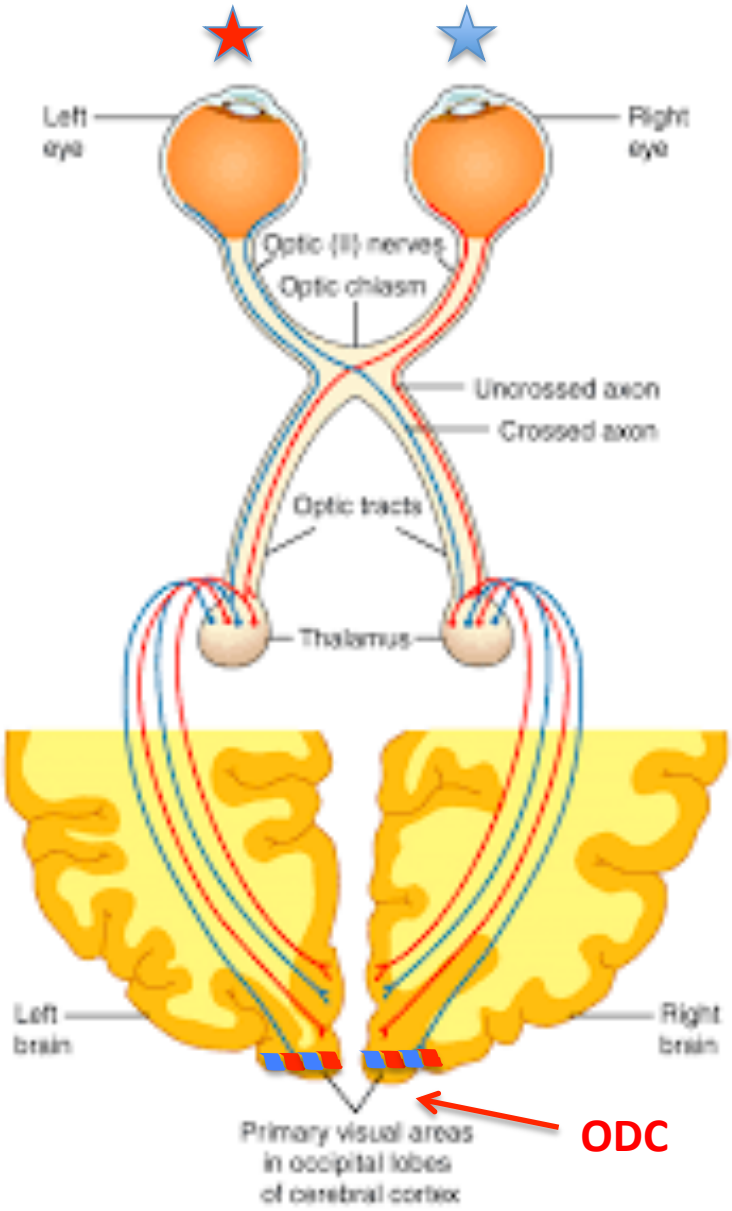


Ocular Dominance Columns **(ODC)**
Normal: equal size columns
Amblyopia: Representative columns narrow

