



KINETIC FUNCTIONAL VISUAL FIELD TESTING

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***Every man takes the limits of
his own field of vision
for the limits of the world.***

◦ **Schopenhauer**

Practitioner skills!

When we do any test or make an observation
it tells us a story about that person .

So we can better understand our patient
and

how to best support (treat) their journey to recovery.

**For a complete assessment and diagnosis of a patient
the Optometrist needs to assess
the central and indirect vision.**

1. Examine the structural integrity & health of eye.
2. The central Refractive status & binocularity.
3. Kinetic Functional Perimetry.

We must look at all the findings and see if they corroborate with each other and how they match the signs, symptoms and predictions of what is happening to that individual:

- **Perimetry allows you to understand the state of the eye, the visual apparatus, including the brain and stages of the dysfunction.**

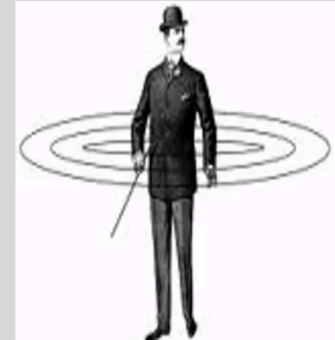
- Perimetry allows you to understand the state of the eye, the visual apparatus, including the brain and stages of the dysfunction.

We want to know what is the cause of those changes and how it is affecting them and how they are dealing with it!

ANATOMY OF VISUAL FIELDS

What do the Visual fields tell us?

- Is a reflection of how much information we can deal with.
- How much energy we are putting or expending to process that information.
- How receptive we are to what is happening around us.
- Understanding the spatial aspects external to ourselves and how safely we can move through it.
- How our ocular system functions and can cope in the real world. (EM/Fusion/Accom/Vergence)
- An indicator of our bodies ability to interact (relationship) with the visual information.
- It can reveal the type of cognitive style, Visual processing skills & our Perception.



ANATOMY OF VISUAL FIELDS

What is the story!

What do the Visual fields tell us?

(Resilience) deal with.

energy Levels

receptivity

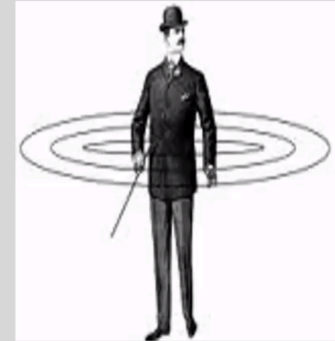
spatial Understanding

ocular system functions

◦ How our ocular system functions and can cope in the real world.
(EM/Fusion/Accom/Vergence)

◦ An indicator of our bodies ability to interact (relationship) with the visual information.

◦ It can reveal the type of cognitive style, Visual processing skills, & our Perception.
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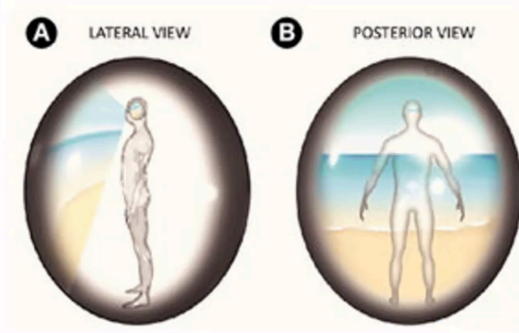




VISUAL FIELDS AND IMPACT ON BEHAVIOUR

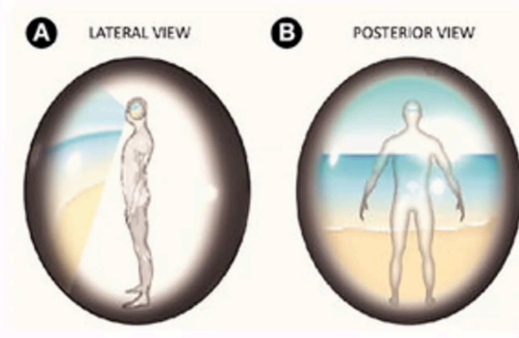
How our field of vision governs our behaviour, emotions and relationships and our interaction with the world around us!

3D map of space
around us
NOT a flat field



FIELD OF COMFORT
“PERSONAL SPACE”
“BUBBLE OF SAFETY”

3D map of space
around us
NOT a flat field

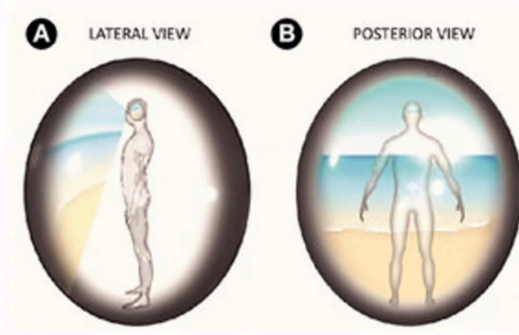


4 MAPS OF WORLD AROUND US

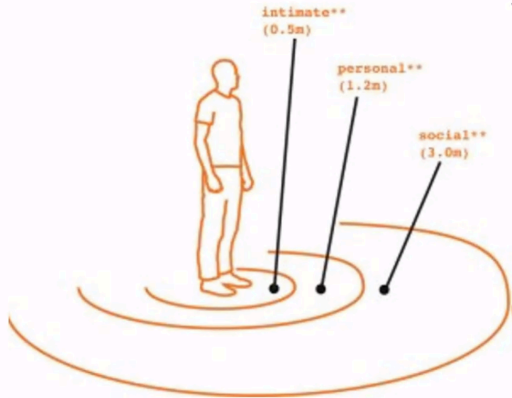
1. Visual
2. Auditory
3. Proprioceptive
4. Emotional perceptual
(Personal space)

FIELD OF COMFORT
"PERSONAL SPACE "
"BUBBLE OF SAFETY"

3D map of space
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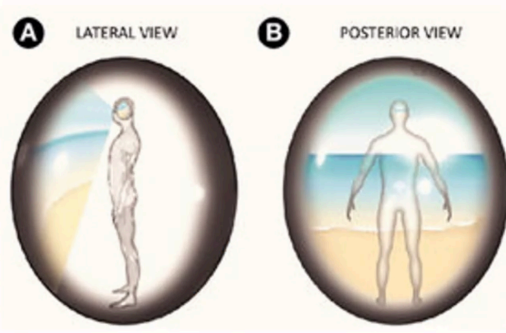


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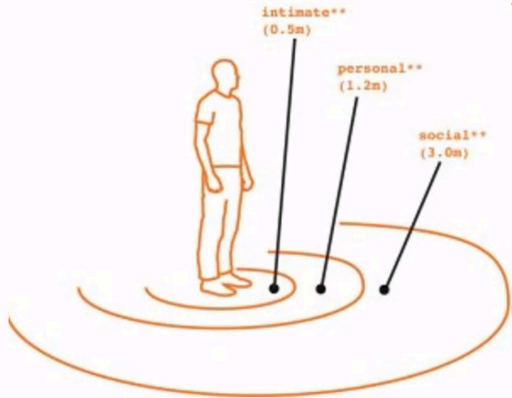


With layers of relationships

3D map of space
around us
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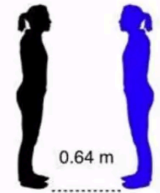


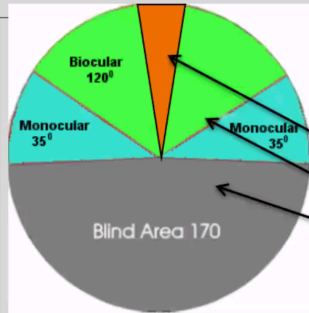
With layers of relationships

preferred
distance

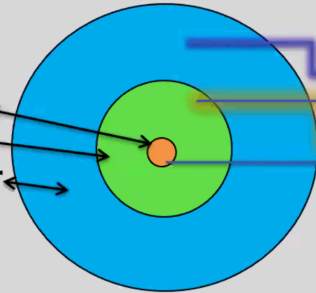


Control participants'
average preferred
distance





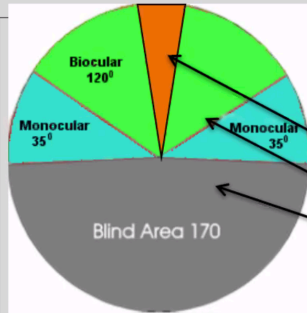
Binocular
Biocular
Monocular



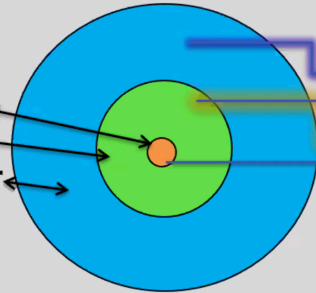
Extrapersonal Space	• Far Bead
Peripersonal Space	• Middle Bead
Personal Space	• Near Bead

Three Zones in our field of Vision Relate to Visual functional areas





Binocular
Biocular
Monocular



Extrapersonal Space	• Far Bead
Peripersonal Space	• Middle Bead
Personal Space	• Near Bead

Three Zones in our field of Vision Relate to Visual functional areas



Relationship

- Personal Space

- Peripersonal space

- Extra personal space

Ocular Area

Binocular Field (Foveal)

Binocular Field (macula?)

