Insurance, Vision Therapy, and Neuro-Optometric Rehabilitation

Vision therapy and Neuro-rehabilitation are used to treat specific diagnosed ocular, visual and visual perceptual conditions. In some cases, vision therapy is the only available and effective treatment option for those conditions. Treatment may be covered under major medical or vision insurance plans. An important consideration of managing a vision therapy practice is to appropriately code for all patients, whether using insurance or not.

Reimbursement of Optometric Vision Therapy

This information packet has been developed to assist individuals involved with medical insurance claims processing and review to better understand 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. Ultimate responsibility for the correct submission of claims and responses to any remittance advice lies with the provider of services.

Coding Background

Understanding what codes optometrists should use and their respective definitions is most important in all coding. The entire coding and medical industries are dependent upon accurate code use and interpretation to allow information to be accurately transferred between the provider and the payer. All of the codes used by optometry are also used by general medicine and/or other specialty providers. Coding and billing in an optometric office is performed using code sets established and maintained by different entities. The code sets used in this process include: the ICD-9 Clinical Modification code set, the Current Procedural Terminology code set – which is usually called “CPT,” and the health care common procedural coding system or HCPCS (pronounced “hick picks”) code set. Each code set has a specific purpose in the billing process.

These standard code sets used in optometric practices have specific purposes. They consist of the ICD-9 CM codes for diagnoses, the CPT codes for most procedures and the HCPCS Level II codes for procedures and products not covered under the CPT umbrella. Most carriers have published policies that follow the CPT closely, although it’s not uncommon to find that they may have specific policies or guidelines that build on the CPT definition for a particular code. At the current time, ICD-10 CM is developed to allow for greater classification of morbidity and mortality within diagnoses for
physicians, but is not being utilized within the United States. It is expected to be implemented in October 2014.

All of these code sets are standardized nationally. The Healthcare Insurance Portability and Accountability Act (HIPAA) prohibits the use of proprietary codes that were previously developed and used by local carriers and insurers and provider groups. It also stipulates that all codes are to be used as they are defined and not to report additional services that are not currently included in the definition.

There are regional Medicare and third party insurance company’s policies regarding coverage decisions about what items or services are reasonable and necessary. Often they elaborate on procedural codes rather than simply relying on the CPT© definition. These policies are generally available on the carrier’s web site or provider manual and are referred to in current nomenclature as Local Coverage Determinations (LCDs) by CMS or clinical policy bulletins, medical coverage policy medical coverage determinations by the major national third party payers. Whatever acronym or name used, they serve the same function in defining the appropriate guidelines in using a particular code.

Delivering quality healthcare depends on capturing accurate and timely medical data. Medical coding professionals fulfill this need as key players in the healthcare workplace.

Health information coding is the transformation of verbal descriptions of diseases, injuries, and procedures into numeric or alphanumeric designations. Originally, medical coding was performed to classify mortality (cause of death) data on death certificates. However, coding is also used to classify morbidity and procedural data. The coding of health-related data permits access to medical records by diagnoses and procedures for use in clinical care, research, and education.

There are many demands for accurately coded data from the medical record. In addition to their use on claims for reimbursement, codes are included on data sets used to evaluate the processes and outcomes of healthcare. Coded data are also used internally by institutions for quality management activities, case-mix management, planning, marketing and other administrative and research activities.

What codes should I use?

There are only a finite number of codes you will use in the vision therapy portion of your practice. These codes can be subdivided into: examination procedure codes, diagnostic codes, and therapeutic procedure codes. In all of the code choices, the most important factor is documentation. If you have the documentation needed to support the history, examination, treatment plan and medical decision-making requirements, you may have several codes to choose between.

The primary rule of documentation is, “if it wasn’t written, it never happened.” In the instance where the documentation is present, you can choose procedure codes based on what is covered, what is permitted, and/or what reimburses appropriately for your time. It is not a search for the highest reimbursing code, because often the higher reimbursement requires additional non-patient care work including multiple written reports and lots of staff time to get approval. Often, the end result after factoring in all these costs may be a lower reimbursing net.
Coding is a complex area for all healthcare providers, and this is no less true for optometrists. It is strongly suggested that you use all resources available when you are attempting to code correctly for insurance filing, and this chapter is intended only as an introduction to the topic. The key to everything else about coding is that your chart completely supports the codes that you used according to the definitions listed by CPT®. If you choose to accept insurance in your vision therapy practice, knowledge of your local carriers and their particular requirements is critical to success. Once you have that knowledge, use it to create a consistent, solid pattern of documentation in your records and assume that every time you document, what you have written will be seen by an auditor.

What examination procedure codes should I use?

The American Medical Association owns the CPT® codes. There are several evaluation and management procedural codes that could be used for an office visit to determine if the patient has an ocular, visual or visual perceptual problem. They would include 92002, 92004, 92012, 92014, 99201-99205, or 99211-99215. These codes are defined as comprehensive general ophthalmologic examination codes (92004 and 92014), intermediate general ophthalmologic examination codes (92002 and 92012) and the evaluation and management codes (99201-99205 and 99211-99215). You can use these codes in multiple combinations on different days if it best describes the procedures you are doing (please refer to the chart at the end of this chapter). An example of this would be for a patient seen in the office today for a 92004 (comprehensive general ophthalmologic examination-new patient). Tomorrow the same patient is scheduled for a 92012 (intermediate general ophthalmologic examination-established patient) and then, next week is scheduled for a 99213 (evaluation and management exam of an established patient). It would be incorrect coding to use these procedure codes simultaneously on the same day.

Other procedure codes to consider are consultation codes. A consultation is a type of service provided by a physician whose opinion or advice regarding evaluation and/or management of a specific problem is requested by another physician or other appropriate source. These are the 99241-99245 codes. Usually, these codes are only to be used on the patient’s first visit to the office after the physician or other appropriate professional made the referral. Occasionally, the consultation codes can be used on established patients when there was a request for new information from the referring doctor. Consultation codes must have documentation that includes correspondence from the doctor requesting the consultation. Recently the outpatient consultation codes have begun to be phased out by third party payers.

If the patient is coming to you for a “consultation” initiated by a patient and/or family member, and not requested by a physician, you should use the evaluation and management codes 99201-99205.

What special testing codes should I use?

After determining the patient needs additional testing, you have several coding options: 92060 (sensorimotor exam), 96110 (developmental testing; limited), 96111 (developmental testing), and 96116 (neurobehavioral status exam). These codes can be used in combinations with evaluation and management codes, by themselves or with each other to best describe the procedures you are doing.

CPT® describes the diagnostic test 92060, as Sensorimotor examination with multiple measurements of ocular deviation (e.g., restrictive or paretic muscle with diplopia) with interpretation and report

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How is the sensorimotor exam documented in the patient's medical record?

An order for the test should be noted in the chart. Test results for motor function are typically documented in a "tic-tac-toe" format to represent different fields of gaze. Results of the sensory function test are noted, too. Examiners note how many of the stereo rings on the Titmus Fly test are correctly observed by the patient and whether or not the patient appreciated the three-dimensional appearance of the fly's wings. A positive stereo test on a nonverbal patient might be represented by the patient's attempt to touch or pick up the fly's wings. Results of a Worth 4 dot often note which lights were seen. An interpretation of the test results and the effect on the patient's condition and course of treatment satisfy the interpretation requirements. Take care that the notations for the test are clearly identifiable and distinct from the office visit notes (e.g., stamp, boxed entry, separate page, etc.).

