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Humans evolved color vision to see emotion, not food

March 15, 2006 10:29 AM PST

Your eyes evolved to see rosy cheeks.

The eyes in humans and their closest relatives in the primate world are geared to detect subtle changes in skin tone caused by blood oxygen levels, according to a new study from Caltech.

The spectral sensitivity of color cones in humans and chips are somewhat unusual. Bees have four color cones that are evenly spread across the visible color spectrum. Birds have three color cones. By contrast, humans have three types of cones that are sensitive to a limited range of wavelengths. The closeness, however, allows for the detection of subtle tone changes. When someone blushes, the skin becomes red from elevated oxygen levels. If you're exhausted, you become pale from the lack of oxygen. When a primate is ready to mate, oxygen levels rise again leading to blushing. The human and chimp eye can capture these different color levels, which can be signals of fitness or heartiness.

Interestingly enough, primates completely covered in hair have different types of color detectors. The parts of skin (the scalp) that are insensitive to color blushing in humans and chips are also covered in hair. Since the skin there can't help express emotion, the theory goes, it might as well help you keep warm.

"For a hundred years, we've thought that color vision was for finding the right fruit to eat when it was ripe," says Mark Changizi, a theoretical neurobiologist and postdoctoral researcher at Caltech. "But if you look at the variety of diets of all the primates having trichromat vision, the evidence is not overwhelming."

Posted by [Michael Kanellos](#)

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