Preterm labor causes and risks

What preterm labor means

Preterm labor is generally defined as labor that begins before 37 completed weeks of gestation. Clinically, this means regular uterine contractions accompanied by cervical change, such as dilation or effacement. This distinction matters because many pregnant people experience Braxton Hicks contractions or transient uterine irritability, particularly in the third trimester, without true labor.

Preterm birth may be spontaneous, following preterm labor or preterm premature rupture of membranes, or medically indicated when continuing the pregnancy poses significant risk to the pregnant person or fetus. Conditions such as severe preeclampsia, fetal growth restriction, placental abruption, or other serious complications may lead clinicians to recommend delivery before term. This article focuses on causes and risks related to preterm labor, while acknowledging that preterm birth can occur through several pathways.

Why preterm labor happens: key biological pathways

Preterm labor is not one disease with one cause. It is better understood as a syndrome in which several biological pathways can activate the labor process

too early. In some pregnancies, more than one pathway is present.

Inflammation or infection: Infections of the urinary tract, genital tract, uterus, or membranes can stimulate inflammatory mediators such as prostaglandins and cytokines, which may promote contractions, cervical ripening, or membrane rupture.
Uterine overdistension: A uterus stretched more than usual, as in twin or higher-order multiple pregnancy or excess amniotic fluid, may become more prone to contractions.
Cervical structural vulnerability: A short cervix or cervical insufficiency can reduce the mechanical support needed to maintain pregnancy, increasing the chance of early cervical change.
Placental or bleeding-related triggers: Vaginal bleeding, placenta previa, or placental abruption can be associated with uterine irritability and inflammatory or thrombin-mediated pathways that contribute to preterm labor.
Maternal-fetal stress pathways: Severe physical stress, chronic disease, hypertensive disorders, and some fetal or placental complications may alter hormonal and vascular signaling in ways that increase the likelihood of early delivery.

Even with thorough evaluation, a specific cause is sometimes not identified. That uncertainty can be emotionally difficult, but it does not mean the pregnant person did something wrong.

Strong obstetric risk factors

Some of the most important predictors of preterm labor come from a person’s obstetric history and the current pregnancy. A previous spontaneous preterm birth is one of the strongest risk factors for another preterm birth. The earlier the previous birth and the more previous preterm births a person has had, the more carefully clinicians usually monitor the pregnancy.

A short cervix, often measured by transvaginal ultrasound in selected patients, is another significant risk marker. The cervix normally stays long and closed until late pregnancy; shortening earlier in pregnancy can indicate increased risk. A history of cervical surgery, cervical trauma, or uterine anomalies may also contribute, though individual risk varies.

Multiple gestation is a major risk factor. Twins, triplets, and higher-order multiples are more likely to be born preterm because of uterine distension, placental factors, and higher rates of complications. People who conceived with assisted reproductive technologies may also have increased preterm birth risk, partly because multiple gestation is more common in these pregnancies.

Other obstetric factors associated with preterm labor or birth include preterm premature rupture of membranes in a current or previous pregnancy, recurrent vaginal bleeding, certain placental problems, and a short interval between pregnancies. If bleeding occurs in the second half of pregnancy, evaluation is especially important because placenta previa and placental abruption require specific medical attention.

Infections and inflammation

Infection is a well-recognized contributor to preterm labor and preterm birth. Urinary tract infections, asymptomatic bacteriuria, sexually transmitted infections, bacterial vaginosis, intra-amniotic infection, and systemic infections can all be relevant in different clinical contexts. Infection may irritate the uterus directly or trigger inflammatory cascades that promote contractions, cervical change, or rupture of membranes.

This does not mean every infection causes preterm labor, nor does it mean symptoms should be ignored. Burning with urination, fever, pelvic pain, foul-smelling discharge, new genital lesions, or persistent fluid leakage should be discussed with a clinician. Screening and treatment recommendations depend on gestational age, symptoms, medical history, and local guidelines.

Some infections are preventable or manageable with prenatal care, vaccination when appropriate, safer sex practices, screening, and timely treatment. Because symptoms can be subtle in pregnancy, routine prenatal visits are an important part of risk reduction.

