



# Pathway to a Healthy Birth

*How to Help Your Hormones  
Do Their Wonderful Work*

Birth hormones can do an amazing job guiding you and your baby on the path to a healthy birth. They prepare both of you every step of the way, from getting ready for labor to breastfeeding and bonding.

**But some things can get in their way.**

**Find out how you can help your birth hormones do their wonderful work for you and your baby.**





## What are birth hormones and what do they do?

Birth hormones are “chemical messengers” that your body makes. Your baby makes birth hormones, too. These hormones work together to guide important changes in your bodies—changes that help make labor and birth go smoothly and safely for both of you.

Birth hormones help guide you and your baby in many ways, including:

- Getting your body ready to give birth
- Starting your labor contractions
- Preparing your baby for labor and life outside your body
- Telling your breasts to make milk and getting your baby ready to suckle

And when you and your new baby fall in love, birth hormones are part of those feelings, too!

## Birth Hormones

### ***oxytocin***

*[OX-ee-TOE-sin] causes labor contractions and helps create feelings of love, calmness, and connection to others.*

### ***beta-endorphins***

*[BAY-ta en-DOR-fins] help relieve stress and pain around the time of birth.*

### ***catecholamines***

*[CAT-ah-KOL-ah-meens] help you and your baby feel alert and ready for birth, and they help protect your baby’s heart and brain during strong labor contractions.*

### ***prolactin***

*[PRO-lack-tin] is called the “mothering hormone.” Its many roles include helping your breasts make milk.*

## What can get in the way of how birth hormones work?

**Stress** can keep birth hormones from doing their important work.

Mother Nature is smart. She wants you and your baby to be safe. So, labor and birth happen best when you feel you're in a calm and private place—a place where you feel safe, protected and relaxed.

**But sometimes the care women get around the time of labor and birth may be stressful.**

For example, **bright lights, noise, medical equipment, frequent vaginal exams, and people coming in and out of the room** can be pretty stressful. Your body may “view” these things as **threats**. If your body feels that you're not in a safe place, your birth hormones may not work well. Labor may slow down or even stop.

After birth, **hospital staff may take babies away from their mothers for routine care.** That can be stressful for both you and your newborn. Stress may make your baby's body temperature and blood sugar go too low. And being apart from your baby may make it harder to get breastfeeding started later on. Routine care can happen later or while you and your baby are together.

## Do medical tests and other treatments affect birth hormones?

Yes, but it's important to understand that if you have a **serious problem**, tests and treatments may be the **best way** to keep you and your baby **safe and healthy**.

It's also important to know that sometimes care providers use tests and treatments when there **isn't** a serious problem. For example, they may use medicine to speed up labor when the mom and baby are healthy and safe laboring at their own pace. In this case, the medicine may work **against birth hormones** and end up causing problems that make labor and birth **more difficult**.

So if you **don't have a serious problem**, it's a good idea to ask questions about your options before you agree to have tests or treatments.

## Why doesn't ALL maternity care try to support birth hormones?

Researchers are always learning new facts about how birth hormones work. But it takes time for new facts to change the way care providers do things.

So far, **not all maternity care providers have learned how important birth hormones are**. Some may not know what to do to help birth hormones work for you and your baby. And they may not know that some types of care may work against birth hormones.

Hospitals and care providers want to give the best care possible, but **changes happen slowly**. And that's why some women may not get care that supports nature's path for healthy labor, birth and bonding.

## What can I do to make sure my care will support my birth hormones?

- **Read Angela's story in this booklet.** This story shows how the right care can help birth hormones do their work. It'll give you a good idea about what kind of care to look for.
- **Look at the tips for getting the kind of care you want.** You'll find **questions to ask** doctors and midwives, and ideas for reducing stress during labor and birth. You'll also learn how to get the most benefit from birth hormones if you need medical treatment.



# ANGELA'S BIRTH STORY

*Angela's story explains how the amazing hormones of birth guide you and your baby through labor, birth, and your first days getting to know each other.*

**A**ngela's due date was a week away. She was tired of being pregnant. She felt heavy and awkward. She ached. It was hard to find a comfortable position to sleep. But Angela remembered what her maternity care provider told her:

**In a healthy pregnancy, the best way to know that your baby and your body are ready for labor and birth is to wait for labor to begin on its own.**

So Angela decided to be patient. She tried to get as much rest as she could and enjoy her last weeks—hopefully days—of being a twosome with Rob.