Monocular Field (peripheral)

Visual Field region

Central field

Mid Field

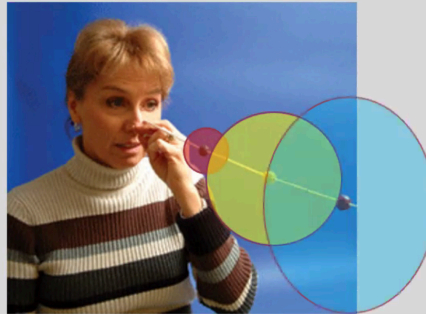
Full Field (periphery)

Processing style

Analytical/ Rational

Flexibility/ Dynamic

Global/ Contextual



Kinetic Functional Field Testing

**Look at what the expected normal
fields should be
then look at possible anomalies
for that age category!**

Pattern deviation:

- It is very important to observe any overall local deviations of a patient's field from the normal.

Visual Field Examination Part I

Observe SYMMETRY

- Firstly compare both eyes to each other.
- For any size differences. RE vs LE Fields
- Compare all Four quadrants
 - sizes to each other & same quadrant in other eye:
 - – Temporal, (toward your ear)
 - – Nasal, (toward your nose)
 - – Superior, (upper, or above centre)
 - – Inferior, (lower, or below centre)
- Compare blind spots
 - Size (to expected & to white field), Location & Orientation

Visual Field Examination Part II

Look at Each Eye Individually:

- Motion Field
- White Field
- Colours

Visual Field Examination Part II

Look at Each Eye Individually:

- Motion Field
 - White Field
 - Colours
- Blind Spot size, location, orientation
 - Compare sequence / order of colours
 - Compare Sizes –
 - White vs Blind spot
 - Motion vs White
 - Green vs Red
 - Red vs Blue
 - Observe any overlapping (interlacing)

COLOUR FIELDS

MEASURE DISTURBED FUNCTION DUE TO
STRESS, TRAUMA , AND TOXICITY.

Can be viewed at the Physical level, functional level
Or interpreted as emotional coping levels.



THE POWER OF PERIPHERAL VISION

- If you lost this peripheral vision, you would be stuck focusing on each individual part with no context. [focal vision]
- Klein compares this to being hyper-rational
- - "the attempt to apply deductive and statistical reasoning and analysis to situations where they do not apply. The context (the surrounding emotions [ambient field]) have a major impact on the analysis of our central focus and inner resources, all of which are constantly changing in terms of their emotional impact on us.



All these emotions are reflected in our Functional field (of awareness)

Current emotional states

- Fear
- Sense of security
- Relaxation
- Tension
- Pain

Other

- Frustrations of developmental state or character
- Mental injuries (traumas), etc...
- Characteristics of temperament according to the theory of Hippocrates, Kretschmar, Sheldon

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Stages of deterioration

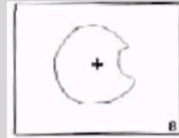
1. Irritation (Stimulative) stage: eg Photophobia

(Loose Case Type – acute to recent)



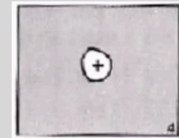
2. Depressive Stage: (function is depressed) discomfort, headaches, fatigue, reduced concentration, nervous symptoms, difficulty reading.

(Tight Case Type –Recent to chronic)



3. Degenerative Stage: Now will involve loss of function or tissues eg: of sight, scotoma.

(Embedded Case Type -Severe chronic)



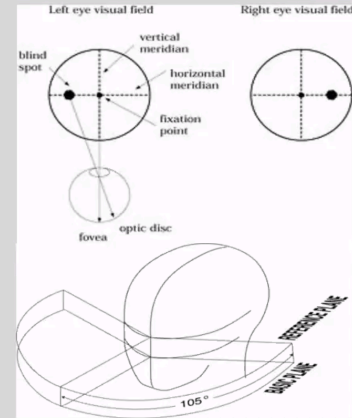
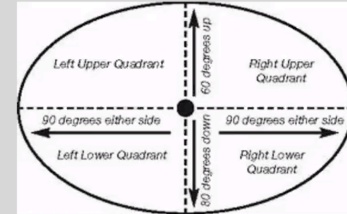
**MUST Determine the Cause
and what stage the deterioration is at!**

Visual World vs Retinal field vs Brain area

- Visual world has three spatial co-ordinates
- X/Y/Z axis
- X axis is the horizontal plane of above or below horizon
OR superior vs Inferior retinal stimulation
- Y axis is the vertical midline plane of left or right
OR Nasal vs Temporal retinal stimulation
- Z axis is the Near vs Far (in front vs beyond) plane of regard
OR Convergence vs Divergence stimulation

ALSO

- Nasal retina drives for divergence - away from mid line [SNS response]
- Temporal Retina drives for convergence - towards midline [PNS response]
- Inferior retina drives for upward gaze above horizon. [SNS response]
- Superior retina drives for downward gaze below horizon [PNS response]
- Nasal/inferior VF vs Temporal/Superior VF retinal area opposite)

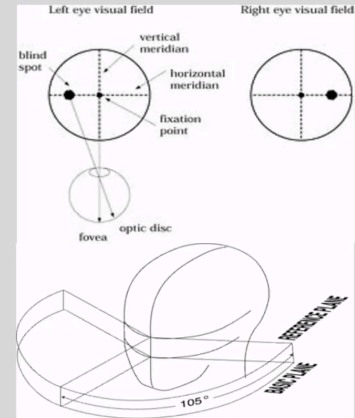
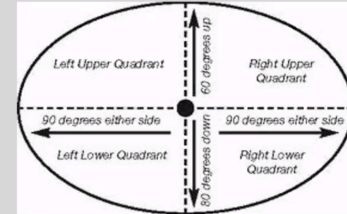


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Effects of Passive Physical Exercise on Peripheral Vision in Muscular Dystrophic Children.

Eickelberg, Warren; And Others

Perceptual and Motor Skills, v56 n1 p167-70 Feb 1983

Document Type: JOURNAL ARTICLE (080); RESEARCH REPORT (143)

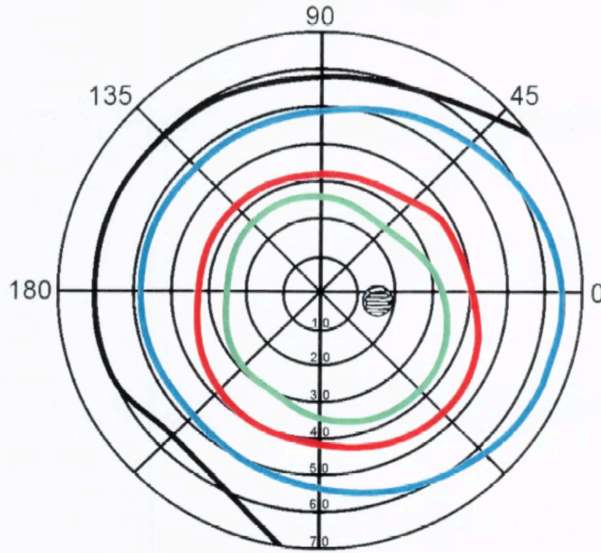
Journal Announcement: CIJAUG83

The effects of passive exercise of the extremities on peripheral vision of muscular dystrophic children aged 9 to 13 years was investigated. Compared to control subjects,

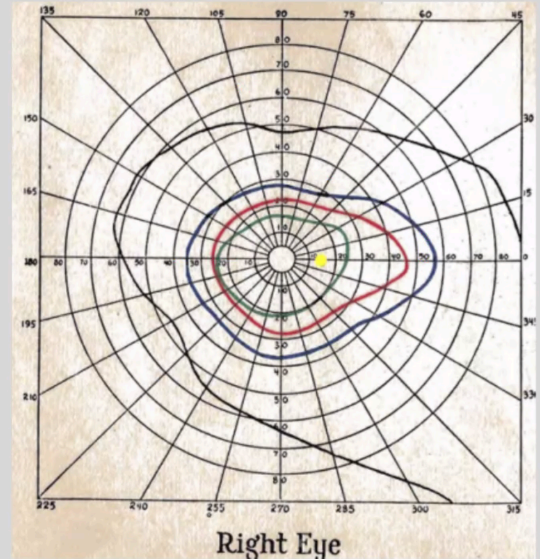
those who experienced six minutes of passive exercise evidenced increased peripheral vision.

Curriculum revisions for muscular dystrophic children indicate the importance of activity in facilitating learning.

Ideal Field



NORMAL FIELD
(Right Eye)



Right Eye

Changes in Fields

Cause may be:

- ☐ Endogenous or Exogenous
- ☐ Inversion or Interlacing
- ☐ Look at analytical findings

- *Need a proper interpretation and classification of the various stages of intoxication.*
- *Intoxication affects the tonicity of ductions,*
 - ☐ *Slow recovery usually apparent.*
 - ☐ *General visual efficiency is poor with a highly intoxicated patient.*

Green Field

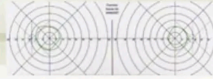
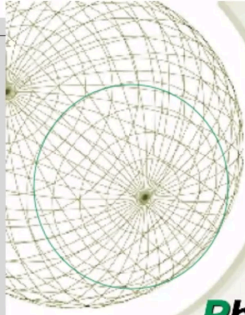
(Stage 1 - loose case)

The colour most drastically affected by **chemical change in the organism**.

