The Syntonic Field
Functional/Kinetic

Syntonics 101
"Zoom" May 2020
John Pulaski, OD, FCSO

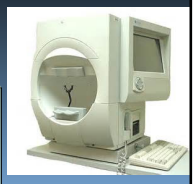
The Syntonic Visual Field

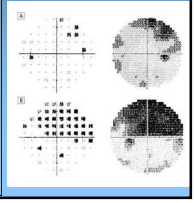
Fritz Popp described the biophoton field that surrounds living organisms as being highly complex, self-tuneable, oscillating fields of energy. This 'field' regulates and controls all our life processes. When we plot colour visual fields, we are measuring information that the brain receives from the eyes and the eyes receive from the 'field'. In the same way as we emit a spectrographic pattern of our electromagnetic field, we can plot colour emanation from the brain. This colour visual field then describes the emergent biophoton field of a human being.

The Visual Field
Types of Measurements

1. Gross awareness to light stimulus
2. Confrontation Fields
3. Form Fields – object awareness
4. Extinction Phenomena/Visual Inattention
5. Static (Automated)
6. Kinetic (Functional)
7. Frequency Doubler (FDT)

The Visual Field Measurement Techniques





Static (Automated)

Conventional, Computerized, "Gold Standard"

Involves detection of a stationary target

- Generally white light only.
- Threshold of light sensitivity
- Is for detecting pathology
- Relates to the "structural" integrity of the visual pathways in the brain.

The Visual Field Measurement Techniques

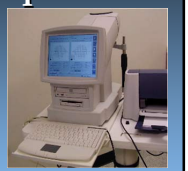
Kinetic (Functional)

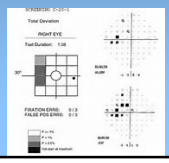
- Campimetric, Goldmann, Tangent Screen Stereo campimeter in Syntonics
- Detection of a moving target from non-seeing to seeing.
- Advantage – higher spatial resolution, faster
- Reveals pathologic as well as perceptual deficits
- Can be improved and used to monitor effectiveness of any treatment modality
- Test multiple levels of function
  Motion, white and 3 colored targets

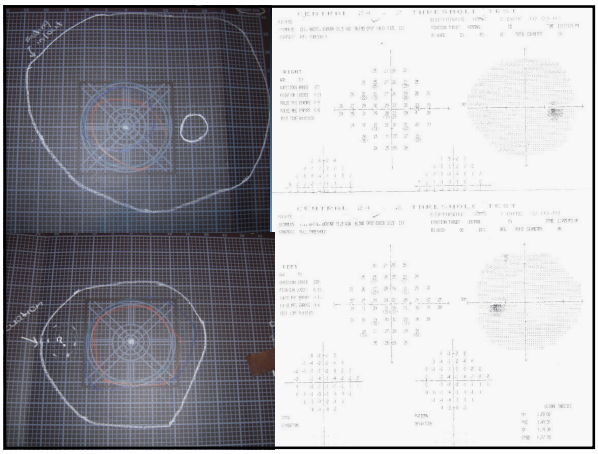
The Visual Field Measurement Techniques

Frequency Doubler (FDT)

- High Temporal Frequency Flicker Rate
- Flicker Sensitivity involves interpretation by retinal periphery
- Magnocellular or cortical pathways
- Correlates well with the kinetic field we measure in Syntonics







The Kinetic, Functional Field
Why do it?

It can be used in monitoring the success of all modalities of therapy

- Vision Therapy
- Medical Treatment
- Neuro-chiropractic/Functional Neurologist
- Functional Body therapists – PT
- Psychology

The Kinetic, Functional Field
Why do it?

What is so unique and valuable about this field?

Why can it be used to monitor any therapies?

The Kinetic, Functional Field
Why do it?

Relates to the structural and functional integrity of the visual pathways in the brain with deficits not detectable by other testing.

- Post Concussion Syndrome
- Diffuse Axonal Injury
- Stroke
- Lyme Disease

The Kinetic, Functional Field
Why do it?

It is an extremely sensitive field measurement of visual performance and efficiency.

A compressed field effects such areas as:

- Pursuit and Saccadic fixations
- Reading speed and processing
- Handwriting
- Sports performance
- Spatial perception
- Behavior

The Kinetic, Functional Field
Why do it?

- "Colour visual field analysis, among the most important biological visual tests known to science."

  T.A.Brombach, 1936

The Kinetic, Functional Field
Why do it?

