoplasmosis is capable of causing hearing loss, intellectual disabilities, and blindness. Some children who are born to mothers with toxoplasmosis may not have symptoms at birth but can develop brain or eye problems years later.

Your health care provider may suggest a blood test to check for antibodies to *T. gondii* if you are expecting a child. Generally speaking, if you have been infected with *T. gondii* before becoming pregnant, your unborn child is protected by your immunity. If you are infected during pregnancy, medication is available. You and your baby should be closely monitored during your pregnancy and after your baby is born.

Raw or undercooked meat is a source of *T. gondii*. Other sources are unwashed fruits and vegetables, contaminated water, dust, soil, dirty kitty-litter boxes, and outdoor areas where cat feces are found. *T. gondii* infects just about all cats that spend any time out of the house. Since *T. gondii* doesn't make your cat sick, you probably won't know if your pet harbors the parasite.

You can become exposed to *T. gondii* by an accidental ingestion of contaminated cat feces, which can occur if you touch your unwashed hands to your mouth after you've been gardening, cleaning a litter box, or touching anything that comes in contact with cat feces. Most people infected with *T. gondii* are unaware of it. Some people may feel like they have the flu; they experience swollen glands, fever, headache, muscle pain, or a stiff neck that lasts for a month or more.

You can greatly reduce your risk for toxoplasmosis by:

- Avoiding raw or undercooked meat (see page 189 for safe cooking temperatures) and thoroughly washing raw fruits and vegetables.
- Having your cat's litter box changed daily (the parasite does not become infectious for one to five days after it has been shed in cat feces). Avoid changing the litter box yourself. If that's impossible, wear gloves while changing the kitty litter.
- Wear gloves when gardening or handling sand from a sandbox; cover sandboxes whenever possible to keep cats out.
- Don't get a new cat when you're pregnant.
- Feed your cat commercial dry or canned food, not raw or uncooked meats.

***E. Coli* Infections**

Escherichia coli (*E. coli*) bacteria normally live in the intestines of humans and animals. *E. coli* consists of a diverse group of bacteria. One particular category of *E. coli* bacteria can cause diarrhea, urinary tract infections, respiratory illness, bloodstream infections, and other illnesses. *E. coli* infections are typically caused by *Escherichia coli* O157:H7, the most powerful of hundreds of strains of the bacterium *Escherichia coli*.

Abdominal cramps and bloody diarrhea within two to eight days of eating contaminated food are signs of *E. coli* infection. In most cases, these symptoms last about a week, but a pregnant woman's health may suffer more from the effects of an *E. coli* infection. *E. coli* infections are also serious in young children because they can cause hemolytic uremic syndrome, a condition in which the body's red blood cells are

destroyed and the kidneys can fail. Most healthy people recover from *E. coli* infections within ten days. Talk with your health care provider if you think you have any symptoms of *E. coli* infection.

Undercooked or raw beef tainted with the bacteria is often the source of *E. coli*. *E. coli* can get into the water supply used for farming, which is why fresh produce may become infected, too. Here's how to avoid *E. coli* as much as possible:

- Avoid raw milk and other unpasteurized dairy products and unpasteurized juice, including fresh apple cider.
- Wash your hands thoroughly after using the bathroom, changing diapers, and before preparing or eating food, as well as after contact with animals at home, at farms, and petting zoos.
- Cook meats thoroughly. See page 189 for proper cooking temperatures.
- Do not eat raw dough or batter, for cookies, cake, or bread, for example. Flour can be a source of *E. coli*.
- Prevent cross-contamination. See page 189 for more on this topic.
- Avoid swallowing water in swimming pools, lakes, ponds, and streams.

Salmonella Infections

Salmonella infections are caused by a group of bacteria known as *Salmonella*. The symptoms of salmonella infection include diarrhea, fever, and abdominal cramps that begin twelve to seventy-two hours after exposure to the bacteria. The illness usually lasts from four to seven days, and most people recover without treatment. However, some will require hospitalization for severe diarrhea. Pregnant women may need antibiotics to resolve the infection. A small percentage of people infected with salmonella develop joint pain, eye irritation, and painful urination.

Foods contaminated by salmonella usually look and smell normal. Animal foods, such as beef, poultry, raw milk, and raw eggs, are more likely to contain salmonella, but all foods, including vegetables, are prone to contamination. Proper cooking typically kills the bacteria. Pasteurization of milk and treatment of municipal water supplies are highly

effective prevention measures that have been in place for decades to reduce salmonella levels.

Lower the likelihood of salmonella making you sick by taking the following steps:

- Avoid dishes with raw eggs that may not be recognizable as such, including homemade hollandaise sauce, homemade ice cream, Caesar salad dressing, homemade eggnog, mayonnaise, and tiramisu.
- Cook meat to the correct temperature. See page 189 for more information.
- Avoid raw or unpasteurized milk as well as other dairy products made from unpasteurized milk.
- Thoroughly wash raw fruits and vegetables under running water.
- Avoid eating raw cookie dough, cake batter, or other batter containing raw, unpasteurized eggs.

Lead

In the 1970s, the Environmental Protection Agency (EPA) banned the use of lead in gasoline, paint, and many other products. Although lead levels in our environment are on the decline, lead lingers and can cause major health problems.

Lead can accumulate in the body, where it is stored in tissues, blood, and bones. Lead is capable of crossing the placenta and can pass from mother to infant in breast milk. Unborn babies and very young children run the greatest risk of damage when exposed to lead. During pregnancy, exposure to excessive lead can cause miscarriage, low birth weight, preterm delivery, and developmental delays in infants.