Its constriction is traceable to a **focal infection that is exuding toxins** into the system.

◦ eg: Possible causes

- ☐ root canals.
- ☐ abscessed teeth,
- ☐ acute tonsil infection,
- ☐ acute Sinusitis,
- ☐ alcohol poisoning
- ☐ paint, (lead or other chemicals)
- ☐ drugs, (medical or recreational)
- ☐ general systemic infection.
- ☐ tissue oedema, (especially in the pulmonary or cardiac region).
- ☐ immune dysfunction and therefore involve difficulties with the thymus gland.



Visual -Efferent Projection

Interpretation - **Green** Functional Field

- ✦ Focal Infection
- ✦ Systemic Toxemia
- ✦ Poisoning / endogenous & exogenous

Physical

- ✦ Acute conditions, infections in: teeth, tonsils, sinuses affecting the choroidal (outerlayer eyes) vasculature of the eyes.
- ✦ Poisoning exogenous or endogenous affecting retinal vasculature of eyes.
- ✦ Edema of pulmonary or cardiac regions.
- ✦ Immune system dysfunctions (thymus gland).

Psychological **Emotional**

- ✦ Difficulty in relationships.
- ✦ Bitterness, grief, anger, loneliness.
- ✦ Self-centeredness, lack of forgiveness issues.

Red Field (Stage 2 – tight case)

- A **chronic systemic infection** will constrict the **red** field and is indicative of a *depressive state of endogenous / exogenous intoxication*.
- This can happen when a focal infection develops into a general infection, causing health problems that are chronic in nature and
- indicate congestion, especially in the circulatory system.
- Constrictions in the red field could also accompany
 - high blood pressure, diabetes,
 - adrenal dysfunction, chronic fatigue.

Visually it indicates trouble in the retina itself, or nerve pathway.

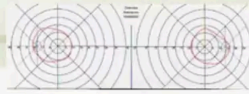
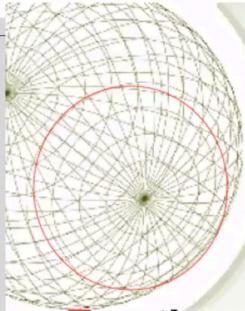
- Intoxication from a systemic reaction to coffee or tobacco can constrict the field, often causing it to interlace with green.
- With red constriction, careful charting of the area between the blind spot and the fovea with coloured probes should be done.
- Eg Toxic amblyopia, scotomas develop around the fovea first with loss of colour perception indicated, before becoming an absolute scotoma.

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Visual -Efferent Projection

Interpretation - **Red** Functional Field

- ✦ Accommodation (P-system) - Identification
- ✦ In general systemic infection (chronic)

Emotional

- ✦ Separation from family or place.
- ✦ Resulting in depression or grief.

Physical

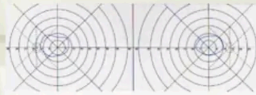
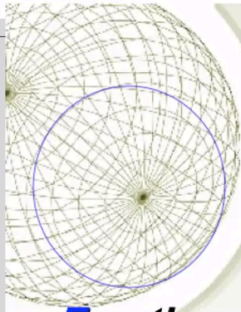
- ✦ Chronic Fatigue.
- ✦ Congestion, circulatory system.
- ✦ Intestinal stasis, constipation.
- ✦ High blood pressure, diabetes.
- ✦ Adrenal dysfunction.
- ✦ Chronic Health problem.

Psycho-Educational

- ✦ Recognition of symbols brought in from periphery (squares, triangles, ...).
- ✦ Magno-cellular pathway defect correlating with reading problems.
- ✦ Endocrine function of adrenal supplies the energetic basis of life issues as survival, grounding, how one fits into the surroundings:
 - *Security issues - relationship to material attachment.*
 - *Abuse and indulgences of appetites.*
 - *Excessive behaviors.*

Blue Field (Stage 3 – Embedded)

- The **blue** field is the largest of the three colour fields.
- The last to constrict if the stress /trauma /toxicity is long lasting and not resolved.
- Now the emotional aspect is beginning to take over, depleting all energy levels.
- It represents the energetic integrity of the heart (/heart issues) and adrenal system.
- Emotionally withdraws within
 - More concerned with issues within and more reactive (self esteem, anxiety, anger)
- More of the physical energy directed to internal organ function.
- More emotional symptoms present.
- Often experience migraine headaches
- Relate to adrenal fatigue and emotional exhaustion.



Visual -Efferent Projection

Interpretation - **Blue** Functional Field

- + Motion
- + Binocular
- + Periphery (Central)
- + Heart involvement-movement

Emotional

- + Psychological more accurate than other fields.
- + Internalization of tension.
- + Headache problems, migraines.
- + Creative expression and integrity issues:
 - Fears, shyness, clarity of thought.
 - Love-Hate relationship.
 - Resentment, grief & anger.
 - Self centering & self knowing.
 - Lack of strengths in decision making.
 - Lack of strengths in word usage.
 - Deficiency in ability to express oneself and to exercise judgment and critical thought.

Physical

- + Constriction relates to energetic integrity of the heart and adrenal system.
- + Cataract, mucous.
- + Migraine, headaches.
- + Sinus infections.

Psycho-Spiritual

- + Associated with pineal gland & related to higher expression of spiritual , conscience & self-conscience:
- + Inability to learn.
- + Vague or unclear thinking.
- + Narrow-mindedness.
- + High levels of rationalization or having no conscience.
- + Illogical, unreasonable or lack self awareness.

Visual fields Interpretation

- Motion field - MAGNO. System –
- Form field's & colour fields -PARVO system
- Motion & form fields for white need to be equidistant, Otherwise problem with balance & possible postural shift.
- Blind spot is our reference point in space, if enlarged then not secure in space, poor spatial judgements.

Things you need to standardise!

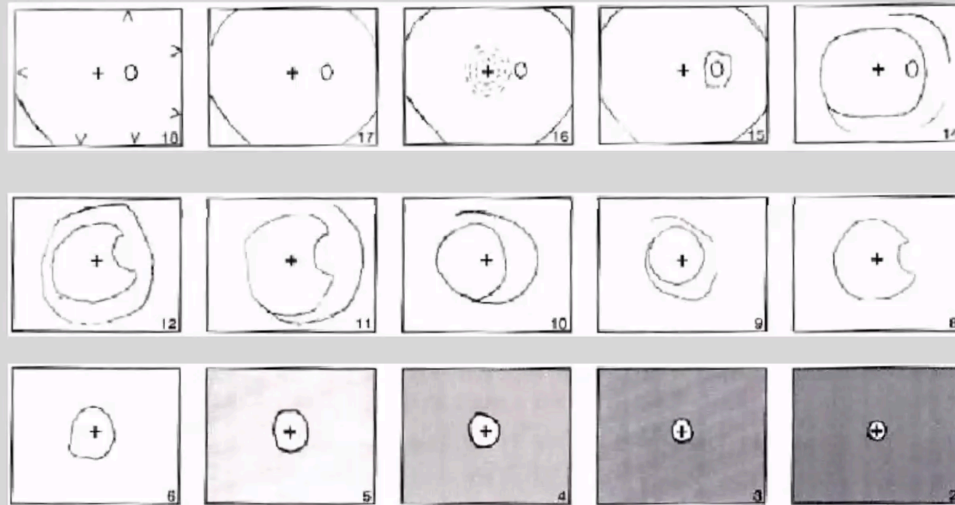
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- Room Lighting, Even lighting over chart, Comfortable seating and posture of Px!
- Instructional set!
 - Must be clear to well understood by Px plus need to understand what to expect!
 - Best demonstrate.
- Standardised Sequence of testing!
- Need to put patient in a comfortable receptive state (PNS). No distractions.

Things you need to standardise!

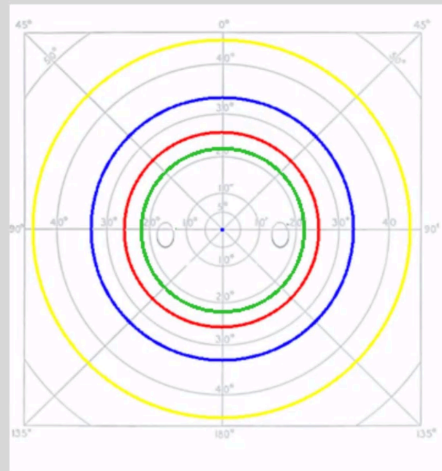
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Stages of Visual Field reduction

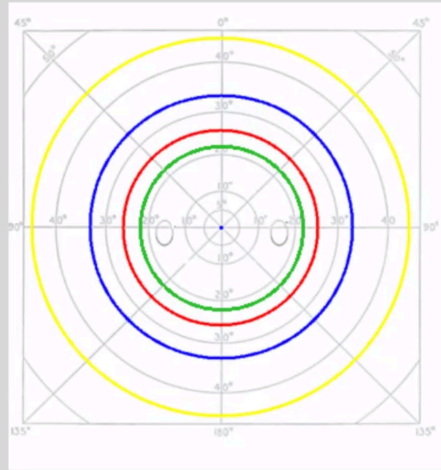
John Searfos Field studies.



