

**FACT SHEETS**  
on  
**OPTOMETRIC VISION THERAPY**

**Reimbursement Packet**

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American Optometric  
Association

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## **INTRODUCTION REIMBURSEMENT OF OPTOMETRIC VISION THERAPY**

This information packet has been developed by the American Optometric Association to assist individuals involved with medical insurance claims processing and review in better understanding the application and utilization of optometric vision therapy. Although vision therapy is not a new area of medical care, information gained from scientific research and clinical application of vision therapy has been expanding in recent years.

Optometric vision therapy has been shown to be an effective treatment modality for many types of problems affecting the vision system. Vision therapy services include the diagnosis, treatment and management of disorders and dysfunctions of the vision system including, but not limited to, conditions involving binocularity, accommodation, oculomotor disorders and visual perceptual-motor dysfunctions. However, the exact length and nature of the therapy program can vary with the specific complexity of the diagnosed condition.

This packet contains fact sheets regarding the treatment and management of various conditions with optometric vision therapy. Because of the differences in complexity of conditions and management approaches, this information should be used only as a guideline. Should specific questions arise not addressed by these materials regarding the appropriateness of patient care, peer review of the services provided may be warranted.



## ACCOMMODATIVE DISORDER 367.5 (IDC-9-CM)

A sensory and neuromuscular anomaly of the visual system distinct from presbyopia and refractive anomalies. An accommodative dysfunction can be characterized by inadequate accommodative accuracy, reduced facility and flexibility, reduced amplitude of accommodation or the inability to sustain accommodation.

### Signs and Symptoms

The signs and symptoms associated with an accommodative dysfunction are related to prolonged, visually demanding, near centered tasks such as reading. They may include, but are not limited to, the following:

1. Asthenopia (eye strain) (368.13)
2. Transient blurred vision
3. Photophobia (368.13)
4. Abnormal fatigue
5. Headaches (784.0)
6. Difficulty sustaining near visual function
7. Dizziness (780.4)
8. Abnormal postural adaptation/abnormal working distance (781.9)
9. Pain in or around the eye (379.91)

### Diagnostic Factors

Accommodative dysfunctions are characterized by one or more of the following diagnostic findings:

1. Low accommodative amplitude relative to age
2. Reduced accommodative facility between near and far targets
3. Reduced ranges of relative accommodation
4. Abnormal lag of accommodation
5. Unstable accommodation

### Therapeutic Considerations

#### A. Management

The doctor of optometry determines appropriate diagnostic and therapeutic modalities, and frequency of evaluation and follow-up, based upon the urgency and nature of the patient's condition and unique needs. The management of the case and duration of the treatment would be affected by:

1. The severity of symptoms and diagnostic factors including onset and duration of the problem
2. Implications of patient's general health and associated visual condition
3. Extent of visual demands placed upon the individual
4. Patient compliance

5. Prior interventions

**B. Treatment**

A number of cases are successfully managed by prescription of therapeutic lenses and/or prisms. However, accommodative dysfunctions may also require optometric vision therapy. Optometric vision therapy usually incorporates the prescription of specific treatments in order to:

1. Normalize accommodative amplitude relative to age
2. Normalize ability to sustain accommodation
3. Normalize relative ranges of accommodation
4. Normalize accommodative facility relative to age
5. Normalize accommodative/convergence relationship
6. Integrate accommodative function with information processing

**Duration of Treatment**

Accommodative Disorder rarely exists in isolation. The function of the visual system is dependent on the integration of multiple visual skills. The required duration of treatment is extended commensurate with the severity and/or complexity of the problem.

1. Accommodative dysfunction usually requires 12 hours of office therapy.
2. Accommodative dysfunction complicated by:
  - a. accommodative/convergence abnormalities: up to an additional 16 hours of office therapy
  - b. other diagnosed visual anomalies: may require additional therapy
  - c. associated conditions such as stroke, head trauma, or other systemic diseases: may require substantially more office therapy

**Follow-Up Care**

At the conclusion of the active treatment regimen, periodic follow-up evaluation should be provided. Therapeutic lenses may be prescribed in conjunction with optometric vision therapy.



## AMBLYOPIA 368.0 (ICD-9-CM)

Amblyopia is a developmental disorder of spatial vision characterized by reduced visual acuity and visual information processing.

### Signs and Symptoms

The signs and symptoms associated with amblyopia include, but are not limited to, the following:

1. Reduced vision in one or both eyes
2. Spatial distortion

### Diagnostic Factors

Amblyopia is characterized by one or more of the following diagnostic findings:

1. Reduced acuity in affected eye which does not normalize with refractive prescription
2. Anisometropia (367.31)
3. Strabismus (378)
4. Bilateral significant refractive errors
5. Inability to maintain stable foveal fixation
6. Suppression of binocular vision
7. Reduced stereopsis
8. Reduced accommodative facility
9. Inefficient ocular motor skills

### Therapeutic Considerations

#### A. Management

The doctor of optometry determines the therapeutic modalities and frequency of evaluation and follow-up, based upon the patient's condition and unique needs. The management of the case and duration of the treatment would be affected by:

1. Onset and duration of the problem
2. Other associated anomalies such as anisometropia or strabismus
3. Extent of visual demands placed upon the individual
4. Patient compliance
5. Prior interventions
6. Implications of patient's general health and associated visual condition

#### B. Treatment

Early detection and intervention maximizes the probability of success in the treatment of amblyopia. Some cases are successfully managed by prescription of therapeutic lenses and/or prisms. However, most amblyopia requires optometric vision therapy.

Optometric vision therapy usually incorporates the prescription of specific treatments in order to:

1. Compensate for anisometropia and its amblyogenic influences
2. Stabilize central foveal fixation
3. Normalize visual acuity
4. Normalize monocular skills, including but not limited to, oculomotor, accommodative and reaction time
5. Minimize spatial distortion
6. Minimize suppression
7. Minimize strabismus
8. Normalize binocular function

## **Duration of Treatment**

The required duration of treatment depends upon the severity and/or complexity of the problem.

