

VT 201 Course Outline

1. Intro (7:00)

- a. Introduction to the 201 Course
- b. Note to Therapists
- c. Note to Doctors

2. Refractive Error and Accommodative Demand (35:00)

a. Intro

- i. Definition
- ii. 4 basic types of refractive error

b. Types of Refractive Error

- i. Your eye can only focus at one place at a time
- ii. Diagram of the eye showing light focusing on the back of the eye
- iii. Emmetropia
- iv. Myopia
- v. Hyperopia
- vi. Presbyopia
 - 1. Types of Bifocal
 - a. Straight Top or Flat Top Bifocal
 - b. Progressive
 - c. Trifocal
 - d. Progressive
- vii. Astigmatism

c. Documenting Refractive Error

- i. Correction - measured in diopters
- ii. Standard written format
 1. Myopia - minus lenses
 2. Hyperopia - plus lenses
 3. Sph or DS can be used to designate it is only sphere and that there is no astigmatism
 4. Astigmatism - cylinder lenses
 5. Presbyopia - add

d. Trial Lens Set

e. Calculating Accommodative Demand

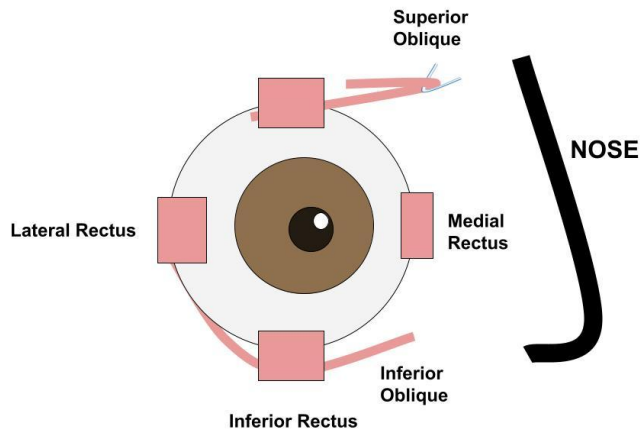
- i. Remember when we look up close our lens focuses. We need a way to talk about how much eye focusing your lens is doing. This is called accommodative demand. We use diopters to describe this.
- ii. Camera focusing example
- iii. Calculation is simple. Simply take 1 and divide it by the distance in meters.
- iv. $1/1=1$. $1/.4=2.50$ and $1/.33=3$ diopters
- v. Law of inverse relationship. Why harmon's distance is so important.
- vi. What about Presbyopia?
- vii. Example Problem. Normal accommodative ability - Focusing at 40 cm. 2.5 diopters of accommodation but I only gave you a +1.00 lens. Calculate accommodative demand
- viii. What if you have too strong of a plus lens?
- ix. So why can't you use a flipper higher than +2.50 or +3.00

3. Neurology of the eyes (50:00)

a. Intro

b. Extraocular Muscles

- i. Inferior Rectus
- ii. Medial Rectus
- iii. Lateral Rectus
- iv. Inferior Oblique
 1. ABduction = Turn the eye outward towards the ear
 2. ADduction = Turn the eye inward towards the nose
- v. Superior Oblique
 1. Trochlea



c. 3 Cranial Nerves that Move the Eyes

- i. There are other cranial nerves that affect the eyes, but for now we are just going to focus on these 3
 1. CN III (Oculomotor Nerve)
 2. CN IV (Trochlear Nerve)
 3. CN VI (Abducens Nerve)

d. Cranial Nerve III, IV, VI Paresis or Palsy

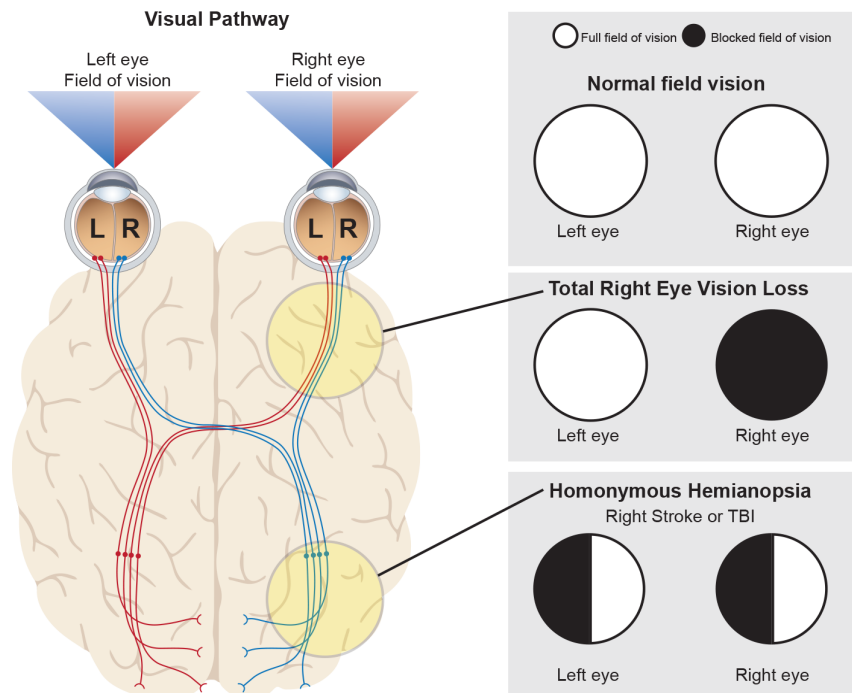
- i. Palsy vs Paresis
- ii. CN III - Down and Out
- iii. CN IV - Upswing
- iv. CN VI - Esotropia greater in out gaze