Repeated testing is indicated when medically necessary for new symptoms, disease progression, new findings, unreliable prior results or a change in the treatment plan. In general, additional testing is warranted when the information garnered from the eye exam is insufficient to adequately assess the patient's disease. For example, if a patient has a history of accommodative esotropia and the basic sensorimotor exam reveals an unstable or worsening condition, the more extensive test is justified. The insurance carriers would not expect a claim for a stable patient who presents with no complaints or one with a controlled condition.

The specific 96000 CPT codes used by physicians are used to report the services provided during testing of the cognitive function of the central nervous system. The testing of cognitive processes, visual motor responses, and abstractive abilities is accomplished by the combination of several types
of testing procedures. It is expected that the administration of these tests will generate material that will be formulated into a report.

A physician of any specialty can report these services. The use of developmental screening instruments of a limited nature (e.g., Developmental Screening Test II, Early Language Milestone Screen, Parents’ Evaluation of Developmental Status, Ages and Stages, and Vanderbilt attention-deficit/hyperactivity disorder rating scales) is reported using CPT® code 96110, developmental testing; limited. Code 96110 is often reported when performed in the context of preventive medicine services, but may also be reported when screening is performed with other E/M services such as acute illness or follow-up office visits. An office nurse or other trained nonphysician personnel performs this service; this code does not include any physician work. The review of the screening results is included in the preventive or E/M service. When physicians ask questions about a child’s development as part of the general informal developmental survey or history, this is not a formal measure as such and is not separately reportable.

Each administered developmental screening instrument is accompanied by an interpretation and report (e.g., a score or designation as normal or abnormal). Normal results might be recorded as, "Mother has no significant concerns about her child’s fine motor, gross motor, expressive/receptive language, social interactions, or self-help skills." Abnormal results might be recorded as, "Mother has concerns about her child’s expressive language and articulation, but no significant concerns about his fine motor, gross motor, receptive language, social interactions, or self-help skills." These interpretive remarks may be included on the screening form or in the progress note of the visit itself. Physicians are encouraged to document any interventions or referrals based on abnormal findings generated by the formal screening. If several tests are administered, results may be combined into a single report. Recommendations for interventions and other supportive measures should be included in the report summarizing the test results.

When developmental surveillance or screening suggests an abnormality in a particular area, more extensive formal objective testing is needed to evaluate the concern. Subsequent periodic formal testing may be needed to monitor the progress of a child whose skills initially may have not been significantly low, but who was clearly at risk for not maintaining appropriate acquisition of new skills.

These longer, more comprehensive developmental assessments using standardized instruments are typically reported using CPT® code 96111, developmental testing; extended. These are tests of development, typically performed by physicians or other specially trained professionals, for which the physician work is included as part of the service. Code 96111 includes the testing and an accompanying formal report.

CPT® defines 96111 as developmental testing; extended (includes assessment of motor, language, social, adaptive and/or cognitive functioning by standardized developmental instruments) with interpretation and report. It is considered an intra-service that includes administration of assessment procedures and clinical observations of the patient’s behavior during the actual testing process.

The following are clinical examples of the procedure from the AMA CPT® book.

“**A 45-year-old male who is 3 months status post cerebrovascular accident (CVA) in the distribution of the left middle cerebral artery. A careful language evaluation is required to determine the nature and extent of aphasia deficits and to make recommendations for rehabilitation. This code includes work in addition to and separate from the neurological evaluation.**
Illustration: This code may be reported for the following case. A physician performs an assessment of the developmental status of a 3-year-old girl with spastic deplegia and no language in order to determine early intervention plan (placement in preschool for children with developmental delays). A neurological evaluation of the child has already been performed and a clinical interview with the child’s mother preceded the decision for developmental testing.”

The frequency of reporting code 96111 is dependent on the needs of the patient and the judgment of the physician. CPT® code 96111 describes no more than 1 hour of face-to-face work and may not be reported more than once a day for the patient. A minimum of 31 minutes must be provided to report any per hour code. Services 96111 and 96116, report time as face-to-face time with the patient and the time spent interpreting and preparing the report. If much less than a full hour is spent performing the service, append modifier 52, reduced services, to the procedure code.

When developmental testing is reported in conjunction with an E/M service, the time and effort to perform the developmental testing itself should not count toward the key components (history, physical examination, medical decision making) or time for selecting the accompanying E/M code. The E/M service should be reported with modifier 25 appended to reflect that the service was separate and medically necessary.

CPT® code 96116 as neurobehavioral status exam (clinical assessment of thinking, reasoning and judgment, e.g., acquired knowledge, attention, language, memory, planning and problem solving, and visual spatial abilities). These tests are performed for the purpose of making a medical diagnosis.

An example of a neurobehavioral status examination would be, an 8-year-old girl is showing significant changes in her behavior at home and school, including attention difficulties, memory problems, and difficulties with making decisions about common daily activities. Mother is concerned that the problems may be a result of the girl falling out of her crib when she was a toddler. The physician performs a neurobehavioral status examination that includes screening for impairments in attention and short-term memory, language, long-term memory, problem solving, and visual and spatial abilities. The physician observes the girl’s behavior and records her responses.

Make sure you meet the definition for the code you are using. If you have questions, ask your state association or AOA Third Party committee or the medical director of the third party submitting to for clarification in writing.

What follow-up examination procedure codes should I use?

After therapy has been initiated, you may choose to re-examine the patient at regular intervals. As long as you have the required documentation for history, examination and medical decision-making, you have several coding choices. These would include the same as the initial assessment and may include the special testing codes covered previously.

Because the patient has already been seen in the office, only the established patient codes would be applicable.
What therapy codes should I use?

When performing simply orthoptics, the appropriate code to use is 92065. It is uncommon for an optometrist providing any form of vision therapy to do only orthoptics. Some third party networks expect professionals of each specialty group to bill the majority of their services within their specialty code set. They often are surprised when optometrists bill outside the 92000 series, and they erroneously try to recode the procedure into the 92000 series. When performing other procedures, you may want to consider the Physical Medicine and Rehabilitation codes (97000 series).

The 97000 series of CPT® codes are considered “Physical Medicine and Rehabilitation.” Many payers are not aware of neuro-optometric rehabilitation and thus may assume that the codes will only be used by licensed occupational or physical therapists providing rehabilitation.

A key component to understanding the concept of rehabilitation coding is to understand the concept of habilitation. Habilitation is defined as the assisting of a child with achieving developmental skills when impairments have caused delaying or blocking of initial acquisition of the skills. Habilitation can include cognitive, social, fine motor, gross motor, or other skills that contribute to mobility, communication, and performance of activities of daily living and enhance quality of life.

The CPT® code 97110 is for therapeutic exercises to develop strength and endurance, range of motion and flexibility. This could be used for working with convergence insufficiency or accommodative dysfunctions.