- Imbalances of the extraocular muscles are reflected in visual field charts.
- Early changes in the peripheral limits of the colour field are the first sign of impending pathology
- Fatigue appears to produce shrinkage of the fields, with one eye consistently presenting a greater amount of collapse.

Brombach 1928

Measurements and Tests Influenced by Field Changes

- Refraction
- Phoria
- NPC
- Far/Near Focus
- Pursuits - Tracking
- Saccades
- DEM
- VO Star
- Streff Cap Test (Localization)
- Visual Scanning
- Incomplete Man Copy Forms
- Pupillary Reactions

Measurements Influenced by Field Changes
Refraction Changes Pre/Post

Pre	Post
+100 +075	+150 +150
+200-250 x 170 +200-250 x 10	No Change
-.25 Plano	Plano Plano
Plano -.25-50 x 180	+0.50 +0.75
Pl –025 x135 Pl –050 x 75	+50 –50 x 100 +50 –25 x 75

Pre	Post
-025-025 x 180 -025	+050 +050-25 x 180
-075 -075	-075 -075
-025 -025	-025 -025
+025 +025	+050 +050

Measurements Influenced by Field Changes
Book Retinoscopy Pre/Post

Pre	Post
+075 +050	+125 +125
+300-250 x 170 +300-250 x 10	+275-250 x 170 +275-250 x 10
+062 +075	+062 +062
+.50 +.75-50 x 180	+0.75 +0.75
+1.50 +1.50	+1.25 +1.25

Pre	Post
+50-025 x 180 +50	+075 +075-25 x 180
+1.25 +1.25	+1.00 +1.00
+050 +050	+075 +075
+100 +100	+050 +050

Measurements Influenced by Field Change

Phoria Pre	Phoria Post	NPC Pre	NPC Post
Ortho/3eso	1exo/4exo	2/4	1/3
1exo/3exo	Ortho/6exo	3/9	2/6
Ortho/5eso	1exo/5exo	2/12	2/6
3exo/9exo 6exo/12exo	2exo/8exo 1exo/10exo	1/4	1/3
3eso/9eso	1eso/6eso	3/6 3/7	2/6 2/5

Measurements Influenced by Field Changes

- Far/Near Focus
  - Improvement in all cases – all some degree of difficulty
- Pursuits – Tracking
  - Pre - Excessive head move, misfixations, jerky
  - Post – Every case showed significant improvement.
  - Most were smooth with no head.
- Saccades
  - Pre - 90% were inaccurate
  - Undershoots, Head move, Fatigue prevalent
  - Post – Significant improvement in all cases

Measurements Influenced by Field Changes
Visual Scanning

Visual Scan – Davis Dot Test

Pre	Post	Age Equivalent Change
38 Dots	43 Dots	2 years
32	46	5
33	35	1
40	55	5
38	50	4
18	35	6
34	42	2
25	28	1
30	34	2
33	33	no change
36	43	3

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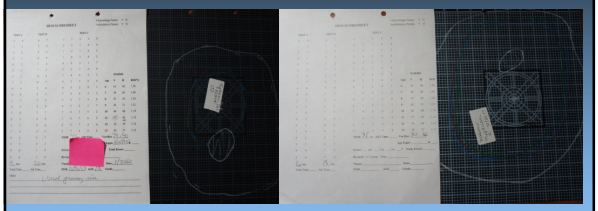
Measurements Influenced by Field Changes
Other Testing DEM



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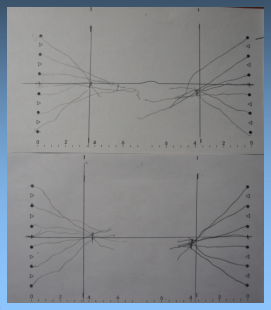
Measurements Influenced by Field Changes
Other Testing VO Star



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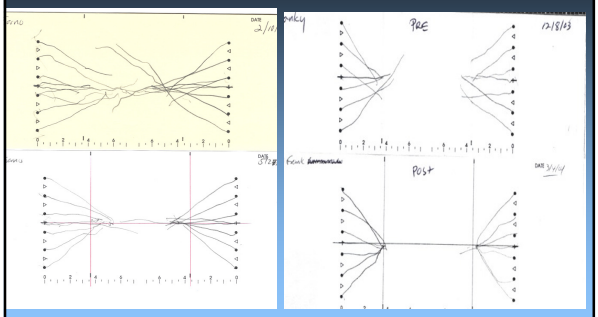
VO Star