Normal Colour Field



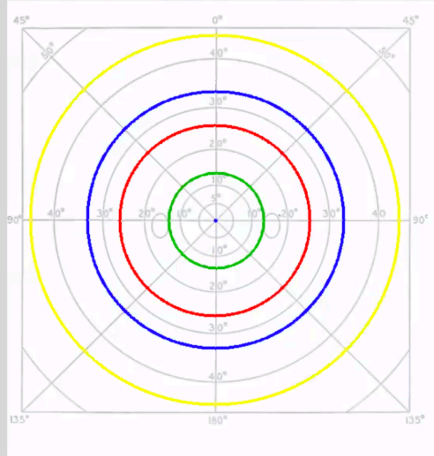
Normal Colour Field



What is the
order of
colours?

- What is the
smallest field size

Stages of deterioration in Field changes [endogenous]-Inversion



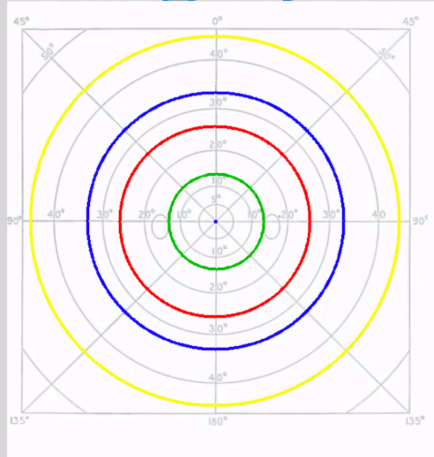
Stage 1

**Green field reduced
Focal Inflammation
(Acute)**

Stage 2

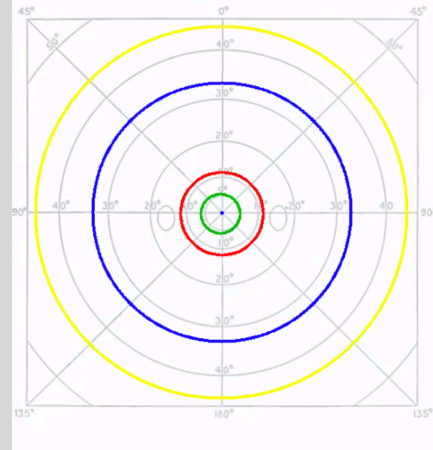
**Now Red Field reduced also
Systemic involvement of infection
(getting Chronic)**

Stages of deterioration in Field changes [endogenous]-Inversion



Stage 1

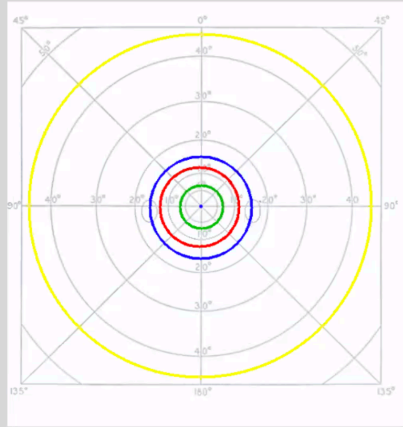
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Stage 2

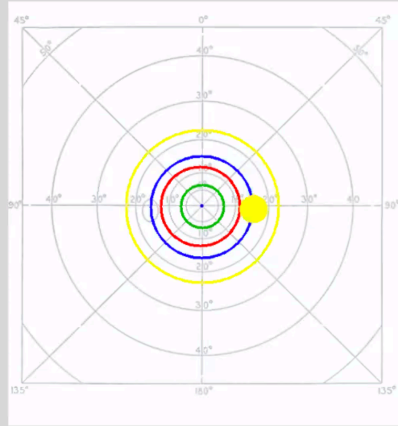
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Stages of deterioration in Field changes [endogenous] -Inversion



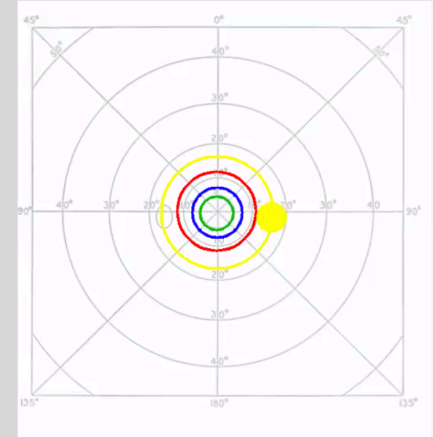
Stage 3

All 3 colours reduced only
White field still large
Emotional involvement (Chronic)
Still coping



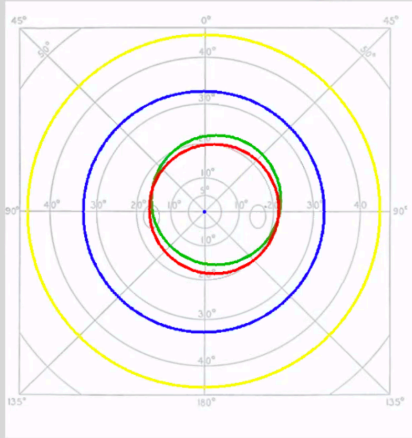
Stage 4

White field now reduced as well, Blue field smaller than red
Blind spot enlarged (most likely also interlacing)
Reduced coping mechanisms Emotional issue worse



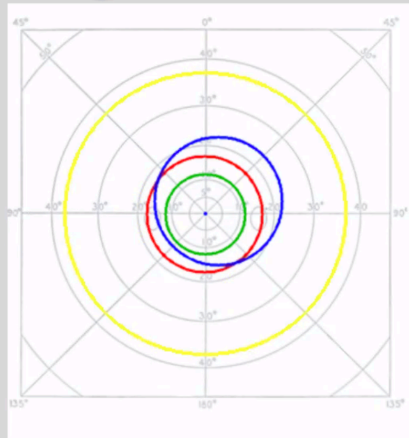
Stage 5

Stages of deterioration in Field changes [exogenous] -Interlacing



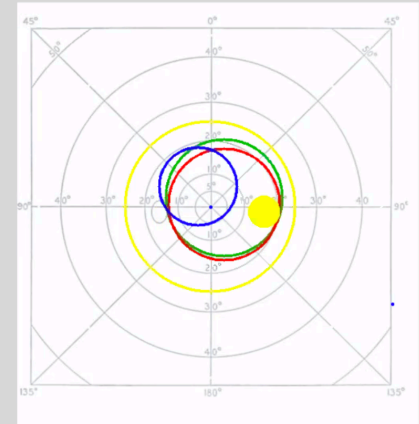
Stage 1

**Green reduced & interlace with red
White still large
Severe onset**



Stage 2

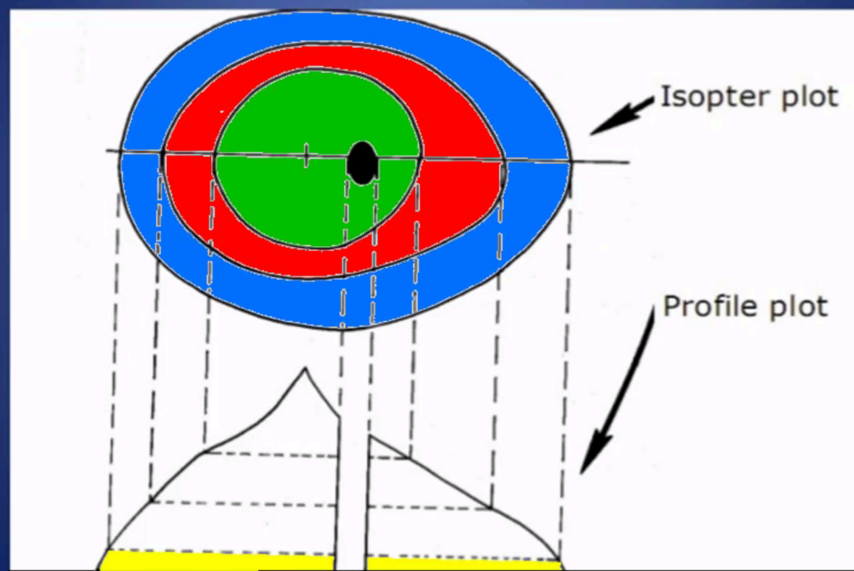
**Green smallest Red & Blue interlace
White reducing
Both Physical & emotional involvement**



Stage 3

**All interlacing blue smallest
White reduced & BS enlarged
Emotional symptoms predominating**

Hill of Vision



Hill of Vision

The diagram illustrates the Hill of Vision illusion. At the top, a large blue oval represents the sky. A horizontal black line with a small black dot in the center represents the horizon. Below the horizon, a black silhouette of a hill is shown. The hill's profile is defined by a solid black line, and its internal structure is indicated by dashed lines. A vertical dashed line extends from the center of the horizon down to the peak of the hill. A red arrow points from the bottom right towards the base of the hill.