Lead-based paint, found mostly in homes built before 1988, and the dust it produces as it deteriorates are major sources of lead exposure. Home repairs such as sanding or scraping paint can create lead dust that's impossible to see, and you can breathe in lead dust without realizing it. Pregnant women, infants, and children should not be in a house with lead paint that's being renovated. If you live in an older home, have it checked by a licensed lead inspector.

Drinking water can pose another lead risk. The EPA estimates that drinking water contaminated with lead can account for 20 percent or more of a person's total exposure to lead. Infants who consume mostly infant formula can receive 40 percent to 60 percent of their exposure if their formula is prepared with lead-contaminated water. Boiling water does not destroy lead.

WHAT'S IN YOUR WATER?

The National Primary Drinking Water Regulations are legally enforceable standards that apply to public water systems. Most water systems test for lead, and many other potential contaminants, as a regular part of water monitoring. These tests provide a system-wide lead level and do not reflect the conditions about the drinking water in your particular home. If you're concerned about contaminants in your water, have it tested by a state-certified laboratory. You can find one in your area by calling the EPA's Safe Drinking Water Hotline at 800-426-4791 or visiting www.epa.gov/safewater/labs.

You may come into contact with lead if you or anyone in your household works in an auto repair shop, a battery-manufacturing plant, or certain types of construction. To minimize your lead exposure, have the people you live with who work at those jobs change their clothes before coming into the house and keep their work shoes outside of the house. Wash their clothes separately from yours.

Pewter and brass containers and utensils may have lead. Don't cook with pewter or brass containers, serve food in them, or use them to store food. Avoid using leaded crystal to serve or store beverages, and stay away from imported lead-glazed ceramic pottery produced in cottage industries.

Lead is bad news, but diet can help to prevent lead from accumulating in your body. Adequate amounts of calcium, iron, and vitamin C help to guard against lead contamination. If you're concerned about your exposure to lead, get your blood tested. Talk to your health care provider about any medicines or vitamins you are taking. Some home remedies and dietary supplements may have lead in them. It is also important to tell your doctor about any unusual cravings you have such as eating dirt or clay, because they may contain lead.

Lead can leach into water from pipes inside the home or pipes that connect homes to the main water supply pipe. Lead found in tap water is usually the result of decaying, old lead-based pipes and fixtures, or from lead solder that connects drinking water pipes. Brass or chrome-plated brass faucets and fixtures with lead solder can contribute significant amounts of lead to the water in your home, especially hot water. Homes built before 1988 are more likely to have lead pipes, fixtures, and solder. Testing is the only way to confirm if lead is present in your home's drinking water. Home water-filtration systems may remove lead from your water, but check to be sure.

Endocrine Disruptors

The endocrine system is a complicated network of hormones and glands, including the thyroid, the pancreas, and the ovaries. The endocrine glands release hormones into the bloodstream that regulate many bodily functions, including energy level, growth and development, and reproduction.

Endocrine disruptors are chemicals that can interfere with the body's endocrine system. Though the evidence is from animal studies, experts say endocrine disruptors can play havoc with the body because they can mimic the estrogen, androgen, and thyroid hormones found naturally in the body, possibly causing overstimulation. Endocrine disruptors can also block the normal function of these natural hormones, and can interfere or block how natural hormones and their receptors are made or controlled.

According to the National Institute of Environmental Health Studies, research shows that endocrine disruptors may pose the greatest risk during pregnancy and early life because that's when organs and the nervous system form. Endocrine disruptors can be natural compounds, such as the phytoestrogens found in certain plant foods, or they can be synthetic substances. The following are some man-made chemicals that can act as endocrine disruptors:

- Bisphenol A (BPA) is a chemical produced to make plastics and resins, and often used in the lining of cans and other containers that store food and beverages, such as water bottles.
- Polychlorinated biphenyls (PCBs) are a category of chemicals that were

used to insulate or cool electrical transformers, that were part of hydraulic fluid, and that functioned as lubricants for machinery. PCBs were banned from use by the US government in the 1970s, but because PCBs do not readily break down, they can remain for long periods in the environment, and they can travel. PCBs are found all over the world.

- Dioxin and dioxin-like compounds are by-products of a range of processes, including chlorine bleaching of paper pulp and the manufacturing of some herbicides and pesticides. Like PCBs, dioxins hang around in the environment for years before completely disintegrating.

Endocrine disruptors can be difficult to avoid because they are found in a range of products, such as plastic water bottles, metal food cans, and pesticides. Many endocrine disruptors, including dioxins, are stored in the fat tissue of humans and animals. You can avoid some endocrine disruptors when you eat more of a plant-based diet and choose lean meats and fat-free and low-fat dairy foods most of the time. Reduce your use of canned foods as many cans are lined with a resin that contains BPA. Look for cans and plastic food containers labeled as BPA-free, and choose foods that are in Tetra Pak cartons or glass containers. If a plastic product isn't labeled, keep in mind that plastics marked with recycle codes 3 or 7 may be made with BPA. Don't heat food in the microwave in polycarbonate plastic containers or wash them in the dishwasher. Heat breaks down the plastic and allows BPA to leach into foods and drinks. It's best to heat and store foods and beverages in glass containers. The Food and Drug Administration has banned the use of BPA in plastic baby bottles and sippy cups, and in the coatings of packages of infant formula.

SIMPLE STEPS TO SAFER FOOD

Although troubling bacteria and other substances may lurk in our food, most of the time food is safe to eat, especially when handled properly. Now that you're pregnant, err on the side of caution with these five basic principles of food safety.