The CPT® code 97112 is for neuromuscular reeducation of movement, balance coordination, kinesthetic sense, posture and proprioception. This is often used for eccentric fixation training.

The CPT® code 97530 is for therapeutic activities utilized to restore a patient’s functional performance with dynamic activities, such as training in specific functional movements or activities performed during daily living routines. This could be used to train a patient with oculomotor/saccadic dysfunctions that are impacting performance.

The CPT® code 97532 is for interventions used to enhance cognitive skills, (e.g., attention, memory, problem solving) with direct (one-on-one) patient contact by the clinician.

The CPT® code 97533 focuses on sensory integrative techniques to enhance sensory processing and to promote adaptive responses to environmental demands, with direct (one-on-one) patient contact by the clinician.

Multiple state boards of optometry have specifically approved these codes to be used by optometrists. These codes may be used with patients who are in need of rehabilitative services to restore the function of the visual system and its connection to the vestibular and motor control function or the habilitation services described previously. The lack of understanding by insurance companies of the function of the optometrist as a member of the rehabilitation team is part of this problem. The introduction to the CPT® includes instructions that address this challenge. It states:

It is important to recognize that the listing of a service or procedure and its code number in a specific section of this book does not restrict its use to a specific specialty group. Any procedure or service in any section of this book may be used to designate the services rendered by any qualified physician or other health care professional.
Therefore, when choosing codes the optometrist must consider the following:

What interventions are appropriate for my patient?
What services do I want to provide to my patients?
Is there an existing CPT® code that describes the service?
Where does the code fall and is it approved by the State Board of Optometry?

97110, 97712 and 97530 are examples of rehabilitation codes that insurance companies may want to change to 92065 when provided by an optometrist. The 92065 code is defined as "Orthoptics and/or pleoptic training, with continued medical direction and evaluation". In the classical definition, Orthoptics/Pleoptics is used to treat strabismus and amblyopia. In 2002 the Department of Health & Human Services Centers for Medicare & Medicaid Services alerted the physician and provider community that Medicare beneficiaries who are blind or visually impaired are eligible for physician-prescribed rehabilitation service. They have directed the providers to consider the physical medicine codes 97000 series for these services.

It should be clear that there is a significant difference between the rehabilitation codes (97000 codes) and the 92065 codes. It is a misunderstanding of neuro-optometric rehabilitation that can lead to the insurance companies to question the use of rehabilitation codes by optometrists. The key is effective communication and education of all involved.

When performing other procedures, you may want to consider the definitions of neuro-rehabilitation codes (97000 series codes). These codes in the past have been mistakenly called occupational or physical therapy codes. These are properly referred to as rehabilitation codes. Many state optometry boards specifically allow optometrists to use these neuro-rehabilitation codes and some do not specify whether or not an optometrist can use these codes in that state. Please check with your state board to see if you are allowed to use these codes. The 97000 series are timed codes opposed to procedure codes. This means that they can be billed in multiple units per day.

Again, common sense is needed when coding. It doesn’t make sense to claim to a third party that you are examining the patient when in reality it was therapy you were administering. Do not attempt to stretch definitions of codes in order to access higher third party reimbursement. The description of the service 92065 in the CPT® manual includes “with continuing medical direction.” This refers to the fact that each diagnosed problem is treated differently; therefore a specific treatment plan is established for the patient for each treatment visit. The specific treatment procedures are prescribed by the physician, based upon an evaluation of the overall diagnosis and progress made during previous visits. This treatment may be enhanced when the patient reinforces the in-office treatment at home with appropriate procedures. The home procedures are also prescribed by the physician as appropriate based upon progress made during in-office sessions as well as those previously prescribed out of office procedures. This sequence may require additional professional assessment, input and time to demonstrate and explain to the patient in order to assure quality, successful and cost efficient treatment. This additional evaluation and management may be considered for reimbursement utilizing appropriate E&M or general ophthalmologic codes as long as justification and documentation is provided.
How do I document to meet the coding requirements?

When using the physical medicine codes, the physician or therapist is required to have direct (one-on-one) patient contact. This does not usually allow for “incident-to” billing. Furthermore, documentation guidelines are very specific and fairly complex. Documentation for provision of vision therapy using 97000 codes should be identified in the indications section of the chart. Once they are established, an individual rehabilitation plan (IRP) must be entered into the patient's record. Minimum documentation requirements in the IRP and sessions executing the plan are as follows:

1. Patient’s perceptions of visual function and measures of health related quality of life (HRQOL).
2. During execution of the treatment plan, the progress should be documented.
3. Specific goals based upon answers the patient has provided to questions about concerns; for example “to increase reading speed to 100 words per minute”.
4. A description of the method which will be employed to achieve each goal should be in the treatment plan.
5. Quantitative measurements of current performance measurements at each session should be compared to baseline performance measurements. A treatment plan may call for achieving goals in a sequential manner. Therefore, quantitative performance measurements of only the goals currently being addressed would be appropriate.
6. Sufficient time between visits is necessary for the patient to apply vision training to their activities of daily living. The vision specialist can assess the patient’s improvement following practice by the patient with techniques to maximize performance. This may require periods of at least two (2) to five (5) days between visits.
7. When there is no progress in a quantitative measurement of performance on two occasions following the maximal measure of performance, subsequent treatment for that goal will be considered maintenance and will be considered by most insurers to be a non-covered benefit, payable by the patient.
8. A written progress report of each session is a required element of E&M service, and should identify changes in goals, therapy schedules, or treatment plan.
9. Each session using a service whose definition includes specific time requirements, either therapeutic procedures or prolonged services, must have the face-to-face time between the patient and physician or licensed therapist documented to the minute. Units are calculated as described in prolonged services. In the case of therapeutic services, 97530, 97532, and 97533 a minimum of 15 minutes of face-to-face time for each unit of service must be billed. If less than 15 minutes of therapeutic procedure time is involved no therapeutic service may be billed. If less than 30 minutes of a therapeutic service code face-to-face time is recorded only one unit may be billed. Three units of therapeutic service require 45 to 60 minutes of face-to-face time.
Who can submit 97000 codes?

Services may be provided by a physician as defined in §1861 (r)(1) and (4) of the Social Security Act, a qualified occupational therapist, or a qualified physical therapist. Orientation and Mobility Specialists, Low Vision Therapists and Rehabilitation Teachers may also provide this type of therapy "incident to" a physician’s service. Services furnished by an employee of the physician may only be done under the physician’s direct personal supervision and must meet other "incident to" requirements provided in §2050 of the Medicare Carriers Manual. Direct supervision means that a physician must be in the immediate vicinity of the rehabilitation program, and immediately available or accessible for consultation or emergency. It does not require that the physician be physically present in the room itself. Certified occupational therapy and physical therapy assistants must perform under the appropriate level of supervision as with other therapy services.

"Incident to" services are integral but incidental to the physician’s services. Measurement of a visual acuity or blood pressure, or recording a visual field or an electrocardiogram are skills easily taught to a technician and are considered an integral but incidental part of the physician’s service. On the other hand, knowledge of optics and the teaching ability necessary to design, execute, and adjust a vision rehabilitation plan requires extended formal education and clinical experience. Therapeutic services and treatment planning services are not incidental to vision rehabilitation; they are the determinants of success. Furthermore, these services are not well known or understood by most health care providers, and should not be performed without proper training.

