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New Study Reveals Overlooked Toll of C-Sections — More Pain, Less Sleep for Mothers

Analysis by Dr. Joseph Mercola | November 12, 2025

STORY AT-A-GLANCE

- More than one in five babies are now born by C-section, and the numbers are expected to reach nearly one-third of all births by 2030, despite many cases lacking clear medical necessity
- Researchers from Stanford University found that C-section mothers were far more likely to experience severe postpartum pain and disrupted sleep, with over two-thirds reporting discomfort that interfered with rest and recovery
- Nationwide data showed that women who delivered by C-section were 16% more likely to develop new sleep disorders within a year after birth, including insomnia, sleep deprivation, and sleep apnea
- C-sections carry higher risks of infection, hemorrhage, blood clots, and complications in future pregnancies, while babies born this way face increased chances of respiratory distress, allergies, and autism
- Many cesarean deliveries can be avoided with the right preparation. Choosing a provider who supports natural birth, staying physically active, managing stress, and maintaining a healthy weight all lowers your risk

Globally, more than one in five babies are delivered via cesarean section (C-section),[1] a surgical procedure in which a baby is delivered through incisions in the mother's abdomen and uterus. Some cesareans are medically necessary — for example, when the

baby is breech, the placenta blocks the cervix, or a prior C-section increases delivery risks.[2]

Yet many procedures occur without a clear medical need, exposing mothers to serious risks when safer options might be possible.[3] In fact, by 2030, C-sections are expected to account for nearly one-third of all global births.[4] Recovery after a C-section is typically slower and more demanding than after vaginal birth, with healing that extends far deeper than the surface incision.

At the ANESTHESIOLOGY® 2025 annual meeting, researchers presented new evidence on how cesarean delivery influences postpartum recovery. Their study focused on the link between pain and sleep — two essential yet often overlooked factors in maternal health — to reveal how the mode of birth shapes postpartum healing and overall well-being.[5]

New Findings Reveal Postpartum Pain and Sleep Struggles After C-Section

In the featured study, researchers set out to understand how cesarean delivery affects a mother's ability to rest, heal, and regain strength after birth. They compared women who delivered surgically with those who had vaginal births, combining personal interviews with large-scale national data to capture both lived experience and measurable outcomes.[6,7]

- **C-section mothers reported greater pain and disrupted sleep —** In the qualitative analysis, 41 mothers were interviewed about their recovery. Of these, 24 had vaginal births, 11 had scheduled cesareans, and six had unplanned cesareans. More than two-thirds of mothers who delivered by C-section described severe pain that interfered with rest and daily activity.

  Among them, 73% of those with planned surgeries and 67% of those with emergency procedures said their pain was strong enough to disturb sleep. In comparison, only 8% of women who gave birth vaginally reported similar

discomfort.

- **Nationwide data also revealed higher sleep disorder risk after C-section —** In the quantitative analysis, the researchers reviewed records from more than 1.5 million mothers who gave birth between 2008 and 2021.

  The results showed that women who delivered by C-section were 16% more likely to experience new sleep disorders, such as insomnia, sleep deprivation, or obstructive sleep apnea, within one month to one year after childbirth. These findings highlight how postoperative pain and disrupted sleep often reinforce one another and persist well beyond hospital discharge.

- **Active pain management supports better recovery —** Lead author Dr. Moe Takenoshita, a postdoctoral scholar in the Department of Anesthesia at Stanford University's Center for Academic Medicine, stressed the importance of addressing pain early to prevent a cycle of sleeplessness, fatigue, and delayed healing.

  She advised mothers to align rest with their baby's sleep schedule whenever possible, avoid caffeine and alcohol during recovery, and incorporate gentle movement or relaxation techniques such as warm baths or deep breathing before bedtime.

  > *"Those who are planning a C-section should understand that the procedure is linked to more severe pain after delivery and a higher risk of sleep disorders.*
  >
  > *Anyone having sleep problems during pregnancy or after childbirth should discuss their concerns with their physician, who can evaluate the issue, make recommendations, and refer them to a specialist if necessary,"* she noted.[8]

The Other Health Risks You Face with Cesarean Delivery

Beyond the increased risk of pain and sleep disturbances, cesarean delivery carries several other well-documented complications that are less common in vaginal birth, affecting your short-term recovery and long-term health. These include:[9,10]

- **Post-surgical infection —** Between 3% and 20% of women develop an infection following a C-section.[11] The incision may become red, swollen, painful, or produce discharge. Internal infections such as endometritis (inflammation of the uterine lining) can also occur, often presenting with fever, abdominal tenderness, heavy vaginal bleeding, and abnormal discharge. In severe cases, bacteria can enter the bloodstream and cause sepsis, a life-threatening emergency that requires immediate care.