e. Comitancy vs Non-comitancy

- i. Comitant - the amount of misalignment of the eyes is the same in all gazes
- ii. Non-comitant - the amount of misalignment of the eyes is different depending on the gaze

f. VF Defects

- i. Visual Pathways intro
- ii. Visual Pathways to the brain
- iii. Homonymous Hemianopsia



g. Visual Spatial Neglect (Also known as Hemispatial Inattention)

- i. Draw Clock
- ii. Draw a face, flower, or house
- iii. Line Bisection Test
- iv. Line Cancellation Test
- v. Star Cancellation

h. Abnormal Egocentric Localization

i. Nystagmus

j. Vestibular Disorders

- i. Three terms - that are important - imbalance, dizziness, vertigo
- ii. Where could the vestibular disorder be coming from
- iii. BPPV: Benign Paroxysmal Positional Vertigo (One of the most common causes of vertigo)
- iv. Deciding how to treat based on where the issue is coming from

k. Post Concussion Syndrome

- i. Headaches
- ii. Dizziness
- iii. Fatigue
- iv. Irritability
- v. Anxiety
- vi. Insomnia
- vii. Loss of concentration and memory
- viii. Ringing in the ears
- ix. Blurry vision

- x. Noise and light sensitivity
- xi. Rarely, decreases in taste and smell
- xii. Shopping Center Syndrome

4. **Strabismus/Amblyopia Part II** (Part 1 covered in 101 course) **(1:20:00)**

a. Introduction

- i. In the 101 course we covered
 - 1. Terms associated with strabismus and the basic treatment options including patching, surgery, and vision therapy
 - 2. Benefits of treatment options for amblyopia and strabismus
 - 3. How and why VT had the best hope for long term treatment success
 - 4. With the diagnosis of Amblyopia, we discussed the importance of having an amblyogenic factor
 - 5. Research by Hubel and Weisel about the critical period and why treatment for amblyopia can be done at any age

b. **3 Treatment Modalities for Amblyopia**

- i. We discussed how Amblyopia was a monocular manifestation of a binocular problem.
- ii. **Traditional Model**
 - 1. Occlusion
 - a. PEDIG (Pediatric Eye Disease Investigator Group)
 - b. ATS (Amblyopia Treatment Studies)
 - c. These were all prospective randomized controlled studies - high rigor
 - d. These studies generally are concerned about VA improvement and not binocularity
 - e. Glasses alone can improve VA

- f. Hours of patching for ages 3 to 7
 - i. 20/40 to 20/80 Moderate 2 hrs as effective as 6 hour
 - ii. 20/100 or worse Severe 6 hours as effective as full time
 - iii. Even severe amblyopia can improve with 2 hours of amblyopia
- g. Atropine and patching equal results even after 10 years
- h. Weekend atropine as effective as daily atropine
- i. Treatment through age 17 is effective though this varies based on if you've had treatment before or not
- j. 25% had all gains erased after 1 year after treatment
- k. These tests are only focused on acuity improvements and not binocularity

2. Opaque vs Translucent

- a. PEDIG Used bangerter foils vs black patching
- b. Found bangerter foils were effective but less effective than black patching
 - i. Remember criteria is acuity improvement and not binocularity

3. CL vs glasses for anisometropic amblyopia

4. Shaw lens

iii. **Polamirror Method**

1. Great for mild to moderate amblyopia
2. Generally using a bangerter foil you want to decrease the better seeing eye to at least 2 lines worse than the best corrected visual acuity of the amblyopic eye
3. Find the bangerter foil that improves binocularity the most without decreasing performance for full time wear

