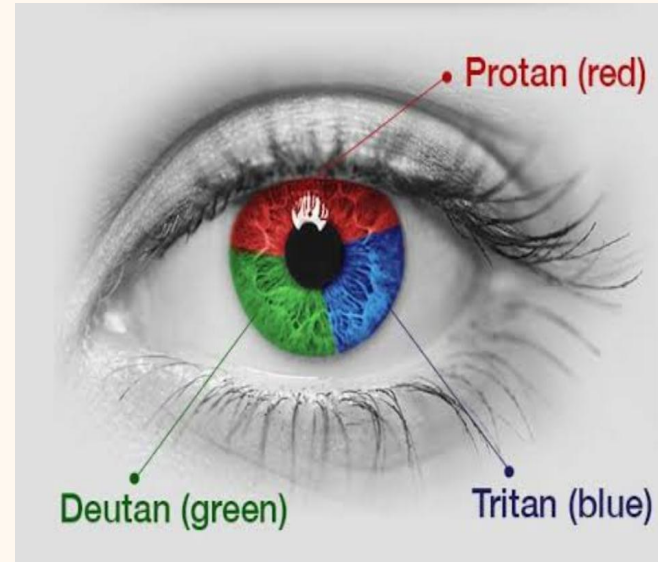


COLOR BLINDNESS

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Presented to :- SVETLANA SMIRNOVA

SUBJECT :- MEDICAL BIOLOGY



COLOR BLINDNESS :-

Color blindness means that you have trouble seeing red, green, or blue or a mix of these colors. It's rare that a person sees no color at all. Color blindness is also called a color vision problem. A color vision problem can change your life.

CAUSES OF COLOR BLINDNESS :-

:1. Usually genetic condition.

- Red/Green or Blue colour blindness is passed down from parents.
 - The gene responsible is on X chromosome.
 - mutations capable of causing color blindness originate from at least 19 different chromosomes and many different genes.
 - More males are affected the females are basically carrier.
 - There is 50% chance of mother passing this condition to her son.
-

*Inherited condition maybe due to following.....

*In our eye there are two types of light sensitive cell

Rods

Cone

Both found in retina which is a layer at the back of eye it processes images.

*The rods are responsible for vision in night as work in low light condition (cannot distinguish different wavelength of light).

*The cones are responsible for color discrimination

TYPES OF CONES:-

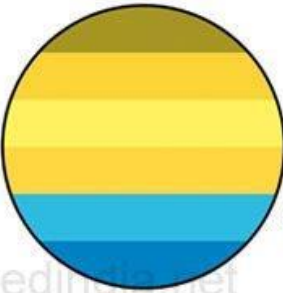
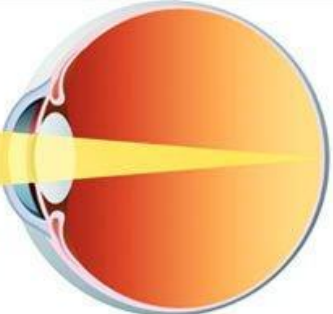
There are three types of cones (differ on the basis of photoreceptor protein they make)

1. L-cones sense long wavelength (red light).
2. M-cones sense medium wavelength (green light).
3. S-cones sense shorter wavelength (blue light)