When her due date came and went, it was harder to be patient. **But Angela and her baby were still healthy** and her care provider said it was safe to keep waiting for labor to start. There was **no medical reason to induce labor**—that's trying to start labor with medicines or procedures.

Angela's maternity care provider told her, "Your hormones are doing a lot of work right now. They're getting you and your baby ready to go through all the big changes that happen in labor and while you give birth. They may be getting you ready to breastfeed, too. If we induced your labor now, we'd be cutting that work short. So you may not be as fully prepared for labor, birth, and breastfeeding as you will be if you wait. And if your body isn't ready for labor, induced labor may lead to problems."

Angela decided to stick to her plan to wait.

One night, when Rob came home from work, she was cleaning out the refrigerator. She smiled and told him, "I had such a burst of energy today! I thought I'd finish some chores before Bean gets here." "Bean" was the nickname Angela and Rob gave their baby.

Later that night as they got ready for bed, Angela asked Rob to rub her lower back. "Maybe you pulled a muscle," he said.

"Maybe," she sighed, "but it feels more like when my period starts. I have these dull, cramps that come and go."

Realizing what she said, Rob and Angela looked at each other. Rob grinned and suggested, "I think maybe we should time those cramps!"

## What's Happening?

In the last weeks of pregnancy, hormones have been getting Angela and her baby ready for the big day. The amount of prolactin in her body has been increasing. **Prolactin** was likely behind Angela's "nesting behavior"—that sudden desire to get things in order at home. Prolactin is also preparing Angela's breasts to nurse her baby.

Angela's body has been getting ready to use **oxytocin**, too. This hormone will make her uterus contract during labor. That's why she was feeling those dull cramps. Her uterus is warming up for stronger contractions later on.

Strong contractions can be pretty uncomfortable. So, as Angela waits for labor, her body is making **beta-endorphins**. These hormones relieve pain and reduce stress during labor.

Waiting for labor to begin on its own helps ensure that all of these preparations have taken place.

## Going to the hospital

The next morning, Angela's contractions were strong and less than five minutes apart. She checked in by phone with her provider, who said it would be a good time for her and Rob to go to the hospital. By the time they arrived and met the nurses, they were pretty excited. But when Angela got to her room, she noticed that her contractions were slower and weaker than they were at home. Was this a false alarm?

The nurse explained, "That happens a lot when women first get to the hospital. Getting used to a new place is a little stressful. And **stress can interrupt the hormones in your body and slow your labor**. Your contractions will get stronger again when we leave you alone to settle in."

When Angela and Rob had some **privacy**, they turned the lights down and listened to their favorite music. Angela relaxed, and sure enough, her contractions got stronger and closer. Between contractions, Angela said, "Thank goodness we're in **a place that knows how to support the changes going on inside** me right now."

Rob looked at her and smiled. "I thank you for that. You're the one who did the research to find this care. And it's paying off."

Angela wondered out loud what might have happened if the nurses didn't understand the importance of giving them peace and quiet. "What if I had to get an IV and other things I don't need right away just because of hospital rules?"

Rob laughed. "Not with the way you feel about needles."

"I know!" Angela frowned at the thought. She really wanted to avoid a high-tech labor and birth. "Rob, I know I've said this a hundred times, but as long as there's no problem, I want to follow Mother Nature's birth plan. No medical stuff. But if there's a real problem, then, yeah, I want modern medicine working for us. Got it?"

"Got it," he assured her. "Okay." Angela sighed, "Now I'm going to stop thinking so much and just relax and **let my body do its thing**." She leaned back into Rob's arms and a good, strong contraction started.



## Dealing with labor pain

Angela wasn't sure how she would handle labor. She didn't rule out having an epidural [ep-ih-DUR-al] if the pain got too hard to manage. (An epidural uses a small needle to put pain medicine around the spinal cord.) But **she hoped she'd be able to cope using the simple things** she and Rob learned in childbirth classes. Her care provider and the hospital nurses were glad to help them try what they learned.