1. The most commonly encountered amblyopia usually requires 28 to 40 hours of office therapy.
2. Amblyopia complicated by:
  - a. associated visual adaptations (e.g., anomalous correspondence, eccentric fixation, spatial distortion) requires additional office therapy.
  - b. associated visual anomalies (e.g., strabismus, nystagmus, cataract) require additional office therapy.
  - c. associated conditions such as neurodevelopmental anomalies require substantially more office therapy.

## **Follow-Up Care**

At the conclusion of the active treatment regimen, periodic follow-up evaluation should be provided. Therapeutic lenses may be used for the maintenance of long-term stability. Some cases may require additional therapy due to decompensation.





## ASSESSMENT OF HIGHER VISUAL FUNCTION

Depending on patient history, signs, symptoms and/or the review of prior diagnostic evaluations, an independent assessment of higher visual functions may be needed to evaluate and diagnose specific eye or vision problems and to develop a treatment/management plan. This additional testing may be medically necessary for the following reasons:

For differential diagnosis in the presence of aphasia, ataxia, agnosia, developmental delays, dyslexia, dysgraphia, dyscalculia, dyspraxia, or deficiencies in visual information processing.

To investigate the impact of medication, systemic disease or trauma on the integrity and the functioning of the visual system.

To monitor patient's progress and alter the management plan, if indicated.

### Evaluation

An assessment of higher visual function may include, but is not limited to, an evaluation of the following:

Visual pathway function, visual cortical function, ocular motility function via electro diagnostic techniques, tests of visual attention, visual discrimination, visual spatial relations, visual closure, visual figure ground, visual memory, visual-motor integration and auditory-visual integration.

### Determination of Treatment/Management Plan

Evaluation and assessment of higher visual function usually has duration of one to three hours depending on the complexity of the conditions and may require more than one visit. A separate office visit may be necessary to discuss evaluation results and management considerations with patients, spouse, parents, or others. Appropriate CPT coding for services included in an assessment of higher visual function is determined by the specific procedure (see above), time involved and complexity of the procedures performed.





## **BINOCULAR VISION DISORDER, UNSPECIFIED 368.30 (ICD-9-CM)**

Non-strabismic sensorimotor anomalies characterized by the inability to efficiently, accurately, and/or comfortably sustain binocular vision, not otherwise classified.

### **Signs and Symptoms**

The signs and symptoms associated with unspecified binocular vision disorder are often related to visually demanding tasks and/or making spatial judgments. They may include, but are not limited to, the following:

1. Asthenopia (eye strain) (368.13)
2. Headache (784.0)
3. Pain in or around the eyes (379.91)
4. Difficulty sustaining attention during visually demanding tasks
5. Diplopia (double vision) (368.2)
6. Abnormal postural adaptation/abnormal working distance
7. General fatigue
8. Inaccurate depth judgment or stereopsis
9. Dizziness after sustained task (780.4)
10. Muscular incoordination/clumsiness (781.3)
11. Motion sickness (994.6)

### **Diagnostic Factors**

General binocular vision dysfunction is characterized by one or more of the following diagnostic findings:

1. Restricted or imbalanced vergence ranges
2. Asthenopia/vertigo responses during testing
3. Suppression of binocular vision (368.31)
4. Defective stereopsis (368.33)
5. Abnormal accommodative – convergence relationship

### **Therapeutic Considerations**

#### **A. Management**

The doctor of optometry determines appropriate diagnostic and therapeutic modalities, and frequency of evaluation and follow-up, based upon the urgency and nature of the patient's condition and unique needs. The management of the case and duration of treatment would be affected by:

1. The severity of symptoms and diagnostic factors including onset and duration of the problem
2. Implications of patient's general health and associated visual conditions

3. Extent of visual demands placed upon the individual
4. Patient compliance
5. Prior interventions

## **B. Treatment**

A number of cases are successfully managed by prescription of therapeutic lenses or prisms. However, most general binocular vision dysfunctions require optometric vision therapy to optimize visual comfort and efficiency. Optometric vision therapy usually incorporates the prescription of specific treatments in order to:

1. Minimize suppression
2. Develop adequate fusional ranges
3. Develop adequate vergence facility
4. Normalize depth judgment and/or stereopsis
5. Normalize accommodative/convergence relationship

## **Duration of Treatment**

The required duration of treatment is commensurate with the severity and/or complexity of the problem.

1. Binocular vision disorder, unspecified usually requires a minimum of 12 hours of office therapy.
2. General binocular vision dysfunction complicated by:
  - a. suppression: up to an additional 8 hours of office therapy
  - b. diminished stereopsis: up to an additional 8 hours of office therapy
  - c. other diagnosed vision anomalies, such as ocular motor dysfunction and accommodative disorder: may require additional therapy
  - d. associated conditions such as stroke, head trauma, or other systemic conditions: may require substantially more office therapy.

## **Follow-Up Care**

At the conclusion of the active treatment regimen, periodic follow-up evaluation should be provided.





## CONVERGENCE EXCESS 378.84 (IDC-9-CM)

A sensorimotor anomaly of the binocular vision system, characterized by a tendency for the eyes to overconverge at near.