Shop Smart

Make sure that all the food you buy is in good condition. Meat, poultry, and dairy foods should be as fresh as possible; check the expiration or sell-by date to be sure. Pick up the cold and frozen foods on your list, such as meat and dairy products, from the grocery store shelves last, just before paying. Go directly home, and put the refrigerated and frozen foods away immediately to preserve freshness. If you won't be returning home for thirty minutes or more after completing your grocery shopping, take a cooler with you to keep foods cold. Consume ready-to-eat, highly perishable foods, such as dairy products, meat, seafood, and produce, as soon as possible after you buy them, or freeze them if you plan to eat them later and not right away.

REALITY CHECK: IS IT OK TO EAT?

You want to minimize food waste, but you don't want to take any chances with your health. Studying the dates on meat, poultry, dairy foods, and eggs can help. Here's what the dates mean:

- The **Sell-By** date informs the store about when to pull the food from its shelves. Buy products with sell-by dates farthest in the future.
- The **Best If Used By (or Before)** date is the time frame for when the food will be at its highest quality and best flavor. This date has nothing to do with safety.
- The **Use-By** date is the last day that the food will be at its peak quality.

When in doubt about a food's safety, throw it out. It's not worth the risk to eat food that may make you sick, especially during pregnancy and when breastfeeding. Go to this website to see how long food is good after you open it: <http://www.foodsafety.gov/keep/charts/storage.html>.

Keep Hands and Utensils Clean

Before you handle food, always wash your hands thoroughly (for at least twenty seconds) with warm, soapy water. Wash your hands again during food handling and preparation if you have wiped your nose, coughed or sneezed into your hand, used the bathroom, changed a diaper, handled dirty laundry, touched a pet, taken out the garbage, or performed any other activity that could transfer germs to your hands. Encourage proper hand washing by your family and guests by making soap and clean towels or paper towels available at every sink in your home. When it's not possible to use soap and warm water, rely on alcohol-based wipes or gel formulas, which are effective for sanitizing the hands.

GOOD BACTERIA, BAD BACTERIA

An obsession with cleanliness has led to a boom in antimicrobial soaps, hand sanitizers, and kitchen cleansers. Ironically, in our quest to get rid of germs that can make us sick, we encourage their growth. Antimicrobial soaps and other cleansing agents that contain chemical ingredients such as triclosan and triclocarban that help harmful bacteria become resistant to antibiotics. In addition, animal studies suggest that triclosan may alter the way hormones work in the body. The Food and Drug Administration no longer allows the sale of over-the-counter soaps and other products containing triclosan, triclocarban and many other ingredients because there is no proof that these products are safe for long-term daily use and are more effective than plain soap and water. The FDA's ruling does not affect hand "sanitizers" or wipes or antibacterial products used in health care settings, such as hospitals, however. To keep bad bacteria at bay in the kitchen, sanitize countertops with the following homemade cleanser: one teaspoon of liquid chlorine bleach mixed with a quart (32 ounces) of clean water. Wipe countertops and cutting boards with the bleach solution, and leave it for about ten minutes before rinsing for the maximum effect.

Clean your cutting boards, dishes, utensils, and countertops thoroughly with dishwashing soap or a cleaning agent that is safe to use on surfaces that come in contact with food. Replace worn cutting boards (including

plastic, nonporous acrylic, and wooden boards), because bacteria can grow in the hard-to-clean grooves and cracks. Use separate cutting boards for produce and meat, and sanitize cutting boards after every time you they come in contact with raw animal protein, such as meat, chicken, and fish.

Always rinse raw fruits and vegetables under cold running water before using them. For thick or rough-skinned vegetables and fruits (such as potatoes, carrots, and cantaloupe), use a small vegetable brush to remove the surface dirt. Cut away the damaged or bruised areas on produce, as germs thrive in these moist places.

Keep Certain Foods Separate

Keep raw animal foods, such as meat, seafood, and eggs, away from ready-to-eat foods, like salad greens and chopped fruit, to avoid getting germs from the uncooked animal foods in those foods that you don't cook. Use a separate plate for cooked food. For example, when you're grilling meats or seafood, do not use the same platter, plate, or bowl for the cooked meat or fish that you used for marinating the raw meat or fish.

Cook Food Properly

When food is heated to the proper temperature, cooking destroys harmful bacteria and other food components that can make you ill. You can't tell whether animal foods are safely cooked simply by looking at them or poking them. Rely on a meat thermometer to determine doneness. Cook (and reheat) foods properly, using these handy guidelines:

Type of Food	Cook to At Least
Whole poultry (chicken or turkey; breasts, thighs, legs, wings)	165°F (74°C)
Fresh beef, veal, lamb steaks, roasts, chops	145°F (63°C)
Ground chicken or turkey	165°F (74°C)
Ground beef, veal, lamb, and pork	160°F (71°C)
Fresh pork and ham*	145°F (63°C)

Seafood (fin fish)	145°F (63°C) Or cook until flesh is opaque and separates easily with a fork.
Shrimp, lobster, and shelled clams	Cook until flesh is pearly and opaque.
In-shell clams, oysters, and mussels	Cook until shells open during cooking.
Scallops	Cook until flesh is milky white or opaque and firm.
Eggs**	Cook until the yolks and whites are firm.
Leftovers, casseroles	165°F (74°C)

*Reheat cooked hams packaged in USDA-inspected plants to 140°F and all others to 165°F.