Angela wanted to **stay off her back and move around** to cope with pain and help keep her labor going strong. She was free to move around because she wasn't hooked up to an IV or machines to check her contractions and the baby's heart. The nurses could check those things from time to time without wiring Angela to machines.

Slow dancing with Rob helped the most. With his arms around her, she could hear his heartbeat. She felt so protected and close to him. **The contractions got stronger** and they hurt—no doubt about that—but **she felt she could handle it.**

Angela liked **using the shower during labor.**

Leaning against the wall with the warm water running down her back, she let her mind float away. **She felt energy flowing through her.** She imagined each contraction bringing her baby closer and closer to her arms.

Angela also liked that **the nurses didn't do a lot of vaginal exams.** They only did exams when they needed information to make a decision about care. That meant that Angela and Rob had more privacy.

Labor was hard work! To keep her energy up, **Angela could snack and drink as she wanted.** All these simple things helped her feel calm and in control, and they let her birth hormones do their work.



## Getting to the end of labor

After a few hours, Angela began to feel **anxious and fearful**. “It’s too much,” she cried to Rob. “The contractions are so strong and close together. Make it stop!” Rob called the nurse. She did an exam to find out if Angela’s cervix [SIR-vix] was fully opened and ready for her to start pushing. “You’re really close,” the nurse said. “We can still give you an epidural, but it won’t be long until you’re ready to push. I know that you wanted to try to do this without an epidural. What do you think?”

Rob spoke first. “You’re doing so well. I know you can do this, but it’s up to you.” Angela took a big breath and said, “I can do this.” Rob took her hand and said softly, “We’ll take it one contraction at a time.” Angela looked at him, “Deal. But you’re taking every other one from now on!” They all laughed. Angela had made her decision. **She was already feeling better**, so the nurse gave them privacy.

A few minutes later, Angela felt her belly muscles tighten. She was making grunting sounds and bearing down without trying. Rob called the nurse back in. She did a quick exam and told them, “Your cervix is fully open and your body is telling you to push. Your baby is on the way!”

That was good news to Angela. She felt a **surge of energy**. She was **excited, alert and ready to start working** on getting her baby into her arms.



## What’s Happening?

As Angela’s contractions got stronger, her body’s **beta-endorphins** helped her cope with pain. These hormones also helped her get into the focused “in the zone” mental state she felt in the shower.

**Oxytocin** made Angela’s contractions get stronger. But it also increased the calm, close feelings she had for Rob. That’s why it’s called “the love hormone.” After birth, oxytocin will also help Angela and her baby bond with each other and enjoy breastfeeding.

If Angela has an epidural later on, it could disturb her birth hormones. Her oxytocin levels could drop. That’s because epidurals numb the nerves that tell the body to make oxytocin. Without enough oxytocin, her labor might slow down.

This is why epidurals increase the chance that a woman will need a drug known as Pitocin® to keep labor going. But this artificial form of oxytocin doesn’t create the feelings of calm and connection that Angela enjoyed during labor. And it doesn’t help mothers and babies bond like natural oxytocin does.

## Breastfeeding and bonding after birth

The moment of birth was coming. Angela's care provider was with her now. "Don't push. Just breathe. Let the contraction do the work," she said.

Angela felt her baby's head come out. Soon after, the baby's body was out, too. He took his first breath of air and let out a little noise that made everyone smile.

Seconds later, **the nurse placed Angela's son on her chest with his skin against hers.** The nurse knew that **snuggling skin-to-skin with his mother would calm him quickly and help both prepare to breastfeed.** Angela thought his little body felt wonderful against hers. She watched him blink his eyes and stare into her face. "Hello there, Bean," she whispered. "Welcome to the family."

Rob felt full of emotion watching Angela with their son. Then he laughed, "Angie, I don't think we should call him Bean anymore!"



## What's Happening?

During each part of labor and birth, hormones will likely do exactly what you and your baby need—as long as your care doesn't disturb the way they work.