This manual describes Neutralization and Parity Challenge

Normal

Normal: No Defect

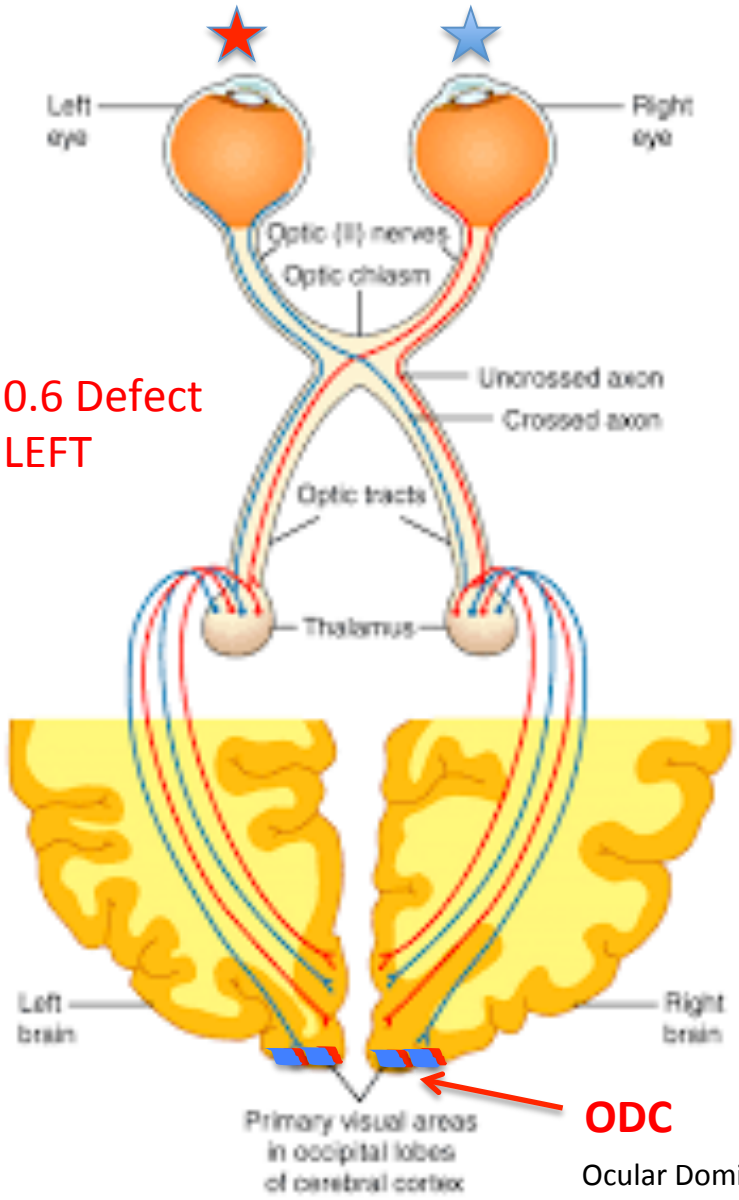
Ocular Dominance Columns (ODC) receive bilateral input from the eyes. In amblyopia the columns representing the amblyopic eye are reduce in size. Represented here as Red (left eye) and Blue (Right eye) are the ODC.

Please note the Red columns (left eye) and the Blue columns (right eye) are of equal dimensions.

Neutral Density Filters

.3 .6 .9 1.2 1.5

Left Defect



0.6 Defect
LEFT

Ocular Dominance Columns (ODC)

Amblyopia: 0.6 log units Defect

Neutralized = ?

In this example the left eye amblyopic defect is equivalent to 0.6 log units of light dimness.
In the Amblyometer® Test, for equally bright spaceships, the upper spaceship (left eye) would appear dimmer than the lower spacecraft (right eye).

Please note the Red columns (defective left eye) are narrower than the Blue columns (normal right eye).