- **Longer recovery —** Healing after a C-section takes time because it involves multiple layers of tissue. The outer incision usually closes within four to six weeks, but deeper tissues, including the abdominal wall and uterus, may take up to three months to fully repair.[12]

  During this time, simple movements like standing, walking, or lifting your baby can be uncomfortable. Fatigue and soreness may persist for several months as your body continues to rebuild strength. The slower recovery increases the likelihood of delayed wound healing, adhesions (bands of internal scar tissue), and hernias.

- **Hemorrhage and blood clots —** Cesarean surgery carries a higher risk of postpartum hemorrhage due to the incision in the uterus and greater blood vessel disruption. Some women require transfusions or additional procedures to control bleeding. Reduced movement during recovery, along with the body's natural increase in clotting factors after birth, also heightens the risk of deep vein thrombosis or pelvic blood clots.

- **Future pregnancy risks —** A prior C-section raises the chances of complications such as placenta previa (placenta covering the cervix) and placenta accreta (placenta growing too deeply into the uterine wall). Both conditions lead to severe bleeding and require specialized medical care.

The risk of uterine rupture, where a previous scar tears open during labor, also increases slightly. Because of these factors, women with a history of cesarean delivery are closely monitored in future pregnancies, and the decision for a vaginal birth after cesarean (VBAC) is made on an individual basis.

- **Emotional and psychological effects —** Many women feel anxiety, sadness, or disappointment after a C-section, especially when it wasn't planned. Pain, limited movement, and exhaustion amplify these emotions and make bonding with your baby more challenging in the early days. Awareness and emotional support, whether from your partner, family, or care team, make recovery less isolating and help you rebuild confidence in your body.

Understanding these risks helps you and your care team plan ahead, recognize early warning signs, and support your recovery more effectively.

How C-Section Robs Babies of Beneficial Microbes

The consequences of cesarean birth extend beyond mothers. How a baby enters the world has lasting effects that reach far beyond birth. During vaginal delivery, the baby is naturally exposed to a diverse mix of beneficial microbes from the mother's birth canal and gut. This first contact serves as a biological handshake between mother and child, teaching the newborn's immune system to recognize friendly organisms and defend against harmful ones.[13,14,15]

- **Vaginal birth provides essential microbial seeding —** As the baby passes through the birth canal, beneficial bacteria coat the skin, enter the mouth, and begin colonizing the digestive tract within minutes. This process seeds the gut microbiome, the dense community of bacteria and other microorganisms that shape immune function, metabolism, and long-term health.

- **C-section delivery disrupts this natural microbial inheritance —** Because the baby is delivered surgically through the abdomen, it bypasses contact with the maternal vaginal microbiota. Instead, the first microbes come from the surrounding environment — hospital air, operating room surfaces, and caregivers' skin.

Studies using genetic sequencing show that infants born by C-section have fewer species of beneficial bacteria and lower overall microbial diversity than those born vaginally. They often lack Bacteroides and Bifidobacterium, two bacterial groups vital for digesting milk sugars and strengthening the intestinal barrier.

- **Reduced microbial diversity affects immune development —** Early microbial exposure trains the infant's immune system to distinguish between harmless and harmful microbes. When this education is incomplete, immune overreaction becomes more likely. This increases the risk of allergies, eczema, and asthma later in life.

- **Microbiome imbalance also influences metabolism —** Altered microbial signaling after a C-section may reduce the production of short-chain fatty acids, which are key compounds that improve metabolic balance and lower inflammation. As a result, children born via cesarean delivery show a slightly higher risk of obesity and metabolic disturbances during childhood.[16]

- **Restoring microbial diversity after a cesarean birth is possible —** Breastfeeding plays an important role by supplying beneficial bacteria and special sugars that feed them. Skin-to-skin contact and delayed bathing also help transfer maternal microbes to the baby's skin and mouth.

  Some studies are exploring "vaginal seeding," a process that introduces vaginal microbes to the infant after surgical delivery, though its safety and long-term effects are still being studied.[17]

To learn more about the risks of C-section to you and your baby, read "**What They Don't Tell You About C-Sections**."

Other Risks of Cesarean Birth for Babies

Beyond poorer gut health compared to babies born vaginally, cesarean delivery introduces several medical and developmental challenges that affect newborns both immediately and later in life, including:

- **Physical injury during delivery —** One of the most immediate risks is accidental injury from the surgical incision. Because the surgeon needs to cut through multiple layers of tissue before reaching the uterus, there is a chance that the scalpel may nick the baby's skin. Studies estimate this happens in about 1% to 3% of C-section deliveries.[18]

- **Respiratory distress after birth —** Babies born by C-section are more likely to experience breathing difficulties shortly after delivery. In vaginal birth, contractions help expel fluid from the lungs, preparing the baby to breathe air.