### Signs and Symptoms

The signs and symptoms associated with convergence excess are often related to prolonged, visually-demanding, near centered tasks such as reading. They may include, but are not limited to, the following:

1. Asthenopia (eye strain) (368.13)
2. Headache (784.0)
3. Avoidance of or inability to sustain near visual task
4. Diplopia (368.2)
5. Transient blurred vision (368.12)
6. Abnormal postural adaptation/abnormal working distance (781.9)
7. Pain in or around the eye (379.91)
8. Abnormal fatigue
9. Dizziness (780.4)

### Diagnostic Factors

In addition to greater esophoria at near than at distance, convergence excess is characterized by one or more of the following diagnostic findings:

1. High AC:A ratio
2. Low negative or excessive positive fusional vergence ranges
3. Reduced positive relative accommodation (PRA)
4. Eso-fixation disparity with higher than normal associated phoria
5. Inadequate binocular accommodative facility
6. More esophoria at near than far

### Therapeutic Considerations

#### A. Management

The doctor of optometry determines appropriate diagnostic and therapeutic modalities, and frequency of evaluation and follow-up, based upon the urgency and nature of the patient's condition and unique needs. The management of the case and duration of the treatment would be affected by:

1. The severity of symptoms and diagnostic factors including onset and duration of the problem
2. Implications of patient's general health and associated visual conditions
3. Extent of visual demands placed upon the individual

4. Patient compliance
5. Prior interventions

## **B. Treatment**

Convergence excess is often successfully managed by prescription of therapeutic lenses and/or prisms. However, optometric vision therapy may also be required. Optometric vision therapy usually incorporates the prescription of specific treatments in order to:

1. Normalize associated deficiencies in ocular motor control and accommodation
2. Normalize accommodative/convergence relationship
3. Normalize fusional vergence ranges and facility
4. Reduce or eliminate suppression (reduce or eliminate)
5. Normalize depth judgment and/or stereopsis
6. Integrate binocular function with information processing

## **Duration of Treatment**

The required duration of treatment is extended commensurate with the severity and/or complexity of the problem. Treatment duration will depend upon the particular patient's condition and associated circumstances. When duration of treatment beyond these ranges is required, documentation of the medical necessity for additional treatment services may be warranted.

1. Convergence excess usually requires a minimum of 18 hours of office therapy.
2. Convergence excess complicated by:
  - a. Oculomotor dysfunction: up to an additional 18 hours of office therapy
  - b. An associated accommodative disorder: up to an additional 8 hours of office therapy
  - c. Other diagnosed vision anomalies such as ocular motor dysfunction and accommodative disorder may require additional therapy
  - d. Associated conditions such as stroke, head trauma, or other systemic diseases: may require substantially more office therapy.

## **Follow-Up Care**

At the conclusion of the active treatment regimen, periodic follow-up evaluation should be provided. Therapeutic lenses may be utilized for maintenance of long-term stability.



## CONVERGENCE INSUFFICIENCY 378.83 (IDC-9-CM)

A anomaly of the binocular vision system, characterized by a tendency for the eyes to underconverge at near.

### Signs and Symptoms

The signs and symptoms associated with convergence insufficiency are often related to prolonged, visually-demanding, near centered tasks such as reading. They may include, but are not limited to, the following:

1. Diplopia (double vision) (368.2)
2. Asthenopia (eye strain) (368.13)
3. Transient blurred vision
4. Difficulty sustaining attention to near point tasks
5. Abnormal fatigue
6. Headache (784.0)
7. Pain in and around the eye (379.91)
8. Abnormal postural adaptation/abnormal working distance (781.9)
9. Dizziness

### Diagnostic Factors

Convergence insufficiency is characterized by one or more of the following diagnostic findings:

1. High exophoria at near
2. More Exophoria at near than far
3. Low Accommodative-Convergence/Accommodation ratio
4. Reduced near-point of convergence
5. Low fusional vergence ranges and/or facility
6. Exo-fixation disparity with steep forced vergence slope

### Therapeutic Considerations

#### A. Management

The doctor of optometry determines the therapeutic modalities, and frequency of evaluation and follow-up, based upon the patient's condition and unique needs. The management of the case and duration of treatment would be affected by:

1. The severity of symptoms and diagnostic factors including onset and duration of the problem
2. Implications of patient's general health and associated visual conditions
3. Extent of visual demands placed upon the individual
4. Patient compliance
5. Prior interventions

## **B. Treatment**

A small percentage of cases are successfully managed by prescription of therapeutic prisms and/or lenses. However, most patients with convergence insufficiency require optometric vision therapy. Optometric vision therapy usually incorporates the prescription of specific treatments in order to:

1. Normalize the near-point of convergence
2. Normalize fusional vergence ranges and facility
3. Minimize suppression
4. Normalize associated deficiencies in ocular motor control and accommodation
5. Normalize accommodative/convergence relationship
6. Normalize depth judgment and/or stereopsis
7. Integrate binocular function with information processing

## **Duration of Treatment**

The required duration of treatment is commensurate with the severity and/or complexity of the problem.

1. Convergence insufficiency usually requires a minimum of 12 hours of office therapy.
2. Convergence insufficiency complicated by:
  - a. restricted fusional ranges: up to an additional 12 hours of office therapy.
  - b. suppression: up to an additional 6 hours of office therapy.
  - c. an accommodative element: up to an additional 8 hours of office therapy.
  - d. other diagnosed vision anomalies such as ocular motor dysfunction and accommodative disorder- may require additional therapy.
  - e. associated conditions such as stroke, head trauma, or other systemic diseases: may require substantially more office therapy.

## **Follow-Up Care**

At the conclusion of the active treatment regimen, periodic follow-up evaluation should be provided. Therapeutic lenses may be prescribed in conjunction with vision therapy.





## OCULAR MOTOR DYSFUNCTION

**Deficiencies of Saccadic Eye Movements 379.57 (IDC-9-CM)**  
**Deficiencies of Smooth Pursuit Movements 379.58 (ICD-9-CM)**

A sensorimotor anomaly of the ocular motor system where the characteristic feature is the inability to perform accurate and effective ocular pursuits, saccades, and fixations.