Neutral Density Filters

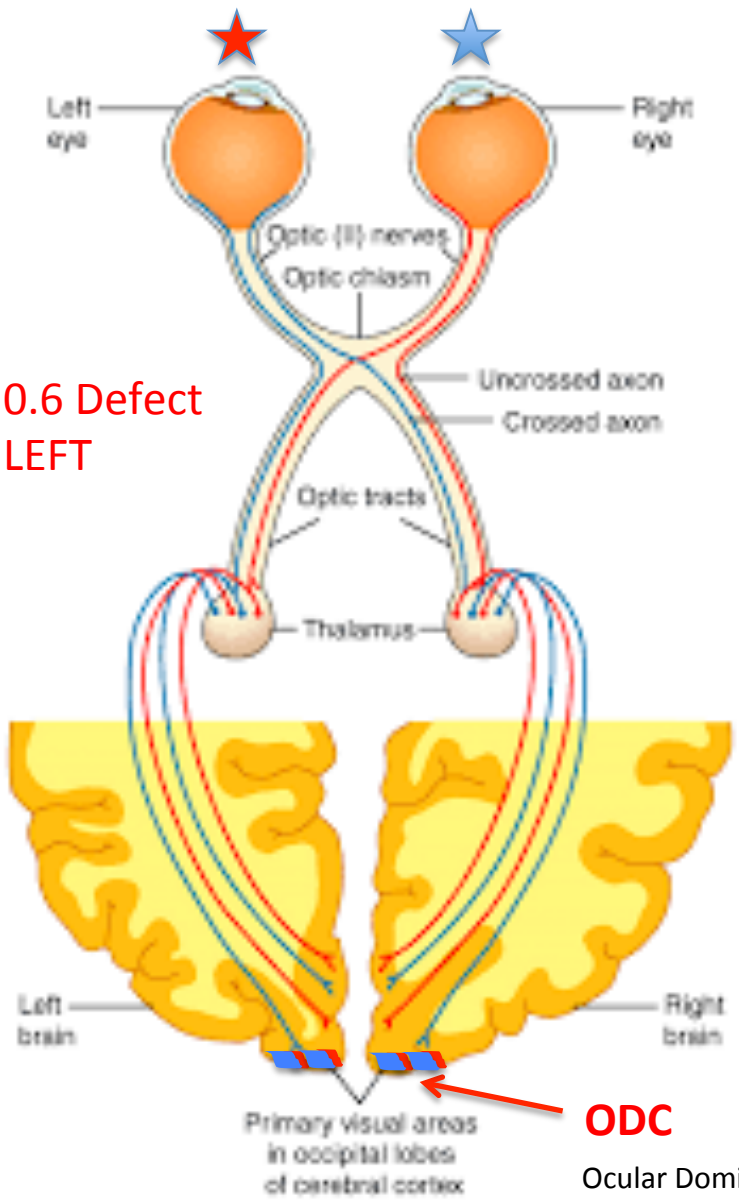
.3 .6 .9 1.2 1.5

Neutralization

Amblyopia: 0.6 log units Defect

Neutralized = **0.6 log** filter

.6 Defect Balance



0.6 Defect LEFT

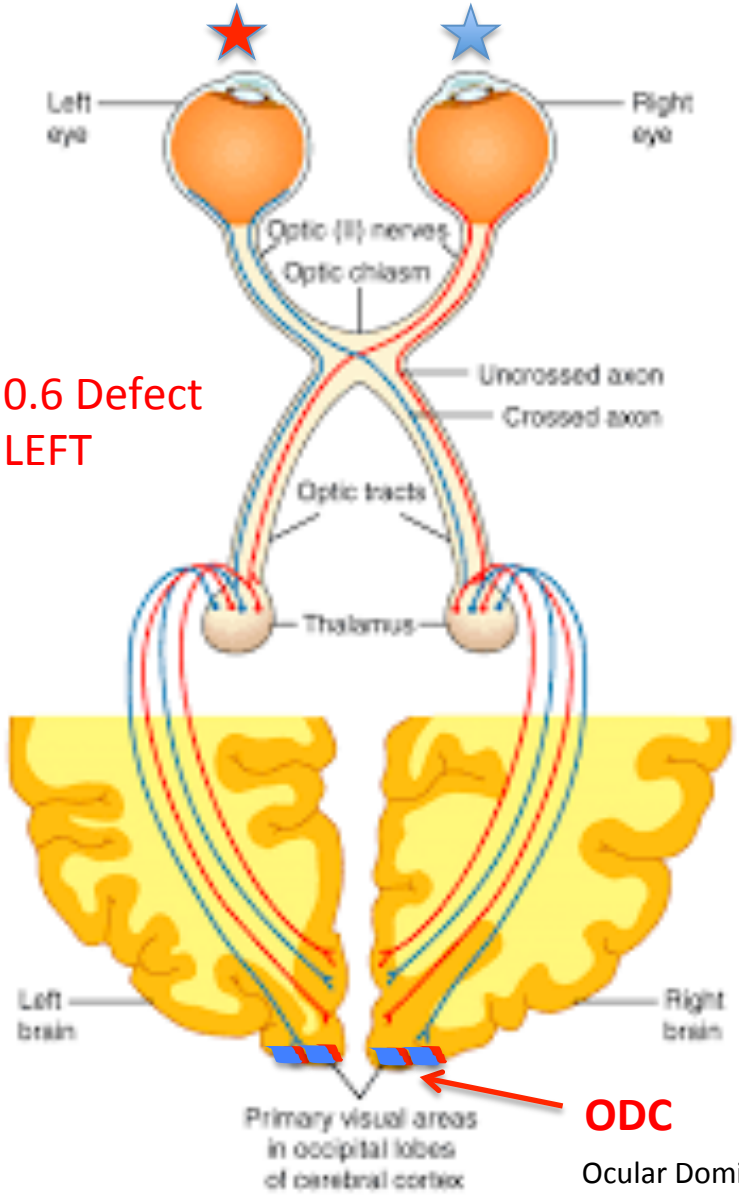
Ocular Dominance Columns (ODC)