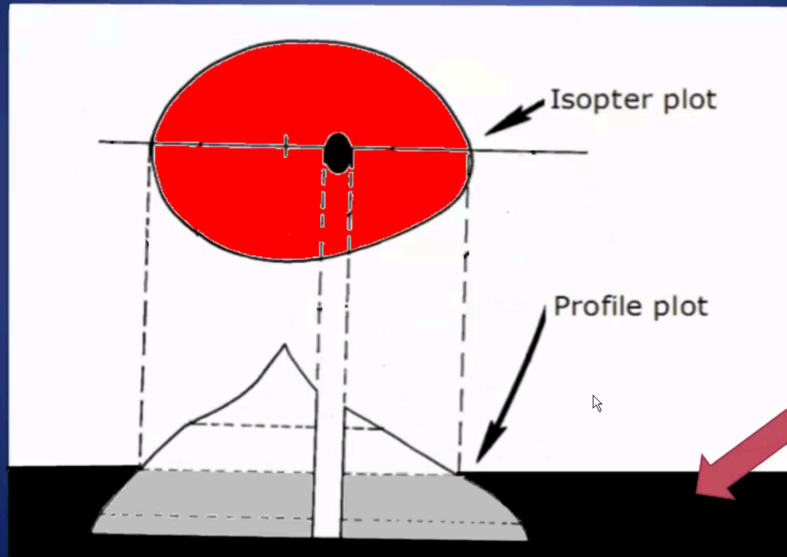
Isopter plot

Profile plot

Reduced
sensitivity
Neglect?

Hill of Vision

Percentage of Field reduced
Percentage of Blind spot increased

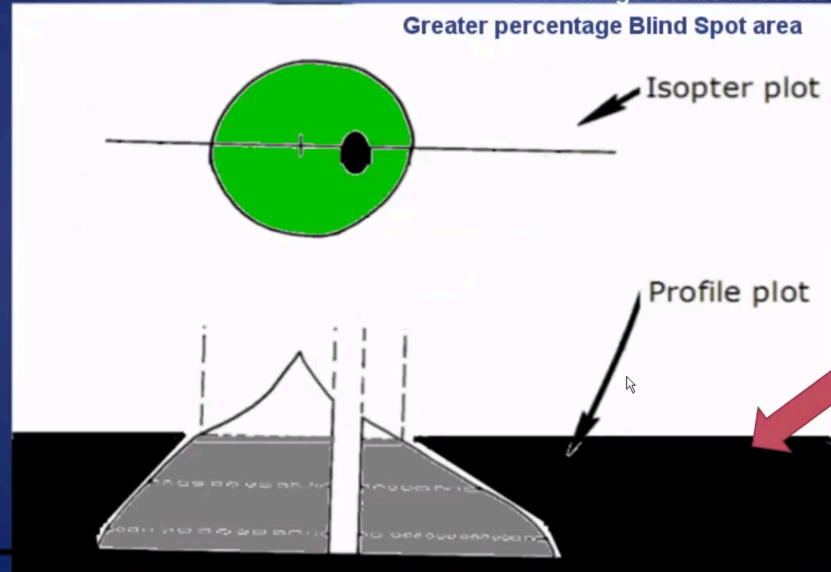


Reduced
sensitivity
Neglect?

Hill of Vision

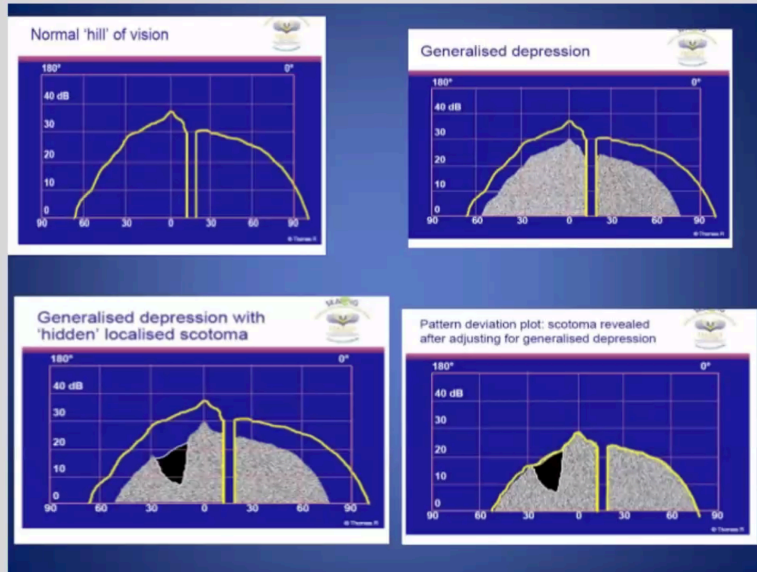
Percentage Total Field reduced

Greater percentage Blind Spot area



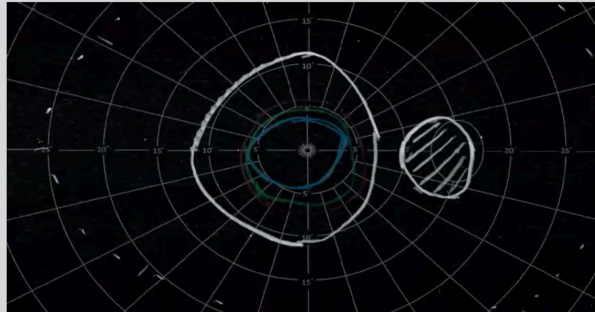
Reduced sensitivity
Neglect?

Pathological changes in VF



NB:

- Overall size same Horizontally
- Just depressed



Compare

RE vs LE, overall

Symmetry & Congruency

Individual Field patterns

Motion

Blind Spot (even if White inside BS)

Colours size

Colours shape

Colour sequence

Colours interlacing

**PATIENT E.G VERTICAL DIPLOPIA
& HEAD TRAUMA**

Right

Left

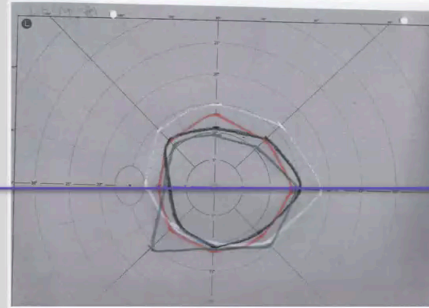
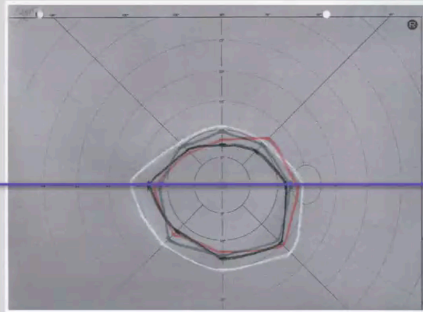
September 23

October 23

**PATIENT E.G VERTICAL DIPLOPIA
& HEAD TRAUMA**

Right

Left



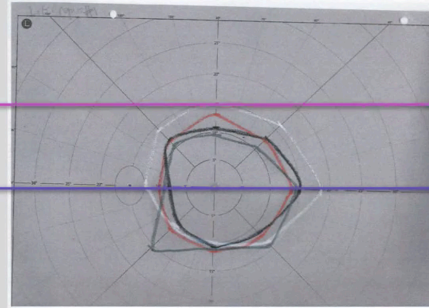
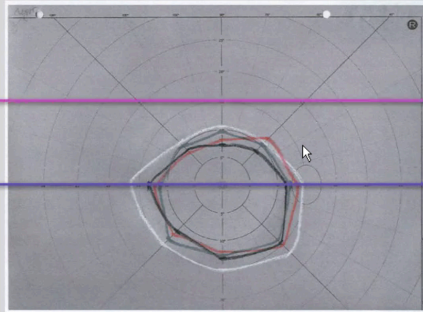
September 23

October 23

**PATIENT E.G. VERTICAL DIPLOPIA
& HEAD TRAUMA**

Right

Left



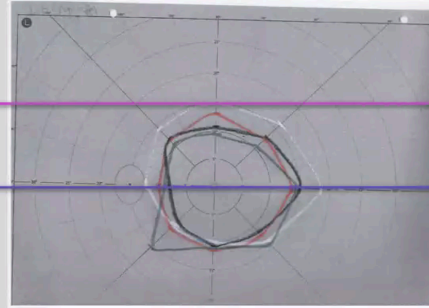
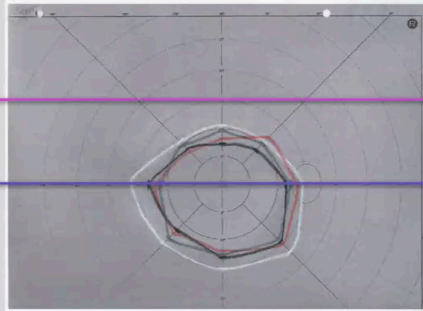
September 23

October 23

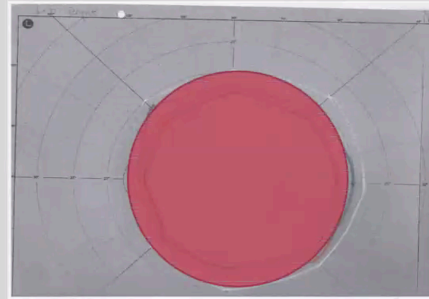
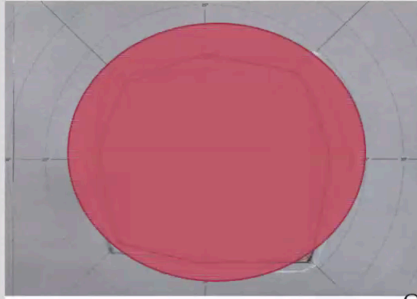
**PATIENT E.G. VERTICAL DIPLOPIA
& HEAD TRAUMA**

Right

Left



September 23



October 23

Most important aspects in Visual Fields Testing

- **Instructional set:**

- " This is a green target. I am going to bring it in from the side.

