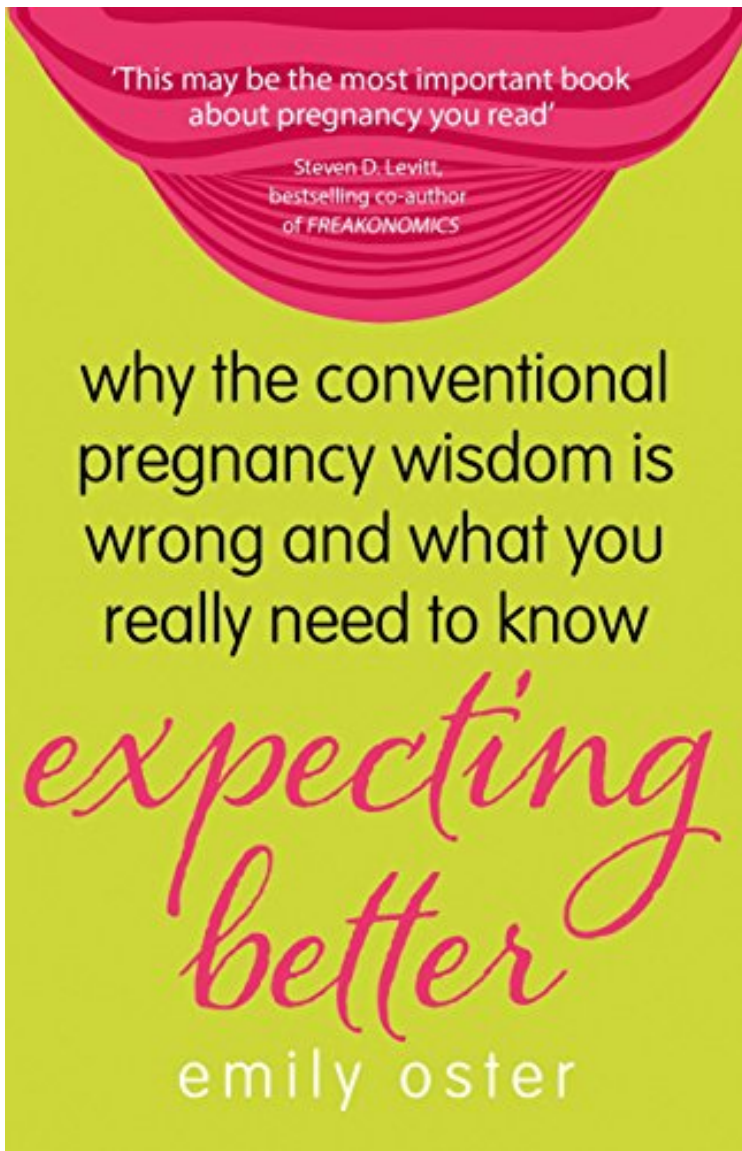


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# Expecting Better: Why the Conventional Pregnancy Wisdom is Wrong and What You Really Need to Know (English Edition)



*Par Emily Oster*

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## Description :

Prsentation de l'diteurFREAKONOMICS meets WHAT TO EXPECT WHEN YOU'RE EXPECTING in this groundbreaking guidebook. Award-winning Emily Oster debunks myths about pregnancy to empower women while they're expecting.Pregnancy is full of rules. Pregnant women are often treated as if they were children, given long lists of items to avoid-alcohol, caffeine, sushi- without any real explanation from their

doctors about why. They hear frightening and contradictory myths about everything from weight gain to sleeping on your back to bed rest from friends and pregnancy books. In *EXPECTING BETTER*, Oster shows that the information given to pregnant women is sometimes wrong and almost always oversimplified. When Oster was expecting her first child, she felt powerless to make the right decisions for her pregnancy so Oster drew on her own experience and went in search of the real facts about pregnancy using an economist's tools. Economics is the science of determining value and making informed decisions. To make a good decision, you need to understand the information available to you and to know what it means to you as an individual. *EXPECTING BETTER* overturns standard recommendations for alcohol, caffeine, sushi, bed rest, and induction while putting in context the blanket guidelines for fetal testing, weight gain, risks of pregnancy over the age of thirty-five, and nausea, among others. Oster offers the real-world advice one would never get at the doctor's office. Knowing that the health of your baby is paramount, readers can know more and worry less. Having the numbers is a tremendous relief—and so is the occasional glass of wine. This groundbreaking guidebook is as fascinating as it is practical.

**Extrait**

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**Introduction** In the fall of 2009 my husband, Jesse, and I decided to have a baby. We were both economics professors at the University of Chicago. We'd been together since my junior year of college, and married almost five years. Jesse was close to getting tenure, and my work was going pretty well. My thirtieth birthday was around the corner. We'd always talked about having a family, and the discussion got steadily more serious. One morning in October we took a long run together and, finally, decided we were ready. Or, at the very least, we probably were not going to get any more ready. It took a bit of time, but about eighteen months later our daughter, Penelope, arrived. I'd always worried that being pregnant would affect my work; people tell all kinds of stories about pregnancy brain, and missing weeks (or months!) of work for morning sickness. As it happens, I was lucky and it didn't seem to make much difference (actually having the baby was another story). But what I didn't expect at all is how much I would put the tools of my job as an economist to use during my pregnancy. This may seem odd. Despite the occasional use of Dr. in front of my name, I am not, in fact, a real doctor, let alone an obstetrician. If you have a traditional view of economics, you're probably thinking of Ben Bernanke making Fed policy, or the guys creating financial derivatives at Goldman Sachs. You would not go to Alan Greenspan for pregnancy advice. But here is the thing: the tools of economics turn out to be enormously useful in evaluating the quality of information in any situation. Economists' core decision-making principles are applicable everywhere. Everywhere. And that includes the womb. When I got pregnant, I pretty quickly learned that there is a lot of information out there about pregnancy, and a lot of recommendations. But neither the information nor the recommendations were all good. The information was

of varying quality, and the recommendations were often contradictory and occasionally infuriating. In the end, in an effort to get to the good information to really figure out the truth and to make the right decisions, I tackled the problem as I would any other, with economics. At the University of Chicago I teach introductory microeconomics to first-year MBA students. My students would probably tell you the point of the class is to torture them with calculus. In fact, I have a slightly more lofty goal. I want to teach them decision making.