  A cesarean bypasses this step, often leaving extra fluid in the lungs. This can cause transient tachypnea of the newborn, a condition marked by rapid breathing and the need for supplemental oxygen or close monitoring in the neonatal intensive care unit (NICU). Babies delivered before labor begins face the highest risk.[19]

- **Higher likelihood of NICU admission —** The chance of NICU care after cesarean birth often relates to respiratory distress, but other factors contribute as well. C-section newborns may struggle more with temperature regulation, blood sugar stability, or feeding initiation. The abrupt transition from the womb's warm, dark environment to the cooler, brighter operating room can challenge thermoregulation, prompting closer monitoring during the first hours of life.[20]

- **Increased risk of autism —** Large population studies have found that babies born by C-section have a modest but measurable increase in autism risk. In one study of nearly 2.7 million children, cesarean birth was linked to a 21% higher risk of autism spectrum disorder (ASD) diagnosis.[21]

  Researchers emphasize that cesarean delivery itself is not a direct cause of autism but may contribute through factors such as altered gut microbiome development, prenatal stress exposure, or anesthesia-related effects.

  Other experts, including Dr. Michel Odent, who was a well-respected natural-birth pioneer, suggested that bypassing natural microbial and hormonal processes during birth could play a role in triggering a genetic predisposition for ASD.[22] Learn more

about this in "Are C-Sections Contributing to Autism?"

How to Lower Your Risk of Having a C-Section

While cesarean delivery is sometimes unavoidable for medical reasons, many C-sections can be prevented with thoughtful preparation and the right support. Reducing your risk starts long before labor begins and depends on how you care for your body, your mental health, and your birth environment. The following steps strengthen your likelihood of a smooth vaginal delivery and a faster recovery afterward:[23,24,25]

1. **Choose a healthcare provider who supports natural birth —** Your birth philosophy needs to align with your provider's approach. Ask about their C-section rate, policies on induction, and experience with supporting VBAC. Providers who practice patient-centered care are more likely to allow labor to progress naturally and intervene only when necessary.

   Continuous labor support from a doula, midwife, or experienced birth coach is also associated with lower rates of cesarean delivery. Having someone present to advocate for your preferences, provide comfort measures, and keep you emotionally steady helps labor progress more smoothly.

2. **Maintain a healthy weight —** Excess weight before or during pregnancy raises the risk of preeclampsia, gestational diabetes, cesarean delivery, and slower postpartum recovery. It also increases the likelihood of stillbirth and developmental challenges in your child.[26]

   To improve body composition and prepare for a healthy pregnancy, start with your diet. Prioritize adequate protein intake (about 0.8 grams per pound of lean body mass) to support muscle health and promote satiety. Include a wide range of colorful fruits and vegetables rich in antioxidants, and ensure sufficient folate and iodine, both of which are essential for your baby's neural and muscular development.

If tolerated, add small servings of wild-caught fatty fish such as sardines or Alaskan salmon for omega-3 fats (DHA and EPA) that support your baby's development.[27] However, remember to keep your intake moderate, as omega-3s are still polyunsaturated fats (PUFs) that will contribute to oxidative stress when consumed in excess.

The most concerning PUF is **linoleic acid** (LA), which is abundant in vegetable oils and processed foods. High LA intake has been linked to **impaired fetal growth** and greater oxidative burden, so minimizing it is essential. Avoid vegetable oils such as soybean, corn, canola, sunflower, and safflower, and limit other high-LA sources like nuts and seeds to reduce your overall exposure.

3. **Stay physically active throughout pregnancy —** Unless advised otherwise by your doctor, gentle physical activity such as walking, swimming, prenatal yoga, or resistance exercises helps strengthen your pelvic muscles, improve flexibility, and enhance endurance. These benefits support a more efficient labor and make it easier for your baby to descend through the birth canal.

4. **Allow labor to begin and progress naturally —** Unless there is a medical reason for induction, waiting for spontaneous labor lowers the risk of cesarean birth. Artificial induction or early epidural use sometimes slows contractions and leads to interventions that make surgery more likely. Trust your body's timing whenever safely possible.

5. **Practice optimal fetal positioning —** Simple exercises such as pelvic tilts, spending time on hands and knees, and avoiding long hours of reclining can encourage your baby into the ideal head-down position before labor. Proper alignment of your baby reduces prolonged labor and the need for assisted delivery.