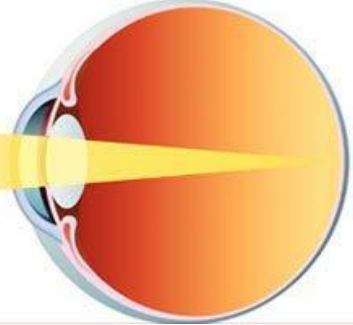


Normal Eye

Correct Understanding of color



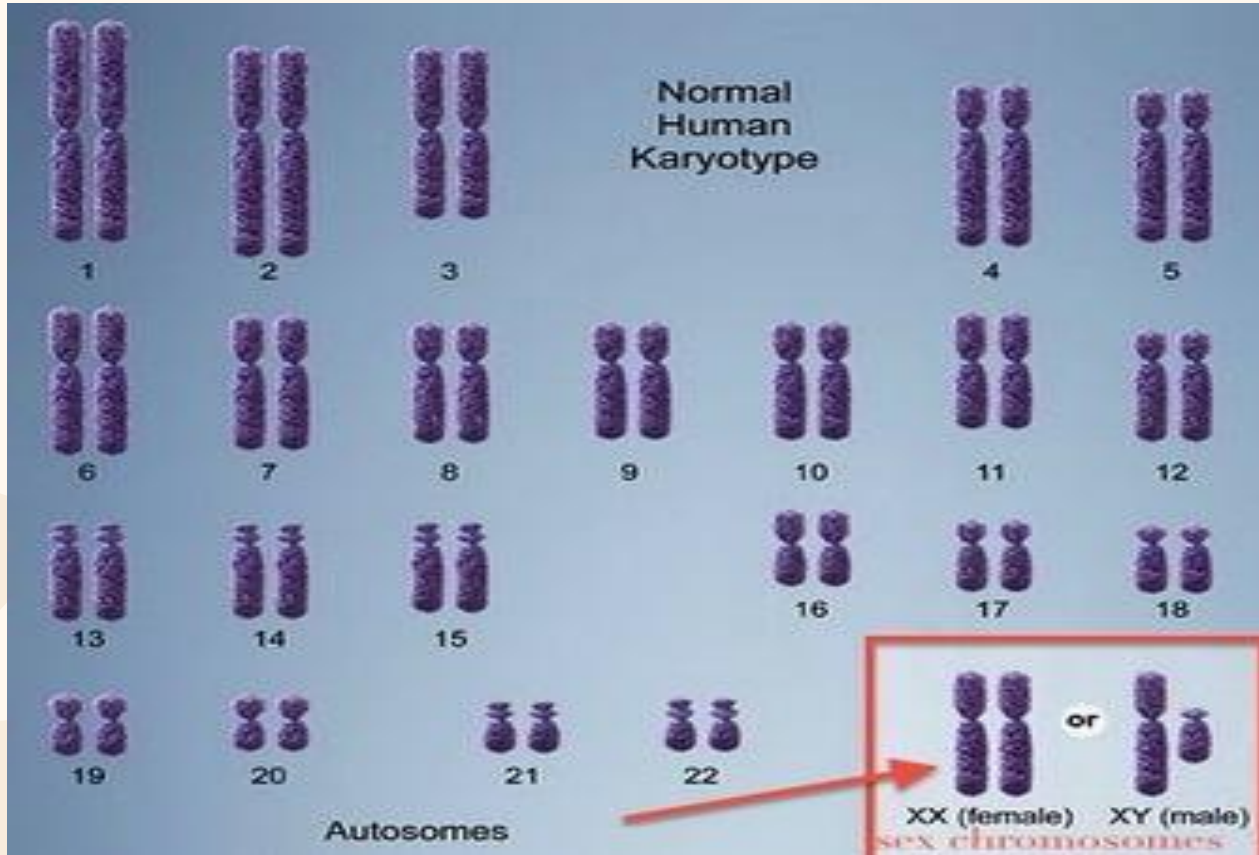
Color Blindness



Color Blindness

Cause of colour blindness

i.i



TYPES OF COLOR BLINDNESS:-

*Trichromacy (three colour vision)

Normal colour vision.

*Anomalous trichomacy (unusuall three colour vision).

*See all three primary colour

One colour is seen weakly.

*Protanomaly (1-cone defect) red weak

*Deuteranamoly (M-cone defect)

*green weakTritanomaly (S-cone defect)

Blue weak.

INHERITENCE PATTERN:-

Red-green colour blindness is usually inherited from parents.

*It is passed from mother to son on 23rd chromosome which is sex chromosome.

*Chromosomes are the structure which contains genes, they contain instructions for the development of cell tissues organ and if you are colour blind it means instructions for cone development are wrong.

*It may be missing or less sensitive.

* Or pathway from cone to brain is not developed properly.

*Dichromacy (two colour vision)

*See only two of three primary colours

*One cone is totally dysfunctional or absent


*Protanopia (I-cone absent).

Deuteranopia (M-cone absent).