**Let egg dishes, such as quiche and frittatas, reach 160°F (71°C). Do not eat raw or partially cooked eggs in any form.

If you won't be arriving home within two hours of being served at a restaurant, don't take leftovers or any other food with you. When you order takeout, eat the food immediately or refrigerate it right away. Reheat all leftovers to 165°F (74°C). Bring leftover soups, sauces, and gravies to a boil.

WHEN RAW IS RISKIER

You've been enjoying sushi for years without any health problems. Maybe you always order your favorite sandwich with a generous helping of raw sprouts. Perhaps you adore rare steak. When a pregnancy is in your future or is happening now, it's wise to think twice about typical food choices. Raw or undercooked fish, including sushi and sashimi, are more likely than properly cooked fish to contain parasites and bacteria. Raw shellfish (oysters, clams, mussels) is one of the worst offenders for potentially making you sick, so avoid it at all costs, especially now. The same is true for raw or undercooked meat and eggs, and raw milk and other unpasteurized drinks. Sprouts are healthy food, but they should be cooked. Alfalfa, clover, radish, and other sprouts are highly susceptible to bacterial contamination that cannot be washed off, for the most part.

Keep Food Cold

Most bacteria thrive in temperatures from 40°F (4°C) to 140°F (60°C). Discourage the growth of bacteria that can make you sick by maintaining the temperature in your refrigerator at 40°F (4°C) or below and the freezer at 0°F (−18°C). Use a refrigerator thermometer, and check the temperature periodically. Don't pack the refrigerator or freezer too full with food. Cold air must be able to circulate to keep food safe.

Refrigerate or freeze perishables, prepared food, and leftovers within two hours of eating them or preparing them. It's fine to place warm or hot food in the refrigerator; doing so won't harm the food or your refrigerator. Be sure to divide large amounts of leftovers into shallow containers for quicker cooling in the refrigerator. Discard food that's been left out at room temperature (about 70°F or 21°C) for longer than two hours. When the air temperature hits 90°F or above (32°C), pitch the food after one hour.

At outdoor events, use a cooler to keep cold foods cold. Fill the cooler with food and ice or cold packs. A full cooler maintains its cold temperature longer than one that's only partly filled.

MARINADES, MICROWAVES, AND DEFROSTING

Marinating tenderizes meat, poultry, and seafood, and marinades add flavor. Always marinate foods in the refrigerator—not at room temperature. Never reuse a marinade on cooked foods unless you boil it first.

Microwave ovens tend to heat foods unevenly, leaving some cold spots where bacteria can thrive. Fat, fluid, and sugar heat more quickly, so be careful not to burn yourself. Microwaving vegetables makes produce preparation a snap. When you add some liquid to the microwavable dish and cover it, steam forms to kill bacteria. Ensure that food heats evenly by turning the dish several times and stirring soups and stews periodically.

After defrosting food in the microwave, cook the food right away to prevent bacterial growth. Some areas of the food may become warm and begin to cook during defrosting, allowing bacteria to thrive. Cooking food immediately helps to prevent bacterial growth.

If you don't use the microwave to defrost food, there are two other safe choices. Defrost the food in the refrigerator, or wrapped and in cold water, changing the water every thirty minutes to keep it cold. Don't leave foods out on the counter to defrost at room temperature. Any bacteria present in the food will begin to reproduce.

FISH AND SEAFOOD SAFETY

You're a seafood lover, and that's a good thing. Seafood is an important part of a balanced eating plan. Fish and shellfish pack protein, vitamins, and minerals. Though relatively low in saturated fat, fish and shellfish contain varying amounts of omega-3 fats, which play an important role in your future child's vision and brain development, and in your own health.

The 2015–2020 Dietary Guidelines for Americans recommend that adults eat at least two fish meals (8 ounces) weekly and that pregnant and breastfeeding women include even more: three fish meals (8 to 12 ounces) a week. If you've heard that you should avoid fish during your childbearing years, you may be confused by the recommendations to increase your seafood intake.

There are some fish that women in their childbearing years are advised to avoid. The FDA recommends that pregnant and breastfeeding women avoid swordfish, shark, tilefish (from the Gulf of Mexico), king mackerel, orange roughy, marlin, and bigeye tuna. These larger, long-lived ocean fish have higher levels of methylmercury, which is formed when mercury finds its way into waterways. Bacteria that live in oceans, lakes, and other waterways convert mercury to methylmercury, and fish can absorb the methylmercury from their food supply. Methylmercury accumulates in your body and may possibly harm an unborn child's developing nervous system. Some evidence suggests that the selenium in fish may help counteract potential harm from mercury. However, it's still wise to avoid the types of fish known to have the highest mercury levels.

If you're concerned about the safety of eating fish, chances are you can continue to eat your favorite fish during pregnancy, and maybe more

of it. Health organizations around the globe, including the Food and Agriculture Organization and the World Health Organization expert panel, suggest that the benefit of eating fish during pregnancy outweighs the potential risk, and that moms who avoid fish and seafood during pregnancy may be missing out on beneficial nutrients for their babies. Recently released advice from the FDA provides more detailed lists of fish that are safe for pregnant and breastfeeding women. The guidelines include suggestions for fish to eat 2 to 3 times a week, such as salmon, canned tuna, shrimp, and tilapia. See www.FDA.gov/fishadvice for more complete information.

Fish/seafood is an easy-to-prepare, versatile food that is rich in DHA, protein, vitamins, and minerals, and relatively low in saturated fat. See chapter 8 for easy and delicious ways to prepare seafood.