At the end of labor, a **flood of catecholamines** made Angela's contractions stronger to move the baby out. That helped open her cervix all the way and **gave her the energy to push.** This is called the "transition phase."

Some women, like Angela, feel some anxiety and fear from the sudden rush of hormones. But those emotions usually go away quickly when it's time to push. At that point, the catecholamines

help women feel ready for action—just what Angela needed for the task ahead.

It's important to know that **epidurals reduce both catecholamine and oxytocin levels.** If Angela had chosen an epidural, pushing the baby out may have been harder and taken longer.

Angela's baby had an **increase in catecholamines**, too. These hormones increase blood flow to the baby's brain and heart. That helps **protect the baby's health during the strongest contractions.** Catecholamines also get the baby's lungs ready to breathe after birth.

Angela’s care provider reminded her that the placenta [pla-SEN-ta] still needed to come out. That’s the organ that brought food and oxygen to the baby in the uterus. Within a few minutes, Angie felt a mild cramp. With one push, **the placenta slipped out**. Someone said something about **“very little bleeding,”** but Angela hardly heard because she was so excited to hold her baby.

“Look how he’s opening and closing his mouth and turning his head,” she laughed. “He looks like a baby bird wanting dinner.”

“That means **he’s ready to breastfeed,**” the nurse explained. She helped Angela get comfortable so she could offer her nipple to her baby. After a couple tries, he opened wide, latched on, and began to suckle strongly. “This little guy is nursing like a champion,” said the nurse.

Angela was full of joy. “It was hard, but it was s-o-o-o worth it!”



## What’s Happening?

Keeping Angela and her baby together **cuddling and breastfeeding had huge benefits for both of them.**

The baby was born alert and ready to suckle because of the catecholamines in his body. But catecholamines cause excitement, and too much excitement isn’t good for anyone.

Putting the baby on Angela’s chest, helped catecholamine levels fall quickly for both of them. The cuddling also increased their oxytocin levels, which added to **healthy feelings of calm and closeness.**

Oxytocin also opened blood vessels in Angela’s chest, which helped keep the baby warm. And it **kept Angela from bleeding too much** after the placenta came away from the uterus.

**Breastfeeding soon after birth** also helped increase oxytocin and beta-endorphin levels in Angela and her baby. These hormones strengthened their **feelings of pleasure from being close,** which helped them enjoy breastfeeding.

Each time a baby breastfeeds, some prolactin enters the mother’s bloodstream, too. Prolactin is part of the reason Angela felt such a **strong urge to care for and protect her baby.** This hormone also reduces anxiety and tension—an important benefit for anyone caring for a newborn!



## Enjoying day 1

After nursing for the first time, Angela and her baby were relaxed and sleepy. They had been together for only a couple of hours, but they were already deeply in love.

They **stayed together** the whole time they were in the hospital. Angela **breastfed whenever the baby wanted**. This close contact helped their hormone levels stay in balance for successful breastfeeding and a close, loving bond.

That evening, Rob watched his new family sleeping. He knew being first-time parents would be hard. But he also knew that birth hormones helped them get off to a strong start.

He was grateful that Angie found maternity care to help make sure of it!

## How can I find care that will support birth hormones?

Angela's story shows that it's most important to **carefully choose who will provide your care** and **where you'll give birth**.

You want to make sure your care includes:

- Doing simple things to reduce stress, such as giving you privacy during labor
- Avoiding tests, drugs and other treatments that aren't medically needed
- Keeping you and your baby together after birth when you're both healthy

### Tips for finding a care provider:

Use this booklet to help explain the kind of care you want. Take it with you to your next appointment with a doctor or midwife.



Look for a doctor or midwife who uses **medical tests and treatments** only if:

- You or your baby has a **serious problem** and tests or treatments are important for your health and safety.
- You have a **problem that's not urgent**, but simple approaches aren't helping enough. For example, a doctor or midwife should encourage massage, hot showers, changing positions or other simple things for pain relief before suggesting medicine.

### Questions to ask a doctor or midwife:

- How do you **support** the natural hormones that help my baby and me through labor, birth, breastfeeding and bonding?
- What do you do to **avoid** things that might disturb birth hormones?
- What, if any, medical treatments or monitoring do you regularly use for **all** women during labor and birth? (If a doctor or midwife recommends medical treatments for all or most women, you may want to look for someone else.)
- When would you recommend induced labor and why?
- When would you recommend a cesarean and why?