- 1] I want you to tell me as soon as you can see the colour. Then I continue bringing it in then I want you to tell me when it appears the same colour as the one in the middle.

- 2] Tell me as soon as you can notice any colour on the target....tell me what colour it appears to you....
Is it still the same colour now (hold target still)

- **What are the Expected values — Harrington**

- **What has caused the Contracted fields: ?**

Functional Visual Field Measurement

- Reduced Visual Performance in the absence of organic cause
- What you generally see:
 - Generalized constriction of form and color
 - Enlarged blind spot

The Interpretation of Visual Fields

- **Motion Field**

the extreme periphery of the retina capable of receiving sensations of motion without recognition of contour
[motion is most primitive form of vision – R. Melillo]

- **Form Field**

- recognition of contours

The extent or value is when the patient can retain the perception of white in a stationary position.

The distance between motion & white is an indicator of processing speed.

Right Eye VS Left Eye Fields

- Interpretation:

- **RE the amount of energy OR effort I put out (expended)**

---- Me vs World----

how I interact with the world outside and the effort I put.

- **LE the level of energy production OR energy in reserves.**

---- World vs Me----

how I perceive myself in the world and how I nurture myself.

Right Eye VS Left Eye Fields

Any differences in sizes between the fields of the two eyes is an indication of Trauma

- 1] Physical trauma – TBI
- 2] Emotional trauma – death of a love one / broken relationship.
- 3] Strabismus / Amblyopia.-(Parental) Weaker eye generally larger field.

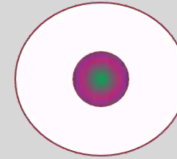
Any differences imply a disorganised interaction with the world.

Relationship of white verses Colour fields

White is coping mechanism, awareness and alertness.

Colour is the resources available.

- Large white smaller colour –
(coping- Managing things but
working hard at it, keep giving)



- Both reduced –Closed in/ withdrawn
(Self protection, judgemental, Self c

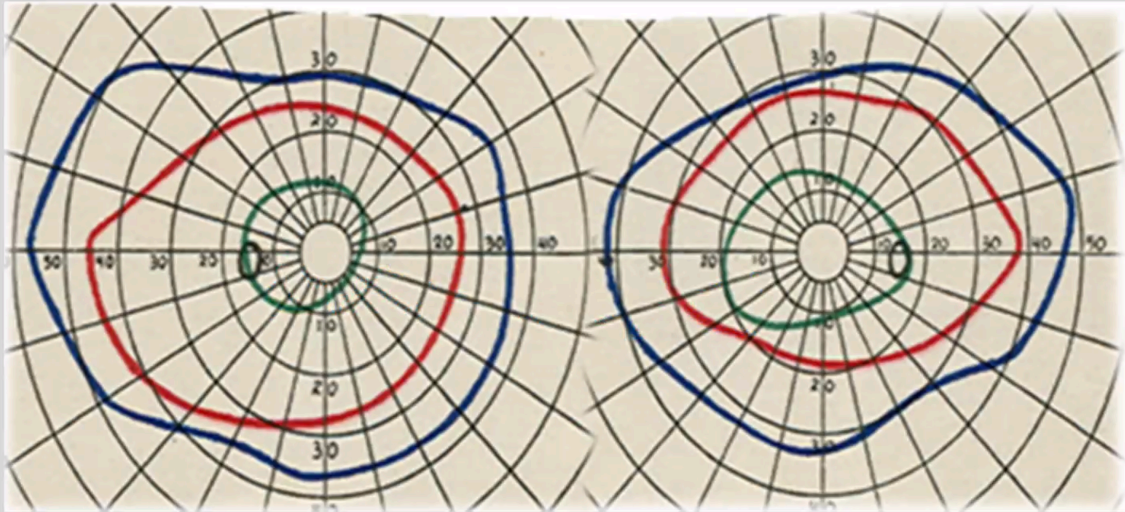


Colour Fields

**Measure the disturbed function of our field of awareness,
due to stress, trauma , and toxicity.**

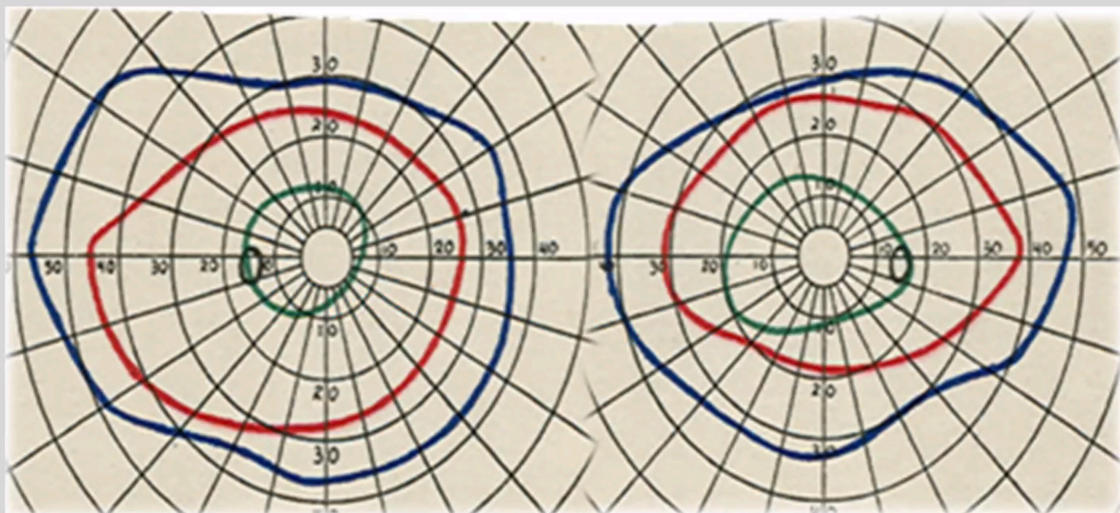
And how we are coping and what resources we are using to compensate.

- **Green:** focal infection, grief, anger, bitterness, loneliness.
- **Red:** Systemic or organic disorder, insecurity, overindulgence, abuse of self.
- **Blue:** Heart and Adrenals, Thymus,
energetic representation of feelings, emotions , spirit, self knowledge.