Ultimately, this is what microeconomics is: decision science—a way to structure your thinking so you make good choices. I try to teach them that making good decisions in business, and in life, requires two things. First, they need all the information about the decision—they need the right data. Second, they need to think about the right way to weigh the pluses and minuses of the decision (in class we call this costs and benefits) for them personally. The key is that even with the same data, this second part—this weighing of the pluses and minuses—may result in different decisions for different people. Individuals may value the same thing differently. For my students, the applications they care about most are business-related. They want to answer questions like, should I buy this company or not? I tell them to start with the numbers: How much money does this company make? How much do you expect it to make in the future? This is the data, the information part of the decision. Once they know that, they can weigh the pluses and minuses. Here is where they sometimes get tripped up. The plus of buying is, of course, the profits that they'll make. The minus is that they have to give up the option to buy something else. Maybe a better company. In the end, the decision rests on evaluating these pluses and minuses for them personally. They have to figure out what else they could do with the money. Making this decision correctly requires thinking hard about the alternative, and that's not going to be the same for everyone. Of course, most of us don't spend a lot of time purchasing companies. (To be fair, I'm not sure this is always what my students use my class for, either—I recently got an e-mail from a student saying that what he learned from my class was that he should stop drinking his beer if he wasn't enjoying it. This actually is a good application of the principle of sunk costs, if not the primary focus of class.) But the concept of good decision making goes far beyond business. In fact, once you internalize economic decision making, it comes up everywhere. When Jesse and I decided we should have a baby, I convinced him that we had to move out of our third-floor walk-up. Too many steps with a stroller, I declared. He agreed, as long as I was willing to do the house shopping. I got around to it sometime in February, in Chicago, and I trekked in the snow to fifteen or sixteen seemingly identical houses. When I finally found one that I liked (slightly) more than the others, the fun started. We had to make a decision about how much to offer for it. As I teach my students, we started with the data: we tried to figure out how much this particular house was worth in the market. This wasn't too difficult. The house had last sold in 2007, and we found the price listed online. All we had to do was figure out how much prices had changed in the last two years. We were right in the middle of a housing crisis—hard to miss, especially for an economist—we knew prices had gone down. But by how much? If we wanted to know about price changes in Chicago overall we could have used something called the Case-Shiller index, a common measure of housing prices. But this was for the whole city—not just for our neighborhood. Could we do better? I found an online housing resource (Zillow.com) that provided simple graphs showing the changes in housing prices by neighborhood in Chicago. All we had to do was take the old price, figure out the expected change, and come up with our new price. This was the data side of the decision. But we weren't done. To make the right decision we still needed the pluses and minuses part. We needed to think about how much we liked this house relative to other houses. What we had figured out was the market price for the house—what we thought other people would want to pay, on average. But if we thought this house was really special, really perfect, and ideal for us in particular, we would probably want to bid more than we thought it was worth in the market—we'd be willing to pay something extra because our feelings about this house were so strong. There wasn't any data to tell us about this second part of the decision; we just had to think about it. In the end, we thought that, for us, this house seemed pretty similar to all the other ones. We bid the price we thought was correct for the house, and we didn't get it. (Maybe it was the pricing memo we sent with our bid? Hard to say.) In the end, we bought another house we liked just as much. But this was just our personal situation. A few months later one of our friends fell in love with one particular house. He thought this house was a one-of-a-kind option, perfect for him and his family. When it came down to it, he paid a bit more than the data might have suggested. It's easy to see why that's also the right decision, once you use the right decision process—the economist's decision process. Ultimately, as I tell my students, this isn't just one way to make decisions. It is the correct way. So, naturally, when I did get pregnant I thought this was how pregnancy decision making would work, too. Take something like amniocentesis. I thought my doctor would start by outlining a