SHOULD YOU GO ORGANIC?

Organic milk, meat, produce, and grains are gaining in popularity. Although you might assume that organic food is probably better for you, it's pricey and it can take a bite out of your food budget. Whether or not you should spend the extra cash on organic food depends on many factors, including understanding the differences between organic and conventionally grown food.

The US Department of Agriculture (USDA) has established an organic certification program. Foods labeled as organic meet specific standards that regulate how the food is grown, handled, and processed. Every product labeled as organic must be USDA certified. Producers who sell less than five thousand dollars a year in organic foods do not have to follow this certification, but they are required to adhere to the USDA's standards for organic foods.

Organic plant foods are produced without using synthetic pesticides, fertilizers made with synthetic ingredients or sewage sludge, bioengineering, or ionizing radiation. A government-approved certifier must inspect the farm to ensure that the standards for organic farming are met. In addition to organic farming, there are USDA standards for organic handling and processing. Organic foods contain no synthetic

food additives (or only very small amounts), processing aids (substances used during processing foods but not added directly to foods), or other additives such as artificial sweeteners, colorings, flavorings, or monosodium glutamate (MSG).

Like most conventional farming, organic farming practices are designed to encourage soil and water conservation, reduce pollution, conserve biodiversity, support animal well-being and reduce the incidence of animal illness. Organic farmers use specific natural fertilizers, approved methods to reduce pests that damage crops (including certain pesticides), crop rotation, and mulch to manage weeds. Organic farmers cannot use genetically modified organisms (GMOs) in organic products. They cannot plant GMO crops and their animals cannot eat GMO feed. GMO ingredients are not allowed in packaged organic foods.

Organic foods don't necessarily have more nutrients, but they have lower levels of pesticide residues. Although there is some evidence that foods grown and produced without the use of synthetic fertilizers and pesticides are higher in nutrients, there is probably little difference when you eat a balanced, varied diet. In addition, some organic products may still be high in calories, sugar, and salt. And organic foods, including animal products, are prone to transmitting foodborne bacteria, just like conventional foods. Organically produced meat, milk, eggs, fruit, vegetables, and grains do not provide automatic protection from *E. coli* infections, salmonella poisoning, or other foodborne hazards. Organic foods, including unpasteurized juice and milk, have just as much chance as nonorganic foods of harboring the harmful bacteria that cause these conditions, so handle organic foods with care.

What's in a Label?

If a food bears the USDA Organic label, it means it's produced and processed according to the USDA standards. The seal is voluntary, but many organic producers use it.

Foods that are completely organic, including produce, eggs, and other single-ingredient foods, can say they are "100% organic" and use



the USDA seal. A product that contains 95 percent or more organic ingredients can say it's "organic" and may also display the seal. Foods that contain a minimum of 70 percent but less than 95 percent organic ingredients will read "made with organic ingredients" but cannot display the USDA seal.

PESTICIDES IN PERSPECTIVE

Organic produce is raised without most synthetic fertilizers or synthetic pesticides. In comparison, many different types of man-made pesticides—chemicals that defend crops from pests that would ruin them or reduce their yield—are used on conventional produce in the United States and on imported produce and grains. According to the FDA, the greatest potential for pesticide exposure comes from conventional fruits and vegetables. However, while these foods have higher synthetic pesticide levels than others, the amount does not violate the levels that the FDA considers safe. Depending on the country of origin, imported conventionally grown produce may have more pesticides than produce grown in the United States.

It's hard to say whether harm is caused by the synthetic pesticides and other contaminants in conventional foods, because there is little data available on the long-term safety.

Nevertheless, when you are of childbearing age, pregnant, or breastfeeding, it never hurts to avoid as many synthetic chemicals as possible. Pesticides and other chemicals in food and in the environment may be detrimental, especially during vulnerable periods of life, including fetal development and early childhood.

Buying organic produce can minimize, but not completely eliminate, pesticide residues. This fact might come as a surprise to people who are currently spending the extra money for organic foods. Small amounts of pesticide residues are unavoidable even on many organic fruits and

Words of Motherly Wisdom

"I'd like to include more organic foods, but they cost more than regular options. That's why I've decided to buy the organic versions of the four or five foods I eat most often."

—Peg

vegetables, because wind and water spread pesticides that have been used on other crops. Furthermore, some pesticides persist in the soil for years and may be absorbed by plants even after the land has been certified organic. Pesticide residues are uncommon in milk, beef, poultry, and eggs.

REDUCE THE RISK

On balance, experts advocate eating adequate amounts of fruits and vegetables, no matter how they are grown. Washing and rinsing fresh produce may lower the level of some pesticides, but it won't completely eliminate them. Peeling also reduces the pesticide level, but valuable nutrients often go down the drain with the peel. To reduce your overall risk, eat a variety of foods; wash produce thoroughly; and consider organic options for the produce you eat often.

ORGANIC MILK, MEAT, AND SEAFOOD

Organic milk is from cows that have been fed an organic diet for at least the past year or during their entire lives, and they have also not been given growth hormones or antibiotics. "Hormone-free milk" does not mean the milk is also organic. There is no such thing as hormone-free milk. That's because milk, even the organic variety, contains, at the very least, low levels of bovine somatotropin (BST), also called bovine growth hormone (BGH), which is produced naturally by cows. Recombinant BST (rBST) is a bioengineered version of natural BST that may be given to cows to boost milk production. Milk from cows given rBST is safe, according to the FDA. The use of rBST is not an issue with certified organic milk, because the USDA standards for organic food state that organic milk cannot come from cows treated with rBST.