4. Bangerter foil bar
5. Recheck every 1-2 months

iv. **Sanet/Vergara Protocol**

1. Dr. Sanet and Vergara have seen that the vast majority of patients get to 20/20 acuity and 20 sec of arc stereopsis
2. Many achieve this in 12 weeks or less
3. Have seen these results in treating over 100 patients at Dr. Vergara's clinic
4. No occlusion (even vision therapy with a binocular approach typically included some monocular work)
5. In difficult cases using
 - a. Bangerter Foil
 - b. VT - Only MFBF, binocular, and stereoscopic activities
6. Prescribe glasses or contact lenses that do not produce maximum acuity but maximum binocularity
7. Finding lenses that maximize binocularity
 - a. Start with max Rx to best visual acuity in each eye
 - b. Increase Rx as much as possible in non-amblyopic eye ("good eye") to where they can still see 20/20 but it is a blurry 20/20
 - c. Step-wise reduce Rx in amblyopic eye to maximize binocularity
8. Case Example

c. **Sudden Onset Strabismus**

- i. Opposed to Neurological lesion like a tumor compared with strabismus that is related to development
 1. At early infancy
 - a. Infantile vs congenital

- b. Normal for this to happen up to age 3-4 years of age.
- c. But it can happen as a result of a decompensated of phoria - can happen at any age
 - i. Can happen due to stress, fever
 - ii. Can happen after cataract surgery
- ii. Is there diplopia or suppression
 - 1. What did we learn in the 101 course about suppression and the critical period
- iii. Comitancy/Ductions
 - 1. Normally it is due to a CN issue
- iv. Pupils
- v. Ophthalmoscopy
- vi. Visual Fields
- vii. MRI - can you order it? Yes!
- viii. You want an MRI of brain and orbits with and without contrast. Write it on your prescription pad or EHR Rx

d. Bifocals

- i. Least amount of plus for the maximum treatment
- ii. Straight top bifocal vs progressive
- iii. Split the pupil
- iv. Back ground round segment

e. Eccentric Fixation/Anomalous Correspondence

- i. Normal Correspondence diagram
- ii. Eccentric Fixation/Anomalous Correspondence diagram

f. Surgical Intervention

- i. Why are developmental optometrists generally cautious when it comes to surgery

1. Generally speaking they care about cosmesis above all
 2. Neuromuscular orientation is upended
 3. Cyclotorsion, Hyper deviations
 4. Over correction - Consecutive strabismus
- ii. When to consider surgery
1. Not anti-surgery
 2. Physical therapy analogy
 3. Use if the patient plateaus
 4. Example of patient that was completely disoriented as a result of strabismus surgery

g. Unusual Strabismus

- i. Inferior Oblique Overaction
- ii. Duane's Syndrome or Duane's retraction syndrome
1. Wiring of the eye gets jumbled
 2. Medial and lateral fire at the same time
 3. Normally affects 1 eye but can affect both
 4. Type 1 - can't abduct, head turn towards the effected side, esotropia in primary gaze
 5. Type 2 - can't adduct, head turn towards the unaffected side
 6. Type 3 - can't adduct or abduct
- iii. Brown's Syndrome
1. Tight trochlear tendon around superior oblique
 2. No superior gaze in adduction
- iv. Graves
1. Result of hyperthyroidism
 2. Proptosis

3. Inflammation which then causes fibrosis and a restriction of eye muscles
 4. Inferior rectus is most often affected followed by medial and superior rectus
- v. Myasthenia Gravis
1. Autoimmune where antibodies attack the body and affect primarily the acetylcholine receptors
 2. 85% will just have ocular manifestation
 3. Most common manifestation is ptosis and incomitant strabismus
 4. More affected at night than the morning
 5. Up down technique
- vi. Vertical
1. Does not have to be due to CN issue
 2. Can also just be a decompensated phoria
- vii. Cyclotorsion

5. Testing - History and Chair Skills (22:00)

a. Introduction to to Testing

b. History Forms

- i. Before they come into your office
- ii. See the attached history forms both Adult and Child
- iii. Child History Form
 1. It is helpful to have the following in your history form that isn't traditionally a part of the history form
 - a. Specialists they've seen
 - b. History of head injury/stroke/or other neurological insult