framework for making this decision pluses and minuses. She'd tell me the plus of this test is you can get a lot of information about the baby; the minus is that there is a risk of miscarriage. She'd give me the data I needed. She'd tell me how much extra information I'd get, and she'd tell me the exact risk of miscarriage. She'd then sit back, Jesse and I would discuss it, and we'd come to a decision that worked for us. This is not what it was like at all. In reality, pregnancy medical care seemed to be one long list of rules. In fact, being pregnant was a lot like being a child again. There was always someone telling you what to do. It started right away. You can have only two cups of coffee a day. I wondered why what were the minuses (I knew the pluses I love coffee!)? What did the numbers say about how risky this was? This wasn't discussed anywhere. And then we got to prenatal testing. The guidelines say you should have an amniocentesis only if you are over thirty-five. Why is that? Well, those are the rules. Surely that differs for different people? Nope, apparently not (at least according to my doctor). Pregnancy seemed to be treated as a one-size-fits-all affair. The way I was used to making decisions thinking about my personal preferences, combined with the data was barely used at all. This was frustrating enough. Making it worse, the recommendations I read in books or heard from friends often contradicted what I heard from my doctor. Pregnancy seemed to be a world of arbitrary rules. It was as if when we were shopping for houses, our realtor announced that people without kids do not like backyards, and therefore she would not be showing us any houses with backyards. Worse, it was as if when we told her that we actually do like backyards she said, No, you don't, this is the rule. You'd fire your real estate agent on the spot if she did this. Yet this is how pregnancy often seemed to work. This wasn't universal, of course; there were occasional decisions to which I was supposed to contribute. But even these seemed cursory. When it came time to think about the epidural, I decided not to have one. This wasn't an especially common choice, and the doctor told me something like, Okay, well, you'll probably get one anyway. I had the appearance of decision-making authority, but apparently not the reality. I don't think this is limited to pregnancy other interactions with the medical system often seem to be the same way. The recognition that patient preferences might differ, which might play an important role in deciding on treatment, is at least sometimes ignored. At some point I found myself reading Jerome Groopman and Pamela Hartzband's book, *Your Medical Mind: How to Decide What Is Right for You*, and nodding along with many of their stories about people in other settings prostate cancer, for example who should have had a more active role in deciding which particular treatment was right for them. But, like most healthy young women, pregnancy was my first sustained interaction with the medical system. It was getting pretty frustrating. Adding to the stress of the rules was the fear of what might go wrong if I did not follow them. Of course, I had no way of knowing how nervous I should be. I wanted a doctor who was trained in decision making. In fact, this isn't really done much in medical schools. Appropriately, medical school tends to focus much more on the mechanics of being a doctor. You'll be glad for that, as I was, when someone actually has to get the baby out of you. But it doesn't leave much time for decision theory. It became clear quickly that I'd have to come up with my own framework to structure the decisions on my own. That didn't seem so hard, at least in principle. But when it came to actually doing it, I simply couldn't find an easy way to get the numbers the data to make these decisions. I thought my questions were fairly simple. Consider alcohol. I figured out the way to think about the decision there might be some decrease in child IQ from drinking in pregnancy (the minus), but I'd enjoy a glass of wine occasionally (the plus). The truth was that the plus here is small, and if there was any demonstrated impact of occasional drinking on IQ, I'd abstain. But I did need the number: would having an occasional glass of wine impact my child's IQ at all? If not, there was no reason not to have one. Or in prenatal testing. The minus seemed to be the risk of miscarriage. The plus was information about the health of my baby. But what was the actual miscarriage risk? And how much information did these tests really provide relative to other, less risky, options? The numbers were not forthcoming. I asked my doctor about drinking. She said that one or two drinks a week was probably fine. Probably fine is not a number. The books were the same way. They didn't always say the same thing, or agree with my doctor, but they tended to provide vague reassurances (prenatal testing is very safe) or blanket bans (no amount of alcohol has been proven safe). Again, not numbers. I tried going a little closer to the source, reading the official recommendation from the American Congress of Obstetricians and Gynecologists. Interestingly, these recommendations were often different from what my doctor said they seemed to be evolving faster with the current medical literature than actual practice was. But they still didn't provide numbers. To get to the data, I had to get into the papers that the recommendations were based on. In some cases, this wasn't too hard. When it came time to think about whether or not to get an epidural, I was able to use data from randomized trials the gold standard evidence in science to figure out the risks and benefits. In other cases, it was a lot more

complicated. And several times with alcohol and coffee, certainly, but also things like weight gain I came to disagree somewhat with the official recommendations. This is where another part of my training as an economist came in: I knew enough to read the data correctly. A few years ago, my husband wrote a paper on the impact of television on children's test scores. The American Academy of Pediatrics says there should be no television for children under two years of age. They base this recommendation on evidence provided by public health researchers (the same kinds of people who provide evidence about behavior during pregnancy). Those researchers have shown time and again that children who watch a lot of TV before the age of two tend to perform worse in school. This research is constantly being written up in places like the New York Times Science section under headlines like SPONGEBOB THREAT TO CHILDREN, RESEARCHERS ARGUE.

But Jesse was skeptical, and you should be, too. It is not so easy to isolate a simple cause-and-effect relationship in a case like this. Imagine that I told you there are two families. In one family the one-year-old watches four hours of television per day, and in the other the one-year-old watches none. Now I want you to tell me whether you think these families are similar. You probably don't think so, and you'd be right. On average, the kinds of parents who forbid television tend to have more education, be older, read more books, and on and on. So is it really the television that matters? Or is it all these other differences? This is the difference between correlation and causation. Television and test scores are correlated, there is no question. This means that when you see a child who watches a lot of TV, on average you expect him to have lower test scores. But that is not causation. The claim that SpongeBob makes your child dumber is a causal claim. If you do X, Y will happen. To prove that, you'd have to show that if you forced the children in the no-TV households to watch SpongeBob and changed nothing else about their lives, they would do worse in school. But that is awfully hard to conclude based on comparing kids who watch TV to those who do not. In the end, Jesse (and his coauthor, Matt) designed a clever experiment. They noted that when television was first getting popular in the 1940s and 1950s, it arrived in some parts of the country earlier than others. They identified children who lived in areas where TV was available before they were two, and compared them to children who were otherwise similar but lived in areas with no TV access until they were older than two. The families of these children were similar; the only difference was that one child had access to TV early in life and one did not. This is how you draw causal conclusions. And they found that, in fact, television has no impact on children's test scores. Zero. Zilch. Its very precise, which is a statistical way of saying they are actually quite sure that it doesn't matter. All that research in public health about the dangers of SpongeBob? Wrong. It seems very likely that the reason SpongeBob gets a bad rap is that the kinds of parents who let their kids watch a lot of television are different. Correlation, yes. Causation, no. Just to be clear, I'm still a little wary of television, being from one of those families where we could never watch TV. Jesse is not. Occasionally, when he thinks I'm not looking, I catch him and Penelope in the basement snuggling on the couch, enjoying some Sesame Street. When I protest, he points to the evidence, and I can't really argue. Pregnancy, like SpongeBob, suffers from a lot of misinformation. One or two weak studies can rapidly become conventional wisdom. At some point I came across a well-cited study that indicated that light drinking in pregnancy perhaps a drink a day causes aggressive behavior in children. The study wasn't randomized; they just compared women who drank to women who did not. When I looked a little closer, I found that the women who drank were also much, much more likely to use cocaine. We know that cocaine is bad for your child not to mention the fact that women who do cocaine often have other issues. So can we really conclude from this that light drinking is a problem? Isn't it more likely (or at least equally likely) that the cocaine is the problem? Some studies were better than others. And often, when I located the good studies, the reliable ones, the ones without the cocaine users, I found them painting a pretty different picture from the official recommendations. These recommendations increasingly seemed designed to drive pregnant women crazy, to make us worry about every tiny thing, to obsess about every mouthful of food, every pound we gained. Actually getting the numbers led me to a more relaxed place a glass of wine every now and then, plenty of coffee, exercise if you want, or not. Economics may not be known as a great stress reliever, but in this case it really is. More than even the actual recommendations, I found having numbers at all provided some reassurance. At some point I wondered about the risks of the baby arriving prematurely. I went to the data and got some idea of the chance of birth in each pregnancy week (and the fetal survival rate). There wasn't any decision to be made nothing to really do about this but just knowing the numbers let me relax a bit. These were the pregnancy numbers I thought I'd get from my doctor and from pregnancy books. In the end, it just turned out that I had to get them myself. I've always been someone for whom knowing the data, knowing the evidence, is exactly what I need to chill out. It makes me feel comfortable and confident that I'm making

