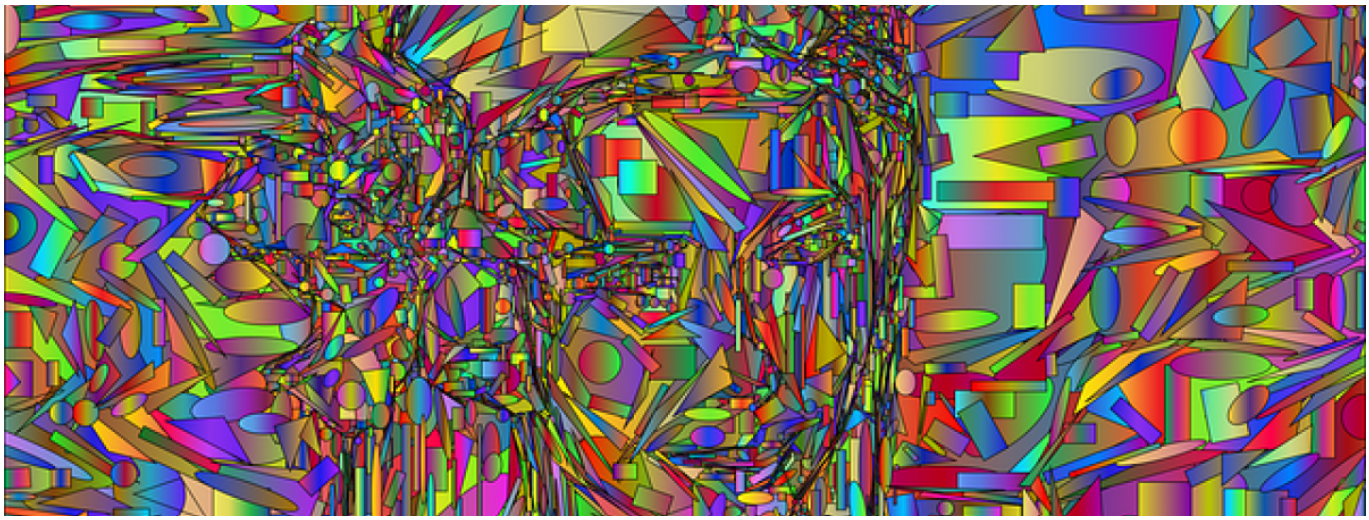
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link to Reader's Digest article [1]

brain [2] cancer [3] heart [4] wonder [5]



How colours and shades of everything from skin and eyes to tumours and vomit can be used by doctors to determine possible diseases and illnesses a patient may be suffering from.

“Black and white and every wrong colour,” wrote Jane Austen [6] in her letters detailing her declining health months before her death in 1817. [7] She was describing an unusual skin rash, accompanied by backache, fever and fatigue, now thought to be lupus [8].

Everyone knows that the liver [9] is reddish brown, the heart is red and bones are white—but did you know that colours of your body tissues and organs can communicate disease to doctors?

Warning colours

In the natural world**,** the oriental fire-bellied toad flips belly side-up when threatened, displaying a gleaming red and black underside. It’s a warning to a potential predator that the toad is toxic, harbouring poisonous glands in its skin. Coral snakes [10] are highly venomous—their bodies being banded in red and yellow to highlight this hazard.

Flaunting glaring colours like this is nature’s way of warning. It’s a billboard that says beware, an advert that alerts to danger.

"Colours are more muted with humans than animals, but the warning is to the one carrying the colours, not to an attacker"

When it comes to humans, the colours are more muted, but their significance is no less. This time though, the warning [11] is to the one carrying the colours, not to an approaching attacker. There’s no traffic light system, where vivid green tumours call out cancer, or luminescent yellow lenses alert to eye disease (though that would really help doctors), but there are signs, seen in colour, that speak, sometimes in soft hues, of different diseases.

Dr Sergio Piña-Oviedo, Assistant Professor at Duke University School of Medicine, describes an entire "rainbow garden of pathology [12]" in the human body, and invites doctors to use colour vision as a clinical tool.

Indigo blue

Visually striking, rarely seen, and usually reversible, the phenomenon known as "blue man syndrome [13]" can arise when taking a pill for palpitations known as amiodarone. Sun-exposed areas such as the nose, cheeks and lips can take on a bluish-grey tinge; shielding the skin from light, covering up, and wearing factor 50 sunscreen can reduce the risk. In itself, the colour change is not harmful, but your doctor might suggest an alternative to amiodarone to regulate your heart rhythm.

In a condition known as PUBS (Purple Urine Bag Syndrome) [14], the urine bag attached to a catheter turns purple, or indigo, when infected urine reacts with the synthetic materials of the bag. It's sometimes the only sign of urine infection, with more common symptoms such as pain and fever often being absent, and can cause alarm. Treated by antibiotics, PUBS is more likely if you are chronically constipated [15] when bacteria builds up in the backlog.

Black and white

"Once smelt, never forgotten": that's melena, the prettily-named, offensive-smelling, black tarry stool produced when you are bleeding in the upper part of your intestine. Black stools without the signature smell can be caused by iron ingestion or a liking for liquorice, but when there's "old blood in new poop [16]" it darkens, and the blood is digested by enzymes leaving a smell that lingers long, aiding diagnosis.