## Keep in Mind:

- Midwives usually have training and experience working with birth hormones. Some doctors have this training and experience, too.
- You can't be sure that the doctor or midwife you choose will be with you when you go into labor. So, when you find someone who is a good match for you, ask if they work with other care providers who offer the same kind of care. You may want to talk with these other people, too.

## Tips for finding a place to give birth:

Look for a place that:

- Doesn't require all women to have IVs
- Will let you move around during labor and help you try simple things to stay comfortable
- Will put your baby skin-to-skin on your chest as soon as possible and keep you together after birth
- Will help you breastfeed as soon as possible after birth

If you already have a care provider who will work to support your birth hormones, ask advice about places to give birth.

Look at the hospital's or birth center's website to learn about their approach to care during labor and birth. Birth centers usually support birth hormones.

Talk with other women about their experiences in the hospitals and birth centers in your area.

Call or visit hospitals or birth centers and ask questions about their style of care.

## Questions to ask:

- Do all women in labor have to have an IV?
- Will I be free to move around during labor, or will I be hooked to machines?
- Will I be able to snack and drink during my labor?
- How will you help me stay relaxed and comfortable during my labor—for example, will I be able to take a shower or bath, or use a birthing ball?
- If my baby and I are healthy, will you put the baby on my chest, skin-to-skin, right after birth?
- What will you do to help me get breastfeeding started?
- If I have a cesarean birth, can my baby stay with me, skin-to-skin, in the recovery room?



## Other very important tips:

Take **childbirth classes**. Look for classes that explain:

- Possible benefits and harms of care options
- Drug-free ways to cope with the pain, effort and emotions of labor

Consider **hiring a doula**. A doula is a woman with special training to help women get the care they want during labor and childbirth. She can help you feel more confident, comfortable and relaxed. That may help reduce the need for medicines and procedures that can upset birth hormones.

If you and your baby are healthy, **wait for labor** to start on its own.

**During the first part of labor, stay in touch with your care provider about staying home until your labor contractions are strong and regular.**

Spending less time in labor at the hospital may reduce the chance you'll have unneeded medicine or procedures.

To help you and your partner feel confident about staying home, consider hiring a doula who will come to your home and remain with you until after your baby is born at the hospital.

**At the hospital or birth center, make your room feel like your own peaceful, private space.**

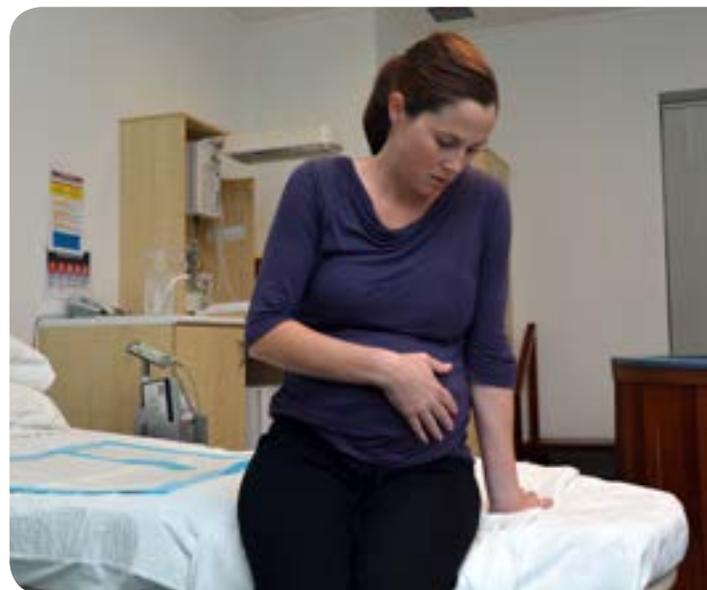
Here are some ideas:

- Wear your own clothes or pajamas and bring your own pillow.
- Bring your favorite music and headphones for listening.
- Keep the lights low and the door closed.
- Put up a sign asking people to knock softly before entering.