the right choices. Approaching pregnancy in this way worked for me. I wasn't sure it would work for other people. And then my friends got pregnant. Pretty much all of them at the same time. They all had the same questions and frustrations I had. Can I take a sleeping pill? Can I have an Italian sub (I really want one! Does that make a difference?)? My doctor wants to schedule a labor induction should I do it? What's the deal with cord-blood banking? Sometimes they weren't even pregnant yet. I had lunch with a friend who wanted to know whether she should worry about waiting a year to try to get pregnant how fast does fertility really fall with age? Their doctors, like mine, had a recommendation. Sometimes there was an official rule. But they wanted to make the decision that was right for them. I found myself referring to my obstetrics textbook, and to the medical literature, long after my Penelope was born. There was a limit to the role I could play in delivering babies, fortunately (for me and, especially, the babies). But I could provide people with information, give them a way to discuss concerns with their OBs on more equal footing, help them make decisions they were happy with. And as I talked to more and more women it became clear that the information I could give them was useful precisely because it didn't come with a specific recommendation.

The key to good decision making is taking the information, the data, and combining it with your own estimates of pluses and minuses. In some cases, the existing rule is wrong. In others, it isn't a question of right or wrong but what is right for you and your pregnancy. I looked at the evidence on the epidural, combined it with my own plus and minus preferences, and decided not to have one. My friend Jane looked at the same evidence and decided to have one. In the end, I felt fine eating deli meats; my college roommate Tricia looked at the evidence and decided she would avoid them. All of these are good decisions. So this book is for my friends. It's the pregnancy numbers—the data to help them make their personalized pregnancy decisions and to help them understand their pregnancies in the clearest possible way, by the numbers. It's the suggestion that maybe it's okay to have a glass of wine and, more important, the data on why. It's the numbers on the risk of miscarriage by week, data on which fish to eat to make your kid smart (and which to avoid because they could make your kid dumb), information on weight gain, on prenatal testing versus prenatal screening, on bed rest and labor induction, on the epidural and the benefits (or not) of a birth plan. This book is a way to take control and to expect better. Pregnancy and childbirth (and child rearing) are among the most important and meaningful experiences most of us will ever have; probably the most important. Yet we are often not given the opportunity to think critically about the decisions we make. Instead, we are expected to follow a largely arbitrary script without question. It's time to take control: pick up a cup of coffee or, if you like, a glass of wine, and read on.

**PART I In the Beginning: Conception**

**Prep Work** Some pregnancies are a surprise. If you're one of those women who woke up feeling queasy, took a pregnancy test on a whim, and were shocked to see the second pink line show up, congratulations! Please skip ahead. But for a lot of us, we were thinking about getting pregnant long before it actually happens. I met my husband in college in 2001. We got married in 2006. Our daughter was born in 2011. I won't say I spent the whole ten years thinking about a baby, but I (and, later, we) did make a lot of choices with at least the long-term plan of having a family. And as I approached 30, and pregnant friends started popping up here and there, I thought a little more seriously. I wondered if there was something I should be doing in advance, even before we started trying to get pregnant. Should I change my diet? My doctor did once suggest I should cut down on coffee, just so it wouldn't be such a shock to reduce when I was pregnant. Was that really necessary? Mostly, I worried that I was getting old. Thirty is not actually old in pregnancy terms. Advanced maternal age is reserved for women over 35, and you wouldn't be faulted for thinking that 35 was a sharp cutoff. I read one paper once that referred to eggs as best used by 35. Thanks, it's really helpful to know my sell-by date. But, of course, 35 is not a magical number. Biological processes don't work like this. Your eggs don't wake up on the morning of your 35th birthday and start planning their retirement party. Starting pretty much the first day you menstruate, your fertility is declining. Your most fertile time is in your teens, and it goes down from there—30 is worse than 20, and 40 is worse than 30. But, of course, there are other factors that push you in other directions. I certainly wasn't in a good position to have a baby in my first year of graduate school at 23, and the truth is that I'd probably be in a better position at 35 than at 30. It wasn't the only consideration, but I did wonder about how fast fertility declined. My doctor didn't seem worried. You're not thirty-five yet! she said—but that wasn't quite the detailed reassurance I was looking for. I went looking for reassurance (or, at least, information) in the world of data, in the academic medical literature. As I expected, there was an answer. It just wasn't quite what the over-35 retired-eggs story would have suggested. The main research on this uses data from the 1800s (it's old but the technology hasn't changed much!). Here is the idea: prior to the modern era, couples would pretty much get down to business right after the wedding, and there were limited