Certified organic livestock are managed without antibiotics and added growth hormones. (If antibiotics are given to treat an infection, the animal can no longer be considered organic.) The animals eat 100 percent certified organic feed or grass that's been grown without toxic

pesticides or fertilizers, and cannot be genetically engineered. Although “free-range” animals are allowed year-round access to the outdoors, they are not automatically organic; similarly, “naturally raised” provides no guarantee that the meat or poultry from those animals is organic. Wild seafood cannot be labeled as organic. According to the USDA, the certification standards for using the organic label on aquaculture, also known as fish farming or shellfish farming, is under review by the agency.

There’s no conclusive scientific evidence that organic milk, meat, and chicken are better for you. It’s up to you to choose what types of animal foods to eat.

THE DISH ON FOOD ADDITIVES

When you’re unfamiliar with the lingo, studying the ingredients on food labels is like trying to decipher another language with words like *niacinamide*, *pyridoxine hydrochloride*, *ferrous gluconate*, and *ascorbic acid* staring back at you. Even though the names are difficult to decode, most food additives are considered safe, including the ones mentioned above, which are the technical terms for common vitamins and minerals in foods and dietary supplements.

There are several reasons for adding certain substances to food. Some additives, like vitamin C (ascorbic acid), promote freshness and boost nutrition; others, like sugar and salt, enhance taste and appearance; still others replace nutrients lost in processing. For example, B vitamins that were stripped away during the making of refined grains, such as white bread, are added back, resulting in an *enriched* product. *Fortified* foods contain nutrients that were not present naturally. Most milk is fortified with vitamins A and D. Iron and folic acid are often added to breads, cereal, and other grains to enhance their nutritional profile.

Some food additives have pitfalls. Sulfites, which may be found in foods such as dehydrated potatoes, dried fruit, some fermented foods, and commercial bread products, may trigger allergies in some people with asthma. Sodium nitrate and sodium nitrite, which provide hot dogs and other cured meats with their pink hue and protect them from germ growth, are potential carcinogens.

If you want to limit food additives, eat a diet rich in fresh and minimally processed foods. Following that advice will also curb your consumption of added sodium and added sugar, which are common food additives. Foods labeled “preservative-free” contain fewer food additives.

BETTER SAFE THAN SORRY

While it’s necessary to think about bacteria and other contaminants in food and water, it can be scary. Try not to be alarmed. Despite the possibilities for problems, overall our food supply is quite safe. You can’t eliminate all risk, but you can feel more confident knowing how to help yourself and your family stay healthy to the best of your ability.

MANGO ICE “MILK”

Makes 2 servings.



This creamy treat is dairy-free! If you freeze the fruit in advance, this dessert can be ready in less than five minutes.

1 cup chopped frozen mango

1 frozen banana, peeled and sliced (peel and slice before freezing)

1/3 cup reduced-fat coconut milk

2 teaspoons lime juice

Place the mango, banana, coconut milk, and lime juice in a food processor. Process on high until creamy, about 1 minute.

Top with chia seeds, flaked coconut, or chopped pistachios, if desired.

PER SERVING (WITHOUT TOPPINGS):

Calories: 139

Total fat: 3 grams

Saturated fat: 3 grams

Cholesterol: 0

Sodium: 12 milligrams

Carbohydrate: 29 grams

Dietary fiber: 3 grams

Protein: 2 grams

Calcium: 11 milligrams

Iron: 0

Added sugar: 0

MyPlate food groups:

Fruit: 1 cup

Index

- acid indigestion, 205–6
- additives, food, 197–98
- age issues, 136–37, 199–202
- alcohol, 23–24, 30, 162
- allergies, food, 146–47
- Almond Smoothie Bowl, Joy of, 232
- antimicrobial soaps, 188
- appetite, 130–32, 143–45
- Artichoke Quiche with Thyme and Gruyere Cheese, 254–55
- Avocado Stuffed with Egg, Cheese, and Salsa, 234

- Balls, Date Nut, 298
- beans, 110–12, 119, 131
- bed rest, 215–16
- Beef and Mushroom Stew, Slow-Cooker, 290
- Beef with Snow Peas, 251
- Bell Peppers Stuffed with Tomatoes, Rice, and Cheese, Sweet, 256–57
- beverages, recipes for, 219–32
- blood pressure disorders, 212–14
- Blueberry Banana Pancakes, 244
- Blueberry-Orange-Mango Smoothie, 226
- BMI (body mass index), 8–9, 10–11
- BPA (bisphenol A), 185, 186
- Bread, Fruit and Nut, 236–37
- breakfast ideas, quick, 163
- breakfast, recipes for, 233–47
- breastfeeding, 97, 116, 146, 153–55, 159, 161–62, 165–67, 168–69, 170, 173
- Broccoli Cheese Calzone, 284–85
- Brownie Bites, Black Bean, 299
- burgers, recipes for, 275–78

- Café au Lait, 222
- caffeine, 24–25, 53–57, 162, 170
- calcium, 20–21, 78–80, 200
- calorie needs, 37–38, 39, 49
 - calculating, 91–92
 - food group portions and, 99
 - postpregnancy, 97, 116, 160
 - during pregnancy, 94–97, 98–99, 116, 123, 138, 150
 - prepregnancy, 93–94, 98–99, 114–15
 - sample meal plans, 114–16
- Calzone, Broccoli Cheese, 284–85
- carbohydrates, 37–39
- Cauliflower Crust Personal Pizza with Mushrooms, Olives, and Goat Cheese, 282–83
- Cauliflower Steaks with Lemon Tahini Sauce, 296
- celiac disease, 33