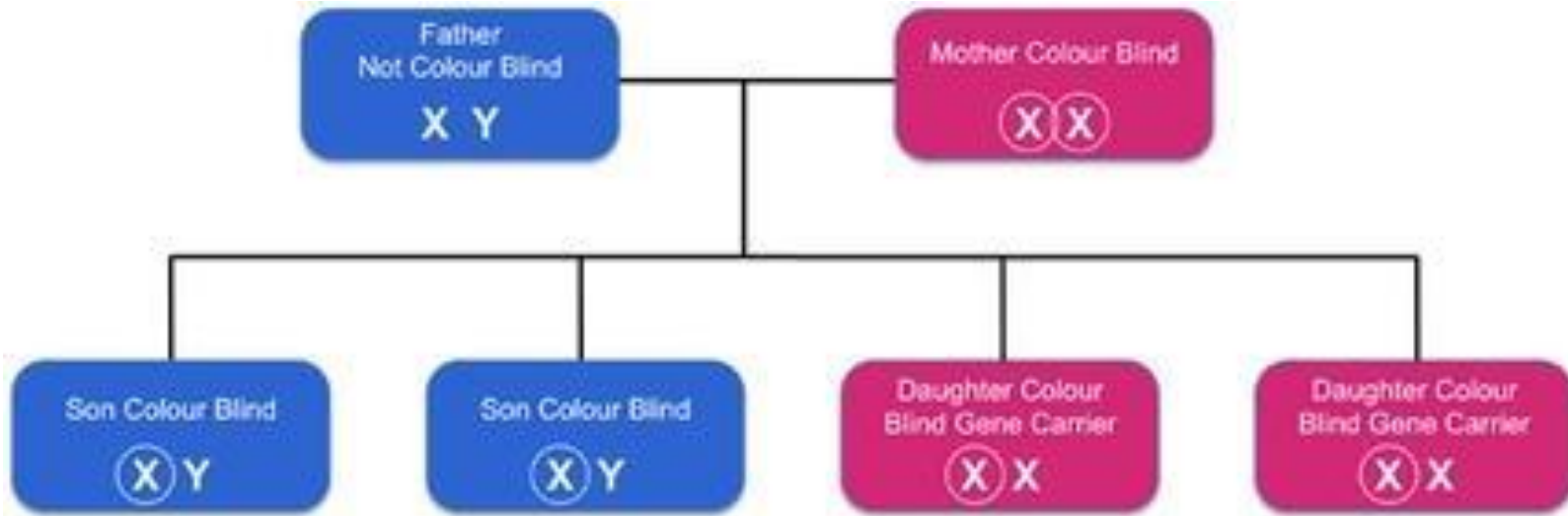
Tritanopia (S-cone absent).

- Rod monochromacy (no cones at all)

* Sees no colour only shades of grey.



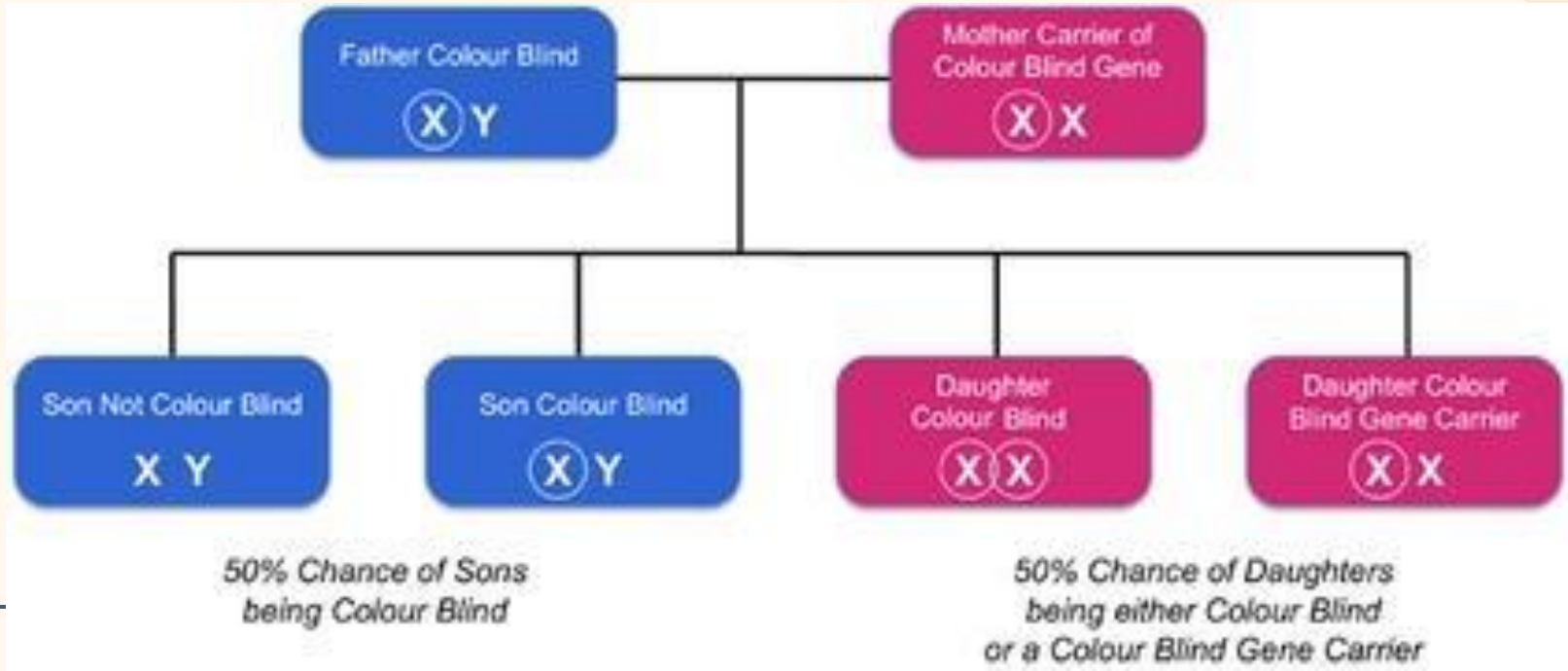
NON COLOUR BLIND MAN COLOUR BLIND WOMEN:-