birth control options. So you can figure out how fertility varies with age by looking at the chance of having children at all for women getting married at different ages. Researchers found that the chance of having any children was very similar for women who got married at any age between 20 and 35. Then it began to decline: women who got married between 35 and 39 were about 90 percent as likely to have a child as those who got married younger than 35; women who got married between 40 and 44 were only about 62 percent as likely; and women who got married between 45 and 49 were only 14 percent as likely. Put differently, virtually everyone who got married between 20 and 35 had at least one child, compared to only about 14 percent of those who got married after 45. You may or may not like to draw conclusions from such old data. People live longer now, and are healthier longer. It is certainly possible that as longevity and health increase, women will remain fertile longer. Even if you do take this data at face value, the reduction in fertility is not as dramatic as you might have feared. The 35- to 39-year-old group is only slightly less likely to have children; the major drop in fertility is not until after 40, and at least some women over 45 in this data did conceive this in an era well before in vitro fertilization (IVF)! Contemporary data looks fairly similar, perhaps even somewhat more encouraging. Researchers in France studied a group of around 2,000 women who were undergoing insemination with donor sperm. One nice aspect of this study is that they didn't have to worry that older people had sex less frequently because everyone in the study was trying to get knocked up at the right time of the month in a controlled environment. After 12 cycles, the pregnancy rate was around 75 percent for women under 30, 62 percent for women 31 to 35, and 54 percent for women over 35. In this oldest group things were similar for women 36 to 40 and over 40. More than half of the over-40 women in the sample got pregnant within a year. In the end, my doctor was basically right to pooh-pooh my worries. But for me, seeing the numbers this way, in black and white, was far more reassuring. I could see in detail that starting to try at 30 rather than at 28 was not going to make that much difference. I could think about the timing if we wanted, for example, more than one child. And I could see that the numbers were all pretty high for me, reading 75 percent of women were pregnant with a year was a lot more helpful than hearing things like, It works out for most women. For one thing, how do I know if your most is the same as mine? I'd experience this again and again. The value of having numbers data is that they aren't subject to someone else's interpretation. They are just the numbers. You can decide what they mean for you. In this case, it's true that it's harder to get pregnant when you are older. But it's not impossible, not even close. When we did start thinking more seriously about a baby, I stopped focusing so much on age. (After all, what could I do? Not getting older is not exactly an option.) But I did wonder about other things I might do to prepare. I asked my OB at my yearly visit if there was anything I should be aware of. Other than some generic advice to relax (not one of my strengths), the one thing she focused on was exercise. Make sure you are exercising before you get pregnant. When I talked to other women, it seemed like this was part of a more general theme: it's a good idea to try to be in good physical shape before getting pregnant. Independent of any medical advice, I had long harbored the fantasy of getting to my goal weight prior to pregnancy. I had achieved this weight exactly once in my life, before my wedding, through a process of five A.M. ninety-minute cardio workouts four days a week. I figured if I got to this weight again before we got pregnant, I'd be one of those Heidi Klum-type women who look great through the whole pregnancy and are back to bikini modeling eight weeks after giving birth. In the end, of course, I got pregnant right after our summer vacation, not exactly the most weight-loss-friendly time of year. That's okay, I figured, I'm sure it will be easy to get to that goal weight after the baby is born. I am nothing if not optimistic. Other than some feeling of personal achievement, it wasn't clear to me why I should care about my prepregnancy weight. Does it matter for anything? A few pounds here and there, obviously not. Overall, yes. Women (and their doctors) worry a lot about weight gain during pregnancy, but it turns out that weight before pregnancy is much more important. About 70 percent of the U.S. population are overweight (defined as a body mass index over 25), and 35 percent are obese (BMI over 30). (Note: to calculate your BMI, take your weight in kilograms and divide it by your height in meters squared. If you are 5 feet 6 inches and 150 pounds, your BMI is 24.2.) On a number of important dimensions, obese women in particular have more difficult pregnancies than normal-weight women. One study that demonstrates this effectively used a group of roughly 5,000 births at one hospital in Mississippi.<sup>2</sup> The advantage of using a single hospital is that it means the women are all pretty similar in terms of income, education, and other characteristics. A large percentage of the women in the study were obese. The authors looked at a very large number of outcomes related to the mothers: preeclampsia, urinary tract infection, gestational diabetes, preterm delivery, the need for labor induction, Cesarean delivery, and postpartum hemorrhage (bleeding after birth). They also looked at some things about the babies: shoulder dystocia

(when the second shoulder gets stuck during delivery), whether the baby needed help breathing, the five-minute APGAR score (a measure of the baby's condition five minutes after birth), and whether the baby was abnormally small or abnormally large. Obese women have more pregnancy complications, as the graph on the next page illustrates. One example: 23 percent of normal-weight women have a C-section, versus almost 40 percent of obese women. The risk of preeclampsia, a serious pregnancy complication, is more than three times as high if you are obese. Overweight women (not in this graph) fall somewhere in the middle, slightly

higher risk for some complications, but the differences with normal-weight women are small. **Pregnancy Complications and Prepregnancy Obesity** When this study looked at infants, the babies of obese women were also more likely to have complications. If you are obese when you get pregnant, your baby is more likely to have shoulder dystocia, more likely to have low APGAR scores, and more likely to be abnormally large for gestational age. Even scarier, children of obese women are at higher risk for death, although this is very rare, regardless of Mom's weight. This data is from just one study, but the findings are very consistent with other

studies, from the United States and elsewhere.<sup>3, 4</sup> And the effects aren't limited to outcomes during pregnancy. Obese women have a harder time conceiving, and are more likely to miscarry early in pregnancy.<sup>5</sup> There is even some recent evidence that maternal obesity is associated with delays in breast milk coming in, which can impact breast-feeding success.<sup>6</sup> **Baby Outcome and Prepregnancy Weight** A review article from 2010 summarizes the literature on this issue with a simple statement: Maternal obesity affects conception, duration and outcome of pregnancy. Offspring are at increased risk of both immediate and long term implications for health.<sup>7</sup> In other words, it is harder to get pregnant, harder to sustain a pregnancy, more likely that later-term complications will arise, and more likely that there will be complications with the baby. All of which you would like to avoid. None of this is to suggest that it's a problem if you can't lose that last five pounds, of course. The outcomes here are a result of pretty large differences in weight. I may have been disappointed not to get down to my fighting weight, but it is unlikely that it mattered. And being too skinny can also interfere with conception. But it does suggest that there are real benefits to getting your weight under control before you get pregnant. Of course, weight loss may have health benefits for reasons other than pregnancy. See, your (hypothetical) baby is helping out already!