If your vomit is black, having what doctors call a "coffee-ground appearance", it could also indicate internal bleeding.

"White or pale skin can signal low blood pressure or anaemia, while iron overload turns skin a "slate-grey" or "brownish-bronze""

When one or both of your eyes shine white in the flash of a light, like a cat's eye reflecting in the road at night, it could be retinoblastoma [17]—a rare type of eye cancer that can affect young children. Healthy eyes show a red reflex to bright light, and your GP or optician will usually test for this during a child's routine appointment, since retinoblastoma is treatable if it's picked up early.

White or pale skin can signal a problem with your circulation, such as low blood pressure or anaemia. Iron overload [18] darkens the skin, turning it a "slate-grey" or "brownish-bronze", in an inherited condition known as haemochromatosis [19], which can affect your liver and your heart.

Multi-coloured

Ever since you bruised your knee as a child, you will have been aware of the kaleidoscope of colours through which a bruise cycles [20] as the skin heals. The progression from red to purple-blue, black, green and yellow is explained by haemoglobin first losing its oxygen (changing from red to blue) and then being broken down to biliverdin (green) and bilirubin (yellow). If your bruises don't disappear, and are unexplained, it could be a sign of leukaemia [21], so seek medical advice.

Tumours also come in a variety of colours, aiding diagnosis. Dr Piña-Oviedo describes the yellow/orange colour of tumours high in fat content, known as lipomas; high-grade, or fast-growing, gliomas in the brain and spinal cord can appear red because of their extensive blood supply.

Whether a wound is red (healthy), yellow/green (infected), or black (dead tissue), is important information for the attending nurse, and will determine the dressing used and whether antibiotics, or even surgery, are advised.

Seeing the spectrum

“Believe it or not, our eyes, and our cameras, are only sensitive to three distinct colours—red, green and blue. Without us even knowing, our brains take a mix of these colours and turn them into the whole rainbow of colours that we see every day”, writes a reporter at Cancer Research UK. [22]

"Clever cameras can see a wide spectrum of colours inside the body, and chemical dyes target tumours and give out coloured light"

Dr Siri Luthman [23], funded by Cancer Research UK and the University of Cambridge, has researched clever cameras, capable of seeing a wide spectrum of colours inside the body, and chemical dyes that target tumours and give out coloured light, to improve vision within and, perhaps, diagnosis of disease.

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Source URL:https://www.helencowan.co.uk/multicoloured-medicine

Links
[1] https://www.readersdigest.co.uk/health/health-conditions/colours-and-illness-how-shades-show-disease [2] https://www.helencowan.co.uk/../tags/brain [3] https://www.helencowan.co.uk/../tags/cancer [4] https://www.helencowan.co.uk/../tags/heart [5] https://www.helencowan.co.uk/../tags/wonder [6] https://www.readersdigest.co.uk/culture/books/jane-austen-wallflowers-deserve-love [7] http://chawtonhouse.org/2021/03/the-death-of-jane-austen/ [8] https://www.readersdigest.co.uk/health/health-conditions/an-a-to-z-of-living-with-lupus [9] https://www.readersdigest.co.uk/health/wellbeing/the-low-down-on-liver-health [10] https://www.nationalgeographic.com/animals/reptiles/facts/eastern-coral-snake [11] https://www.readersdigest.co.uk/health/wellbeing/scary-health-symptoms-warning-signs-to-look-out-for [12] https://meridian.allenpress.com/aplm/article/141/3/445/65931/Human-Colors-The-Rainbow-Garden-of-Pathology-What [13] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4868611/ [14] https://www.urologynews.uk.com/features/features/post/purple-urine-bag-syndrome [15] https://www.readersdigest.co.uk/health/health-conditions/constipation-remedies-and-treatments [16] https://www.docpaperscissors.me/blog/2019/4/27/smell-series-melena [17] https://wechope.org/retinoblastoma/white-eye-reflex/ [18] https://www.readersdigest.co.uk/health/health-conditions/iron-is-it-your-bodys-friend-or-foe [19] https://www.bhf.org.uk/informationsupport/heart-matters-magazine/medical/haemochromatosis [20] https://www.readersdigest.co.uk/health/health-conditions/how-to-get-rid-of-and-soothe-a-bruise [21] https://www.leukaemiacare.org.uk/support-and-information/latest-from-leukaemia-care/blog/5-things-you-need-to-know-about-bruising-right-now/ [22] https://www.cancerresearchuk.org/get-involved/do-your-own-fundraising/get-fundraising-pack?gclid=CjwKCAjw_MqgBhAGEiwAnYOAet2XcnVIWo0uO14-xbhciF5juWHBrIuw3dELft6rjaZV5wYQvYXr7hoCCn8QAvD_BwE&gclsrc=aw.ds [23] https://news.cancerresearchuk.org/2017/03/14/beyond-colour-vision-spotting-cancer-when-it-hides-between-the-red-green-and-blue/