A technician, for example, a paraoptometric may collect data "incident to" physician’s service as part of the vision evaluation or progress assessment, which are evaluation and management services. However, only a physician, occupational or physical therapist, or a professional possessing a certification in whose state practice license specifically identifies vision rehabilitation as a service they may provide, may serve "incident to" a physician in the provision of visual rehabilitation.

Should I code every patient?

Coding is very similar to learning a foreign language. You must use it to master it. With this in mind, the best approach is to code every patient coming through the office for every visit. By coding everyone, you will master the system faster. Once you begin to code everyone for everything, you will find that thinking in codes becomes second nature.

What should I know about diagnosis coding rules?

1. Code to the highest level of specificity. Don’t code strabismus as 378.00, instead code for the specific esotropia the patient has (e.g. 378.35 = accommodative esotropia).

2. Avoid “unspecified” codes.

3. The diagnosis code must relate to the procedure code.

4. A single diagnosis may require more than one code. These are identified in the codebooks as codes in brackets. The code in brackets is mandatory.
5. It may require more than one diagnosis or procedure code to completely describe the patient because the patient has multiple problems.

What clinical standards are used to evaluate my claim?

The most widely circulated optometric documents that deal with therapy duration currently include: AOA Optometric Clinical Practice Guidelines on (1) Care of the Patient with Amblyopia, (2) Care of the Patient with Strabismus and (3) Care of the Patient with Accommodative and Vergence Dysfunction. Complete versions of the Guidelines can be accessed on the AOA web site at www.aoa.org/x4813.xml.

COVD Fact Sheets on Conditions of the Visual System Treated with Vision Therapy may also be used and can be obtained from the COVD office in Aurora (1-888-268-3770). Various position papers and White Papers may also be obtained from the COVD office in Aurora or from the website www.covd.org/Home/ResearchWhitePapers/WhitePapersonVisionTherapy/tabid/190/Default.aspx

Additional resources are included at the end of this document that can be included with all letters to third party insurance carriers.

What are some good insurance tips?

1. If you are going to bill orthoptics (92065) don't write insurance pre-determination nor appeal letters to insurance companies you have already determined do or do not cover orthoptic therapy. Pre-determination letters are a benefit if you are not certain whether a particular insurance company covers orthoptic therapy or if you need to determine the number of sessions a particular patient's policy will cover.

2. If you are going to bill vision rehabilitation (97xxx) don't write insurance pre-determination nor appeal letters to insurance companies you have already determined do or do not cover rehabilitation therapy. Pre-determination letters are a benefit if you are not certain whether a particular insurance company covers rehabilitation therapy or if you need to determine the number of sessions a particular patient's policy will cover.

3. Appeal letters are successful if you can "convince" an insurance company that a procedure was medically necessary. Pre-determination and appeal letters are very time-consuming and many offices charge the patient an appropriate fee to write these letters, which includes sending all the appropriate documentation. (See the "Forms/Letters" section of this manual for a sample pre-determination and appeal letter).

4. Verbal verification or authorization of insurance benefits is not binding. Don't ever "guarantee" a patient that their insurance company will pay for testing or therapy procedures, even if a written insurance verification is obtained. Always inform the patient that they are responsible for all costs not covered by his insurance, no matter what reason is stated for the denial.
5. Be aware that an insurance company can deny reimbursement at any time during or for a limited time after the therapy process. An insurance company may pay for ten visits and then request a medical review. As a result of this review, they may deny further coverage and in some cases, can even demand re-payment of therapies they have already covered. Thus, again, it is important to inform the patient in advance that he is responsible for all services not covered (or denied) by his insurance company.

6. When dealing with out-of-network insurance companies, collect 100% of all fees at time of service from the patient. However, it is beneficial for the vision therapy doctor's office to file these claims for the patient, as a professional courtesy.

7. When dealing with in-network insurance companies, most providers have found it "safe" to collect only the patient's co-pay for the testing procedures. However, unless you have obtained a written prior authorization notification stating orthoptic therapy or rehabilitation is a covered service by a patient's particular insurance company, there is no guarantee that the patient won't be responsible for additional fees.

8. Most successful practices do file for insurance when applicable; however, a successful practice has to have someone on staff who can market the vision therapy program without relying upon insurance coverage.

9. Documentation is extremely important. Make sure the doctor keeps detailed, up-to-date office notes on all patient visits with him/her, as well as the therapist/doctor keeping a log of daily therapy procedures used with the patient. In case of a medical review, these notes will be requested by the insurance company. Successful appeals are usually won based upon these office notes, along with the written testing reports.

10. Keep an up-dated list of all insurance companies who cover the testing and/or therapy sessions. Include the amount of reimbursement collected for each procedure code. Document the diagnosis codes used successfully for each procedure with each company. This list is an invaluable source for the successful vision therapy practice.

11. Be aware that just because one particular insurance company's policy covers vision therapy does not mean that all policies associated with this company will cover vision therapy. Also be aware that an insurance company may cover vision therapy one year and the next year, may elect not to do so.

12. Keep in mind an insurance company is much more likely to cover vision therapy for visual efficiency areas than they are for visual perceptual areas.
SAMPLE LETTERS & FORMS

A) Predetermination of Coverage 92065 (FCOVD)
B) Predetermination of Coverage 92065 (non FCOVD)
C) Preauthorization Request
D) Letter of Request for Additional Information 92065 (FCOVD)
E) Letter of Request for Additional Information 92065 (non FCOVD)
F) Letter of Request for Additional Information 97XXX (FCOVD)
G) Letter of Request for Additional Information 97XXX (non FCOVD)
H) Letter for Denied Claim
I) Letter for Additional Sessions
J) Letter Explaining difference between Sensorimotor vs. Eye Examination
K) Explanation of Patient’s Responsibility with Insurance Coverage – Non Participating Physicians
L) Explanation of Patient’s Responsibility with Insurance Coverage – Denial Review
M) Alternative Sample Insurance Coverage Form
N) Overview of Coding Procedures
O) Joint Position Statement on Vision Therapy (AOA-AAO)*
P) Efficacy of Optometric Vision Therapy (AOA)*

*These can be submitted with letters A) through L) as additional documentation.
(A) Predetermination of Coverage 92065 (FCOVD)

<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
<ID#>
<Group#>
<Subscriber Name>

Attention: Predetermination of Benefits Department:

I am writing regarding a pre-determination of benefits for in-network medical coverage for CPT Procedure Code (92065) for <patient name>. <Patient name>’s comprehensive testing was performed on <date> and revealed the following diagnosis codes: <fill in codes>. These diagnoses relate to the nerves and muscles of the vision system, not to routine vision services. Surgery is usually not indicated for these conditions and specifically not indicated for this particular patient.

I am one of <#> board certified developmental optometrists in <state>; my specialty is treating individuals who suffer from visual skills deficiencies related to the nerves and muscles of the vision system. My specialty involves providing functional visual evaluations and treatment for qualifying patients as a viable medical alternative to possible costly surgical procedures.

