



## **SAMPLE COURSE OUTLINE**

### ***PRESCRIBING DISTANCE TELESCOPES FOR LOW VISION PATIENTS IN YOUR PRIMARY CARE PRACTICE***

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#### **Course Outline**

- I. Who can benefit from telescopic devices?
  - A. Distance tasks (primary use)
    1. Seeing the chalkboard
    2. Overhead menus at fast food restaurants
    3. Bus signs
    4. Identification of individuals at a distance
    5. Watching plays, movies
    6. Seeing television
  - B. Intermediate tasks (secondary use)
    1. Computer use
    2. Arm's length tasks, e.g. card playing
    3. Seeing countertops
  
- II. Types of simple telescopes
  - A. Galilean systems
    1. Galilean telescopes have positive lens as the objective and a negative lens of higher power as the ocular.
    2. Erect and upright image
    3. Relatively compact design
    4. Dim images and limited field-of-view
    5. Large exit pupil, which makes centering less difficult.
    6. Rejection of this visual aid is attributed mainly to its appearance.
  - B. Keplerian systems
    1. Keplerian telescopes have a plus power objective lens and a plus power ocular lens
    2. Inverted images require an erecting lens or prism
    3. Typically larger dimension of the device and increased weight.
    4. Brighter images and wider fields of view
    5. Small exit pupil requiring better centering and aiming
    6. Greater design complexity and more expensive
    7. Size and weight can be reduced with in-the-lens design
    8. Rejection of this visual aid is also attributed mainly to its appearance.
  
- III. Properties of telescopes
  - A. The exit pupil and field of view
  - B. The exit pupil and brightness
  - C. Determination of the telescope type
  - D. Verification of telescopic magnification (exit pupil method)
  
- IV. Prescribing for distance tasks



- A. Determination of proper magnification for specified distance task
  - B. Monocular vs. binocular
- V. Instruction in the use of telescopic systems for distance tasks
- A. Stationary user and stationary object (spotting)
  - B. Stationary user and moving object (tracking)
  - C. Moving user and stationary object
  - D. Moving user and moving target
- VI. Case studies
- A. A 14 year old male with albinism has nystagmus, is light sensitive and currently wears single vision distance glasses, which he reports only “help a bit.” He cannot read the notes on the blackboard at school. Your refraction is:  
R. +4.00 — 2.25 x 180 VA 10/80 L. +3.00 — 3.00 x 170 VA 10/80  
He does not want to wear “anything that sticks out of his glasses.” He likes to watch soccer matches at the stadium also.
1. What specific tasks does the patient want to do?
  2. What are the best corrected acuities?
  3. What magnification should you start with?
  4. How will the nystagmus affect the use of the telescope?
  5. Should he wear his glasses when using the telescope?
  6. How will wearing his glasses affect his field of view?
  7. What options are available?
  8. What about his light sensitivity?
- B. A 56 year old retired medical laboratory technician was diagnosed with beginning macular degeneration 7 years ago. She likes to play keno at the casinos but finds it very difficult to see the numbers on the overhead keno boards. She does not wear any glasses for distance and her acuities are: R. 10/40; L. 10/80.
1. What is the task which needs to be accomplished?
  2. What are her acuities?
  3. How will the light in the surrounding area affect the selection of the scope?
- C. A 65 year old African American woman with glaucoma has a hard time seeing concerts from her seat in the theater. Best correction and acuities are:  
R. +1.00-0.50x095 VA 10/160 L. +0.50-0.50x080 VA 10/200  
She has found her 2x opera glasses to be inadequate.
1. Can you help her with this level of vision?
  2. How would her glaucoma medications affect her using a telescope?
  3. What is the disadvantage of giving her a high powered system?
- D. A 69 year old man with significant cataracts does not want to have cataract surgery. He loves to fly radio controlled model airplanes but is finding it extremely difficult to see the planes in the air. His acuities are not improved with any standard correction. R. 20/100; L. 20/100
1. Does the patient need his hands free?
  2. One eye or two?
  3. How will a higher powered system affect his ability to track the planes?
- E. A friend (with no visual impairment) wants to see his son play football. Many of the games are played at night, but several are during the day as well. He has seen ads for binoculars and is trying to decide whether he should buy a 4x12 binocular; a 6x15 binocular; a 7x50 binocular or a 10x20 “extra wide field” system. Can you give him any advice?