If a nurse or your care provider suggests tests, treatments, or limits your movement or drinking during labor, **ask**:

- Why are you making this suggestion?
- What are the pros and cons of this suggestion?
- Are there other things to try? If so, what are the pros and cons of those options?
- What are the pros and cons of watching and waiting to see what happens?

Remember that you have a right to clear information about your care options. You have a say in what happens to you and your baby.





## Working to improve maternity care

Childbirth Connection is part of the National Partnership for Women & Families. Our goal is to make sure that every woman gets the best maternity care possible.

We believe it should be easy for all women to find care that works with birth hormones. We are working to help ensure that:

- all who care for mothers and babies learn how to work with birth hormones
- hospitals routinely support birth hormones and provide special care when needed
- women learn about the benefits of birth hormones and how to help get those benefits.

We hope this booklet helps you find the care you want. And we hope that your pregnancy, labor, birth, and first weeks with your new baby will be healthy and satisfying.

**If there's a medical problem, DO LISTEN to what your care providers tell you.** Sometimes treatment is necessary to keep you and your baby safe. Even though it may affect your birth hormones, it may be the best approach.

**If you need medical treatment,** there are things you can do to get the most benefit from your hormones:

- If you need to have an **induced labor**, ask if it's safe to **wait until your cervix is soft and ready for labor**. If your cervix isn't ready, induced labor may be more likely to end in a cesarean birth.
- If you need to **plan a cesarean birth**, ask if you can **wait for labor to start** before you have surgery. This helps you and your baby benefit from the hormones you make at the very end of pregnancy.
- Ask to have your baby put **skin-to-skin on your chest** as soon as possible—**even if you've had a cesarean birth**. And ask to have your baby stay with you during the rest of your hospital stay.
- If **your baby needs to be in the special care nursery, touch, hold, breastfeed, and talk** to your baby as much as possible. Ask the care providers about "kangaroo care." That means you wrap your baby skin-to-skin against your chest.

**Be patient during labor, birth, and the days after.** Your body does a lot of work to have a baby. Give it the time it needs for a safe, healthy vaginal birth.

In the days after birth, focus on getting to know your baby, adjusting to the many changes, and getting rest.

You may need **time to get used to breastfeeding**, even if you've done it before. Breastfeeding is always new for your baby. So be patient if your little one doesn't catch on right away. But **don't delay** if you need help from a breastfeeding expert. Early help can keep little problems from becoming big ones.

## Want to learn more?

The following information comes from Childbirth Connection:

- Understanding and Navigating the Maternity Care System  
[www.ChildbirthConnection.org/MaternityCareSystem](http://www.ChildbirthConnection.org/MaternityCareSystem)
- Choosing a Caregiver: What You Need to Know  
[www.ChildbirthConnection.org/ChoosingCaregiver](http://www.ChildbirthConnection.org/ChoosingCaregiver)
- Choosing a Place of Birth: What You Need to Know  
[www.ChildbirthConnection.org/ChoosingBirthPlace](http://www.ChildbirthConnection.org/ChoosingBirthPlace)
- Labor Support: What You Need to Know  
[www.ChildbirthConnection.org/LaborSupport](http://www.ChildbirthConnection.org/LaborSupport)
- Induction of Labor: What You Need to Know  
[www.ChildbirthConnection.org/Induction](http://www.ChildbirthConnection.org/Induction)
- Labor Pain: What You Need to Know  
[www.ChildbirthConnection.org/LaborPain](http://www.ChildbirthConnection.org/LaborPain)
- Cesarean Section: What You Need to Know  
[www.ChildbirthConnection.org/CSection](http://www.ChildbirthConnection.org/CSection)

The information in this booklet comes from a new report by Dr. Sarah J. Buckley, *Hormonal Physiology of Childbearing: Evidence and Implications for Women, Babies, and Maternity Care* (Washington, DC: Childbirth Connection Programs, National Partnership for Women & Families, January 2015).

The full report, this booklet, and related materials are available at:  
[ChildbirthConnection.org/HormonalPhysiology](http://ChildbirthConnection.org/HormonalPhysiology)

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