NOTE: THE TREATMENT FOR THE ABOVE PROBLEMS IS MEDICALLY NECESSARY AND IS REFERRED TO AS ORTHOPTIC THERAPY (92065). THE TREATMENT IS SPECIFIC FOR THESE VISUAL NEUROMUSCULAR ANOMALIES AND IS BEING DONE TO CORRECT THE ABOVE CONDITIONS.

Vision therapy is a fully organized therapeutic process utilized to treat visual efficiency and/or visual perceptual problems that cannot be treated with glasses alone. The treatment is complex, involving sophisticated instrumentation, visual therapy exercises, and computers that developmental optometrists have been trained extensively and are certified to perform. The specific activities and instrumentation are determined by the nature and severity of the condition. The frequency and duration of treatments are dictated by the individual’s situation. In <Patient name>’s case, I feel that approximately <#> in-office weekly therapy treatment sessions will be required; he plans to begin this therapy process in <date>.

The patient has requested a pre-determination of benefits. If I can be of further service, please do not hesitate to call me.

Sincerely,

<Doctor Name>
(B) Predetermination of Coverage 92065 (non FCOVD)

<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
<ID#>
<Group#>
<Subscriber Name>

Attention: Predetermination of Benefits Department:

I am writing regarding a pre-determination of benefits for in-network medical coverage for CPT Procedure Code (92065) for <patient name>. <Patient name>’s comprehensive testing was performed on <date> and revealed the following diagnosis codes: <fill in codes>. These diagnoses relate to the nerves and muscles of the vision system, not to routine vision services. Surgery is usually not indicated for these conditions and specifically not indicated for this particular patient.

I am one of thousands of optometrists trained in treating individuals who suffer from visual skills deficiencies related to the nerves and muscles of the vision system. My specialty involves providing functional vision evaluation and treatment for qualifying patients as a viable medical alternative to possible costly surgical procedures.

NOTE: THE TREATMENT FOR THE ABOVE PROBLEMS IS MEDICALLY NECESSARY AND IS REFERRED TO AS ORTHOPTIC THERAPY (92065). THE TREATMENT IS SPECIFIC FOR THESE VISUAL NEUROMUSCULAR ANOMALIES AND IS BEING DONE TO CORRECT THE ABOVE CONDITIONS.

Vision therapy is a fully organized therapeutic process utilized to treat visual efficiency and/or visual perceptual problems that cannot be treated with glasses alone. The treatment is complex, involving sophisticated instrumentation, visual therapy exercises, and computers that developmental optometrists have been trained extensively and are certified to perform. The specific activities and instrumentation are determined by the nature and severity of the condition. The frequency and duration of treatments are dictated by the individual’s situation. In <Patient name>’s case, I feel that approximately <#> in-office weekly therapy treatment sessions will be required; he plans to begin this therapy process in <date>.

The patient has requested a pre-determination of benefits. If I can be of further service, please do not hesitate to call me.

Sincerely,

<Doctor Name>
(C) Pre-Authorization Request Any CPT® Code

<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
<ID#>
<Group#>
<Subscriber Name>

Diagnosis: ICD-9 <fill>

CPT <fill> is medically necessary to correct this diagnosed condition or as an alternative to surgery. All information needed to process this claim appears on this form. If additional information is required, please request such in writing.

This is a pre-authorization request for ______ sessions of CPT _______ to manage ICD-9_______.

Please furnish the following information:

1. Is this a covered benefit?
2. What percentage do you pay?
3. Has the deductible been met?
4. Will payment be made directly to the provider or the subscriber?

Sincerely,

<Doctor Name>
<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
<ID#>
<Group#>
<Subscriber Name>

Medical Coverage for CPT<sup>®</sup> Procedure Code 92065

I am sending you the additional information you requested regarding medical coverage for <Patient Name> for procedure code 92065 (orthoptic therapy). His comprehensive examination, performed on <date>, revealed the following Dx codes: <fill in codes>.

The treatment for the above problems began on <date>. The patient’s prognosis is good, with approximately <fill in number> therapy sessions recommended. They have completed <fill in number> of these therapies and has shown great progress. These therapy sessions are an effective alternative to costly surgical procedures and are not connected, in any way, with routine eye care, refractive error, or glasses.

<Patient’s name>’s diagnoses codes, along with the progress he has already achieved through therapy, certainly indicate orthoptic therapy is an appropriate medical procedure to follow. I am one of <fill in number> board certified optometrists in the state of <fill in state> and my specialty is working with children, youth, and adults like <Patient’s name> who suffer from visual efficiency/perceptual skills deficiencies.

If you need additional information, please do not hesitate to call me.

Sincerely,

<Doctor Name>
(E) Letter for Request of Additional Information CPT® 92065 (non FCOVD)

<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
<ID#>
<Group#>
<Subscriber Name>

Medical Coverage for CPT® Procedure Code 92065

I am sending you the additional information you requested regarding medical coverage for <Patient Name> for procedure code 92065 (orthoptic therapy). His comprehensive examination, performed on <date>, revealed the following Dx codes: <fill in codes>.

The treatment for the above problems began on <date>. The patient's prognosis is good, with approximately <fill in number> therapy sessions recommended. They have completed <fill in number> of these therapies and has shown great progress. These therapy sessions are an effective alternative to costly surgical procedures and are not connected, in any way, with routine eye care, refractive error, or glasses.

<Patient's name>'s diagnoses codes, along with the progress he has already achieved through therapy, certainly indicate orthoptic therapy is an appropriate medical procedure to follow. I am one of thousands of optometrists trained in working with children, youth, and adults like <Patient's name> who suffer from visual skills deficiencies.

If you need additional information, please do not hesitate to call me.

Sincerely,

<Doctor Name>
Letter for Request of Additional Information CPT® 97XXX (FCOVD)

<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
<ID#>
<Group#>
<Subscriber Name>

Medical Coverage for Procedure Code <fill>

I am sending you the additional information you requested regarding medical coverage for <Patient Name> for procedure code <fill in code>. His comprehensive examination, performed on <date>, revealed the following Dx codes: <fill in codes>.

Neurobehavioral testing CPT® <fill in E&M or 961XX> was performed on <date>, which revealed additional deficiencies in the visual cognitive skills areas of <fill in deficient areas>.

The treatment for the above problems began on <date>. The patient’s prognosis is good, with approximately <fill in number> therapy sessions recommended. He has completed <fill in number> of these therapies and has shown great progress. These therapy sessions are an effective management and are not connected, in any way, with routine eye care, refractive error, or glasses.

<Patient’s name>‘s diagnoses codes, along with the progress they have already achieved through therapy, certainly indicate orthoptic therapy is an appropriate medical procedure to follow. I am one of <fill in number> board certified optometrists in the state of <fill in state> and my specialty is working with children, youth, and adults like <Patient’s name> who suffer from visual efficiency/perceptual skills deficiencies.

If you need additional information, please do not hesitate to call me.