- cesarean delivery, 158–59, 172
 Cherry Vanilla Cooler, 227
 Chicken and White Bean Chili, 286
 Chicken, Slow-Cooker Thai Peanut, 250
 Chicken with Whole-Wheat Couscous, Cranberries, and Almonds, 248–49
 Chocolate Avocado Pudding, 297
 Chocolate Banana Blast, 225
 Chocolate Raisin Clusters, 300
 choline, 72–73
 cigarettes, 25–26, 29, 162
 colic, 169–71
 constipation, 128, 203–4
 Cookies, Quinoa Breakfast, 237
 cooking and reheating foods, 189–90, 191
 cravings, 143–45
 Crunchies, No-Cook Nut Butter, 301
 dairy, 108–10, 119, 120, 121, 131, 196
 See also lactose intolerance
 Date Nut Balls, 298
 defrosting foods, 191–92
 dental care, 20–21
 depression, 19, 175–76
 desserts, 297–303
 DHA (docosahexaenoic acid), 50–52, 129, 154, 156, 161
 diabetes, gestational, 15, 142, 209–11
 diabetes, type 2, 15–18, 211
 dietary supplements, 21–22
 dinner ideas, quick, 163–65
 dinner, recipes for, 248–73
 dioxins, 186
 drugs, 21–22, 30, 125
E. coli infections, 181–82
 Egg and Vegetable Wrap, 233
 eggs, 110–11, 112, 119, 131
 endocrine disruptors, 185–86
 exercise, 26–28, 91, 92, 132–36, 147–48, 151, 171–75
 Farro with Beets, Pistachios, and Feta Cheese, 294
 fat, dietary, 47–52, 113, 118
 fathers, 1–2, 28–30, 93, 136–37
 fertility, 30–35
 fiber, dietary, 43–45, 101, 103, 106
 first trimester, 23, 46, 94–95, 122–37, 207
 fish and seafood, 50–52, 110–11, 120, 129, 190, 192–93, 197
 Flatbread, Red Bell Pepper Pesto, 280
 fluids, 52–53
 fluoride, 168
 folate/folic acid, 12, 13, 69–71, 130
 food additives, 197–98
 food allergies, 146–47
 food aversions, 130–32
 food cravings, 143–45
 food intolerance, 147
 food poisoning, 178–83
 food safety, 143, 178–99
 food, shopping for, 187
 formula. *See* infant formula
 fourth trimester, 97, 158–77
 fruit juice, 41
 fruits, 106–8, 118, 131, 195–96
 gastroesophageal reflux disease (GERD), 206
 gestational diabetes, 15, 142, 209–11
 Ginger Tea, 223
 Go Green Tea Smoothie Bowl, 231
 grains, 100–103, 121
 Greek Salad Bowl, Chopped, 273
 Halibut with Creamy Dijon Sauce, Broiled, 267
 hand washing, 188

- heartburn, 205–6
- hemorrhoids, 204–5
- herbs, 21–22
- high blood pressure, 212–14
- Honey-Pear Walnut Toast, 247
- hyperemesis gravidarum, 207

- infant formula, 146–47, 153, 155–56, 159, 167–69
- infertility, 30–35
- iodine, 85–86
- iron, 14–15, 44, 74–76, 127–28

- kitchen, food safety in, 186–92
 - See also* food poisoning
- kitchen, preparation of, 151–52

- lactose intolerance, 79, 147
- Lasagna, Slow-Cooker Spinach, 258–59
- lead, 183–85
- legumes, 110–12, 119, 131
- Linguine with Roasted Red Bell Pepper Sauce, 262
- listeriosis, 179–80
- lunch ideas, quick, 163–65
- lunch, recipes for, 274–85

- Macaroni and Cheese with Butternut Squash, 260–61
- magnesium, 81–82
- Mango Ice “Milk,” 303
- Maple, Pecan, and Apple Toast, 246
- marinades, 191
- meal plans, MyPlate, 114–16
- meal preparation, before delivery, 151–52
- meal preparation, safety and, 186–92
 - See also* food poisoning
- meals, number of, per day, 117
- meal suggestions, simple, 163–65
- meat
 - food aversions, 131
 - nutrients and, 48–49, 75, 77, 110–11, 118, 120
 - safety and, 179–83, 187, 189, 191, 196–97
- medications, 21–22, 30, 125
- Mediterranean Wrap, 279
- mercury, 51, 192
- microwaving foods, 191
- milk, cow’s. *See* dairy
- “Milk,” Mango Ice, 303
- milk, non-dairy, 109
- minerals, 9–15, 74–86
 - See also* multivitamin/mineral supplements; *specific mineral*
- miscarriage, 13, 21, 23, 53, 136–37
- Mocha Java Smoothie, 224
- morning sickness, 124, 131, 207–9
- Muffins, Walnut Raisin, 238–39
- multivitamin/mineral supplements, 12–14, 29, 126–30, 136, 165, 208
- Mushroom Burgers, Portobello, 278
- MyPlate Plans, 89–121
 - calorie needs, 91–99, 114–16
 - favorite foods, 112
 - food groups, 100–113
 - number of meals per day, 117
 - portions, 99–113, 117
 - postpregnancy, 97, 116
 - pregnancy, 94–97, 116
 - prepregnancy, 92–94, 114–15
 - sample meal plans, 114–16
 - super foods, 117–21