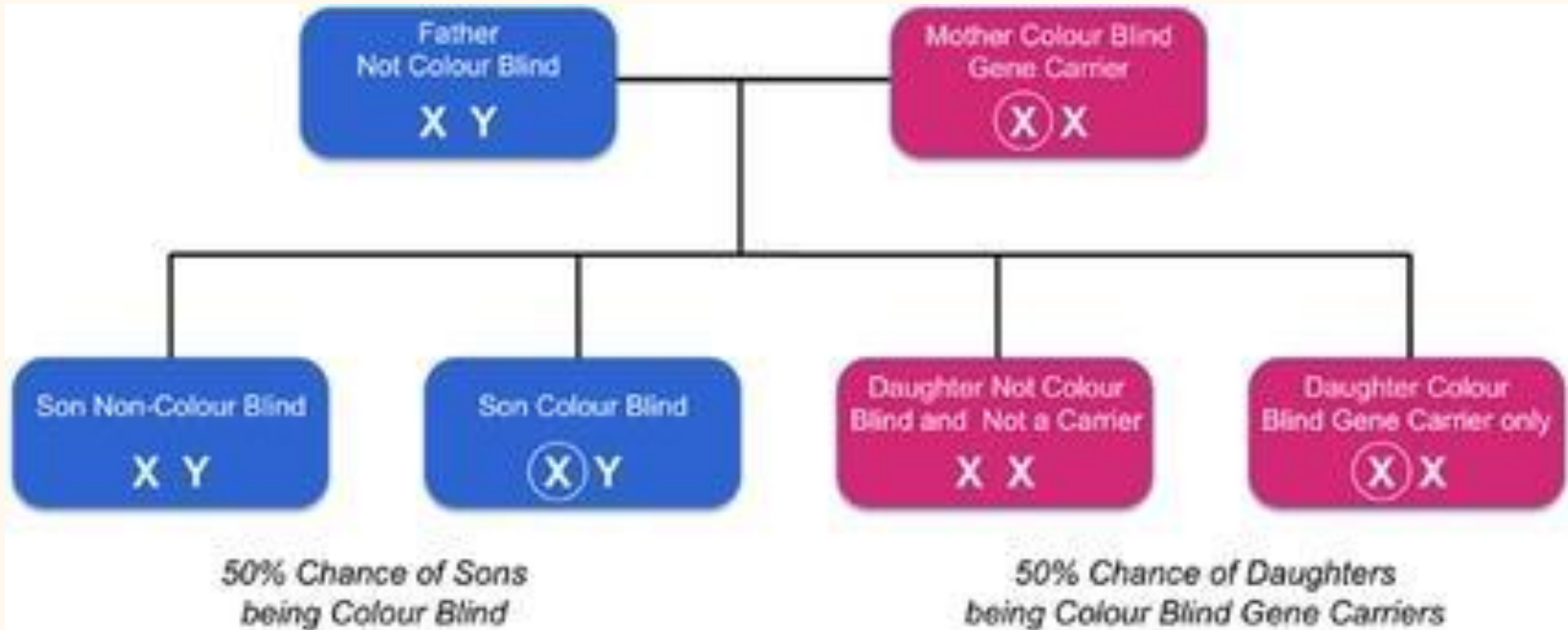
All Sons will be Colour Blind

All Daughters will be Colour Blind Gene Carriers

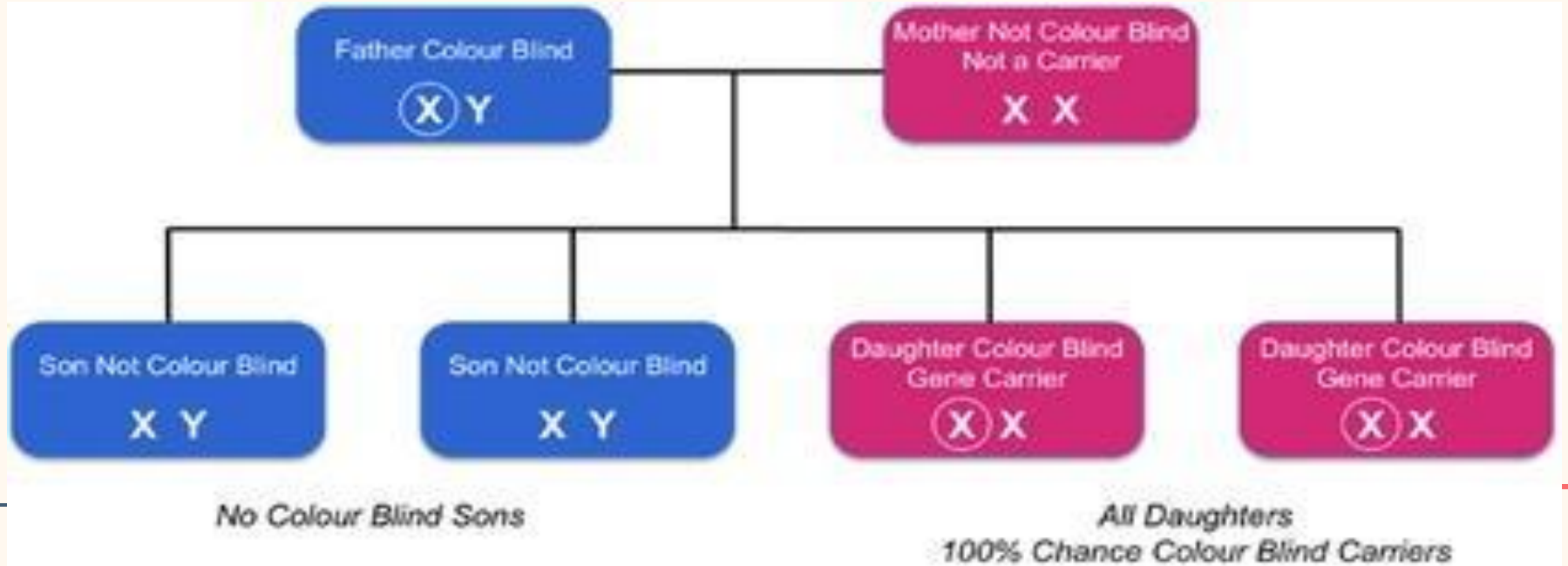
COLOR BLIND MAN COLOR BLIND CARRIER WOMEN:-



NON COLOR BLIND MAN COLOR BLIND CARRIER MOTHER:-



COLOR BLIND MAN NON COLOR BLIND WOMEN:-



DIAGNOSIS:-

- 1:- It maybe difficult to detect in children with inherited colour vision deficiency as they don't know whats wrong with them.
- 2:- If you have eye test with optometrist he should check your colour vision as a matter of routine