### Signs and Symptoms

The signs and symptoms associated with ocular motor dysfunction are related to visually-demanding tasks. They may include, but are not limited to, the following:

1. Loss of place and/or omission of words when reading
2. Difficulty visually tracking and/or following objects
3. Poor academic performance
4. Reduced efficiency and productivity
5. Poor attention span/easy distractibility
6. Muscular incoordination (781.3)
7. Vertigo (780.4)
8. Motion Sickness (994.6)

### Diagnostic Factors

Ocular motor dysfunction is characterized by one or more of the following diagnostic findings:

1. Reduced accuracy of ocular pursuits and/or saccades
2. Difficulty separating head/body and eye movements
3. Difficulty sustaining adequate pursuit or saccadic eye movement under cognitive demands
4. Inability to follow targets in proper sequence
5. Need for tactile/kinesthetic reinforcement while performing ocular motor activities
6. Inability to adequately sustain fixation/erratic fixations
7. Increased time required to perform tasks dependent upon saccadic eye movements

### Therapeutic Considerations

#### A. Management

The doctor of optometry determines appropriate diagnostic and therapeutic modalities, and frequency of evaluation and follow-up, based upon the urgency and nature of the patient's condition and unique needs. The management of the case and duration of treatment would be affected by:

1. The severity of symptoms and diagnostic factors including onset and duration of the problem
2. Implications of patient's general health and associated visual conditions
3. Extent of visual demands placed upon the individual
4. Patient compliance
5. Prior interventions

## **B. Treatment**

The treatment of most ocular motor dysfunctions requires orthoptics/vision therapy. However, the therapy regimen may be augmented by the use of therapeutic lenses or prisms. Optometric vision therapy usually incorporates the prescription of specific treatments in order to:

1. Develop accurate fixation skills
2. Develop accurate ocular pursuits and saccades
3. Integrate ocular motor skills with accurate motor response
4. Integrate ocular motor skills with other sensory skills (vestibular, kinesthetic, tactile, auditory)
5. Integrate ocular motor skills with vergence and accommodative systems
6. Integrate ocular motor skills with information processing

## **Duration of Treatment**

The required duration of treatment is commensurate with the severity and/or complexity of the problem.

1. The most commonly encountered ocular motor dysfunction usually requires a minimum of 12 hours of office therapy in addition to therapy provided for concurrent conditions.
2. Ocular motor dysfunction complicated by accommodative-convergence disorders usually require up to an additional 16 hours of office therapy.
3. Ocular motor dysfunction complicated by associated conditions such as stroke, head trauma or other systemic conditions require substantially more office therapy.

## **Follow-Up Care**

At the conclusion of the active treatment regimen, periodic follow-up evaluations should be provided.





## **STRABISMUS 378 (IDC-9-CM)**

**Exotropia – 378.1; Esotropia – 378.0; Hypertropia – 378.31; Hypotropia – 378.32**

### **Definition**

A sensorimotor anomaly of binocular integration resulting in the failure to maintain bifoveal alignment manifesting in a divergent (exotropia), convergent (esotropia), or vertical deviation of the non-fixating eye.

### **Signs and Symptoms**

The signs and symptoms associated with strabismus include, but are not limited to, the following:

1. Intermittent or constant eye turn
2. Double vision
3. Poor spatial judgment
4. Head tilt/turn (781.9)
5. Closing or covering one eye

### **Diagnostic Factors**

Strabismus is characterized by one or more of the following diagnostic findings:

1. Manifest angle of eye deviation
2. Deficient vergence abilities, reduced ranges of fusion with poor depth perception/stereopsis (368.33)
3. Diplopia (368.2)
4. Sensory adaptations (e.g. suppression 368.31; amblyopia 368.0; anomalous correspondence 368.34)
5. Frequency
6. Comitance
7. Onset

### **Therapeutic Considerations**

#### **A. Management**

The doctor of optometry determines appropriate diagnostic and therapeutic modalities, and frequency of evaluation and follow-up, based upon the urgency and nature of the patient's condition and unique needs. The management of the case and duration of treatment is affected by:

1. The severity of symptoms and diagnostic factors including onset and duration of the problem

2. Implications of patient's general health and considerations of disease factors
3. Associated visual conditions
4. Extent of visual demands placed upon the individual
5. Patient compliance
6. Prior interventions

## **B. Treatment**

Some cases of strabismus can be successfully managed by prescription of therapeutic lenses or prisms. However, most patients with strabismus require optometric vision therapy. Optometric vision therapy usually incorporates the prescription of specific treatments in order to:

1. Normalize ocular motor control
2. Normalize spatial localization skills
3. Normalize accommodative abilities
4. Eliminate sensory adaptations
5. Establish fusion response at all distances and in all fields of movement
6. Normalize accommodative/convergence relationship
7. Integrate oculomotor function with information processing

## **Duration of Treatment**

The required duration of treatment is extended commensurate with the severity and/or complexity of the problem.

1. Basic intermittent exotropia or esotropia usually requires a minimum of 40 hours of office therapy.
2. Basic constant exotropia or esotropia usually requires a minimum of 60 hours of office therapy.
3. Exotropia or esotropia complicated by any of the following requires additional office therapy:
  - a. visual adaptations (e.g., amblyopia, anomalous correspondence, suppression)
  - b. visual anomalies (e.g., cyclotropia, hypertropia)
  - c. factors such as stroke, head trauma, paresis, strabismus surgery

## **Follow-Up Care**

At the conclusion of the active treatment regimen, periodic follow-up evaluations should be provided. Therapeutic lenses may be prescribed at the conclusion of vision therapy for maintenance of long-term stability. Some cases may require additional therapy due to decompensation.



## **OPTOMETRY: THE PROFESSION**

Optometry is an independent primary health care profession.

Doctors of optometry (ODs) are the primary health care professionals for the eye. Optometrists examine, diagnose, treat, and manage diseases, injuries, and disorders of the visual system, the eye, and associated structures, as well as identify related systemic conditions affecting the eye.

Doctors of Optometry prescribe medications, low vision rehabilitation, vision therapy, spectacle lenses, contact lenses, and perform certain surgical procedures. They counsel their patients regarding surgical and non-surgical options that meet their visual needs related to their occupations, avocations, and lifestyle.

