

# What is pigmentary mosaicism?

Mosaics are pictures or patterns made up of small, differently-colored pieces of stone or glass. In medicine, mosaicism refers to two or more cell types with different genetic programming in the same person. When these cells are in the skin, some areas might look different from others.

Mosaicism is something we can be born with. It may develop in very early stages of development after conception. When something happens early in development and we are born with it, it is often called congenital. An area of the skin that has different genetic programming from the rest of the skin may appear as a birthmark. In this way, most birthmarks have a genetic basis.

## WHAT IS PIGMENTARY MOSAICISM?

Pigmentation refers to the coloring of the skin. The amount of pigment in the skin depends on a person's racial background. Special cells in the skin produce pigment. These cells are called melanocytes and produce melanin. Melanin is the pigment responsible for brown skin color. Other cells are responsible for other colored birthmarks. For example, other types of cells are responsible for red birthmarks or yellowish birthmarks.

Pigmentary mosaicism means that the skin has two or more genetically different types of cells that give different colors to the skin. These cell types produce different amounts of pigment, resulting in areas of skin with different colors. If there is less melanin, the skin will be lighter. This is called **hypopigmentation**. If there is more melanin, the skin will be darker. This is called **hyperpigmentation**. When someone has birthmarks that are lighter or darker, this can be called pigmentary mosaicism. Pigmentary mosaicism is a change in color only; it is flat and can't be felt.

## HOW DOES PIGMENTARY MOSAICISM PRESENT?

Parents are often the first to notice that areas of their child's skin have a lighter or darker color. Although we know these areas are genetically different before birth, the color change is not always noticeable early on. It is common to see the color difference in the first few years of life. Pigmentary mosaicism in parts of the body covered by clothes may not be noticed until those areas receive some sun exposure.

## HOW IS PIGMENTARY MOSAICISM DIAGNOSED?

A doctor can usually diagnose pigmentary mosaicism by simply examining the skin. Doctors may use a special light to help highlight color changes in the skin (Wood's light). The pattern and distribution of color help make the diagnosis. The different skin color can appear as wavy streaks or swirls in a pattern called the lines of Blaschko. There are also other patterns the color change can follow. Some areas might look round or oval, others square or resembling a checkerboard. Multiple or large areas of the skin can be affected as well. Color changes often sharply stop at the body's midline.

## ARE TESTS NEEDED IN PATIENTS WITH PIGMENTARY MOSAICISM?

Pigmentary mosaicism itself is not dangerous. A complete medical history and physical exam will guide your doctor to see if further tests are needed. When the doctor has no concerns, the pigmentary mosaicism likely represents only a color difference in the skin and nothing else. Sometimes the color differences might indicate that other cells in the body are also different, and this might lead to other health concerns. Doctors determine if tests are needed on a case-by-case basis.

## IS THERE TREATMENT FOR PIGMENTARY MOSAICISM?

**Pigmentary mosaicism is a permanent color change in the skin. We are not able to change the genetic material to make the skin color the same.**

There are strategies that can make pigmentary mosaicism less noticeable. We recommend that areas of pigmentary mosaicism be protected from the sun. The use of sunscreen and sun protection techniques can reduce how visible these areas look. Other strategies like camouflage makeup can also be used. Special makeup can be matched to the skin color of a person and minimize how visible changes are. Laser is typically not effective in treating these color changes.

## IS THERE NEED FOR FOLLOW-UP IN PATIENTS WITH PIGMENTARY MOSAICISM?

- » **The skin color changes are not dangerous on their own.**
- » **The areas with a different color are not more prone to have skin cancers.**
- » **Regular skin checks are not mandatory.**
- » **In rare cases, follow-up may be needed for other possible health problems.**



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