- c. Prematurity or complications during delivery
 - d. Delays during development
 - i. You want to list these out, or parent may not recognize the delays
 - e. School history
 - i. grade repeated or delayed start
 - ii. Are they tutoring
 - iii. Are there behavioral concerns
 - f. Strabismus (used to have a separate history form) but better to have it all together
 - g. Somewhere on your history form that specifically asks about dyslexia and ADHD
- iv. Checklists -
- 1. CISS - specific only to the eyes
 - 2. COVD QOL - Copying from the board, tilting head or closing eye, misaligning digits and columns, clumsiness, poor use of time, short attention span misplace things, forgets things,
 - 3. Visual Signs/Symptoms checklist
 - a. picks up the things that the CISS misses from the COVD QOL and it adds a bunch of questions about visual perceptual issues
 - b. Justifies ordering visual perceptual testing
 - 4. Release of information page
 - 5. 10 Point Symptom Survey
 - a. Shows progress really nicely
 - i. Still has headaches
 - ii. Still some academic concerns

- iii. Both are significantly better (a simple yes or no will not show that to you) but both still are a struggle

6. Download History Packets

c. Taking a good History

- i. Why taking a thorough history is important
 - 1. A good history form is helpful
 - 2. People need to be heard
 - 3. All of the things we talked about in the history form section you may want additional details on
 - a. Head trauma is a great example
 - b. Developmental delays
 - c. Autism
 - 4. It's okay for them to come back

d. Visual Acuity and Assessing the Patient

- i. Visual Acuity
 - 1. Learning Laterality/Directionality
 - 2. Do they know their letters
 - 3. Understanding WD and importance of 40 cm testing distance
- ii. Look at your patient
 - 1. Posture
 - 2. Head tilt
 - 3. Can they sit still and pay attention
 - 4. Speech issues
 - 5. Are they having a hard time understanding your instructions
 - 6. No facial expressions
 - 7. Observation throughout the exam

- a. Balance - don't have time to write a book on every patient
- b. How is this going to affect the therapy they are doing?
 - i. Are there complications that will prolong treatment (developmental delays)
 - ii. Are there things that will help my therapists doing therapy (attention issues, young for his/her age)
 - iii. Are there things that will affect outcomes (poor speech, doesn't know letters)

e. Pupils and CVF

- i. Pupils
- ii. Confrontational Visual Fields
- iii. Why are these tests so important

6. Test of Oculomotor Skills (28:00)

i. Manual Pursuits

- 1. How to perform the test
- 2. Figure 8 - vertical not infinity sign
- 3. Very important to watch what happens along the horizontal meridian
- 4. NSUCO - Northeastern State University College of Optometry
 - a. NSUCO Scoring
 - b. Standardized/most well known
 - c. Age based norms
- 5. Pursuit Severity Scale
 - a. Trace, mild, moderate, severe
 - b. Documentation

- c. Communicates nicely to other professionals even optometrists
- d. Head movement
- e. Less burdensome (No age based norms). My experience is though that these should all be none by age 7

ii. Manual Saccades

- 1. How to perform the test
 - a. 30 degrees or less - no head movement is normal
 - b. 30-60 degrees normal to have head movement
 - c. Greater than 60 degrees normal to have head and body movement
 - d. Switch should be off cadence
 - e. Horizontal, vertical, oblique
- 2. Saccadic Severity Scale
 - a. Documentation
 - b. Head movement
 - c. Accuracy
 - d. Normal
- 3. NSUCO Saccadic Test
 - a. Normal - find age based norms by searching online

iii. Manual Fixation

- 1. Documentation

iv. DEM

- 1. Explain test
 - a. Pre-test
 - b. Test A

- c. Test B
- d. Test C
- e. Compared to King Devick Test
- f. Ratio

2. What we get from the test

- a. If vertical time is slow by age based norms (then they have poor automaticity - could be speech or it could be visual perceptual as well)
- b. If Horizontal Time - you'd think that this would tell us they have poor saccadic ability
- c. Ratio - Takes into account poor or fast automaticity to give us the measure of saccadic ability
- d. Errors - If high then also a measure of poor saccadic ability even if ratio is good

v. **Computerized Video-Oculography**

- 1. Readalyzer/Visagraph
- 2. RightEye

7. Tests of Accommodation (10:00)

i. **Near Retinoscopy**

- 1. MEM
- 2. Normally Book Ret you just watched for changes in spot in color and brightness
- 3. MEM combined with Book retinoscopy
- 4. Recording
- 5. Spot vs streak retinoscopy bulb