Optometrists are eye health care professionals state-licensed to diagnose and treat diseases and disorders of the eye and visual system.

An optometrist has completed pre-professional undergraduate education in a college or university and four years of professional education at a college of optometry, leading to the doctor of optometry (O.D.) degree. Some optometrists complete an optional residency in a specific area of practice.





## EDUCATION OF THE DOCTOR OF OPTOMETRY

To establish perspective, there is value in comparing the general characteristics of the education of selected health professionals: optometry, medicine, podiatry, nursing and pharmacy.

Perhaps the most current review is reported by Robert F. Rushmer, M.D.<sup>1</sup> noted author and Director, Center for Advanced Studies in Biomedical Sciences, School of medicine, University of Washington. He observed that each state has board requirements; all but pharmacy have national boards. All these educational institutions require accreditation at regular intervals. The admission requirements for medicine are less specific or demanding than in some other categories.

Each of these educational processes involves some years of basic sciences, preclinical education and clinical experience. Rushmer concludes, "In general, the basic educational experience of these five professions are remarkably similar and cannot account for consistent under utilization of 'non-medical' health professionals."

Addressing the concern for the provision of primary care, Dr. Rushmer makes the observation that the numbers of general practitioners and family physicians are grossly inadequate to afford the luxury of initial contact with physicians as the standard procedure; this is compounded in remote areas and central cities.

He points to the need for utilization of other health professions. Dr. Rushmer states, "Pharmacists undoubtedly have a sounder education in the details of dosage and distinctions among pharmaceutical agents than do physicians. Similarly, optometrists have a more extensive exposure to the basic principles of physiological optics than do physicians."

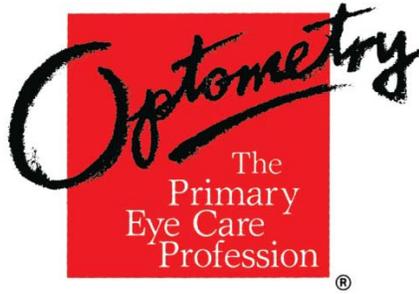
"From earliest times, the training of physicians has been based in large measure on apprenticeship, and vestiges of this orientation are clearly visible today in the clinics and the wards of teaching hospitals. The residents, training to be specialists, usually serve as surrogate faculty for both interns and medical students." In contrast the training of optometrists can be described as a combined didactic, laboratory and clinical curriculum, the design of which has many parallels to dentistry.

By being exempt from the provisions of the statutes governing the practice of optometry, physicians in general are legally entitled to test eyes and prescribe glasses. Ophthalmologists complete a three year apprenticeship-style residency program concerning diseases of the eye; ophthalmology being a subspecialty of surgery. Beyond that of general medicine no licensing is required to practice ophthalmology.

In comparing the specialties Dr. Rushmer states, "...the upgraded curricula of optometry schools generally provide more extensive basic knowledge, training and experience in correcting refractive errors that most ophthalmologists receive. Training and clinic experience in detection of eye pathology now renders recent graduates of optometry school capable of filling an extremely important role in this specialized area of healthcare. The persistent opposition of the medical profession has retarded but only partially impeded optometrists from providing ever expanding service in the care of the eye."

### **References**

1. Rushmer, R.F.: National Priorities for Health: New York, Wiley, 1980.



## DEFINITION OF OPTOMETRIC VISION THERAPY

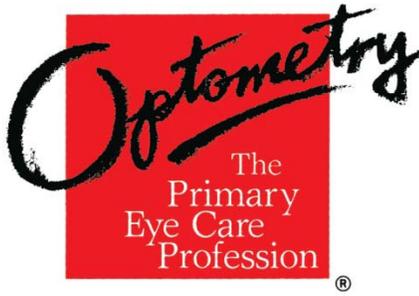
Vision therapy is a sequence of neurosensory and neuromuscular activities individually prescribed and monitored by the doctor to develop, rehabilitate and enhance visual skills and processing. The vision therapy program is based on the results of a comprehensive eye examination or consultation, and takes into consideration the results of standardized tests, the needs of the patient, and the patient's signs and symptoms. The use of lenses, prisms, filters, occluders, specialized instruments, and computer programs is an integral part of vision therapy. The length of the therapy program varies depending on the severity of the diagnosed conditions, typically ranging from several months to longer periods of time. Activities paralleling in-office techniques are typically taught to the patient to be practiced at home, thereby reinforcing the developing visual skills.

Research has demonstrated vision therapy can be an effective treatment option for:

- Ocular motility dysfunctions (eye movement disorders)
- Non-strabismic binocular disorders (inefficient eye teaming)
- Strabismus (misalignment of the eyes)
- Amblyopia (poorly developed vision)
- Accommodative disorders (focusing problems)
- Visual information processing disorders, including visual-motor integration and integration with other sensory modalities
- Visual sequelae of acquired brain injury

*Approved by the American Optometric Association Board of Trustees, April 2009*





## **VISION THERAPY**

Information for Health Care and Other Allied Professionals

*A Joint Organizational Policy Statement of the  
American Academy of Optometry and the  
American Optometric Association*

### **INTRODUCTION**

Society places a premium on efficient vision. Schools and most occupations require increasing amounts of printed and computer information to be handled accurately and in shorter periods of time. Vision is also a major factor in sports, crafts, and other pastimes. The efficiency of our visual system influences how we collect and process information. Repetitive demands on the visual system tend to create problems in susceptible individuals. Inefficient vision may cause an individual to slow down, be less accurate, experience excessive fatigue, or make errors. When these types of signs and symptoms appear, the individual's conscious attention to the visual process is required. This, in turn, may interfere with speed, accuracy, and comprehension of visual tasks. Many of these visual dysfunctions are effectively treated with vision therapy.