Sincerely,

<Doctor Name>
<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
<ID#>
<Group#>
<Subscriber Name>

Medical Coverage for **Procedure Code <fill>**

I am sending you the additional information you requested regarding medical coverage for <Patient Name> for procedure code <fill in code>. His comprehensive examination, performed on <date>, revealed the following Dx codes: <fill in codes>.

Neurobehavioral testing CPT® <fill in E&M or 961XX> was performed on <date>, which revealed additional deficiencies in the visual cognitive skills areas of <fill in deficient areas>.

The treatment for the above problems began on <date>. The patient’s prognosis is good, with approximately <fill in number> therapy sessions recommended. He has completed <fill in number> of these therapies and has shown great progress. These therapy sessions are an effective management and are not connected, in any way, with routine eye care, refractive error, or glasses.

<Patient’s name>’s diagnoses codes, along with the progress they have already achieved through therapy, certainly indicate orthoptic therapy is an appropriate medical procedure to follow. I am one of thousands of optometrists trained in working with children, youth, and adults like <Patient’s name> who suffer from visual efficiency/perceptual skills deficiencies.

If you need additional information, please do not hesitate to call me.

Sincerely,

<Doctor Name>
Letter for Denied Claim

<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
<ID#>
<Group#>
<Subscriber Name>

Dear Medical Review:

I am writing in response to your claim denial for <Patient name and ID #> for Procedure Code 92065 (orthoptic therapy). The diagnoses codes, established by the sensorimotor exam conducted on <date>, are: <fill in codes>.

NOTE: THE TREATMENT FOR THE ABOVE PROBLEMS IS MEDICALLY NECESSARY AND IS REFERRED TO AS ORTHOPTIC THERAPY. THE TREATMENT IS SPECIFIC FOR THE VISUAL NEUROMUSCULAR ANOMALIES AND IS BEING DONE TO CORRECT THE ABOVE CONDITIONS AND IS NOT CONNECTED IN ANY WAY WITH ROUTINE EYE CARE, REFRACTIVE ERROR, OR GLASSES.

Orthoptic therapy is a fully organized therapeutic regiment utilized to treat a visual efficiency problem that cannot be treated with glasses alone. The treatment is complex, involving sophisticated instrumentation and computers that behavioral optometrists have been trained extensively and are board certified to perform. The specific activities and instrumentation are determined by the nature and severity of the condition. The frequency and duration of treatments are dictated by the individual’s situation. In <Patient Name>’s case, <fill in number> therapeutic sessions were needed to correct her problems.

If I can be of further service, please do not hesitate to contact me.

Sincerely,

<Doctor Name>
(I) Letter for Additional Sessions

<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
<ID#>
<Group#>
<Subscriber Name>

Thank you for your approval of <number> orthoptic therapy visits for <patient name, ID number and claim #>. The patient has completed this program and showed excellent progress. However, because of the number and severity of visual efficiency problems <patient name> had, in order for the patient to receive the maximum benefit from this vision therapy procedure, a minimum of <number> sessions has been a necessity. Thus, we are requesting coverage for additional <number> sessions for <patient name>.

I feel the positive testing results more than justify payment for these additional therapy sessions <patient name> completed. Thank you for providing coverage for a therapy program that can make such a positive difference in a child’s life.

Sincerely,

<Doctor Name>
(J) Letter Explaining Difference between Sensorimotor Exam vs. Eye Examination

<Date>

<Insurance company name>
<Address>

Re: <Patient Name>:  
<DOB>:  
<ID#>:  
<Group #>:  
<Subscriber Name>:  

Dear Medical Review:

A sensorimotor examination (Procedure Code 92060) was performed on <Patient Name> in my office on <date>. A sensorimotor exam is not a vision exam; it is a medical diagnostic exam. A sensorimotor exam has been covered under medical insurance. This exam involves a group of tests that determines what problems, if any, exist with the nerves and muscles of the visual system. It is this exam that enables the doctor to render diagnosis codes, a prognosis, and to recommend a treatment modality, if such a plan is warranted. It is not to determine if the patient needs a refractive prescription. It involves numerous tests not performed in a comprehensive general ophthalmologic eye exam. <Patient Name>’s exam revealed the following diagnosis codes: <list>.

Thus, this sensorimotor exam should be covered under their medical insurance. Thank you for making this correction in your insurance records. If I can be of further service, please do not hesitate to contact me.

Sincerely,

<Doctor Name>
ATTENTION TO ALL PATIENTS

Due to the constant change in insurance company policies, we are asking for your help. Please read the following information carefully:

You, the patient, are responsible for knowing the following:

- At what percentage your insurance company pays and any deductible due.
- If you need a referral from your primary care physician, you are responsible for obtaining this prior to your visit.
- If your claim is to be billed to your medical insurance or your vision insurance.
- Whether or not your insurance requires that you go to a specific provider.

Time does not allow our staff to obtain the above information for you. We will figure approximate amount you owe the day of your visit with the understanding that the patient is responsible for the entire balance. We will not be responsible for problems or discrepancies, this must be handled by the insured, but we will be happy to assist you in any way that we can. We will provide you with any information needed to assist with the resolution of any problem that may occur with your carrier. If you have any questions pertaining to our policy, feel free to consult with our staff regarding your concerns or questions.

I, the undersigned, have read and understand the above information regarding the insurance policy of this office.

________________________________________________ Signature of Patient (Parent if minor)

________________________________________________ Date__________________________
Insurance Coverage for Vision Therapy

Vision therapy is used to treat diagnosed vision conditions. In some cases, vision therapy is the only available and effective treatment option for these conditions. This treatment may be covered under major medical insurance plans. However, some insurance companies and managed care plans may deny or place severe limits on coverage for Vision Therapy services as a cost-saving measure.

Under all forms of medical insurance plans, you, the consumer and/or patient, have a right to request a review of any service that is denied coverage, or for which coverage is severely limited. If you believe your plan has incorrectly evaluated the claim for coverage, acted arbitrarily, or discriminated unfairly in determining coverage, you should seriously consider requesting a review.

Steps to Consider in Requesting a Review of Denial of Coverage for Vision Therapy

1. First, review your medical plan's explanation of benefits booklet to see if there is any statement about the inclusion or exclusion of coverage for vision therapy. Some plans explicitly exclude coverage for these services.

   Some plans may exclude coverage for vision therapy to treat educational problems such as learning disabilities, dyslexia, etc. The treatment of learning problems and dyslexia are educational problems that are not within the purview of major medical insurance coverage. However, this should not preclude receiving coverage for vision therapy which is treatment of a diagnosed vision problem.

2. Ask for a written statement on the exact reason that coverage was denied or limited. If an arbitrary statement is given that the company or plan concluded that vision therapy is not considered medically necessary, or is not effective in treating the diagnosed problem, ask for documentation to support that claim.

   Many research studies and clinical reports have been published that support the effectiveness of vision therapy. Unfortunately, your insurance company or plan may not have reviewed this information.

3. Some insurance plans may indicate that the services were reviewed by their "medical consultant" who recommended the services not be covered. You may wish to inquire as to the qualifications of the consultant, especially in regard to the area of determination (i.e., was it a Doctor of Optometry or O.D.?).

