Daily **Life**

BIRDBRAINEDSCIENCE: YOUR BODYS A MOSAIC

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If I asked you to name an animal with stripes, you'd probably come up with zebras or tigers. But what if I told you humans can also fall into this category?

I'm not referring to Americans who paint themselves with red, white and blue as a show of patriotism. I'm talking about the lines of Blaschko.



Unlike tigers and zebras, Blaschko's lines aren't visible on most people. (You might see on social media that other animals can detect them. There is no evidence that this true.) The lines themselves aren't just your standard stripes. Some of them are linear, but they also spiral (or "whorl") in the scalp, arms and legs, take on wavy and V-shapes in the torso.

The lines don't usually become visible unless there's a skin condition involved. These patterns were first noted around 1901 by German dermatologist Alfred Blaschko. Blaschko realized that in many of his patients with skin conditions, the skin tended to follow certain patterns, almost as if there were invisible paths guiding them. But even though you can only see them on some individuals, everyone is born with them. The patterns don't seem to follow any body systems, like the nervous system. They also aren't unique to humans, as they've been observed in dogs and cats.

It's thought that the lines mark our embryonic development. They show the paths our skin cells traveled as they divided and migrated into place, back when we were still developing in the womb. As embryos, we don't have proper skin. Instead, we have the neural crest, which gives rise to many kinds of cells including melanocytes, which give us the pigment (or melanin) in our skin. But before melanocytes fully form, something else happens.

Biological females start off with two X-chromosomes in their cells, one from each parent. But future melanocytes only need one. So the cells start randomly shutting off an X-chromosome, making sure only one is active in each cell. This results in embryonic cells with different active X-chromosomes — some with an active paternal X-chromosome, and some with an active maternal X-chromosome, making them genetically different from each other. The cells that divide from these early cells will keep the same X-chromosome active, so each Blaschko line has the same X-chromosome. And because our cells migrate as we develop, sometimes bands of genetically different skin cells end up right next to each other. This is fairly normal. What is less normal is when you can see the differences on someone's skin (generally through differing coloration), which is referred to as cutaneous mosaicism.

The Blaschko lines aren't the only kind of pattern cutaneous mosaicism follows, but they're the most common type out of five in total. And since cutaneous mosaicism is related to having different X-chromosomes, some cutaneous mosaicism disorders are more common in biological females.

Now, take it from someone who spent the last few days researching this: I don't especially recommend looking up pictures of the Blaschko lines or cutaneous mosaicism. Since they're only really visible when certain skin conditions are present, most of the photos are just of diseased skin. But still, I think the lines are interesting. You might not be able to see it, but your body has been mapping itself before you were even born. There are still traces of what you once were.