A 0.6 log neutral density filter over the right eye neutralizes the 0.6 log unit defect of the left eye. In the Amblyometer® Test the upper and lower spaceships would appear equally bright after the right stimulus (bottom) is dimmed by a 0.6 log filter over the right eye.

Neutral Density Filters

.3 .9 1.2 1.5

Challenge .9



0.6 Defect
LEFT

ODC

Ocular Dominance Columns (ODC)

PARITY CHALLENGE DOUBLE THE SIZE OF A DEFECT.

1. Left Parity Challenge

Amblyopia: 0.6 log units Defect

Left Parity Challenge with **0.9 log** filter

Neutralization = ?

Parity challenge comes in two parts, (1) test with the 0.9 log filter over one eye and (2) repeat the test with the 0.9 log filter over the opposite eye.

The Parity flip-filter is used during testing. Here the denser filter is places over the left eye and the difference between the more and less dense filters is 0.9 log units.

Neutral Density Filters

.3 .6 1.2 1.5

Left Parity Challenge

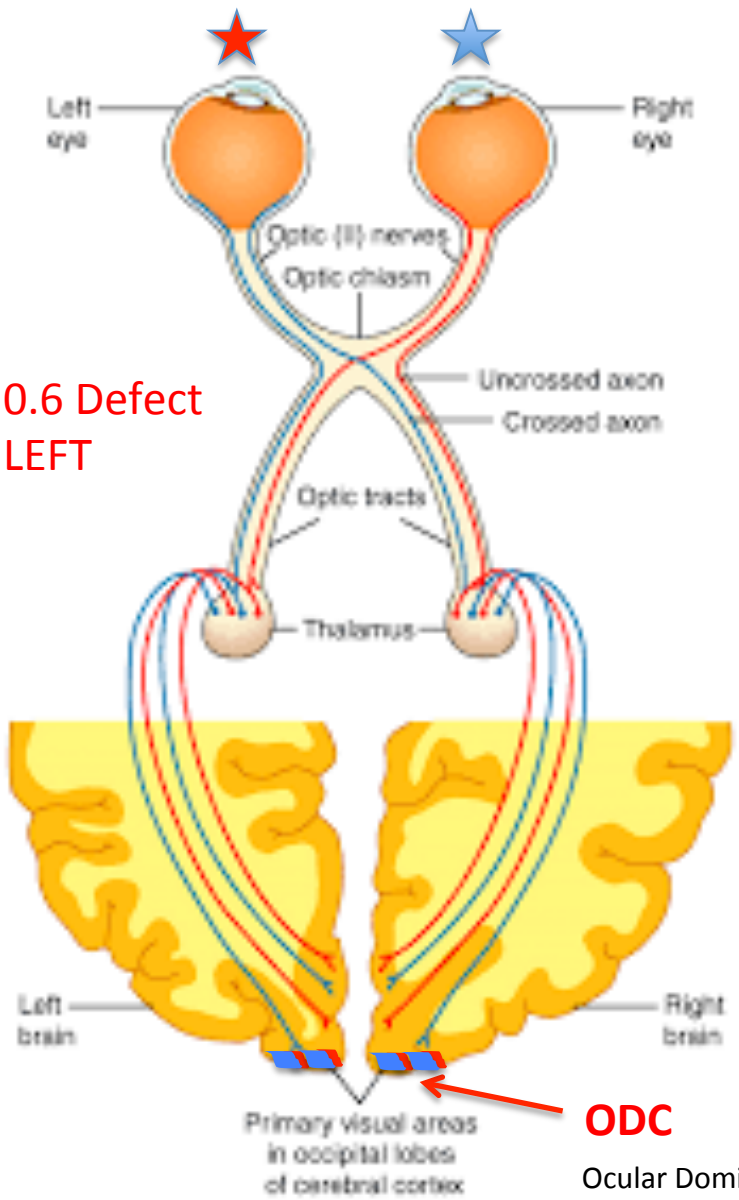
Amblyopia: 0.6 log units Defect

Left Parity Challenge with **0.9 log** filter

Neutralization = **1.5 log** filter

In order for the upper and lower spaceships to appear of equal brightness, a 1.5 log filter must be placed before the right eye to balance the 0.9 log challenge filter plus the 0.6 log defect of the left eye.