### **PERTINENT ISSUES**

Vision is a product of our inherited potentials, our past experiences, and current information. Efficient visual functioning enables us to understand the world around us better and to guide our actions accurately and quickly. Age is not a deterrent to the achievement of successful vision therapy outcomes.

Vision is the dominant sense and is composed of three areas of function:

- Visual pathway integrity including eye health, visual acuity, and refractive status.
- Visual skills including accommodation (eye focusing), binocular vision (eye teaming), and eye movements (eye tracking).
- Visual information processing including identification, discrimination, spatial awareness, and integration with other senses.

Learning to read and reading for information require efficient visual abilities. The eyes must team precisely, focus clearly, and track quickly and accurately across the page. These processes must be coordinated with the perceptual and memory aspects of vision, which in turn must combine with linguistic processing for comprehension. To provide reliable information, this must occur with precise timing. Inefficient or poorly developed vision requires individuals to divide their attention between the task and the involved visual abilities. Some individuals have symptoms such as headaches, fatigue, eyestrain, errors, loss of place, and difficulty sustaining attention. Others may have an absence of symptoms due to the avoidance of visually demanding tasks.

## VISION THERAPY

The human visual system is complex. The problems that can develop in our visual system require a variety of treatment options. Many visual conditions can be treated effectively with spectacles or contact lenses alone; however, some are most effectively treated with vision therapy.

Vision therapy is a sequence of neurosensory and neuromuscular activities individually prescribed and monitored by the doctor to develop, rehabilitate and enhance visual skills and processing. The vision therapy program is based on the results of a comprehensive eye examination or consultation, and takes into consideration the results of standardized tests, the needs of the patient, and the patient's signs and symptoms. The use of lenses, prisms, filters, occluders, specialized instruments, and computer programs is an integral part of vision therapy. The length of the therapy program varies depending on the severity of the diagnosed conditions, typically ranging from several months to longer periods of time. Activities paralleling in-office techniques are typically taught to the patient to be practiced at home, thereby reinforcing the developing visual skills.

Research has demonstrated vision therapy can be an effective treatment option for:

- Ocular motility dysfunctions (eye movement disorders)
- Non-strabismic binocular disorders (inefficient eye teaming)
- Strabismus (misalignment of the eyes)
- Amblyopia (poorly developed vision)
- Accommodative disorders (focusing problems)
- Visual information processing disorders, including visual-motor integration and integration with other sensory modalities
- Visual sequelae of acquired brain injury

## SUMMARY

Vision therapy is prescribed to treat diagnosed conditions of the visual system. Effective therapy requires visual skills to be developed until they are integrated with other systems and become automatic, enabling individuals to achieve their full potential. The goals of a prescribed vision therapy treatment regimen are to achieve desired visual outcomes, alleviate the signs and symptoms, meet the patient's needs, and improve the patient's quality of life.

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## BIBLIOGRAPHY

- Bowan MD. Learning disabilities, dyslexia, and vision: a subject review. *Optometry* 2002;73:553-75.
- Caloroso EE, Rouse MW, Cotter SA. *Clinical management of strabismus*. Boston: Butterworth-Heinemann, 1993.
- Ciuffreda KJ. The scientific basis for and efficacy of optometric vision therapy in nonstrabismic accommodative and vergence disorders. *Optometry* 2002;73:735-62.
- Ciuffreda KJ, Levi DM, Selenow A. *Amblyopia: basic and clinical aspects*. Boston: Butterworth-Heinemann, 1991.
- Ciuffreda KJ, Rutner D, Kapoor N, et al. Vision therapy for oculomotor dysfunctions in acquired brain injury: A retrospective analysis. *Optometry* 2008;79:18-22.
- Ciuffreda KJ, Suchoff IB, Kapoor N et al. Normal visual function. In: Gonzalez EG, Myers SJ, Edelstein JF et al, eds. *Downey and Darling's Physiological Basis of Rehabilitation Medicine*, 3<sup>rd</sup> edition. Boston: Butterworth-Heinemann, 2001:241-61
- Coffey B, Wick B, Cotter S, et al. Treatment options in intermittent exotropia: a critical appraisal. *Optom Vis Sci* 1992;69:386-404.
- Convergence Insufficiency Treatment Trial Group. Randomized clinical trial of treatments for symptomatic convergence insufficiency in children. *Arch Ophthalmol* 2008;(10):1336-1349.
- Cooper J, Medow N. Intermittent exotropia: basic and divergence excess type. *Binoc Vis Eye Muscle Surg Q* 1993;8:185-216.
- Cooper J, Selenow A, Ciuffreda KJ, et al. Reduction of asthenopia in patients with convergence insufficiency after fusional vergence training. *Am J Optom Physiol Opt* 1983;60:982-9.
- Daugherty KM, Frantz KA, Allison CL, Gabriel HM. Evaluating Changes in Quality of Life after Vision Therapy Using the COVD Quality of Life Outcomes Assessment. *Optom Vis Dev* 2007;38(2):75-81.
- Daum KM. The course and effect of visual training on the vergence system. *Am J Optom Physiol Opt* 1982;59:223-7.
- Fischer B, Hartnegg K. Effects of visual training on saccade control in dyslexia. *Perception* 2000;29:531-542.
- Flax N, Duckman RH. Orthoptic treatment of strabismus. *J Am Optom Assoc* 1978;49:1353-61.
- Garzia RP. Efficacy of vision therapy in amblyopia: a literature review. *Am J Optom Physiol Opt* 1987;64:393-404.
- Griffin JR. Efficacy of vision therapy for nonstrabismic vergence anomalies. *Am J Optom Physiol Opt* 1987;64:411-4.
- Grisham JD, Bowman MC, Owyang LA, Chan CL. Vergence orthoptics: validity and persistence of the training effect. *Optom Vis Sci* 1991;68:441-51.
- Hellerstein LF, Winkler PA. Vestibular dysfunction associated with traumatic brain injury: collaborative and optometry and physical therapy treatment. In: Suchoff IB, et al. eds. *Visual & Vestibular Consequences of Acquired Brain Injury*. Santa Ana, CA: OEP 2002.
- Joint Organizational Policy Statement of the American Academy of Optometry and the American Optometric Association, Optometric care of the patient with acquired brain injury. St. Louis, MO, 2002.

