

Colour blindness

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In news—Recently, the Supreme Court of India has directed the Film and Television Institute of India (FTII) not to exclude candidates suffering from colour blindness from its courses on film making and editing and asked it to make changes to its curriculum instead.

About Colour blindness-

- **Colour blindness, also known as colour deficiency, is the inability to see colours in the normal way.**
- Individuals with this blindness often **cannot distinguish between certain colours – usually greens and reds**, and sometimes **blues** as well.
- **Two types of cells in the retina detect light: the “rods”, which distinguish between light and dark, and the “cones” that detect colour.**
- **Colour blindness can be the result of the absence of one or more of these cone cells**, or their failure to work properly.
- **There are three types of cones that see colour** – red, green, and blue and our brains use the information from these cells to perceive colour.
- One type absorbs light best in wavelengths of blue-violet and another in the wavelengths of green.
- The third type is most sensitive to longer wavelengths—more sensitive to red.
- **Normal colour vision, when all three cone types are functioning correctly, is known as trichromacy (or trichromatism).**
- In a situation where all three cone cells are present but one of them is malfunctioning, mild colour blindness may occur.
- **Colour blindness may be of different kinds and degrees.**

Mildly colour blind people often see all colours properly only when the light is good; there are others who cannot tell one colour apart from the another no matter how good the light is.

- **In the most severe kind of colour blindness, vision is black-and-white**, that is, everything appears as a shade of grey. This is not very common.
- **For most colour blind people their condition is genetic, usually inherited from their mother**, although some people become colour blind as a result of other diseases such as diabetes and multiple sclerosis or it can be acquired due to ageing or from taking drugs and medications.

Types of Colour blindness-

- There are several different types of colour blindness, which may be subdivided generally into **dichromacy (dichromatism)**, when **only two cone types are functional**, and **monochromacy (monochromatism)**, when **none or only one type of cone receptor is functional**.
- **Dichromatic** individuals are ordinarily **unable to distinguish between red and green**.
- **Blindness to red is known as protanopia**, a state in which the red cones are absent, leaving only the cones that absorb blue and green light.
- **Blindness to green is known as deuteranopia**, wherein green cones are lacking and blue and red cones are functional.
- **Two forms of blue-yellow colour blindness are known: tritanopia** (blindness to blue, usually with the inability to distinguish between blue and yellow), which occurs when blue cones are absent and tritanomaly (reduced sensitivity to blue), which arises from the abnormal function of blue cones.
- Some persons experience **anomalous dichromatic conditions**, which involve only minor reductions or

weaknesses in colour sensitivity.

- **In protanomaly, for example, sensitivity to red is reduced** as a result of abnormalities in the red cone photopigment.
- **In deuteranomaly, in which sensitivity to green is reduced**, the green cones are functionally limited.