

Agitated, anxious test subjects sometimes do not dare to name the characters because they feel unsure. The subjects should be encouraged and, if necessary, be allowed to draw the signs in the air with an index finger or a reversed pencil (without touching the paper!). After this, the examination often proceeds quite easily.

Shortening or Simplifying the Examination Process

This is always questionable. **Under no circumstances** is it permitted to shorten the examination. The test has only been passed if all plates have been correctly described. If appropriate, a reading error can be corrected.

3 Diagnosis

Doubtful Cases

The evaluation “color-vision doubtful” cannot always be avoided with pigment color tests. Agitated and anxious patients have already been mentioned. Tracing the signs in the air is almost always possible. There are a small number of individuals who are not of an intelligence level capable of going through any test. Colloquially, they are called “color ignorant.” But even they can often trace out the characters. It is better to evaluate a test subject as doubtful and refer him or her for additional examination than simply guess whether he or she is color-normal, since professional development may depend on the diagnosis. The doubtful cases may include acquired disorders associated with various diseases and types of poisoning. An examination can be evaluated as passed if the subject’s only error is to read 66 instead of 6R (**Plate 6**) but correct it on second reading, or if he or she only reads the two numbers at the edges of **Plate 2** after being prompted. The ophthalmologist may also have a choice of further collections of plates and tests:

- The Ishihara color plates
- The Farnsworth-Munsell 100 hue test
- The lantern test (Lanthony panel D15 test or other)
- Anomaloscope

Usually the ophthalmologist will be able to recognize acquired disorders by means of a complete eye examination.

The following cases **must be referred for additional examinations**:

- The test subject cannot be convinced of the examination results.
- The subject passes the plate examination but fails in daily practice.
- The simulation or dissimulation question (see below) was not clarified.
- Suspicion of blue-yellow disorder.
- Suspicion of complete color blindness.

- Increased occupational responsibility, for example, in traffic management, the textile industry, referrals of physicians and persons who must themselves conduct examinations with the plates.
- If only one or two slight errors were made but the subject hesitated, blinked, shaded their eyes, moved their head back and forth, and/or needed a particularly long time.
- Forensic cases.

Simulation and Dissimulation

Simulation: In liability and criminal proceedings or if it seems useful to the subject for other reasons to pretend that he or she is color-vision-deficient, there is a risk of simulation. A test subject excites suspicion if they claim that they cannot recognize **Plates 1, 18, and 19**. It is equally suspicious if no colors at all are recognized where no eye defects exist.

Dissimulation: An interest in concealing a color-vision deficiency exists among applicants for certain occupations, for example, traffic management, for which normal color vision or only slightly limited color vision is required. They try to obtain the plates in order to learn them by heart. Tracing out the characters in the air and correct reading of the plates is impossible for them if the order of the plates is changed.

Differential Diagnosis

An experienced examiner is very likely to be able to establish a differential diagnosis of the individual forms of color-vision disorders, especially when the protan fails noticeably in tests with dark red on dark green. The failure rate, however, is too high to base an important differentiation on this test alone.

It is quite possible to distinguish “mild” and “severe” disorders on the basis of the error score, but it is never possible to guarantee that the subject with a “mild color-vision deficiency” might not fail in an individual case under some accidentally very unfavorable conditions (small object, short viewing time, poor lighting, glare, colored surroundings, contrast, etc.). Tritans fail with **Plates 2 and 30–32**, for example.

However, it is not the case that each group only reads certain plates confidently and without error. There are many plates on which both protans and deuterans fail.

4 Counseling the Examinees

At present, we are not able to cure, improve, or eliminate by exercise a congenital color-vision deficiency in human beings. The color names of certain objects can be learned (e.g., the colors of national flags, fire trucks, and so on), but this does not allow the color-deficient individual to experience the color as the color-normal individual does.