ii. **Accommodative Amplitude**

1. Push up method
2. Pull back method

iii. **Accommodative Facility**

1. Cycles per minute
 - a. How to perform the test
 - i. +/-2.00
 - ii. 40 cm
 - iii. Monocular and then binocular for 1 minute
 - iv. Report how many cycles per minute
 - b. Normal
 - i. Monocular: 11 cycles/ minute
 - ii. Binocular: 8 cycles/ minute
 - c. Good
 - i. Easy to standardize and it has been
 - ii. Good for taking into account fatigue
 - d. Problems with this
 - i. Difficult to talk to patient
 - ii. Too long
 - iii. Difficult to make observations
2. Seconds of lag Technique
 - a. Why called seconds to lag
 - b. Set Up
 - i. Use Vectogram #9
 - ii. Use polaroid glasses even monocularly for both speed and because I don't want the polaroid

glasses to be an artifact that actually causes some blur themselves

- iii. +/-2.00 lenses
- c. Start with the right eye
 - i. Have them read line #7 monocularly which about a 20/30 line
 - ii. Put the lens in front of the eye and wait to see how many seconds it takes to clear the lens
 - iii. Do this for several cycles - typically I find that 3 cycles gives a fairly good average
- d. Repeat for left eye
- e. Repeat for both eyes
 - i. With both eyes I am going to have them look at #5. For 2 reasons. Binocular accommodation is harder so, it is slightly larger target. Also line 4 and 6 are on either side of this line and they are the ones that disappear if the patient is suppressing.
- f. Why suppression check is important
- g. Why use the seconds to lag method
 - i. Easier to administer - can talk to patient and easier to make observations
 - ii. Much faster
- h. Documentation
- i. How to convert norms from cycles to minute to seconds to lag
 - i. Monocular cycles per minute norm is 11 or 22 presentations. $60 \text{ seconds} / 22 \text{ lens presentations} = 2.72$
 - 1. Then subtract out 1 second of flipping = 1.72 seconds of lag

- ii. Binocular cycles per minute norm is 8 or 16 presentation. $60 \text{ seconds}/16 = 3.75$
 - 1. Then subtract out 1 second for flipping = 2.75 seconds of lag
- j. Normal vs Optimal
 - i. Optimal
 - 1. Monocular = 1 second of lag
 - 2. Binocular = 1.5 to 2 seconds of lag

8. Tests of Binocularity (1:10:00)

i. Intro

- 1. Normal
 - a. Panum's Fusional Area
- 2. Maddox Rod
 - a. Modified Thorington
 - b. Phoria Card
 - c. Normal
 - d. Documentation
- 3. Howell Phoria Card
 - a. 6 prism diopter prism

ii. Stereopsis

- 1. 3 main reasons to do stereo test
 - a. Strabismus (do they have any stereo)
 - i. Stereo Fly Test
 - ii. Red pointer (pen will work)
 - iii. Shake it

- iv. Shoulder Thrust
 - b. Measure Progress
 - c. Document safety concern
2. Types of Stereopsis tests
- a. Local (Wirt Circles)
 - i. Stereo Fly Test Wirt Circles (good but only goes to 40 seconds)
 - ii. Animal
 - b. Randot
 - i. Wirt with randot background
 - 1. Often thought of as Randot, but it is local
 - ii. Global (Randot Stereo)
 - c. Not Local easy/Global hard
 - d. Distance stereo
3. Documentation
- a. Level of stereopsis
 - b. Which ones they missed
 - c. After which number were they slow

iii. Cover Test

- 1. Target
 - a. Technically, I learned that you want to pick a target two lines larger than their best corrected visual acuity
 - b. So, if their best corrected VA is 20/20, then 20/30
 - c. Why is that? The size of your target matters
 - d. Remember alignment relies heavily on the context of central and peripheral (parvo and magno)

- e. My cover test is often more of a conversation than a 1 time event
 2. Occluder - opaque and translucent
 3. Time
 4. Documenting
 - a. Phoria
 - b. Tropia
 - i. intermittent/constant
 - ii. Alternating/eye
 - iii. XT or ET
 5. Unilateral
 6. Alternating
 7. Pearls
 - a. Neutralizing prism
 - b. Estimated measure
 - c. % Aligned
- iv. NPC and Red Lens NPC**
1. Target
 2. Single or Multiple measurements
 3. Canthus - Remember TTN can be as much as 2"
 4. Normal
 - a. NPC - $5/7$ cm = $2/3$ in
 - b. Red Lens NPC - $7/10$ cm = $3/4$ in
 5. Documentation
 - a. Point of discomfort