- niacin, 66
- nuts, 110–11

- oils, 50, 113
- omega-3 fats, 50, 111, 119, 161, 192
- organic foods, 193–97

- Pancakes, Blueberry Banana, 244

- Pancakes with Smashed Raspberries, Almond-Flour, 242–43
- pantothenic acid, 67
- PCBs (polychlorinated biphenyls), 186
- Peanut, Raspberry, Banana, and Oats Smoothie Bowl, 230
- physical activity. *See* exercise
- phytonutrients, 87
- pica, 145
- Pineapple Kiwi Breakfast Parfait, Overnight, 235
- pizza, recipes for, 280–85
- plastic containers, 185, 186
- Polenta with Sauteed Shrimp, Spinach, and Cherry Tomato Bowl, Creamy, 264–65
- polycystic ovary syndrome (PCOS), 31–32
- portions/portion size, 99–113, 117
- postpartum depression, 19, 175–76
- postpartum period. *See* fourth trimester
- potassium, 84–85
- Potatoes, Mashed, with Greens and Cheese, 291
- Potpie, Turkey, 268–69
- preconception. *See* prepregnancy
- prediabetes, 15–18
- preeclampsia, 146, 213–14
- pregnancy, 122–57
 - first trimester, 23, 46, 94–95, 122–37, 207
 - MyPlate Plans, 94–97, 116
 - second trimester, 46, 95–96, 136, 137–48
 - third trimester, 96, 149–56
- prenatal supplements, 13, 126–30, 136, 160, 208
- pregnancy, 5–35, 92–94, 114–15, 140–41
- preterm birth, 140, 202, 212
- protein, 45–47, 110–12
- Pumpkin Pie Smoothie, 228
- Quesadillas, Black Bean, Corn, and Cheese, 274
- Quiche, Artichoke, with Thyme and Gruyere Cheese, 254–55
- Quinoa Breakfast Cookies, 237
- Quinoa Salad with Toasted Pecans and Dried Apricots, 292–93
- raw foods, 143, 190
 - See also* food poisoning
- recipes, 218–303
 - beverages/smoothies, 219–32
 - breakfast, 233–47
 - desserts and snacks, 297–303
 - entrées, 248–73
 - sandwiches, burgers, pizza, 274–85
 - soups and stews, 286–90
 - vegetables and side dishes, 291–96
- registered dietitian nutritionists (RDNs), 98
- riboflavin, 65–66
- safety. *See* food safety
- salmonella, 182–83
- Salmon, Roasted Honey Orange, 266
- sandwiches, recipes for, 274–79
- saturated fat, 48–49, 113
- seafood. *See* fish and seafood
- second trimester, 46, 95–96, 136, 137–48
- seeds, 110–11
- Shepherd's Pie, 270–71
- Shrimp, Pineapple, and Asparagus Stir-Fry, 263
- Slow-Cooker Spinach Lasagna, 258–59
- Slow-Cooker Beef and Mushroom Stew, 290
- smoking, 25–26, 29, 162
- smoothies, recipes for, 219–32

- snacks, recipes for, 297–303
- sodium, 82–83
- soups and stews, recipes for, 286–90
- soy products, 46, 109, 110–12, 131
- Spaghetti Squash Carbonara, Baked, 252–53
- Spinach Lasagna, Slow-Cooker, 258–59
- Spinach, Red Bell Pepper, and Cheese Cups, 240–41
- Stir-Fry, Shrimp, Pineapple, and Asparagus, 263
- Strawberry Balsamic Toast, 245
- Strawberry Chia Pudding, 302
- Strawberry Peach Sipper, 229
- stress, 34, 145–46, 215
- sugar/sweets, 39–43, 101, 145
- super foods, 117–21
- sweeteners, 40
- Sweet Potato Soup, Creamy, 287
- swelling, 158–59, 216–17

- Taco Salad, 272
- Tea, Ginger, 223
- tea, herbal, 22
- thawing foods, 191–92
- thiamin, 65
- third trimester, 96, 149–56
- thyroid function, 18–19
- Toast Three Ways, 245–47
- Tomato, Arugula, and Feta Cheese Pizza, 281
- toxoplasmosis, 180–81
- trans fat, 48, 49–50
- Tuna Burgers with Smashed Avocado and Tomato, 275
- Turkey Burgers with Wasabi Mayonnaise, Grilled, 276–77
- Turkey Potpie, 268–69
- twin pregnancy, 96–97, 124, 139, 202–3

- unsaturated fats, 50, 113

- vaccinations, 19
- vegans/vegetarians, 46, 77, 78, 165
- vegetables, 103–6, 110–12, 118–19, 120, 131, 195–96
- vegetables, recipes for, 291–96
- Veggie “Stoup,” 288–89
- vitamins, 9–14, 57–74, 197, 203
 - A, 21, 57–59, 125
 - B, 64–71, 130, 165, 209
 - C, 73–74
 - choline, 72–73
 - D, 59–61, 154, 161–62
 - E, 61–63
 - K, 63–64
- prenatal supplements, 13, 126–30, 136, 160, 208
 - See also* multivitamin/mineral supplements; *specific food group*

- water, 52–53, 168, 184–85
- weight management
 - baby’s food intake and, 168–69
 - BMI, 8–9, 10–11
 - by fathers, 29, 93
 - postpartum, 97, 160–61
 - during pregnancy, 124, 125, 138–40, 141–42, 207
 - prepregnancy, 7–9, 92–94, 114, 140–41
 - twin pregnancy, 139, 202–3

- zinc, 76–77