6. **Manage stress and prioritize rest —** Chronic stress elevates cortisol and adrenaline, which are hormones that interfere with oxytocin, the key hormone that drives contractions. Deep breathing, meditation, light stretching, and sufficient sleep

throughout pregnancy help maintain hormonal balance and prepare your body for birth.

Postpartum Recovery and Pain Management After a C-Section

If you end up needing a C-section, don't lose confidence in your body's ability to heal. Healing takes time, care, and patience after such a major surgery, and recovery depends on how gently and consistently you support it. Each mindful choice you make helps restore strength, reduce discomfort, and lower the risk of complications.[28]

1. **Keep your incision clean and protected —** Wash the area gently with mild soap and water, then pat it dry. Loose, breathable clothing prevents irritation and allows air to circulate around the incision. Check daily for redness, swelling, warmth, or discharge, and contact your healthcare provider right away if you notice any of these changes. Most infections occur within the first two weeks, making daily inspection essential.

2. **Manage pain naturally and consistently —** In the first few days, cold compresses help ease swelling and numb soreness. Afterward, a gentle heat pack helps relax muscles and improve circulation. Nutrients such as **curcumin** and **magnesium** help calm inflammation from within, while herbal teas made with ginger or chamomile promote relaxation and tension relief.[29,30]

3. **Move gently to restore circulation —** Once your provider gives approval, take short walks and do light stretching to improve blood flow and prevent clots. Avoid lifting anything heavier than your baby until your strength returns and your incision has fully healed. Core and pelvic exercises can be added gradually once tenderness and swelling have resolved.

4. **Nourish your body with healing foods —** Your body's repair process depends on a steady flow of healing nutrients, which include protein, vitamins A and C, zinc, iron, copper, selenium, collagen, and B vitamins. These all play vital roles in wound healing and energy restoration.[31]

Some good meals include pastured eggs, wild-caught fish, mineral-rich bone broth, grass fed meats, organ meats, and whole fruits and vegetables. Hydration is equally essential, as water delivers oxygen and nutrients to tissues while removing waste products to speed recovery.

5. **Optimize your room for better sleep —** Quality rest matters as much as quantity when you're recovering. You may not get long stretches of sleep, but you can make the rest you do get more restorative. Keep your room as calm, dim, and cool as possible.

   Block outside light with blackout curtains, keep the room cool, and reduce noise. Limit screen exposure before bed, remove or unplug nearby devices at night, and if possible, turn off your Wi-Fi router to reduce EMF exposure while you sleep.

Every pregnancy and delivery is unique, but informed choices profoundly shape recovery and your child's future health. Whether you give birth vaginally or by cesarean, supporting your body with real food, rest, and mindful care helps you regain vitality and long-term health.

Frequently Asked Questions (FAQs) About C-Sections

Q: How do pain and poor sleep after a C-section affect my recovery?

A: When pain is not managed early, it disrupts your sleep and slows tissue repair. The cycle of discomfort and exhaustion can increase fatigue, affect mental health, and delay healing. Managing pain consistently, aligning rest with your baby's sleep schedule, avoiding caffeine and alcohol, and using relaxation techniques like deep breathing or warm baths all help support recovery.

Q: What other risks do I face if I have a C-section?

A: C-sections increase the risk of post-surgical infection, hemorrhage, blood clots, and complications in future pregnancies, such as placenta previa or accreta. Recovery takes longer, as internal tissues can take months to fully heal. Emotional effects such as anxiety or sadness are also common, especially after an unplanned surgery.

Q: How does a C-section affect my baby's gut health?

A: During vaginal birth, your baby is naturally exposed to beneficial microbes from your birth canal and gut. These microbes seed your baby's digestive tract and help train the immune system. Babies born by C-section miss this early microbial transfer and are instead colonized by hospital and skin bacteria, leading to reduced microbial diversity.

Q: What are the other risks of C-section to my baby?

A: Babies born via C-section face a risk of accidental injury during delivery and are more likely to have breathing issues from fluid retention in the lungs. They're also more frequently admitted to the NICU for monitoring. Over time, C-section birth has been linked to higher risks of allergies, asthma, obesity, and autism diagnoses, likely related to synthetic birth hormones and reduced exposure to maternal microbes.

Q: What can I do to lower my chances of needing a C-section?

A: Choosing a provider who supports natural birth, maintaining a healthy weight, staying active, and allowing labor to begin naturally all reduce your risk. Proper fetal positioning exercises, stress management, and continuous support during labor also make vaginal delivery more likely and recovery smoother.

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