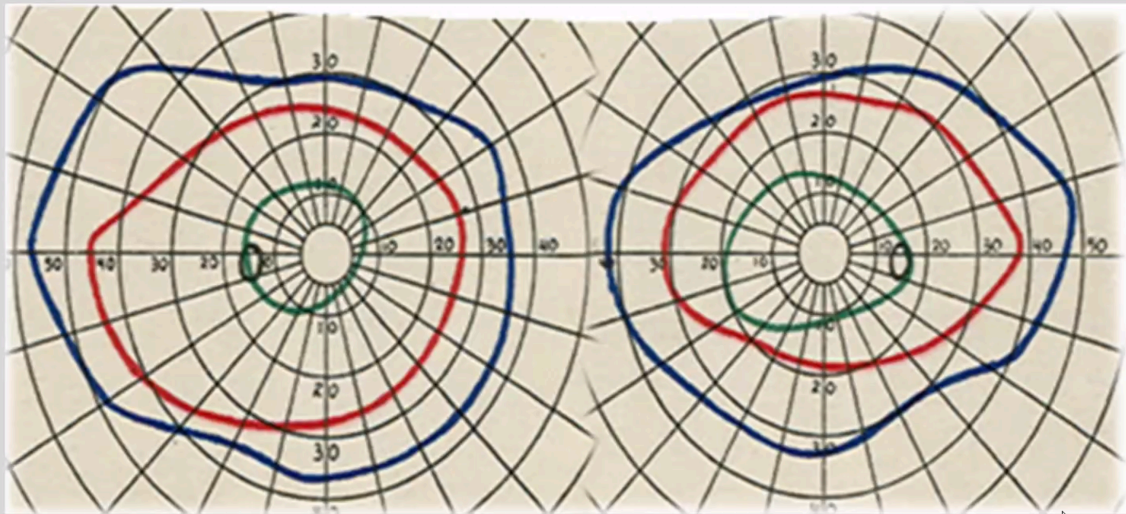
◦ Left Eye

Right Eye



◦ Left Eye

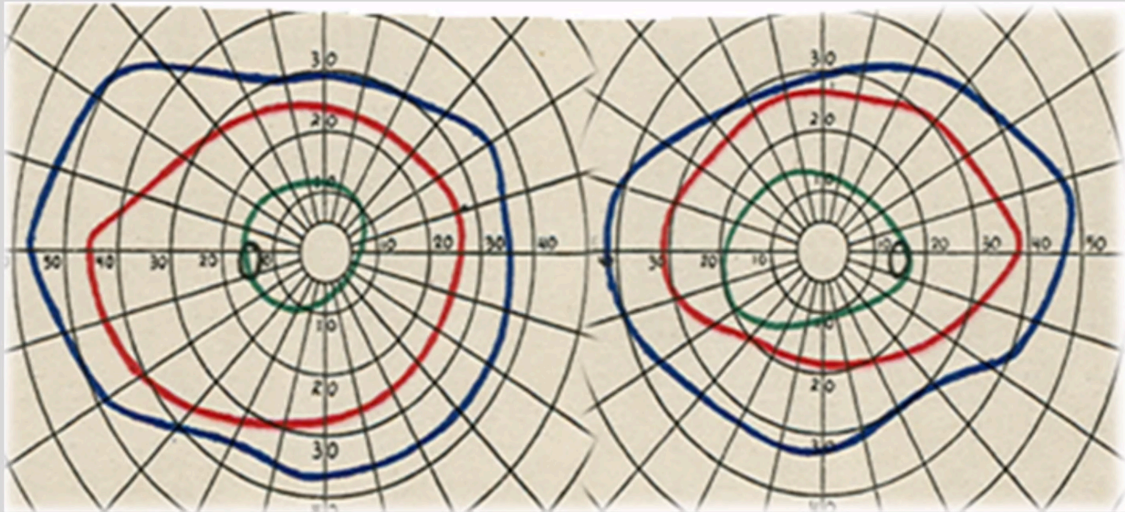
Right Eye



◦ Left Eye

Right Eye

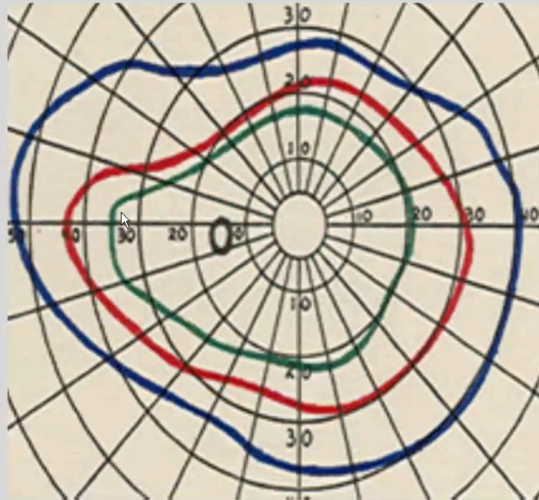
Focal Infection (Tonsils)