**The Bottom Line** Fertility declines with age, but not as fast as you might expect.<sup>35</sup> is not a magic number cutoff. Being obese before pregnancy is associated with an increased risk of complications for both you and your baby. Don't worry too much about a few pounds here and there, but if you are significantly overweight, weight loss before pregnancy may have benefits.<sup>2</sup> **Data-Driven Conception** I spent most of my twenties trying

not to get pregnant. I used at least three versions of the birth control pill and even, for a brief time, something called The Patch. So I knew I was really good at not getting pregnant. Of course, I worried that perhaps I wouldn't be so good at getting pregnant. I'd like to say that I approached the process of conception in a laissez-faire way. After all, I was only thirty, we had plenty of time, and there was no indication that we'd have trouble conceiving. I wish I could say I was like my sister-in-law, Rebecca, who was so relaxed about this with my nephew that she was two months along before she even realized she was pregnant. But this

doesn't really fit with my personality. I suspected even before we got down to business that I would be a neurotic mess. I was correct. I actually had a panic attack about this before we even started trying. It must be a record. When I went to my primary care doctor, she looked at me thoughtfully and suggested that perhaps knowing more about the process would help me relax (even if I couldn't actually control it). I don't know why this hadn't occurred to me before, but she was exactly right. On her recommendation, I picked up a copy of *Taking Charge of Your Fertility* and read it cover to cover. The main thing I learned was that a lot has to go

right to get pregnant. It's kind of amazing that the human race continues to exist at all. You probably remember the basics of conception from health class: unprotected sex, sperm meets egg, and, all of a sudden, you're pregnant. High school health class tends to give the impression that pregnancy is really, really

likely part of the general scare-tactic attitude. But, in fact, the majority of the time it is not possible to get pregnant. The key issue is timing: you need sperm to be around at the exact moment that the egg is ready. When is that? The average woman has a menstrual cycle of 28 days, counting from the beginning of one period to the beginning of the next. The first day of your period is considered day 1. The week of your period and the week after it are preparation for ovulation. About 14 days after your period starts the egg is released (this is ovulation) and begins to travel down toward the uterus. The egg is available for fertilization during this journey, which lasts a couple of days. If the egg meets a sperm on its way to the uterus and the sperm gets lucky, fertilization occurs. If you happen to release two eggs and they both meet sperm, you get twins; twins can also happen if the fertilized egg divides right at the beginning. When the fertilized egg (or

eggs) reaches the uterus, implantation occurs and pregnancy actually begins. The process from egg release to implantation lasts 6 to 12 days. For most successful pregnancies, implantation occurs 22 to 24 days after the first day of your last period.<sup>1</sup> This whole second half of the cycle (after the egg is released) is called the luteal phase. Its either taken up with fertilization and implantation (if you get pregnant) or with the egg waiting around in the uterus to be flushed out during your period. If you do not get pregnant, day 28 will bring your period. If you do get pregnant, day 28 will roll around periodless, and you'll be off and running. Heres the basic timeline (this is for someone with a standard 28-day cycle; if your cycle is a few days longer or shorter you might ovulate a bit earlier or later than day 14): The key to pregnancy is that when the egg starts making its way down the tube, the sperm has to be waiting for it. This means the best time for sex or insemination is the day before or the day of ovulation. It takes some time for sperm to swim into the fallopian tubes, so the day after ovulation is generally too late. Sperm are, however, a bit more robust than the egg. They can typically live up to 5 days in the fallopian tube, waiting. This means the window is actually a bit longer. Sex 4 or 5 days before ovulation can lead to a baby, although its less likely. I was curious about how much less likely. All this talk about a small ovulation window was there really any truth to that? How small was the window? Figuring this out actually requires knowing quite a lot about peoples sex lives. Fortunately, at least some researchers are up to the challenge. I found a study that followed more than 200 couples who were trying to conceive for more than a year. The authors recorded detailed information on when they had sex and collected their urine daily (daily!) so they could monitor both ovulation and pregnancy.<sup>2</sup> Using this information, the researchers figured out the best timing for baby-making sex (this wasnt the goal of the study, just an auxiliary fact we can learn from it). What makes this question a bit tricky to answer is that most couples trying to get pregnant have sex frequently. This makes it hard to know which sex act led to the baby was it the sex you had on the day of ovulation? Or three days before? The researchers get around this by focusing on women who had sex just one time in the plausible conception window. Using these one-day-of-sex people, we can figure out the chance of conception by day. Here it is: Probability of Conception by Cycle Day For most of the month, pregnancy is impossible (at least based on these data). No one conceived by having sex after ovulation by the time the sperm gets up into the fallopian tubes, the egg is long gone. In addition, no one conceived by having sex more than 5 days before ovulation. The window of possible conception is short: from 5 days before ovulation through the day of ovulation. But note that if you time it right, the chances of pregnancy are good. Conception rates are more than 30 percent for the day before and the day of ovulation! These odds are really not bad. If you had to pick just one day in the month for sex, you'd want to pick the day you ovulate (or the day before: the pregnancy rates are similar). If you are using artificial insemination, it also makes sense to focus on the day before and the day of ovulation, when fertilization is most likely. For most women with a standard 28-day cycle, this is around the 14th day after your period starts. Of course, one way to make sure that you definitely have sex on the day of ovulation is to have sex every day around the possible ovulation day (or just have sex every day). This technique is typically pretty popular with husbands, at least in the first month or two. But some OBs will warn you off this. I was told that the best strategy is to have sex every other day. If you did this, you'd be sure to capture at least one of the two best days, and the argument is that if you (or your partner) save up the sperm, then pregnancy chances are increased. On the other hand, saving them too much (say, skipping sex for more than ten days) tends to cause their effectiveness to diminish.<sup>3</sup> This always sounded a little suspicious to me. I can easily believe that the amount of sperm is higher if you wait a day, but could it really be more than twice as high, which is what would have to be true for the every-other-day plan to beat out the every-day plan? It turns out my skepticism was somewhat well placed. The same paper that gave me information on the right day for sex also determined whether frequency of intercourse mattered. The researchers calculated the predicted chance of pregnancy for people who had sex once during the 6-day window leading up to ovulation, for those who had it twice, three times, and so on. The chances were almost identical. In other words, there seems to be no benefit to alternating sex days, having sex more frequently, or having sex less frequently. The crucial thing is to hit the day of ovulation or the day before. This appeared to make things simple. All I had to do was figure out when I was going to ovulate, and then have sex that day or the day before. I figured this wouldnt be that hard, although I worried a bit about work travel, and I patted myself on the back for having avoided what the fertility book suggested was the major infertility pitfall namely, not having sex on the right day. There was just one remaining problem: I didnt seem to be ovulating at all. Or, at least, things didnt seem to be behaving normally. When I went off the pill, my doctor said my cycle would return to normal (or return to whatever it was before I went on the pill, as if I could remember that). She said