Liu JS, Lee M, Jang J, et al. Objective assessment of accommodation orthoptics. I. Dynamic insufficiency. *Am J Optom Physiol Opt* 1979;56:285-94.

The 1986/87 Future of Visual Development/Performance Task Force. The efficacy of optometric vision therapy. *J Am Optom Assoc* 1988;59:95-105.

*Optometric clinical practice guideline: care of the patient with accommodative and vergence dysfunction.* St. Louis: American Optometric Association, 1999.

*Optometric clinical practice guideline: care of the patient with learning related vision problems.* St. Louis: American Optometric Association, 2008

*Optometric clinical practice guideline: care of the patient with strabismus: esotropia and exotropia.* St. Louis: American Optometric Association, 2004

*Optometric clinical practice guideline: comprehensive adult eye and vision examination.* St. Louis: American Optometric Association, 2005

*Optometric clinical practice guideline: pediatric eye and vision examination.* St. Louis: American Optometric Association, 2002

Pediatric Eye Disease Investigator Group. Randomized trial of treatment of amblyopia in children aged 7 to 17 years. *Arch Ophthalmol* 2005;123:437-447.

Press LJ. *Applied concepts in vision therapy.* Santa Ana, CA: Optometric Extension Program, 2008.

Rouse MW. Management of binocular anomalies: efficacy of vision therapy in the treatment of accommodative deficiencies. *Am J Optom Physiol Opt* 1987;64:415-20.

Scheiman M, Mitchell GL, Cotter S, et al, for the Convergence Insufficiency Treatment Trial (CITT) Study Group. A Randomized Clinical Trial of Treatments for Convergence Insufficiency in Children. *Arch Ophthalmol.* 2005;123:14-24.

Scheiman M, Wick B. *Clinical management of binocular vision: heterophoric, accommodative, and eye movement disorders. 2<sup>nd</sup> Edition.* Philadelphia: Lippincott, 2004.

Suchoff IB, Petit GT. The efficacy of visual therapy: accommodative disorders and non-strabismic anomalies of binocular vision. *J Am Optom Assoc* 1986;57:119-25.

Suchoff I, Gianutsos R. Rehabilitative optometric interventions for the adult with acquired brain injury. In: Grabios M, Garrison SJ, Hart KA, Lemkuhl LD, eds. *Physical Medicine and Rehabilitation.* Malden, Mass: Blackwell Science; 2000:608-621.

Wick BW. Accommodative esotropia: efficacy of therapy. *J Am Optom Assoc* 1987;58:562-6.

Wick B, Wingard M, Cotter S, Scheiman M. Anisometric amblyopia: is the patient ever too old to treat? *Optom Vis Sci* 1992;69:866-78.



## **POSITION STATEMENT ON OPTOMETRIC VISION THERAPY**

The American Optometric Association affirms its long standing position that optometric vision therapy is effective in the treatment of physiological, neuromuscular and perceptual dysfunctions of the vision system.

The ability to learn in school, achieve on the job, and enjoy sports and recreation depends upon efficient vision. Optometric vision therapy assists individuals in developing visual abilities and efficiency most suited to their needs and enables those individuals to achieve maximal levels of visual performance. Optometric vision therapy can help individuals achieve and maintain good vision throughout life.

### **What Is Vision?**

Vision is more than the limited concept of sight measured in terms of visual acuity. Vision is the process of deriving meaning from what is seen. It involves fixation and eye movement abilities, accommodation (eye focusing), convergence (eye aiming), binocularity (eye teaming), eye-hand coordination, visual perception and visual-motor integration.

### **What Is Vision Therapy/Visual Training/Orthoptics?**

Optometric vision therapy, also referred to as visual training or orthoptics, is a treatment regimen to correct or improve specific dysfunctions of the vision system identified by standardized diagnostic criteria. It includes, but is not limited to, the treatment of strabismus and other binocular vision dysfunctions, amblyopia, accommodation, ocular motor function and visual-perceptual-motor abilities.

The medical necessity for optometric vision therapy is determined from a comprehensive analysis and diagnosis of the functioning of the vision system. Treatment plans are directed at specific diagnosed dysfunctions of the vision system and encompass the use of lenses, prisms, occlusion and other appropriate materials, modalities and equipment. Because the therapy is individualized, the procedures used and the duration of therapy are dependent upon the nature and severity of the problem being treated and the specific needs of the patient.

## **Who Can Benefit?**

Optometric vision therapy is effective for patients of any age although the objectives and outcomes will vary depending on the diagnosis and circumstances. Optometric vision therapy is effective for the treatment of many developmental or acquired and some congenital vision dysfunctions.

Of the entire U.S. population, approximately one half of those three years of age or over require treatment for a vision problem.<sup>1</sup> Among school-age children, vision disorders affect one in every four.<sup>2</sup> While many of these patients have refractive errors (myopia, hyperemia and/or astigmatism) commonly treated by compensatory lenses, some have additional problems in the functioning of the vision system that are most appropriately treated with optometric vision therapy.

## **Vision and Learning**

Many children who experience academic difficulty may have a treatable visual dysfunction in addition their primary reading or learning dysfunction.<sup>3</sup> Vision problems can interfere with the ability to perform in the classroom or can impair the ability to read with comfort and efficiency. These treatable conditions include focusing deficiencies, eye muscle imbalances, motor fusion deficiencies and refractive errors.<sup>4</sup> Although optometrists do not teach reading, optometric vision therapy programs are used to treat contributory vision problems thus enabling the individual to take better advantage of his/her education opportunities.<sup>5</sup>

Management of the learning disabled and/or dyslexic child or adult should be multidisciplinary. Since it is important to deal with any defect or problem that may be causal or contributory, evaluation of a learning disabled individual should include a thorough optometric analysis of the vision system. Interdisciplinary communication and involvement are essential in helping an individual overcome a learning problem.

