



IABLE

Institute for the Advancement of Breastfeeding & Lactation Education

Color and Odor Changes of Breastmilk

Breastmilk can be a variety of colors and still be “normal.” In this handout we discuss the common colors of breastmilk and why those colors can happen.

Typical Breastmilk Colors

Colostrum

Colostrum is the milk the body produces in the third trimester of pregnancy and for the first few days after a baby is born. Colostrum is thick and sticky in consistency and is typically a shade of orange or yellow. Colostrum gets its color from its high levels of beta carotene, the same nutrient responsible for the orange color of carrots and sweet potatoes. Sometimes colostrum can be quite bright in color, or it can be paler. It can also differ day to day.

Transitional Milk

Between day 3-5 postpartum, breastmilk becomes transitional as it increases in volume. Transitional is more watery, less sticky, while still having high levels of beta carotene, causing it to have an orange or yellow hue until about 3 weeks postpartum.

Mature Milk

Mature milk refers to breastmilk at around 3 weeks postpartum. This milk is typically a variation of white or bluish white. Mature milk's color can vary day to day based on a lactating person's diet, the time of day it is expressed, the fat content of the milk, and medications a lactating person is taking.

Blue Milk

A bluish hue is only noticed by lactating parents when they are pumping rather than direct feeding, and mainly is seen when the breast is quite full before pumping. The first 15-30ml expressed might appear bluish because it has less fat than the milk expressed after the first few minutes of pumping. This is completely normal and expected.

Green Milk

Green milk is commonly reported by lactating people. It is most likely related to dietary changes, like eating more green leafy vegetables or consuming a smoothie/other food with green powders such as spirulina. Propofol, a medication commonly used for anesthesia during procedures or surgery, has been known to cause temporarily blue-green breastmilk.

Pink or Red Milk

The most common cause of red or pink milk is from blood in the milk. This can happen due to nipple trauma, excessive pump suction settings, or from the increased blood flow to the milk ducts when lactation is in its early phases (“rusty pipe syndrome”). The pink or red color is typically transient in these situations, lasting 1-3 days. Milk that contains blood is safe to feed to babies.

The medication rifampin is known to cause orange/red color of any body fluids, including breastmilk. This milk is considered safe to feed babies.

Food with red dyes, such as red candies and maraschino cherries can cause the milk to appear pink.

Rarely, **pink milk can be due to an infection**, especially if there is any visible pink residue on pump parts or bottles. This is due to a bacteria called *Serratia Marcescens* that is most commonly acquired from hospital environments.

Women or other lactating individuals who notice pink or red breastmilk should be evaluated by a breastfeeding medicine specialist.

Rusty Pipe Syndrome

Rusty Pipe Syndrome is a condition of **reddish or brownish milk** that occurs upon initiating lactation – sometimes in late pregnancy, and more commonly in the first days of lactation postpartum. Rusty Pipe Syndrome happens due to the **rapid growth of breast tissue** with increased blood flow, and typically is **painless, occurs on both sides, and resolves without intervention within 1-3 days. This milk can be fed to babies** without any problems.

Brown or Black Milk

Minocycline is an infrequently used antibiotic that can cause black or dark brown breastmilk. Despite this, it is thought that feeding this milk is safe for a short (less than 3 week) period. If this medication is prescribed, one should have a conversation with their physician or other healthcare provider to weigh the risks and benefits of the medication and discuss potential alternatives, especially if a longer treatment period will be needed.

Off-Odor Milk

Breastmilk usually has a sweet odor or no odor at all. Sometimes milk will develop a **stronger odor** when it has been expressed and has been sitting out, refrigerated, or frozen. The changes in odor vary - some describe the changes as ‘sweaty’, ‘fishy’, ‘soapy’, or ‘metallic’. Here is what happens:

- The milk is expressed into a bottle or bag.
- Lipase, an enzyme that is present in all milk, is activated to break down the fat into fatty acids because fatty acids are easier for the infant to absorb.
- The fatty acids vary, meaning that every mother has a different make up of their fatty acids. When the fatty acids are exposed to air, such as the milk sitting in a partially full bottle, the fatty acids undergo a process called oxidation which causes the change in odor. The odor varies between women because of the different types of fatty acids.
- **This process is NOT due to high lipase.** Studies have not found that the amount of lipase is related to odor.

- The longer that the milk is stored in the refrigerator or the freezer, the longer lipase has to break down the fats, and the more likely it is that the fatty acids will change the milk odor.
- Most babies don't care about the changes in milk odor. We all eat foods that have an off odor, such as cooked cauliflower, hard boiled eggs, and fish. Milk with a strong odor is still safe and nutritious for the infant.
- What to do if the baby won't take the stored milk? First, offer freshly expressed milk whenever possible. Some mothers have found that changing their omega 3 supplement to one that does not have a fishy odor might help. A third option is to add 1-2 drops of unsweetened vanilla to a bottle of milk to mask the odor. It is not recommended to boil or scald the milk after expression. While this can inactivate lipase, it will destroy many of the health properties of breastmilk.

Color or Odor of Milk: When to Be Concerned — Contact Your Physician or other Healthcare Provider If...

- You have **pain** associated with a new breastmilk color.
- Red/pink milk lasts > 3 days with **no clear explanation**.
- Red/pink milk lasts > 3 days and is **just from one breast** or from **one nipple pore**.
- Red/pink milk associated with a **breast lump** on the same side or associated with a **skin rash or skin changes** on the breast or nipple.
- Your baby **refuses to drink** your milk.