1 Online Table 1: Eligibility Criteria

The following criteria must be met for enrollment into the study:

1. Age 7 to <13 years
2. Amblyopia associated with strabismus (comitant or incomitant), anisometropia, or both
   - Criteria for strabismus: At least one of the following criteria must be met:
     - Heterotropia at distance and/or near fixation on examination (with or without spectacles)
     - History of strabismus surgery
     - Documented history of strabismus which is no longer present (which in the judgment of the investigator could have caused amblyopia)
   - Criteria for anisometropia: At least one of the following criteria must be met:
     - ≥0.50 D difference between eyes in spherical equivalent
     - ≥1.50 D difference between eyes in astigmatism in any meridian
3. Visual acuity, measured in each eye (amblyopic eye without cycloplegia) within 7 days prior to enrollment using the E-ETDRS protocol by a study certified visual acuity tester as follows:
   - Visual acuity in the amblyopic eye 18 to 67 letters inclusive (20/50 to 20/400)
   - Visual acuity in the fellow eye ≥78 letters (20/25 or better)
4. Current amblyopia treatment (other than spectacles)
   - A minimum of 12 weeks of at least two hours of occlusion per day prescribed for the fellow eye during the immediate pre-enrollment period.
   - While on current treatment, visual acuity has not improved one line (5 letters) or more since a non-study visit at least 6 weeks ago. Both acuity measurements to define no improvement must have been done using the same testing method. Note: since this determination is a pre-study procedure, the method of measuring visual acuity is not mandated.
   - Treatment with atropine at any time during this pre-enrollment period is not allowed.
   - Any treatment prior to the current patching episode with stable acuity is acceptable.
5. Spectacle correction (if applicable) for measurement of enrollment visual acuity must meet the following criteria and be based on a cycloplegic refraction that is no more than 6 months old:
   a) Requirements for spectacle correction:
      - Spherical equivalent must be within 0.50 D of fully correcting the anisometropia.
      - Hypermetropia of 3.00D or more must be corrected.
      - Hypermetropia must not be under corrected by more than 1.50 D spherical equivalent, and reduction in plus sphere must be symmetric in the two eyes.
      - Cylinder power in both eyes must be within 0.50 D of fully correcting the astigmatism.
      - Cylinder axis in both eyes is within 6 degrees of the axis in the spectacles when cylinder power is ≥1.00 D.
      - Myopia of amblyopic eye greater than 0.50 D by spherical equivalent must be corrected, and the glasses must not under correct the myopia by more than 0.25 D or overcorrect it by more than 0.50 D.

   b) Spectacles meeting above criteria must be worn
      - until visual acuity in amblyopic eye is stable (defined as two consecutive visual acuity measurements by the same testing method at least 4 weeks apart with no improvement of one line (5 letters) or more
        - An acuity measurement done any of the following ways may be considered the first of two consecutive measurements: 1) in current glasses, 2) in trial frames with full correction of hypermetropia with cycloplegia, or 3) in new glasses. Note: since this determination is a pre-study procedure, the method of measuring visual acuity is not mandated.
6. Eye examination within 6 months prior to enrollment
7. Parent available for at least one year of follow-up, has home phone (or access to phone), and willing to be contacted by clinical site staff and Jaeb Center staff
8. In the investigator's judgment, the participant is likely to comply with prescribed treatment (e.g., no history of poor compliance with patching treatment) and unlikely to continue to improve by using 2 hours of patching per day alone.

Exclusions

1. Myopia more than -6.00 D (spherical equivalent) in either eye.
2. Current vision therapy or orthoptics
3. Ocular cause for reduced visual acuity
   - nystagmus per se does not exclude the participant if the above visual acuity criteria are met
4. Prior intraocular or refractive surgery
5. History of narrow-angle glaucoma
6. Bronchial asthma or severe pulmonary disease
7. Strabismus surgery planned within 26 weeks
8. Known allergy to levodopa or carbidopa
9. History of dystonic reactions
10. Current use of oral iron supplements including multivitamins containing iron during treatment with levodopa-carbidopa
11. Current use of antihypertensive, anti-depressant medications, phenothiazines, butyrophenones, risperidone or isoniazid, non-specific monoamine oxidase inhibitors, or medication for the treatment of attention deficit hyperactivity disorder
12. Known liver disease
13. History of melanoma
14. Known psychological problems
15. Known skin reactions to patch or bandage adhesives
16. Prior levodopa treatment
17. Treatment with topical ophthalmic atropine within the past 12 weeks
18. A physician-prescribed diet high in protein
19. Females who are pregnant, lactating, or intending to become pregnant within the next 34 weeks.
    - A negative urine pregnancy test will be required for all females who have experienced menarche.
    - Requirements regarding pregnancy testing prior to enrollment and monitoring for pregnancy over the course of the study may be further defined by each individual Institutional Review Board.