

## Re: colour vision

**Source:** <http://sci.tech-archive.net/Archive/sci.anthropology.paleo/2004-07/0966.html>

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**Date:** 07/21/04

Date: Wed, 21 Jul 2004 10:44:06 +0100

In article <40fd9a3a\$0\$376\$ba620e4c@news.skynet.be>, Marc Verhaegen <fa204466@skynet.be> writes

> *Variation in Color Vision Genes May Have Helped Humans See the Fruit for the Trees*

> Sarah Graham

> Scientific American

> <http://cl.extm.us/?fe8e1c727162067576-fe3016707360067c711779>

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> 8 % of men experience red-green color blindness, which results from

> mutations in genes that code for light-sensitive pigments. But a new study

> suggests that even men who aren't color blind may see the world differently

> than women do, thanks to natural selection.

> Brian Verrelli of Arizona State University & Sarah Tishkoff of the

> University of Maryland analyzed genetic data from 236 people from around the

> world. Specifically, they studied a gene on the X chromosome known as

> OPNILW, which codes for a protein that detects visible light in the red

> spectrum. Exchange of material between this gene and a neighboring gene

> associated with green light leads to a high amount of genetic variation but

> can result in color blindness if the process goes awry. Among the study

> participants the researchers found 85 variants of the gene. "That's

> approximately three times higher than what you see at any other random gene

> in the human genome," Tishkoff says. "Usually it's a bad thing to have too

> much change in a gene, and natural selection gets rid of it. But in this

> case we're seeing the reverse."

> The increased variation enhances the ability to discriminate between colors

> in the red-orange spectrum, particularly among females, because they have

> two copies of the X chromosome. Previous research in other primates has

> suggested that enhanced red vision in females allows them to better

> distinguish between berries and foliage when they are gathering food,

> Verrelli explains.

Interesting finding, and interesting speculation, but how many berries, out of all the candidate edible types, are obligingly coloured red?

Some years ago, a TV programme pondered the fact that that colour vision deficiencies in men, to have persisted to the present time rather than having been bred out, must have had conferred some advantage in pre-historic times. It occurred to me that the answer was that deficiencies

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in colour vision, especially to humans living in a tribe where other people had perfect vision, conferred no advantage, and simply did not impact their existence enough to stop them breeding.

On the same basis, I incline to think that a lower rate of colour blindness in women may simply be a fortunate feature of their make-up and of marginal advantage in day to day existence. Men tend towards baldness, women do not; what are the respective evolutionary advantages?

> *If females did the gathering in prehistoric times, as*  
> *many experts believe, that may explain why genetic variation promoting color*  
> *sensitivity persists today. "We can't explicitly test it, but the model*  
> *fits," Verrelli says. The results will appear in the September issue of the*  
> *American Journal of Human Genetics.*

My uncle was convinced that ear hair was there for a good reason. I asked him that, if that was the case, why women did not appear to have significant amounts of it? Was there some evolutionary advantage to having it that was of benefit to men only? That ended the debate; but it convinced him that I should pay for the next pint.

Cheers,

Dave

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Dave Eadsforth