   It is common medical practice for questions regarding the medical necessity or appropriateness of treatment to be reviewed by a "medical peer," another doctor with similar training and knowledge in the particular area of care. If the claim for vision therapy services was not reviewed by an optometrist who also provides these services, then true "peer review" did not occur.
4. When claims are denied on the basis that the insurance company or their consultant believes there is a lack of sufficient research to support the effectiveness of vision therapy, supplying documentation of available research may result in approval of coverage.

5. If after going through the above process, coverage of your claim for vision therapy is still denied, you may want to consider the following actions:

- If your medical insurance coverage is provided by your employer, bring the problem to the attention of your company’s employment benefits manager and ask for his or her assistance.
- If you purchase insurance coverage yourself, contact your insurance agent and ask for help in getting your claim paid.
- If you are unable to obtain satisfactory resolution of your claim, consider filing a complaint with the office of your state commissioner of insurance.

It is important to remember that the unwillingness of your insurance company to pay for these services does not reduce the need for obtaining treatment. Talk with your doctor about payment options that may be available to assist you or your family in obtaining needed care.
(M) Alternative Sample Insurance Coverage Forms

<Date>

<Insurance company name>
<Address>

Re: <Patient Name>
<DOB>
>ID#
<Group#>
<Subscriber Name>

To Whom It May Concern:

<Patient Name> was recently examined in my office on <exam date>. The diagnostic examination revealed the following medical diagnosis: <ICD-9>.

NOTE: The treatment for the above condition is medically necessary and is referred to as Visual Therapy. The treatment is specific for neuromuscular anomaly and is being done to correct the above condition or as an alternative to surgery and is not connected in any way with routine eye care, refractive error or glasses.

SPECIFIC TREATMENT PROGRAM

The treatment program for <ICD-9> requires a minimum of <#> visits and is divided into several phases:

PHASE I: Designed to restore normal positive fusional skills and ocular pursuits and saccades, and to integrate pursuits and saccades with other ocular motor skills, as well as to restore normal positive and fusional vergence amplitudes, near point of convergence and accommodative amplitude.

PHASE II: Designed to integrate ocular motor skills with accurate motor responses and with sensory skills, as well as to normalize fusional facility in both the positive and negative fusional vergence systems with no suppression.

PHASE III: Designed to integrate ocular motor skills with vergence and accommodative systems and with information processing, as well as to create excessive in both the accommodative and fusional systems, and to restore normal vergence facility and amplitude during sustained versions.

Each of these three phases generally requires a minimum of <number> visits. Sessions are weekly or bi-weekly and last <#> minutes. All therapy is under the direct supervision of <Doctor Name>.

Thank you for your consideration of this information. If you have any questions, please contact me.

Sincerely,

<Doctor Name>
### Overview of Coding Procedures

#### General Ophthalmologic Services

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>92002</td>
<td>Ophthalmological services: medical examination and evaluation with initiation of diagnostic and treatment program; intermediate, new patient</td>
</tr>
<tr>
<td>92004</td>
<td>Ophthalmological services: medical examination and evaluation with initiation of diagnostic and treatment program; comprehensive, new patient, 1 or more visits</td>
</tr>
<tr>
<td>92012</td>
<td>Ophthalmological services: medical examination and evaluation, with initiation or continuation of diagnostic and treatment program; intermediate, established patient</td>
</tr>
<tr>
<td>92014</td>
<td>Ophthalmological services: medical examination and evaluation, with initiation or continuation of diagnostic and treatment program; comprehensive, established patient, 1 or more visits</td>
</tr>
<tr>
<td>92015</td>
<td>Determination of refractive state</td>
</tr>
</tbody>
</table>

#### Special Ophthalmological Services

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>92060</td>
<td>Sensorimotor examination with multiple measurements of ocular deviation (eg, restrictive or paretic muscle with diplopia) with interpretation and report (separate procedure)</td>
</tr>
<tr>
<td>92270</td>
<td>Electro-oculography with interpretation and report</td>
</tr>
</tbody>
</table>

#### Special Otorhinolaryngologic Services Vestibular Function Tests, with Observation and Evaluation by Physician, w/o Electrical Recording

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>92531</td>
<td>Spontaneous nystagmus, including gaze</td>
</tr>
<tr>
<td>92532</td>
<td>Positional nystagmus test</td>
</tr>
<tr>
<td>92534</td>
<td>Optokinetic nystagmus test</td>
</tr>
</tbody>
</table>

#### Neurology and Neuromuscular Procedures

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>95930</td>
<td>Visual evoked potential (VEP) testing central nervous system, checkerboard or flash</td>
</tr>
</tbody>
</table>
Central Nervous System Assessments/Tests (eg, Neuro-Cognitive, Mental Status)
The following codes are used to report the services provided during testing of the cognitive function of the central nervous system. The testing of cognitive processes, visual motor responses, and abstractive abilities is accomplished by the combination of several types of testing procedures. It is expected that the administration of these tests will generate material that will be formulated into a report.

96101  Psychological testing (includes psychodiagnostic assessment of emotionality, intellectual abilities, personality and psychopathology, eg, MMPI, Rorschach, WAIS), per hour of the psychologist's or physician's time, both face-to-face time administering tests to the patient and time interpreting these test results and preparing the report

96110  Developmental testing; limited (eg, Developmental Screening Test II, Early Language Milestone Screen), with interpretation and report

96111  extended (includes assessment of motor, language, social, adaptive and/or cognitive functioning by standardized developmental instruments) with interpretation and report

96116  Neurobehavioral status exam (clinical assessment of thinking, reasoning and judgment, eg, acquired knowledge, attention, language, memory, planning and problem solving, and visual spatial abilities), per hour of the physician's time, both face-to-face time with the patient and time interpreting test results and preparing the report

Health and Behavior Assessment/Intervention
Health and behavior assessment procedures are used to identify the psychological, behavioral, emotional, cognitive, and social factors important to the prevention, treatment, or management of physical health problems. The focus of the assessment is not on mental health but on the biopsychosocial factors important to physical health problems and treatments. The focus of the intervention is to improve the patient's health and wellbeing utilizing cognitive, behavioral, social, and/or psychophysiological procedures designed to ameliorate specific disease-related problems.

Codes 96514-96515 describe services offered to patients who present with primary physical illnesses, diagnoses, or symptoms and may benefit from assessments and interventions that focus on the biopsychosocial factors related to the patient's health status. These services do not represent preventive medicine counseling and risk factor reduction interventions.

96514  Health and behavior intervention, each 15 minutes, face-to-face; family (with the patient present)

96515  Health and behavior intervention, each 15 minutes, face-to-face; family (without the patient present)
Evaluation and Management Codes for Diagnosis

99201  Office or other outpatient visit for the evaluation and management of a new patient, which requires these 3 key components: A problem focused history; A problem focused examination; Straightforward medical decision making. Counseling and/or coordination of care with other providers or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are self limited or minor. Physicians typically spend 10 minutes face-to-face with the patient and/or family.

99202  Office or other outpatient visit for the evaluation and management of a new patient, which requires these 3 key components: An expanded problem focused history; An expanded problem focused examination; Straightforward medical decision making. Counseling and/or coordination of care with other providers or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of low to moderate severity. Physicians typically spend 20 minutes face-to-face with the patient and/or family.