Challenge .9 1.5 Parity



0.6 Defect LEFT

ODC

Ocular Dominance Columns (ODC)

Neutral Density Filters

.3 .6 1.2

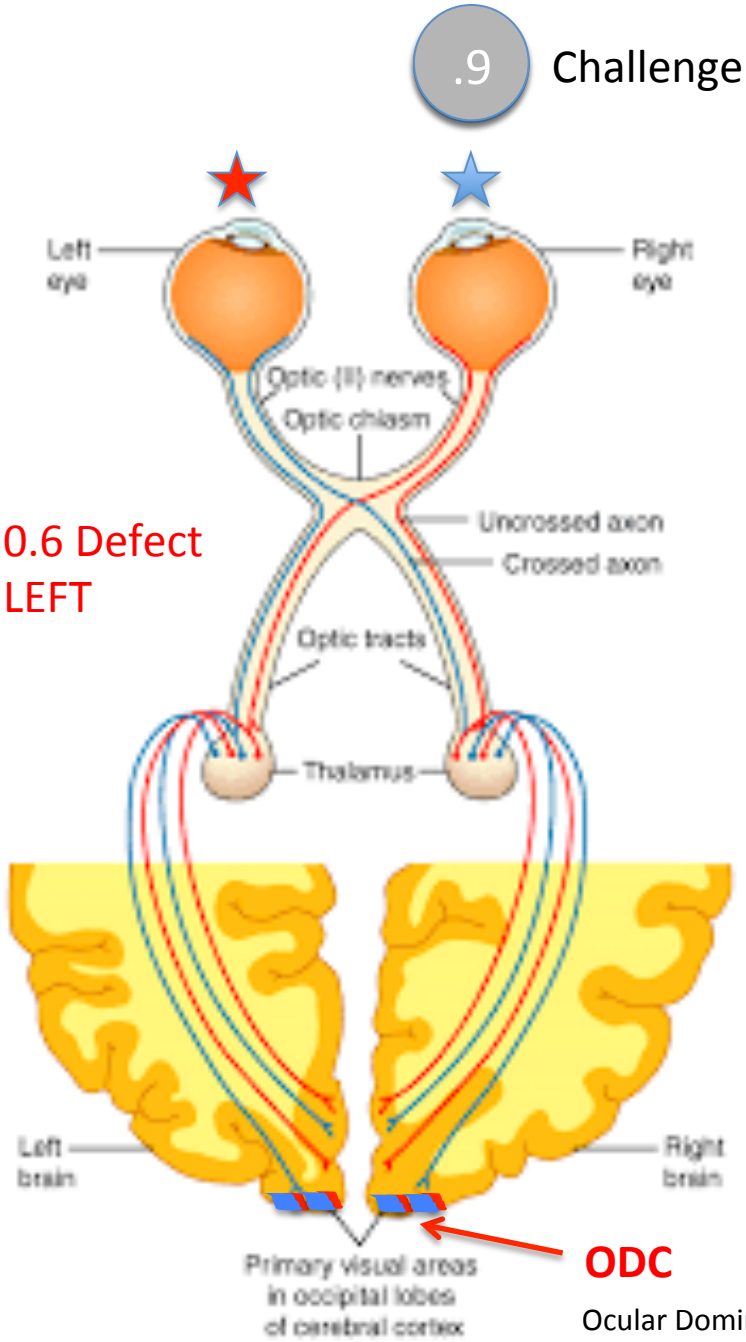
2. Right Parity Challenge

Amblyopia: 0.6 log units Defect

Right Parity Challenge with 0.9 log filter

Neutralization = ?

Here the right eye is challenged by the denser parity lens of the Parity flip filter.