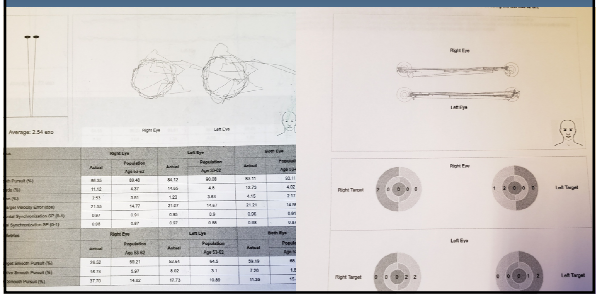


Fox/Pulaski 101 2017

Measurements Influenced by Field Changes

Other Testing

Right Eye



The Kinetic, Functional Field

Why do it?

Opening a field is the key to overall wellness and accurate integration with the world and people around us.

It is the most important measurement you will do as a clinician.

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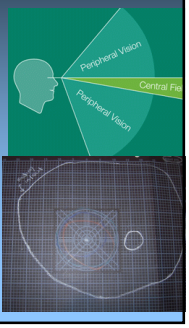
Vision as a Process of Projection

Skeffington – The Emergent

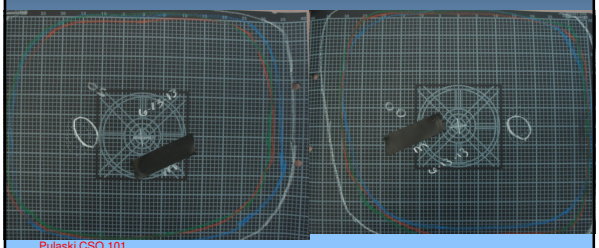
Vision is an Emergent.



- It is Projection
- It is my belief that this is what we are measuring with the Campimetric field.
- "The whole cookie" Abe Shapiro

The Kinetic Visual Field

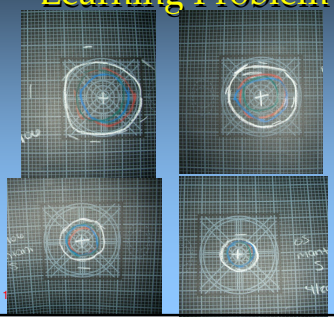
The Normal Visual Field



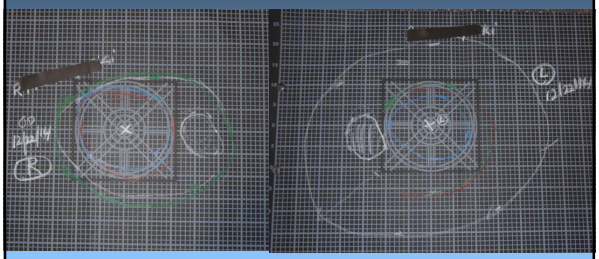
The Kinetic, Functional Field

Abnormal Fields

Learning Problem



The Kinetic, Functional Field
Abnormal Fields
TBI Concussion



The Kinetic, Functional Field
Abnormal Fields
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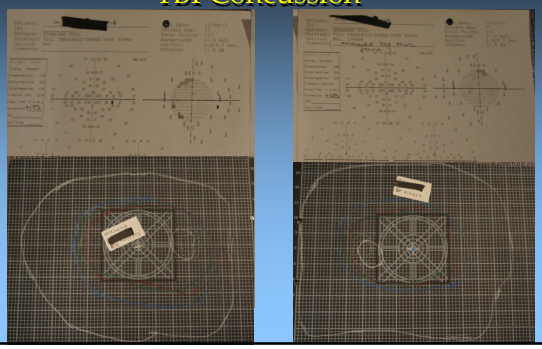
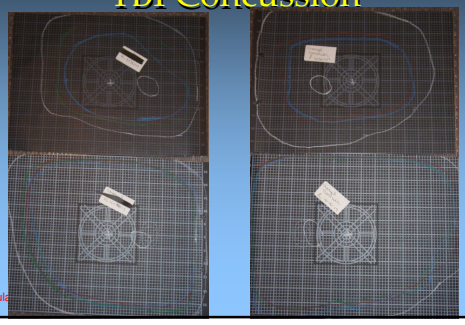
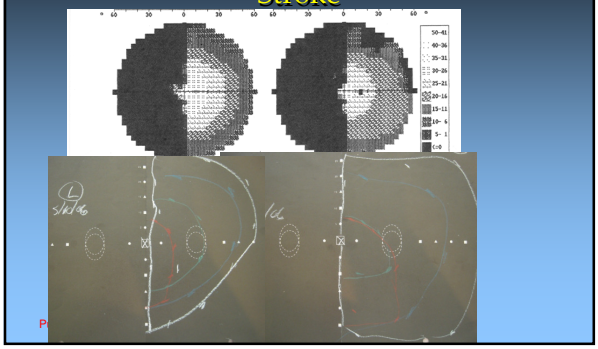


