

## **“Visual Orthotics”: Sculpting the Field with Non-Compensatory Cyl**

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### **Prescribing Non-Compensatory Cyl**

- We are working with patients who have been referred by physical therapists for **visual limitations affecting body organization**.
- Binocular perceptions of depth and volume of space impact:
  - Posture,
  - Movement,
  - Balance and
  - Gait.

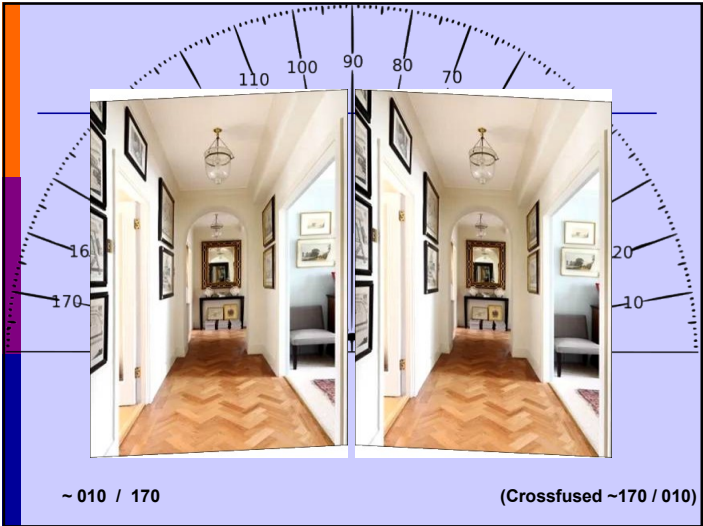
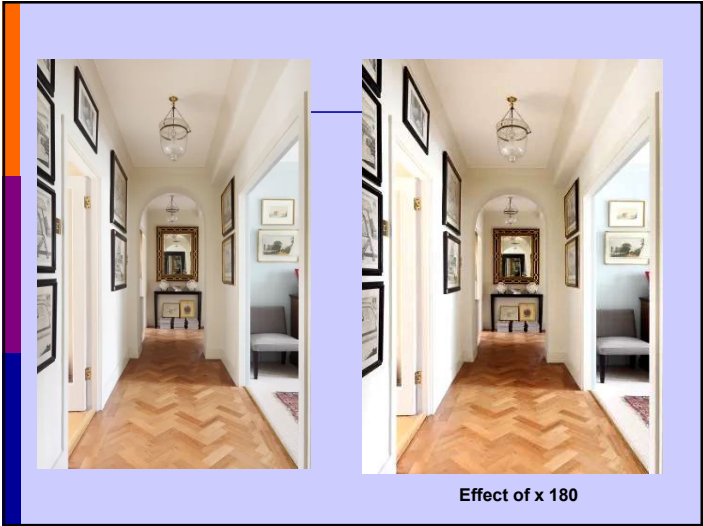
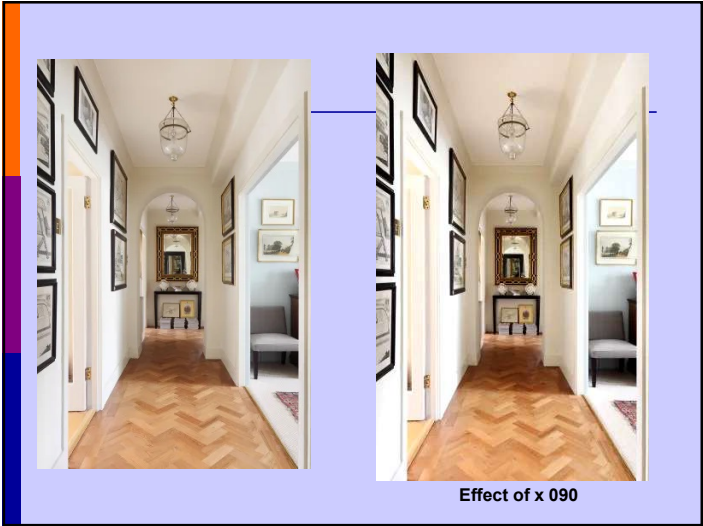
### **Prescribing Non-Compensatory Cyl**

- Lenses can serve as “**visual orthotics**,” changing how one organizes the body around the visual perception.
- A key aspect of this application is to provide an enhanced awareness for each percept as part of a **complementary pair**.
- The complementary binocular inputs enhance engagement through both eye-channels.
- We are finding that this leads to enhanced stereopsis as well as improved reciprocal engagement across the body midline when moving in space.