## **Optometric Education**

Doctors of optometry are uniquely qualified to diagnose and treat vision problems as a result of their seven or more years of college level education and clinical training. While their undergraduate education provides a foundation in the basic sciences, the four year graduate professional optometric degree program emphasizes the biological, behavioral and visual sciences, and their clinical application. New developments and research within the optometric profession, residency programs and postgraduate educational opportunities, enhance today's optometrist's ability to provide quality vision care for their patients.

## **Research**

Extensive research related to strabismus and amblyopia, accommodative and non-strabismic binocular dysfunctions, vision development and learning-related vision problems is conducted at the schools and colleges of optometry and other clinical and research settings. These scientific studies support the effectiveness and value of optometric vision therapy in the treatment of vision dysfunctions.<sup>6-22</sup>

## Summary

- Vision is a complex process.
- An individual with good visual acuity and healthy eyes can still have a vision problem.
- Optometric vision therapy is an effective treatment for many vision problems.
- Evaluation of individuals with learning difficulties should include a thorough optometric analysis as part of a multidisciplinary approach.
- The American Optometric Association continues to support quality optometric care, education and research in the area of vision therapy.

## Resources Available From the American Optometric Association

1. American Optometric Association. Definition of optometric vision therapy, St. Louis, MO. June 1991.
2. American Optometric Association. Fact sheets on optometric vision therapy, St. Louis, MO, June 1992.
3. Future of Visual Development/Performance Task Force. Report on the efficacy of optometric vision therapy. *J Am Optom Assoc* 59(2):95-105, 1988.

## References

1. U.S. Department of Health and Human Services, Public Health Service. Eye care visits and use of eyeglasses or contact lenses, U.S. 1979 and 1980. *Vital and Health Statistics. Series 10, No. 145, DHHS Publication (PHS) 84-1573, February, 1984.*
2. US. Department of Health, Education and Welfare, Public Health Service. Eye examination findings among children, United States. *Vital and Health Statistics. Series II, No 115, DHEW Publication (HSM) 72-1057, Rockville, MD, June 1972.*
3. Greenstein T. Identification of children with vision problems that interfere with learning. In T. Greenstein, *Vision and learning disability. American Optometric Association, St. Louis, 1976, p. 95-114.*
4. American Academy of Pediatrics, American Association for Pediatric Ophthalmology and Strabismus, American Academy of Ophthalmology. Position statement on learning disabilities, dyslexia, and vision. *Pediatrics, 90(1): 124-125, 1992.*
5. Solan HA. Learning disabilities, Chapter 21. In AA Rosenbloom and MW Morgan, *Principles and Practice of Pediatric Optometry. JB Lippincott, Philadelphia, 1990: p. 486.*
6. Ciuffreda KJ, Kenyon RV, Stark L. Different rates of functional recovery of eye movements during orthoptic treatment in an adult amblyope. *Invest Ophthal & Vis Sci* 18(2):213-219, 1979.
7. Cooper J. Orthoptic treatment of vertical deviations. *J Am Optima Assoc* 59(6): 463-468, 1988
8. Cooper J, Selenow A, Ciuffreda KJ, Feldman J, Faverty J, Hokoda S, Silver J. Reduction of aesthenopia in patients with convergence insufficiency after-fusional vergence training. *Am J Optom & Physiol Opt* 60(12):982-989, 1983.
9. Daum K. Accommodative insufficiency. *Am J Optom & Physiol Opt* 60(5): 352-359, 1983.
10. Daum K. The course and effect of visual training on the vergence system. *Am J Optom & Physiol Opt* 59(3):223-227, 1982.
11. Flax N, Duckman R. Orthoptic treatment of strabismus. *J Am Optom Assoc* 49(12): 1353-1360, 1978.

12. Garzia RP. The efficacy of visual training in amblyopia: A literature review. *Am J Optom Physiol Opt* 64:393-404, 1987.
13. Kran B, Duckman R. Divergence excess exotropia. *J Am Optom Assoc* 58(11):921-930, 1987.
14. Liu JS, Lee M, Jang J, Ciuffreda KJ, Wong JH, Grisham D, Stark L. Objective assessment of accommodation orthoptics: 1. Dynamic, insufficiency. *Am J Optom & Physiol Opt* 56(5 ): 285-291, 1979.
15. Rouse M. Management if binocular anomalies: efficacy of vision therapy in the treatment of accommodative deficiencies. *Am J Optom & Physiol Opt* 65(6): 425-420, 1987.
16. Selenow A, Ciuffreda K. Vision function recovery during orthoptic therapy in an exotropic amblyope with high unilateral myopia. *Am J Optom & Physiol Opt* 60(8): 659-666, 1983.
17. Simons H, Grisham J. Binocular anomalies and reading problems. *J Am Optom Assoc* 57(2):119-125, 1986.
18. Suchoff I, Petito GT. The efficacy of visual therapy: Accommodative disorders and non-strabismic anomalies of binocular vision. *J Am Optom Assoc* 57(2): 119-125, 1986.
19. Weisz CL. Clinical therapy for accommodative responses: transfer effects on performance. *J Am Optom Assoc* 50(2): 209-214, 1979.
20. Wick B. Accommodative esotropia: efficacy of therapy. *J Am Optom Assoc* 58(7): 562-566, 1987.
21. Wick B, Wingard M, Cotler S, Schieman M. Anisometropic amblyopia: Is the patient ever too old to treat? *Optom and Vis Science* 69(11): 866-878-878, 1992.
22. Wick B, Cook D. Management of anomalous correspondence: efficacy of therapy. *Am J Optom & Physiol Opt* 64(6): 405-410, 1987.

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