Maternal health conditions and pregnancy complications

Several chronic medical conditions are associated with preterm labor or medically indicated preterm birth. These include chronic hypertension, diabetes, kidney disease, autoimmune disorders, thyroid disease in some

circumstances, and certain clotting or vascular conditions. The level of risk depends on disease severity, control before and during pregnancy, medications, and whether complications develop.

Hypertensive disorders of pregnancy are particularly important. Preeclampsia can affect the placenta, kidneys, liver, brain, blood clotting system, and fetal growth. In severe cases, delivery may be recommended before 37 weeks to protect the pregnant person and baby. This is not the same as spontaneous preterm labor, but it is a major pathway to preterm birth.

Other complications, such as fetal growth restriction, abnormal amniotic fluid volume, congenital anomalies, or significant placental dysfunction, may also change the balance of risks and benefits. Decisions about monitoring or delivery timing require individualized obstetric assessment.

Lifestyle, nutrition, and body-size factors

Risk is influenced by health behaviors and nutritional status, but these factors should be discussed without shame. Smoking is consistently associated with preterm birth, as are alcohol use and illicit drug use, including cocaine and some other stimulants. Stopping or reducing exposure can be difficult, especially when dependence, stress, or unsafe living conditions are present; supportive medical care and harm-reduction resources are more effective than judgment.

Being significantly underweight before pregnancy, inadequate weight gain, and some nutritional deficiencies may increase risk. Obesity is also associated with pregnancy complications, including diabetes, hypertension, and medically indicated preterm birth. The goal is not to pursue restrictive dieting during pregnancy, but to work with clinicians on appropriate nutrition, weight-gain targets, and management of metabolic conditions.

Very short intervals between pregnancies have been associated with higher preterm birth risk. Preconception and interpregnancy care can help address anemia, chronic disease control, medication safety, nutrition, and recovery after a prior pregnancy.

Social, demographic, and environmental risks

Preterm birth risk is shaped not only by biology but also by social conditions. Limited access to prenatal care, unstable housing, food insecurity, transportation barriers, domestic violence, and high chronic stress can all affect pregnancy outcomes. These are health determinants, not personal failures.

Some demographic patterns have been observed. For example, very young maternal age and age over 35 are associated with higher preterm birth risk in some populations. In the United States, Black pregnant people experience higher rates of preterm birth, a disparity linked to structural racism, unequal access to care, chronic stress, and differences in treatment experiences rather than race as a biological cause.

Environmental and occupational exposures may also matter. Heavy physical work, prolonged standing, extreme heat, air pollution, and exposure to certain chemicals or toxins have been associated with adverse pregnancy outcomes in some studies. Anyone worried about workplace duties or environmental toxins should discuss practical risk-reduction steps with an obstetric clinician or occupational health professional.

Warning signs that need prompt attention

Because early recognition can change management, it is important to know when to contact a healthcare professional. Before 37 weeks, possible warning signs include regular or frequent contractions, menstrual-like cramping, low backache that does not improve, pelvic pressure, abdominal tightening, change in vaginal discharge, vaginal bleeding, or fluid leaking from the vagina.

Some symptoms overlap with normal pregnancy discomforts, which can make decisions hard. If you are unsure, it is safer to call your maternity unit, obstetric office, midwife, or local emergency service for guidance. Clinicians may ask about contraction timing, fetal movement, bleeding, fluid leakage, gestational age, and risk factors. They may recommend observation, cervical assessment, fetal monitoring, ultrasound, or laboratory testing depending on the situation.

Monitoring and prevention-oriented care

Not all preterm labor can be prevented, but risk-informed care can help. People with a prior preterm birth, short cervix, multiple pregnancy, uterine anomalies, significant medical conditions, or concerning symptoms may need closer surveillance. This may include more frequent prenatal visits, cervical length assessment in selected cases, screening for infections, management of chronic disease, and consultation with maternal-fetal medicine specialists.

Some interventions may be considered for specific high-risk situations, such as cervical cerclage for selected patients with cervical insufficiency or a very short cervix, or other strategies based on current guidelines and individual history. These decisions are nuanced and should be made with an obstetric professional who can weigh benefits, risks, gestational age, and prior pregnancy outcomes.

Practical steps that often support pregnancy health include attending prenatal appointments, seeking care for infection symptoms, avoiding tobacco and nonprescribed substances, addressing intimate partner violence, optimizing diabetes or blood pressure control, discussing medication safety, and asking for help with stressors that make care difficult.