- b. Break, recovery
- c. OD/OS out
- d. Diplopia on pullback

6. Good measure for general binocularity

7. Red Lens

- a. Not just the better test
- b. Virtual (especially some TBI patients or strabismus patients may find this easier than standard NPC)

v. Worth 4 Dot

- 1. Diagram
 - a. Suppression
 - b. Diplopia
- 2. Ask what color
- 3. Documentation
- 4. Great for demo to parents

b. Phoropter testing

- i. Norms vs Goals
- ii. Distance Retinoscopy
- iii. Manifest Refraction
 - 1. +1.00 blur refraction
 - 2. Dry vs Wet (Cycloplegic) refractions
- iv. Von Graefe Phoria
- v. NRC and PRC
- vi. NRA/PRA
- vii. Ductions

9. Other Testing (1:15:00)

a. Lens/Prism/Filter Testing

- i. Stimulating stress
 1. Chromagen Stress Sheet
- ii. Performance Testing
 1. Stereopsis
 2. McDonald Card
- iii. Low Plus
 1. Near Ret - start with lag
 2. Tests to determine performance lens
- iv. Compensating prism
 1. Don't always split the prism
 2. Fresnel Prism
- v. Prism for VF defect
 1. Peli Prism
- vi. Occlusion
 1. Full occlusion for diplopia
 2. Use bangerter foil instead of black tape
 3. Consider Partial occlusion or sector occlusion
- vii. Binasal/Streff Wedge
- viii. Chromagen vs Syntonics

b. Strabismus Testing

- i. Centration Point
 1. Recorded this in my NPC notes

- ii. Worth 4 dot
- iii. Red lens NPC
- iv. Polaroid Mirror
- v. Red/Green Luster
- vi. Bagolini lenses
 - 1. What they are
 - 2. How to test for fusion/suppression
 - 3. How to test for anomalous correspondence
- vii. Visuoscopy
 - 1. Central Fixation
 - 2. Eccentric Fixation
- viii. MIT
 - 1. Haidinger Brush
 - 2. How to use it to look for eccentric fixation
- ix. Hirschberg
 - 1. Epicanthal Folds
 - 2. Hirschberg Esotropia
- x. Parks 3 step

c. Visual vestibular Integration testing

- i. Dynamic Visual Acuity
- ii. NPC while standing
- iii. Pursuits while standing
- iv. Thumb rotation test
- v. Fukuda Step Test
- vi. Closed eye test

d. Visual Perceptual testing

- i. What are you trying to accomplish
 1. Do they have visual perceptual issues
 2. If they do how significant are they
 3. Have something to monitor progress
 4. Have tests that will demonstrate to parents/patients/other professionals of the visual perceptual problems the patient has
- ii. TVPS
- iii. DEM - not technically a visual perceptual test, but if you are using a code that is for developmental testing, then this definitely counts
 1. Already discussed earlier
- iv. Wold Sentence Copy
 1. Fine motor, visual motor integration
 2. Is the writing large and small
- v. Gardner Letter Reversal Test
 1. Letter reversals
 - a. Test I
 - b. Test II
 - c. Test III
- vi. Gates-Mckillop Oral Reading Test
 1. Quick reading test
- vii. Beery Visual Motor Integration Test
 1. Good global perceptual test
- viii. Monroe Visual III Test - Consider filming to add this test
 1. Memory with motor integration
- ix. TAAS

1. Great screening for auditory issues

10. The Initial Evaluation Process (30:00)

a. How am I going to do all of this testing?

- i. Remember it is okay to have the patient come back
- ii. Find the tests that work for you
- iii. Find a rhythm (use the same sequence of testing)
- iv. Don't do it all in one visit

b. The Initial Evaluation Process

- i. Our initial evaluation comprises 3 visits
 1. Binocular Evaluation - 1 hour
 2. Visual Perceptual exam - 1 hour
 3. Conference - 30 minutes
- ii. 1st Day - Chair Evaluation or Binocular evaluation
 1. Take your history
 2. Do oculomotor, accommodative, and binocular testing
 3. Quick case presentation
- iii. 2nd Day of testing
 1. Visual Perceptual Testing
- iv. Conference
 1. Principles of Case Presentation
 - a. Be prepared - review the report and be ready to make a good case presentation
 - b. Setting up a listening environment is important - this may determine if the patient will get the help they need

- i. Do it in a nice room (preferably a conference room with your diploma or any awards you've received)
- ii. Not have child patient at conference
- c. Create Understanding
 - i. Don't rush through every test you did
 - ii. Find the tests that you think best demonstrate the issues the patient has and this is very key - relate them back to their symptoms
 - iii. Demonstrations that people can understand
 - iv. Give it time to sink in
 - v. Should not be longer than 30 minutes
- d. Financials should be done by the staff

c. Conference/Case Presentation Example

11. Advanced Programing for Skills Cases (30:00)

a. What is a Skills Case

- i. Someone that does not have significant developmental delays, a traumatic brain injury, or strabismus
- ii. Also known as:
 - 1. Learning-Related Vision Disorder
 - 2. Life-Altering Developmental Vision Problem

b. Diagnosis Leads Vision Therapy?