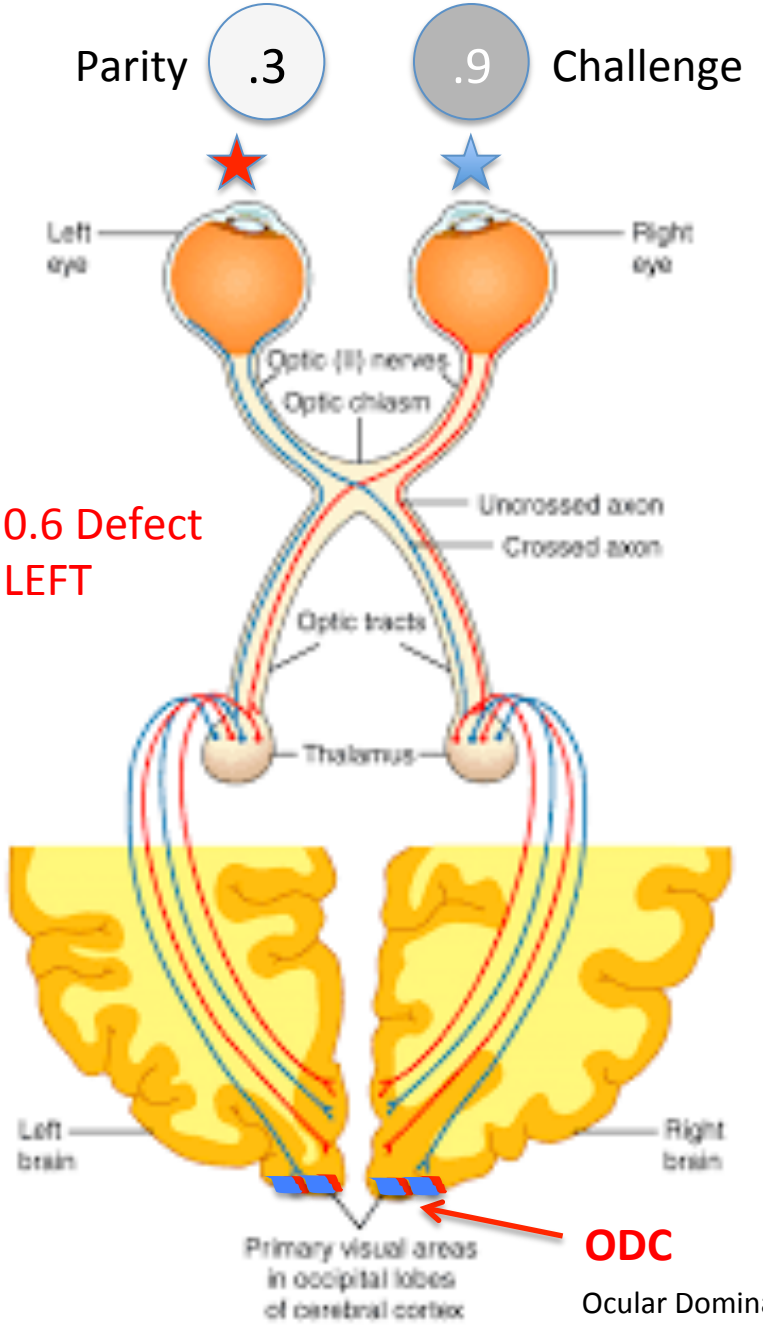


0.6 Defect
LEFT

Ocular Dominance Columns (ODC)

Neutral Density Filters

.3 .6 1.2 1.5



0.6 Defect LEFT

Ocular Dominance Columns (ODC)

Right Parity Challenge

Amblyopia: 0.6 log units Defect

Left Parity Challenge with 0.9 log filter

Neutralization = 0.3 log filter

In order for the upper and lower spaceship to appear equal brightness a 0.3 log filter over the left eye is required, i.e., 0.6 defect + 0.3 Parity = 0.9 challenge.

Neutral Density Filters

.6 1.2 1.5

Result Parity Challenge

Parity Challenge Left = 1.5 units
Parity Challenge Right = 0.3 units
Difference = 1.2 ND
Amplified Left Defect = 1.2 ND
Doubles the 0.6 unit DEFECT