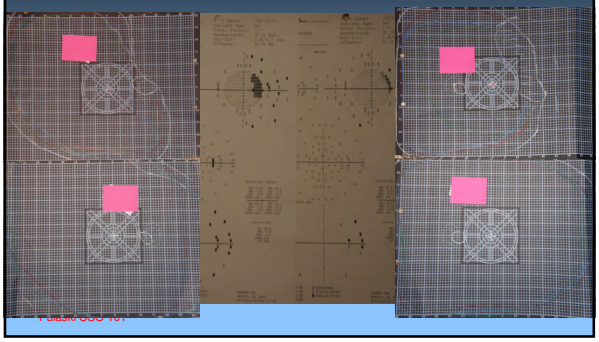
The Kinetic, Functional Field
Abnormal Fields
TBI Concussion



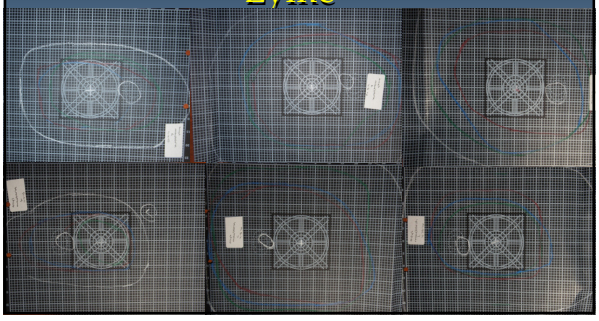
The Kinetic, Functional Field
Abnormal Fields
Stroke



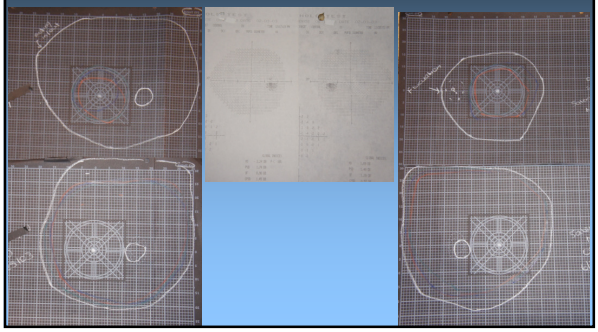
The Kinetic, Functional Field
Abnormal Fields
Stroke



The Kinetic, Functional Field
Abnormal Fields
Lyme



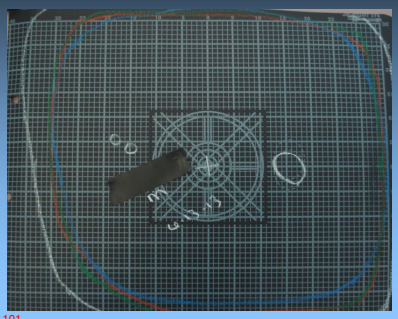
The Kinetic, Functional Field
Abnormal Fields
Stress



Norms for Visual Fields
Borish
Clinical Refraction 3rd Edition

	White (form)	Blue	Red	Green
Out:	100^0	75^0	41^0	30^0
In:	60^0	38^0	23^0	18^0
Up:	60^0	38^0	26^0	18^0
Down:	80^0	46^0	29^0	24^0

The Kinetic Visual Field Interpretation



The Kinetic Visual Field Interpretation

Blind Spot

- A very important measurement - Reveals the accuracy of projection!!
- Cannot be measured in severely compressed fields
- Different from glaucomatous field
- Can be 2-5x normal size
- Often associated with reading problems
- Often associated with brain trauma
- Helps determine when to stop therapy

The Kinetic Visual Field Interpretation

Blind Spot Enlargement

- Optic Nerve
  - Edema, Atophy, Traumatic Neuropathy
- Cortical
  - Anomalous projection
  - Misplaced or Torqued

General Considerations

- If peripheral fields are not within normal limits, VT results are greatly reduced
- If fields are normal in size but blind spot is enlarged, results will not hold unless the blind spot is normal size.