- i. To see things differently, you first have to understand the classical approach to vision therapy
- ii. Discussion of optometry school vision therapy class and putting patients in boxes
- iii. Duane-White classification of binocular anomalies

1. Convergence insufficiency
 2. Convergence excess
 3. Fusional vergence dysfunction (binocular instability)
 4. Divergence Insufficiency
 5. Divergence Excess
 6. Basic Exophoria
 7. Basic Esophoria
- iv. Generally you would decide on what diagnosis they have based on the AC/A
1. Explain AC/A
 2. Low AC/A
 - a. Convergence Insufficiency
 - b. Divergence Insufficiency
 3. High AC/A
 - a. Convergence Excess
 - b. Divergence Excess
 4. Normal AC/A
 - a. Basic Exophoria
 - b. Basic Esophoria
- v. There is an easier way to think about this but first let's go over the traditional phases of vision therapy
- vi. Skills Case Patterns
1. Binocular - weak or strong
 2. Accommodation - weak or strong
 3. Binocular weak, Accommodation weak - Lost in Space CI
 4. Binocular strong, Accommodation weak - CE

5. Binocular weak, Accommodation strong - Symptomatic CI
6. Binocular strong, Accommodation strong with degrees of freedom between the two - High functioning visual system

c. Traditional Phases of Vision Therapy

- i. Monocular
- ii. Bi-ocular/MFBF
- iii. Binocular
- iv. Integration
- v. Integrating these phases
- vi. Not always sequential

d. Programming Activities for Skills Cases Made Easy

- i. Programming Using the 101 Course Activities
- ii. Sequential in nature
- iii. It's not the activity, it's the action

e. General Expectations for Skills Cases

- i. 1st Phase in Therapy
- ii. 2nd Phase in Therapy
- iii. 3rd Phase in Therapy
- iv. 4th Phase in Therapy

12. Advanced Programming and Activities for Visual Perceptual Disorders - Part 1 (50:00)

a. Advanced Programming for Visual Perceptual Disorders

b. Visual Perceptual activities

i. Parquetry blocks

1. Pattern Templates

- a. Delineated
- b. Non-Delineated
- c. Direct Match
- d. Off-Template
- e. Visual Memory

2. Loading

- a. Non Color Shapes
- b. Non Color Patterns

3. Matching

- a. Congruent
- b. Non Congruent

4. Orientation

- a. Rotations
- b. Flipping
- c. Perspectives
- d. Congruent
- e. Non Congruent
- f. Spaces

ii. **Attribute blocks**

1. Identifying the attributes
2. Describing blocks
3. Chain
4. Clubs
 - a. 1 circle, 1 attribute
 - b. 2 circles, 1 attribute

- c. 1 circle, 2 attributes
- d. 2 circles, 2 attributes

13. Activities for Visual Perceptual Disorders - Part 2 (1:20:00)

i. Prism Jumps

- 1. Just noticeable difference

ii. Blink

- 1. Sort - colors, numbers, shape
- 2. Naming - colors, numbers, shape
- 3. Matching
- 4. Compete

iii. Spot It

- 1. What are you accomplishing -
- 2. Matching Pairs
- 3. Matching Pairs Saccades
- 4. Matching Pairs Pursuits
- 5. Matching Pairs Near Far Jumps
- 6. Compete
- 7. Visual Memory

iv. Brick by Brick

- 1. Introduction
- 2. Trial and error
- 3. Mentally mapping

v. Laterality/Directionality - Progression of Therapy

- 1. Projection of body parts

2. Mazes/roadmaps
3. Arrow chart
 - a. Do/say same
 - b. Do/say opposite
 - c. Do same/say opposite
 - d. Do opposite/say same
4. Bdpq chart
5. Slap tap

vi. Card Games

1. Shuffle Deck
2. Sort Cards
 1. Add black, subtract red
3. Cover 10s

vii. Multi-Matrix Blocks/The Brain Game

1. Letters
 - a. Alphabetical order
 - b. Alphabet cover
 - c. Pursuit flash
 - d. Battle
 - e. Grid
 - i. Single Letter
 - ii. Three Letter
 - iii. Single Word
 - iv. Three Word
 - v. Adjective, Noun, Verb