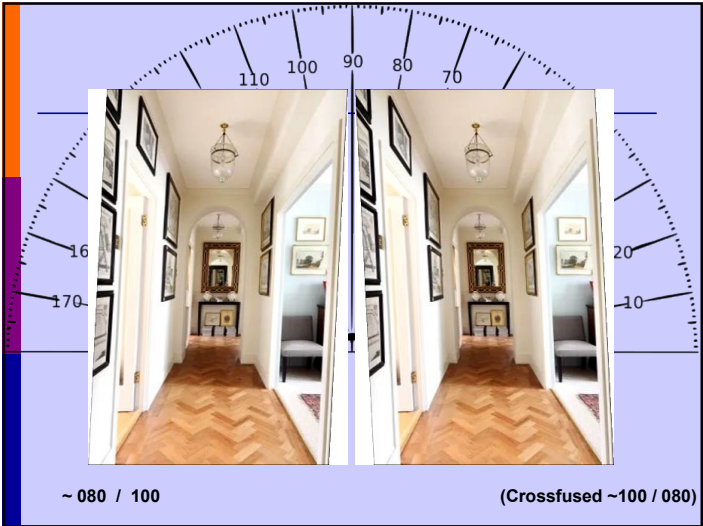
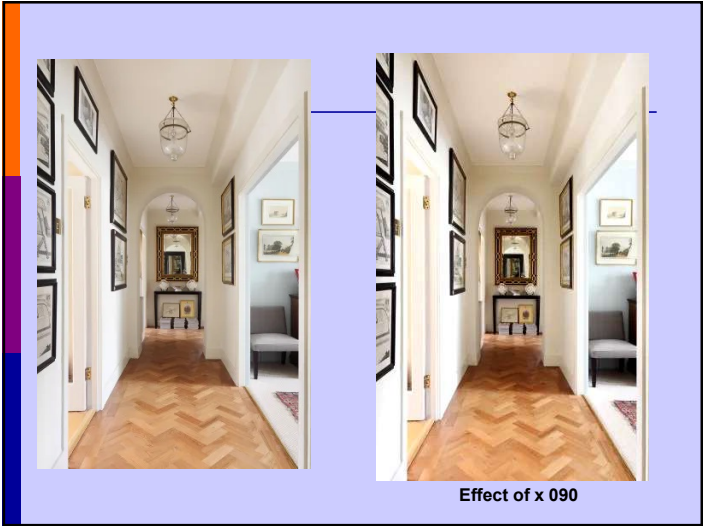
### **Value of BINOCULARITY in body organization**

- RAMPS: Uphill and Downhill:
- Each eye experiences a monocular skew:
  - Only when the two eyes are PARTNERED does the world-view make sense.
  - Amplifies 3-D/4-D perceptions
  - Especially valuable with cases of binocular dysfunction:
    - Passive form of vision therapy.
  - Creates new / enhanced value from the deficient eye-channel.
    - Two images are not redundant.
    - They are COMPLEMENTARY.
  - Each perception is “looking for” its partner.

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## Value of BINOCULARITY in body organization

RAMPS: Uphill and Downhill:

- Binocularity marries the left and right visual fields, providing TWO sets of input for each.
- Results in:
  - Immediate enhancement in abdominal oblique activity
  - Reciprocity at hips
  - Head righting in field
  - Changes in weight of the step: Less need for percussion against the ground in order to find the floor!

CONTRAST: Yoked BU<sup>^</sup> vs x 170 / 010  
CONTRAST: Yoked BD<sup>^</sup> vs x 010 / 170