it would happen within three months. It didnt. I went two months between periods, then had two within a few weeks. I called the doctor at 3 months and 1 day. What is going on? I asked the nurse when she called back. Should I be worried? What should I do? What I wanted was a concrete answer. Something like: 70 percent of women resume normal cycles within 3 months, 90 percent within 6 months. I wanted to know whether it mattered that I had been on the pill for 12 years. Would it take longer to get back to normal? This is not what I got. What I got was best described as vague reassurance (and the ever-helpful Just relax!). I thought if I pushed, I would get to the more detailed evidence, but I didnt. Everyone is different, I was told. Yes, that is why I asked about the average, I grumbled to Jesse. I would have this type of experience again and again. How accurate is the prenatal screening they suggested? Quite accurate. When should I expect to go into labor? Its a different time for everyone. I wanted a number. I craved evidence. Even if the answer was that the evidence was flawed and incomplete, I wanted to know about it. Yes, I understood that everyone was different. But that doesnt mean there isnt any information! Again, I headed out on my own to look for the numbers. The most popular temporary forms of birth control in the United States are (in order): the pill, condoms, IUDs, and the withdrawal method. Obviously, neither condoms nor the withdrawal method have any impact on your menstrual cycle. If youve been using condoms, whatever cycle youve had up until now will continue. Same for withdrawal, and for any other barrier method (diaphragm, Today Sponge, etc.). The pill makes things more complicated. As my doctor noted, sometimes the cycle returns to normal right away, but sometimes it takes a bit longer. The advantage of referring to the actual studies is that we can be more precise. In one study in Germany,<sup>4</sup> researchers studied menstrual cycles of women who just went off the pill. For some women it took up to 9 months to get back to a normal cycle. In the initial months after going off the pill these women had longer menstrual cycles, were more likely to have cycles in which they didnt ovulate, and were more likely to have cycles where the second half of the cycle (the luteal phase) was so short that pregnancy was unlikely. This study is similar to others. Researchers in the United States studying women who had gone off the pill in the last 3 months found they had longer cycles (by a couple of days), more variable cycle length, and later ovulation in some cycles than those who had been off the pill longer.<sup>5</sup> In addition, when researchers measured their cervical mucus, the women who had been off the pill longer had cervical mucus that was more welcoming to the sperm. The very good news, however, is that these effects are relatively short-lived. In the German study, virtually everyone had a normal cycle by 9 months after going off the pill. For some women it is much faster: 60 percent of women in that study had a normal cycle the first month off the pill. I was also reassured that once you do ovulate, having been on the pill doesnt seem to impact pregnancy rates. In another German study,<sup>6</sup> researchers studied women actually trying to get pregnant. They found that women who had just gone off the pill were slightly less likely to get pregnant in the first 3 months of trying, but no less likely to be pregnant within a year. This study also looked at the duration of pill usage and found no effect: even for people like me, who had been on the pill since their teenage years, things went back to normal in the same basic time frame. What I took from this was that worrying at 3 months and 1 day was unnecessary. If I got to 9 months without things normalizing I could consider stressing out a bit. Fewer women use IUDs, but the rates have crept up in the last decade. As with the pill, it takes a bit of time to recover fertility after using an IUD. In a recent literature review, authors found that women who had just gone off an IUD took (on average) a month longer to get pregnant than those who had just stopped oral contraceptives, but 80 to 90 percent (depending on the study) were pregnant within one year.<sup>7</sup> So I waited, and a couple of months later things normalized a bit, just like the data said they would. But I still needed to figure out when I was ovulating. Day 14? Day 16? Day 12? Even after 6 months my cycle wasnt completely regular; I couldnt just assume it was day 14. Also, I quickly figured out that this was an opportunity to collect data. I couldnt resist! There are three common ways to detect ovulation: temperature charting, checking cervical mucus, and pee sticks. The first two of these have been in use for many years; the pee stick method is relatively new. Temperature Charting: Temperature charting (sometimes called BBT charting, for basal body temperature) relies on the mildly interesting fact that your body temperature is higher in the second half of the month, after ovulation, than before. You can therefore figure out when you ovulate by taking your temperature every day. The technique itself is not complicated. Every morning before you get out of bed (moving around affects your temperature; you ideally want to take it as soon as you wake up, before you do anything), you take your temperature using an accurate digital thermometer. For the first half of the month, your temperature will be low typically below 98 degrees. The day after ovulation, it will jump up, usually at least half a degree and sometimes more. This is the sign that you ovulated. Your temperature will stay high through the rest of the month, and then drop on the day your

period starts, or (often) the day before. If you get pregnant, your temperature will stay high. There are some very good things about temperature charting. In the month you are doing it, it can tell you with high certainty that you did, in fact, ovulate. If your cycles are regular, it can help you plan for the next month by showing you the day on which you generally ovulate. It can also tell you that you are pregnant. More than 14 days of high temperatures is a very good indication of pregnancy. However, this isn't perfect. The biggest issue is that it tells you only after you ovulate. So although it is useful for predicting the next month, it doesn't help with this month. Also, it's not as simple as it seems. To really make this work you need to take your temperature at the same time every day, ideally first thing in the morning after four to five hours of continuous sleep. The results can get screwed up by jet lag, a fever, or a bad night of sleep. I liked this method a lot, if only because it enabled me to feel like I was doing something proactive every day (and because it produced data, which I could use to make attractive charts). The downside is that I was never especially good at it. My temperature chart from the month that I got pregnant with Penelope is on the next page. On one hand, the fact that my temperature eventually elevated and stayed up gave me a (small) clue that I was pregnant. On the other hand, all the jet lag and my generally poor sleep meant that it was almost impossible to interpret. I initially thought I ovulated on June 9 because my temperature went up on June 10; then I realized this was just because of the time change when we got back from Europe. The sustained higher temperatures did not occur until I got back from Ghana. The only way I knew that I must have ovulated before that trip was that Jesse wasn't there!