14. Advanced Programing for Strabismus (15:00)

a. Advanced Programming for Strabismus

i. Traditional Approach

1. Phases
2. Intractable Diplopia

- a. Diplopia that persists even with extensive therapeutic or surgical intervention

ii. Newer Approach

b. Newer Approach

i. Improve Range of Motion

ii. Establish Gross Binocularity - All Strabismus cases

1. Fusion at near for both esos and exos
2. Establishing Sensory Fusion

iii. Those who have Constant Strabismus/ Anomalous Correspondence

1. Starting working towards central fusion constantly checking for diplopia (including improving VA in amblyopic eye)
2. Start extending fusional range along the Z-Axis (could be off gaze)
3. Stop when plateau/consider surgery
4. Integration (can they hold fusion when cognitively distracted)

iv. Those who have intermittent strabismus and good stereo

1. Create Diplopia Awareness
2. Work on Motor Alignment
3. Integration (can they hold fusion when cognitively distracted)

15. Activities for Strabismus (35:00)

i. Eye stretching

1. Classic Eye Stretching
2. Kraskin Eye Control
3. OKN drum

ii. Gross Binocularity Activities

1. Finding Centration point
2. R/G Luster
 - a. With +10.00
 - b. Tube Luster

iii. Central Stimulation activities

1. Visually guided motor activities with MFBF
2. Cheirosopic tracings
3. MIT
4. After-image fixation

iv. Diplopia Awareness Activities

1. Red lens and transilluminator in dark room
2. Phys/Dip
3. Golf ball with transilluminator
4. Glow in the dark Brock string

16. Advanced Programing for Traumatic Brain Injury (30:00)

a. Common Traits of Traumatic Brain Injury

- i. Poor central/peripheral balance
- ii. Poor spatial awareness especially within arms distance

- iii. Retained primitive reflexes
- iv. Highly symptomatic with VT activities
- v. Light Sensitivity
- vi. Poor awareness of symptoms until it reaches a level where it is devastating

1. The Pain Scale

- vii. Vision Therapy has been known to stir up repressed grief and trauma in adult patients
- viii. They are tenacious, because this is how they are able to continue functioning in life to whatever degree
- ix. Progress is slow and will often feel very slow to the patient

b. Things to Beware of with Traumatic Brain Injury

- i. Patching
- ii. Overworking your patient
- iii. Becoming a mental health worker
- iv. They won't feel comfortable working with anyone else
- v. Focusing too much on the numbers (especially from progress evaluations)
- vi. Likely will never get back completely to "normal"
- vii. Cognitive loads that seem simple can set a TBI off

c. Grounding Techniques

- i. Sitting/laying and grounding themselves to the floor
- ii. Breathing exercises
- iii. Visualization

17. Activities for TBI (45:00)

i. First Activities

1. Most sensitive cues - Fixation target
2. Open/close periphery -
 - a. Fixation target
 - b. Hart Chart - Look Hard/Look Soft
3. Grounding techniques to reduce visual stress
4. Wall grounding rotation

ii. Oculomotor Activities

1. Modifications
 - a. Target size and location
 - b. Patched or not
 - c. Go slow
 - d. Chart size
 - e. Metronome or other sounds
 - f. Localization

iii. Accommodative Activities

1. Modifications
 - a. When in therapy to do accommodative activities
 - b. Why localization is important
 - c. Watch for symptoms

iv. Binocular Activities

1. Binocular localization
 - a. Marsden Ball
 - b. Play Doh Poke

- c. Peg touch
- d. Binocular localization with distance appreciation/affirmation with concrete objects and visual images

v. Proprioception/Localization

- 1. Bean Bag Body Circles
- 2. Shifting space
- 3. Any bilateral integration activity
- 4. Appropriate Primitive Reflex Integration activities
 - a. Moro Reflex

vi. Visual Perceptual/Visual Processing Activities

- 1. Modifications and things to keep in mind

vii. Activities for Specific Cases

1. CN III, IV, VI paresis

- a. Horizontal strabismus issues (including divergence insufficiency)
 - i. Eye stretches
 - ii. Binocular activities starting in the most comfortable gaze
- b. Vertical strabismus/phoria
 - i. Head tilt
 - 1. W stereoscope
 - 2. Virtual reality
 - 3. Fresnel prism
 - 4. Brock String different gazes

2. VF Defects/Neglect

- a. VF Defects - Scotoma

- i. Stimulation activities

3. Abnormal Egocentric Localization

- a. Localization/Vestibular activities with prism
- b. Yoked prism activities
- c. Recentering activity

4. Vestibular Disorders

- a. Rotation touch the wall
- b. VT approach vs PT desensitization approach
- c. Walk beam
- d. Balance board
- e. Need to add Bean bag toss