

BRIEF EXPLANATION OF TURVILLE INFINITY BALANCE AND DUOCHROME TEST

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Abstract

This paper describes about Turville Infinity Balance, its procedure with its Examples.

Introduction

In 1927, this test was introduced by Turville for the near point testing. After that it is developed for Far point or at Infinity. This chart is composed of: Reversed acuity chart where two vertical columns are present each column have two letters vertically. (Reversed acuity charts mean that when this chart is reflected from the mirror then it will be proper acuity image, example of AMBULANCE). Here, Mirror is present and this mirror is composed of 3 cm septum centrally.

Procedure

Here, mirror is placed just above the in front of the patient and this chart is placed just above the behind the patient and chart and mirror height should be same with respect to patient's eye level.

Duochrome Method

It is based on the principle of "Longitudinal Chromatic Aberration". It's another name is Biochrome method and merely it is called Red Green chart. By this method, practioner can came to the conclusion of over correction and under correction of the patient. This chart is composed of black letters and it is used like distant acuity chart. It is splitted into two identical halves. One half consists of red background and another half

consist of green background. Green light is focused 0.20 D in front of the Retina and Red light is focused 0.24 D behind the Retina. Always it is being remembered that dark room enhance aberration due to pupil dilatation.

Technique

Acronyms to remember before starting this procedure are:

RAM- Red Add Minus

GAP- Green Add Plus

Patient should be extra fogged by "+0.25 D" at the starting of the procedure.

The meaning of RAM is when patient is wearing a minus lens, and reports that Red background is better compared to Green background, then

increase the minus power. When Green background is better than Red background, and then consequently decrease the minus power.

The meaning of GAP is when patient is wearing a plus lens, and reports that Green background is better compared to Red background, and then increase the plus power. When Red background is better than Green background, and then consequently decrease the plus power.

Example:

Suppose, RE: +4.00Dsph (6/6)

LE: +4.00 Dsph (6/6)

During this procedure, at first patient will be fogged with +0.25 Dsph.

- Left eye will be occluded and Right Eye will be $(+4.00) + (0.25) = +4.25$ Dsph
- Patient should be asked which background is sharper or is it equally clear or not.
- If Green background is better compared to Red background, then, GAP rule should be followed. I.e. Green Add Plus. It means, here, we have to increase the plus power until both backgrounds will appear equally clear. So, Left eye is occluded and in Right eye, it will be +4.50Dsph or +4.75 Dsph. Changes can be done only up to +0.50Dsph to +0.75 Dsph only.
- If Red background is better compared to Green background with plus power, then, GAP rule should be followed. Here, if Red background is better, then plus power will be decreased consequently until both the backgrounds appear equally clear. So, Left eye is occluded and in Right eye, it will be +4.00 Dsph or +3.75 Dsph.

Example:

Suppose, RE: -4.00Dsph (6/6)

LE: -4.00 Dsph (6/6)

During this procedure, at first patient Left eye is occluded

- Right eye will be fogged up to +0.25 Dsph, i.e. $[-4.00 + (+0.25)] = -3.75$ Dsph.
- Then patient will be asked about the background.

- If Green background is better compared to Red, then RAM (Red Add Minus) should be applied. Here, Green background is better than Red background, minus power will be decreased until both backgrounds will appear like this -3.50 Dsph, -3.25 Dsph.

If Red background is better compared to Green background, then minus power will be increased consequently until both backgrounds appears equally sharp.

Changes must be up to 0.50 Dsph

** It should be remembered that before performing these procedures, eye should be pathologically perfect. Because in presence of yellow crystalline lens, sometimes Red background appears clearer compared to Green background. **

- In case of Minus Refractive error, if Red background appears more sharper, then consequently increase the minus power till both the backgrounds appear sharper. Simultaneously, if Green background appears more sharper, decrease the minus power till both backgrounds appear equal.
- In case of Plus Refractive error, if Red background appears more sharper, consequently decrease the plus power and in Green background, consequently increase the plus power till both the backgrounds appear equal.

** Minus Refractive error – Red background is sharper – increase the minus power till both appears equal.

Other all examples will be opposite with respect to the above example for managing patient practically. **

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