### Basal Body Temperature Chart, June 2010

We can be a little more scientific about how useful this is for the average woman. In a study from the late 1990s, 8 researchers followed a set of women trying not to get pregnant and evaluated how good various methods were at detecting ovulation. In this study they were able to pinpoint the actual date of ovulation using ultrasound, so they knew the truth. The temperature-charting method as used by these women accurately identified the day of ovulation about 30 percent of the time. Another 30 percent of the time this method pointed to ovulation one day before it actually occurred. That day before ovulation is also good for pregnancy sex. Putting this together: if you have sex on the date indicated by temperature charting, 60 percent of the time you would manage to time sex on one of the two most fertile days of the month.

### Cervical Mucus: If you really want to get serious about natural ovulation detection, you probably want to chart your cervical mucus along with your temperature. This is a bit more complicated than temperature charting and, at least for some women (read: me), there is an ick factor. Here's the idea: right around ovulation your body produces a type of mucus ideal for sperm to swim through. You can detect this mucus in and around your cervix.

### Revue de presse EXPECTING BETTER will be a revelation for curious mothers-to-be whose doctors fail to lay out the pros and cons of that morning latte, let alone discuss real science. And it makes for valuable homework before those harried appointments, even for lucky patients whose doctors are able to talk about the rationale behind their advice. (The New York Times)

Emily Oster struck a blow for common sense and freedom when she published her ground-breaking book **EXPECTING BETTER**. In it she demolishes the nonsensical shibboleths and politically correct nostrums that have dogged pregnant women for so long... God bless her, I say. And her book should be required reading for pregnant women everywhere. (Richard Judy **DAILY EXPRESS**)

This is a fascinating-and reassuring-look at the most important numbers of your pregnancy. It will make parents-to-be rethink much of the conventional wisdom: think bed rest is a good idea? Think again. This may be the most important book about pregnancy you read. (Steven D. Levitt **New York Times** bestselling co-author of **FREAKONOMICS**)

Emily Oster combs through hundreds of medical studies to debunk many widely followed dictates: no alcohol, no caffeine, no changing the kitty litter. Her conclusions are startling... **EXPECTING BETTER** walks women through medical literature surrounding every stage of pregnancy, giving them data to make informed decisions about their own pregnancy. (New York Magazine)

Expecting Better gives moms-to-be a big helping of peace of mind! Oster debunks many tired old myths and shines a light on issues that really matter. (Harvey Karp MD bestselling author of **THE HAPPIEST BABY GUIDE TO SLEEP** and **THE HAPPIEST BABY ON THE BLOCK**)

Expecting Better is a fascinating and reassuring tour of pregnancy and childbirth, with data leading the way at every juncture. From start to finish, Oster easily leads us through the key findings of the extant pregnancy-related research. My only regret is that my wife and I had three children without the benefit of this insightful approach. (Charles Wheelan **New York Times** bestselling author of **NAKED STATISTICS**)

It took someone as smart as Emily Oster to make it all this simple. She cuts through the thicket of anxiety and received wisdom, and gives us the facts. Expecting Better is both enlightening and calming. It almost makes me want to get pregnant. (Pamela Druckerman **New York Times** bestselling author of **BRINGING UP BB** and **BB DAY**)

BY DAY)The only antidote to pregnancy anxiety is facts, and Emily Oster has them in spades. Disarmingly personal and easy to read, this book is guaranteed to cut your freaking out in half. Pregnancy studies has a new heroine. Every pregnant woman will cheer this book-and want to take Oster out for a shot of espresso.

(Rachel Simmons New York Times bestselling author of CURSE OF THE GOOD GIRL)She's such a brilliant researcher and wordsmith. (Parents.com)Economist and author Emily Oster contradicts conventional wisdom and advocates a much more relaxed approach to pregnancy. (DAILY MAIL)The sense (is) so often conveyed by medicine that even by seeking a solution for a pain or ailment, you are failing to put your baby first; that some fundamental part of motherhood is embracing a problem rather than trying to solve it...(Emily Oster's) book has done something important to counter this creed - indubitably important for pregnant women, but vital, too, for everyone else. (Zoe Williams THE GUARDIAN)Essential reading for mums-to-be. (Sarah Hall Metro)Emily Oster struck a blow for common sense and freedom when she published her ground breaking book EXPECTING BETTER. In it she demolishes the nonsensical shibboleths and politically correct nostrums that have dogged pregnant women for so long...God bless her, I say. And her book should be required reading for pregnant women everywhere. (Richard Judy Daily Express)This is a fascinating-and reassuring-look at the most important numbers of your pregnancy. It will make parents-to-be rethink much of the conventional wisdom: think bed rest is a good idea? Think again. This may be the most important book about pregnancy you read. (Steven D. Levitt New York Times bestselling co-author of FREAKONOMICS)Expecting Better gives moms-to-be a big helping of peace of mind! Oster debunks many tired old myths and shines a light on issues that really matter. (Harvey, Karp, MD bestselling author of THE HAPPIEST BABY GUIDE TO SLEEP and THE HAPPIEST BABY ON THE BLOCK)Economist and author Emily Oster contradicts conventional wisdom and advocates a much more relaxed approach to pregnancy. (Daily Mail)