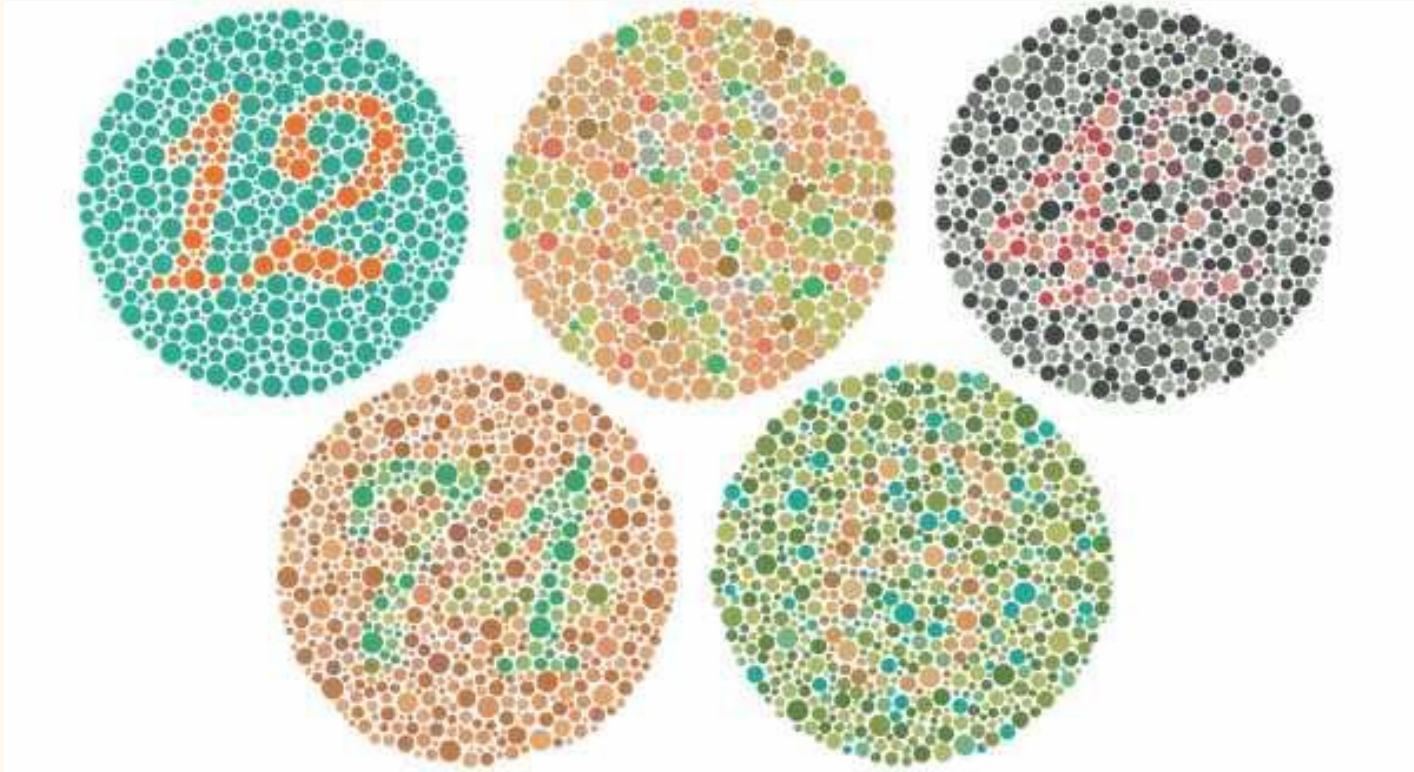


ISHIARAS TEST:-

There are many tests available to measure colour vision defects but the most common is the Ishihara Plate test.

- can test for red/green colour blindness but not blue colour blindness.
- This is the test most likely to be used for routine colour vision screening in schools or medicals.
- This test contains 38 plates of circles created by irregular coloured dots in two or more colours.

PLATES FOR ISHIARAS TEST:-



Treatments:-

1:-There is currently no treatment to
Colour filters or contact lenses can
be used in some situations to
enhance the brightness between
some colours

2:-For acquired colour vision
deficiency, once the cause has
been established and treated, your
vision may return to normal.

PEOPLE LIVING WITH COLOUR

BLINDNESS:-

1:-Colour blind people face many difficulties in everyday life.

2:- Problems can arise in even the most simple of activities including choosing and preparing food, gardening, sport, driving a car and selecting clothing.

3:-Colour blind people can also find themselves in trouble because they haven't been able to pick up a change in someone's mood by a change in colour of their face.

QUESTIONS:-

- 1:- what is color blindness ?
Explain it's types ?
 - 2:-Who is mainly color blind,
males or females?
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THANK YOU MA'AM