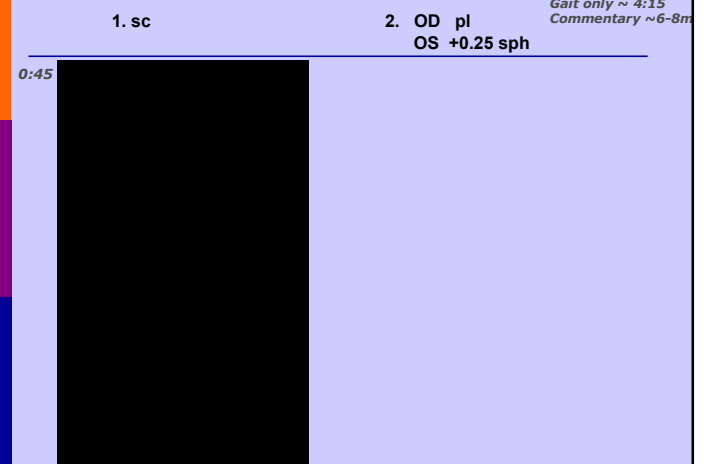
## Example, DS; 68yoF

- H/o X(T)
- Referred by PRI provider: Would not take on until she addressed vision.
- Habitually, sc.
- NV: Occ'l +1.75 or +2.25 OTC use
- Ret:
 

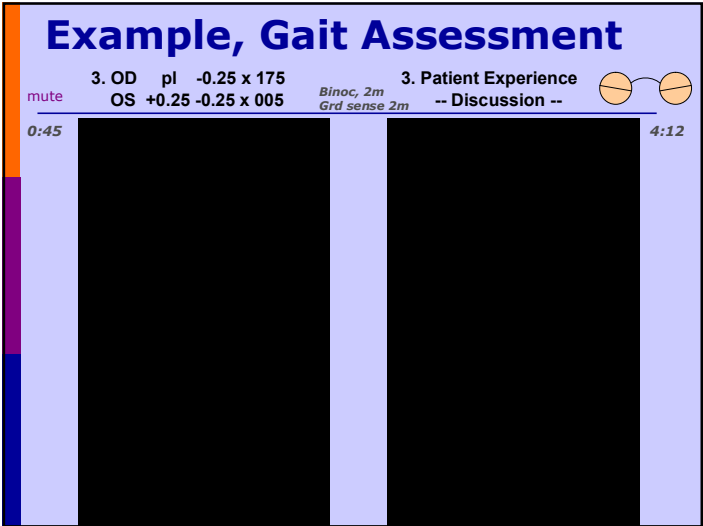
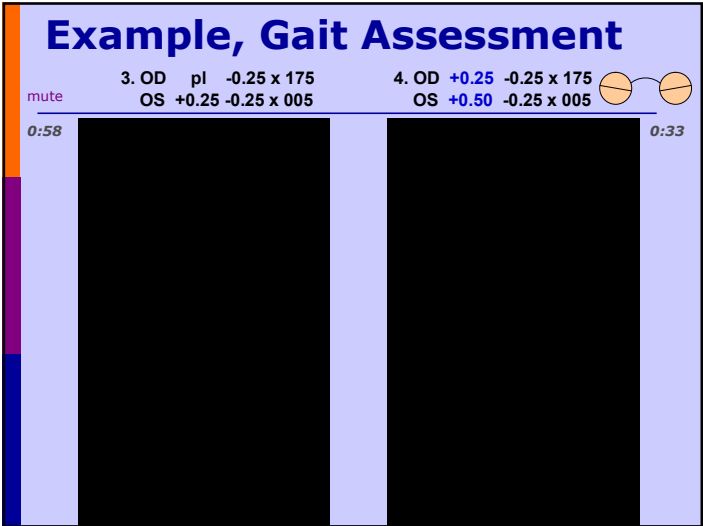
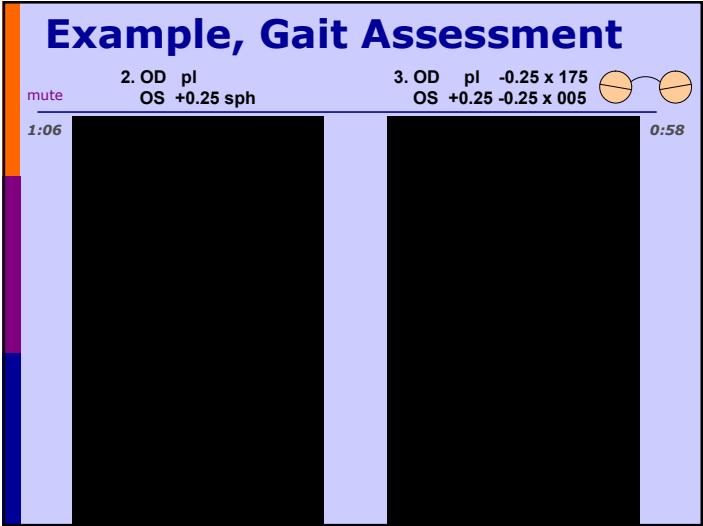
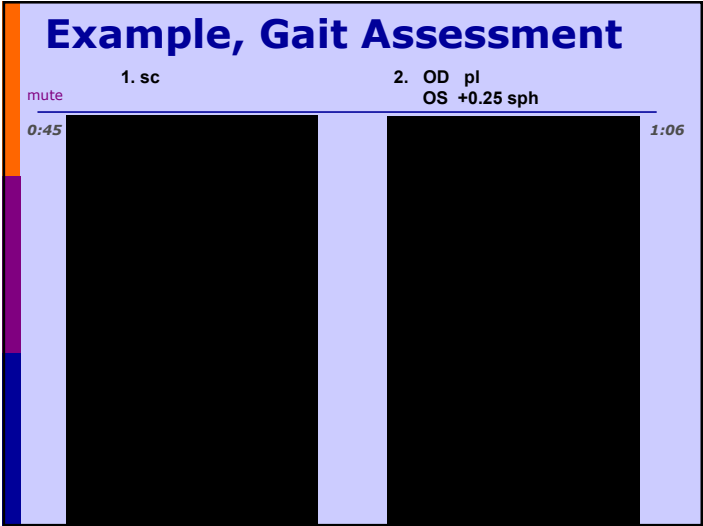
<ul style="list-style-type: none"> <li>■ OD - 0.25 -0.25 x 105</li> <li>■ OS +0.25 -0.25 x 038</li> </ul>	Subj (=Bal): OD -0.50 -0.50 x 030* OS +0.75 -0.25 x 045
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\* **OD subj:** switched from bi-ocular to monoc testing.  
 \* **Variable, inconsistent cyl OD,** Fan chart, JCC.  
 \* This is the partner waiting for the other eye to take the lead.