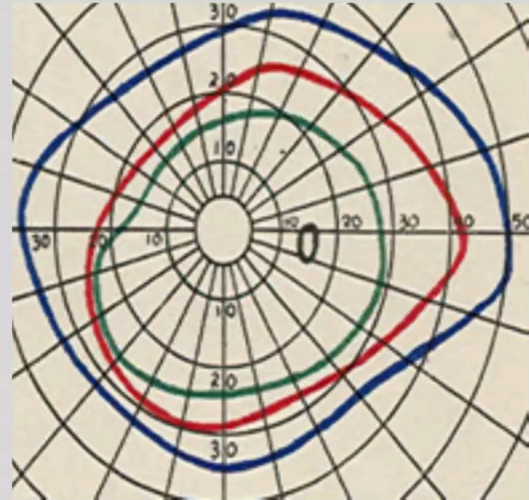
◦ Left Eye

Right Eye

Focal Infection (Tonsils)
Note the inversion

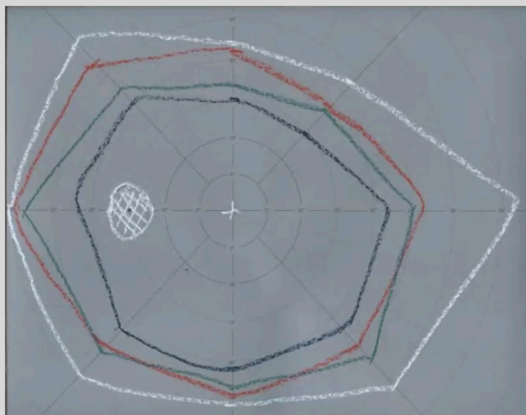


Left Eye

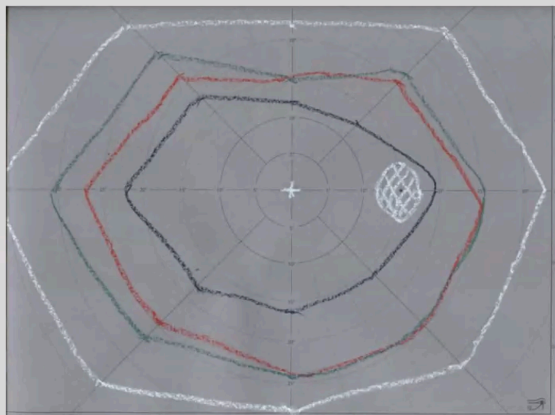


Right Eye

After removal of Tonsils

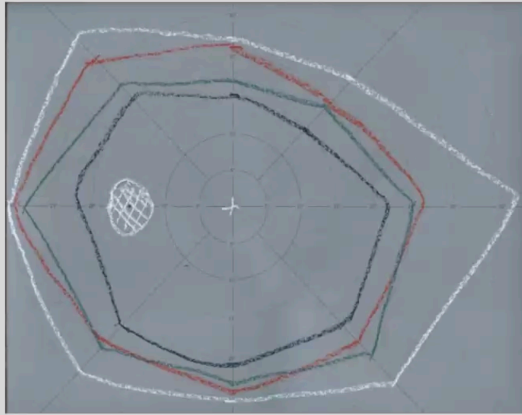


◦ Left Eye

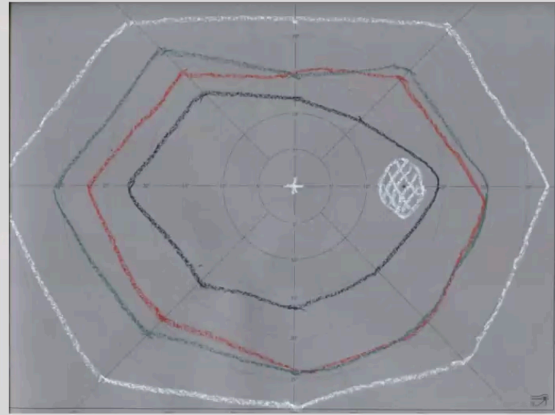


Right Eye

48

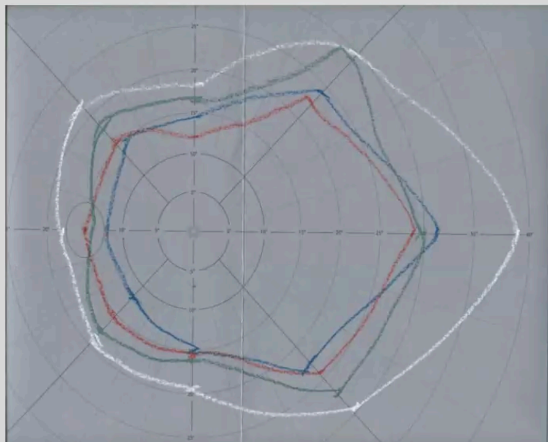


◦ Left Eye

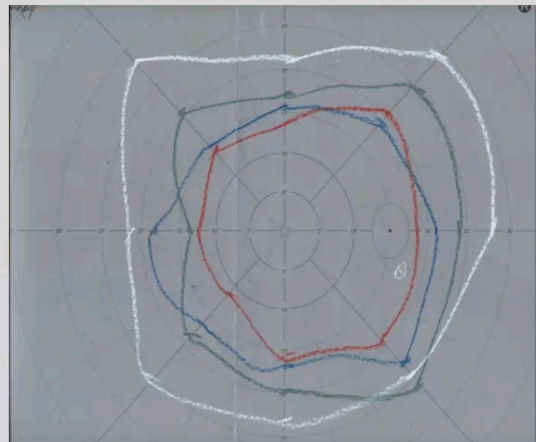


Right Eye

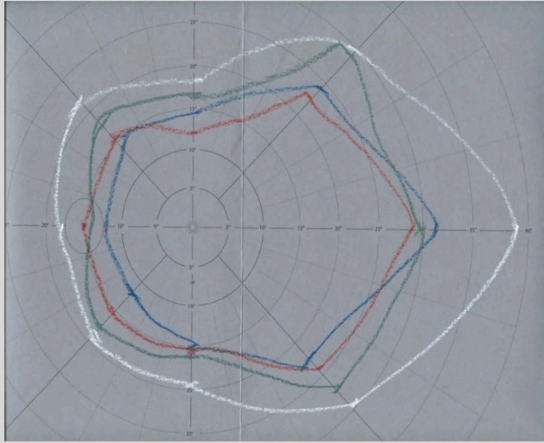
Emotional / Adrenal issues



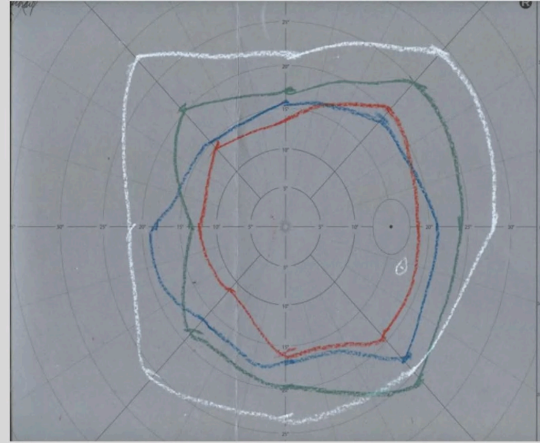
◦ Left Eye



Right Eye

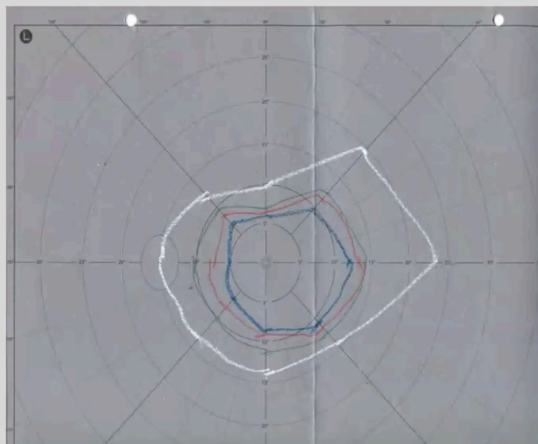


◦ Left Eye

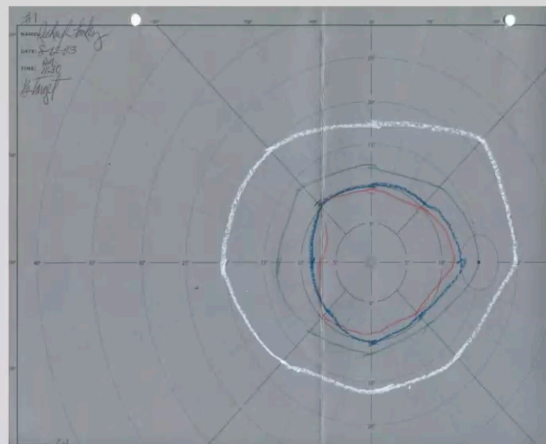


Right Eye

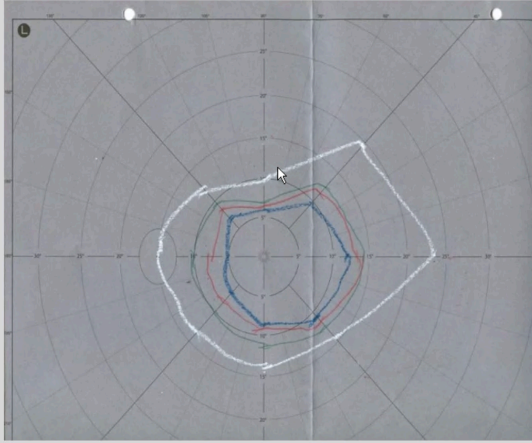
Exogenous toxicity



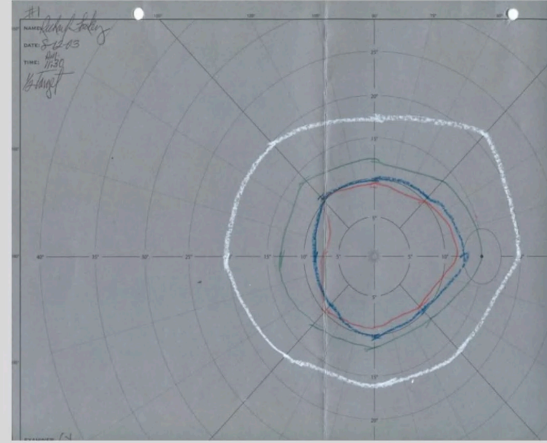
◦ Left Eye



Right Eye

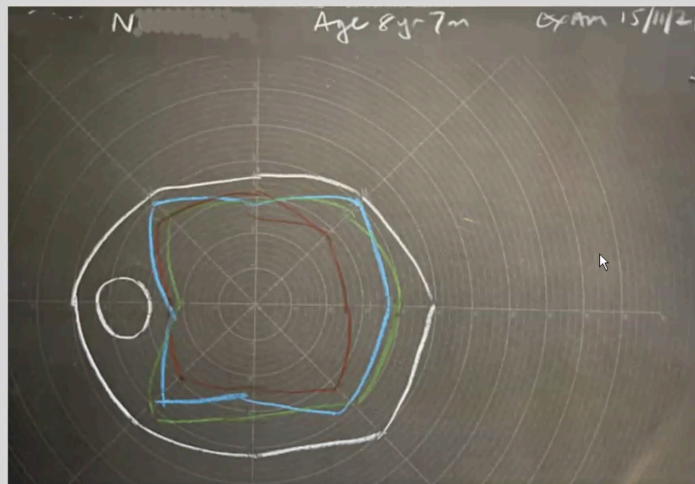


◦ Left Eye

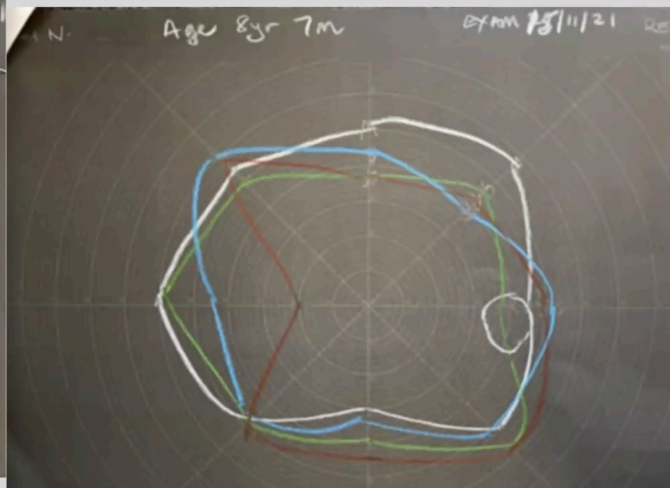


Right Eye

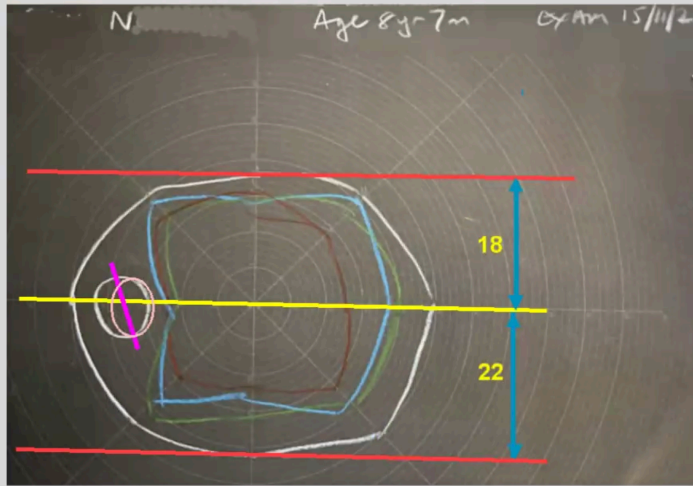
**43 Year old Male Cerebral Vascular Accident
With Vertical Diplopia**



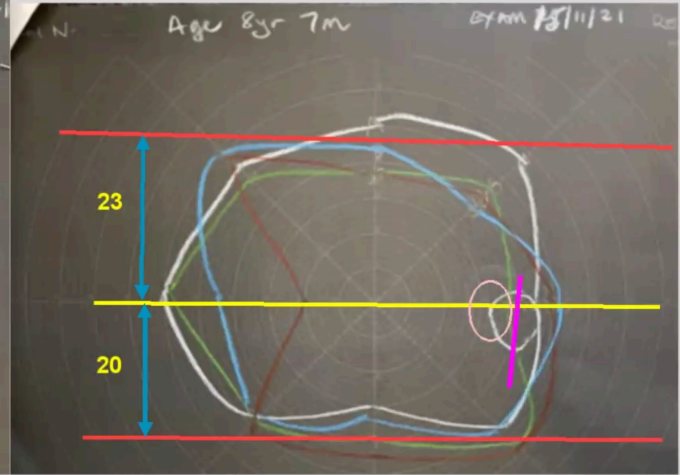
◦ Left Eye



Right Eye



◦ Left Eye



Right Eye

Different Sizes [LE smaller]
 Blind spot enlarged OU [tilted]
 Blind spot LE displaced more outwards.
 Fields displaced vertically in opposite directions

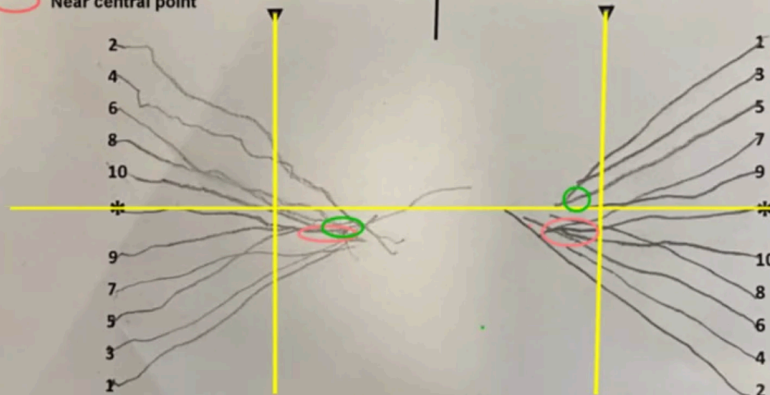
Name: [REDACTED]

Date: 15-11-21

Rx:

34 weeks from eclampsia
Resuscitated at birth. Asthma

○ Distance central point
○ Near central point



+2 | +1 | 0 | +1 | -2
3X | 2X | 1S | 3S | 7S

Dist phoria: 3ESO

Near BO: 20/15

Bin 12/8

Stereo: Plano: 50"
to 75: 20"

NPL: 6/6cm

A Fixer PASS with 1000 au

Intermittent alt. suppress

DEM © 69 sec.