## Example, Gait Assessment



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### Gait observation → Intervention Example, DS; 68yoF

- 1: sc:
  - Torso bias to R.
  - Arms pronate.
  - LF fwd/ RF out
- 2. TF, pl OD/ +0.25 OS
  - Hips tight, neck tight, but gait quieter
- 3. TF, pl -0.25 x 175 +0.25 -0.25 x 005
  - Right eye **invited** to participate, **"Your hand m'dear"**
  - Footfalls lighter!
- 4. TF, +0.25 -0.25 x 175 +0.50 -0.25 x 005
  - Back extension!

→ Added +0.25 OS

→ Added -0.25DC  
**"downhill ramp":**  
 ■ pl -0.25 x 175  
 +0.25 -0.25 x 005

This is good!  
 Confirm it is optimal:  
 → Checked impact of  
 add'l +0.25 sph OU

→ Retain TF #3  
 ■ Test impact on VA, stereo,  
 etc.

### Explore "Ramps," via YP vs Cyl (Lens sets 1-4)

#### Downhill Ramp, like BU YP

- (1): -0.25 DC x [095 / 085]  
 enhance effect: [105/ 075]
- (2): -0.25 DC x [175 / 005]  
 enhance effect: [170/ 010]

#### Uphill Ramp, like BD YP

- (3): -0.25 DC x [085 / 095]  
 enhance effect: [075/ 105]
- (4): -0.25 DC x [005 / 175]  
 enhance effect: [010/ 170]

### Summary

- Visual field shifts can be generated with symmetric offsets around the major axes ("ramp up" and "ramp down").
- The skews this creates to the visual input of each eye can amplify the value of the eyes partnering (i.e., invite binocular fusion and enhance stereo).
- These "ramp" lens interventions help patients neutralize the pelvis and anterior/posterior imbalances of weight over the feet.
- It is my hope that this presentation will inspire you to experiment, PLAY, and give you some basic guidelines for helping your patients orient and organize themselves to their environment.

### Questions for Discussion

- How does *past experience with movement* impact the potential for a person to *respond* to subtle lens changes?
- What can we optometrists do to help communicate with physical therapists/ movement specialists in our communities *the potential for visual input to support physical therapy*?

## Discussion

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