99203  Office or other outpatient visit for the evaluation and management of a new patient, which requires these 3 key components: A detailed history; A detailed examination; Medical decision making of low complexity. Counseling and/or coordination of care with other providers or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of moderate severity. Physicians typically spend 30 minutes face-to-face with the patient and/or family.

99204  Office or other outpatient visit for the evaluation and management of a new patient, which requires these 3 key components: A comprehensive history; A comprehensive examination; Medical decision making of moderate complexity. Counseling and/or coordination of care with other providers or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of moderate to high severity. Physicians typically spend 45 minutes face-to-face with the patient and/or family.

99205  Office or other outpatient visit for the evaluation and management of a new patient, which requires these 3 key components: A comprehensive history; A comprehensive examination; Medical decision making of high complexity. Counseling and/or coordination of care with other providers or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of moderate to high severity. Physicians typically spend 60 minutes face-to-face with the patient and/or family.
99211 Office or other outpatient visit for the evaluation and management of an established patient, that may not require the presence of a physician. Usually, the presenting problem(s) are minimal. Typically, 5 minutes are spent performing or supervising these services.

99212 Office or other outpatient visit for the evaluation and management of an established patient, which requires at least 2 of these 3 key components: A problem focused history; A problem focused examination; Straightforward medical decision making. Counseling and/or coordination of care with other providers or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are self limited or minor. Physicians typically spend 10 minutes face-to-face with the patient and/or family.

99213 Office or other outpatient visit for the evaluation and management of an established patient, which requires at least 2 of these 3 key components: An expanded problem focused history; An expanded problem focused examination; Medical decision making of low complexity. Counseling and coordination of care with other providers or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of low to moderate severity. Physicians typically spend 15 minutes face-to-face with the patient and/or family.

99214 Office or other outpatient visit for the evaluation and management of an established patient, which requires at least 2 of these 3 key components: A detailed history; A detailed examination; Medical decision making of moderate complexity. Counseling and/or coordination of care with other providers or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of moderate to high severity. Physicians typically spend 25 minutes face-to-face with the patient and/or family.

99215 Office or other outpatient visit for the evaluation and management of an established patient, which requires at least 2 of these 3 key components: A comprehensive history; A comprehensive examination; Medical decision making of high complexity. Counseling and/or coordination of care with other providers or agencies are provided consistent with the nature of the problem(s) and the patient's and/or family's needs. Usually, the presenting problem(s) are of moderate to high severity. Physicians typically spend 40 minutes face-to-face with the patient and/or family.
Prolonged Services
Codes 99354 99355 99356 -99357 are used when a physician provides prolonged service involving direct (face-to-face) patient contact that is beyond the usual service in either the inpatient or outpatient setting. This service is reported in addition to other physician service, including evaluation and management services at any level. Appropriate codes should be selected for supplies provided or procedures performed in the care of the patient during this period. Codes 99354 99355 99356 -99357 are used to report the total duration of face-to-face time spent by a physician on a given date providing prolonged service, even if the time spent by the physician on that date is not continuous. Code 99354 or 99356 is used to report the first hour of prolonged service on a given date, depending on the place of service. Either code also may be used to report a total duration of prolonged service of 30-60 minutes on a given date. Either code should be used only once per date, even if the time spent by the physician is not continuous on that date. Prolonged service of less than 30 minutes total duration on a given date is not separately reported because the work involved is included in the total work of the evaluation and management codes. Code 99355 or 99357 is used to report each additional 30 minutes beyond the first hour, depending on the place of service. Either code may also be used to report the final 15-30 minutes of prolonged service on a given date. Prolonged service of less than 15 minutes beyond the first hour or less than 15 minutes beyond the final 30 minutes is not reported separately. The following examples illustrate the correct reporting of prolonged physician service with direct patient contact in the office setting:

99354  Prolonged physician service in the office or other outpatient setting requiring direct (face-to-face) patient contact beyond the usual service; first hour (List separately in addition to code for office or other outpatient Evaluation and Management service)

99355  Prolonged physician service in the office or other outpatient setting requiring direct (face-to-face) patient contact beyond the usual service; each additional 30 minutes (List separately in addition to code for prolonged physician service)

Codes 99358 and 99359 are used when a physician provides prolonged service not involving direct (face-to-face) care that is beyond the usual service in either the inpatient or outpatient setting. This service is to be reported in addition to other physician service, including evaluation and management services at any level. Codes 99358 and 99359 are used to report the total duration of non-face-to-face time spent by a physician on a given date providing prolonged service, even if the time spent by the physician on that date is not continuous. Code 99358 is used to report the first hour of prolonged service on given date regardless of the place of service. It may also be used to report a total duration of prolonged service of 30-60 minutes on a given date. It should be used only once per date even if the time spent by the physician is not continuous on that date. Prolonged service of less than 30 minutes total duration on a given date is not separately reported. Code 99359 is used to report each additional 30 minutes beyond the first hour regardless of the place of service. It may also be used to report the final 15-30 minutes of prolonged service on a given date. Prolonged service of less than 15 minutes beyond the first hour or less than 15 minutes beyond the final 30 minutes is not reported separately.
Prolonged evaluation and management service before and/or after direct (face-to-face) patient care (eg, review of extensive records and tests, communication with other professionals and/or the patient/family); first hour (List separately in addition to code(s) for other physician service(s) and/or inpatient or outpatient Evaluation and Management service)

Prolonged evaluation and management service before and/or after direct (face-to-face) patient care (eg, review of extensive records and tests, communication with other professionals and/or the patient/family); each additional 30 minutes (List separately in addition to code for prolonged physician service)

Case Management Services
Physician case management is a process in which a physician is responsible for direct care of a patient, and for coordinating and controlling access to or initiating and/or supervising other health care services needed by the patient.

Medical team conference with interdisciplinary team of health care professionals, patient and/or family not present, 30 minutes or more; participation by nonphysician qualified health care professional

Telephone evaluation and management service provided by a physician to an established patient, parent, or guardian not originating from a related E/M service provided within the previous 7 days nor leading to an E/M service or procedure within the next 24 hours or soonest available appointment; 5-10 minutes of medical discussion

Telephone evaluation and management service provided by a physician to an established patient, parent, or guardian not originating from a related E/M service provided within the previous 7 days nor leading to an E/M service or procedure within the next 24 hours or soonest available appointment; 11-20 minutes of medical discussion

Telephone evaluation and management service provided by a physician to an established patient, parent, or guardian not originating from a related E/M service provided within the previous 7 days nor leading to an E/M service or procedure within the next 24 hours or soonest available appointment; 21-30 minutes of medical discussion

Therapeutic Procedures and Diagnostic Tests

Special Ophthalmological Services

Orthoptic and/or pleoptic training, with continuing medical direction and evaluation

Unlisted ophthalmological service or procedure
Physical Medicine and Rehabilitation
A manner of effecting change through the application of clinical skills &/or services that attempt to improve function. Physician or therapist required to have direct (one-on-one) patient contact.

97110  Therapeutic procedure, one or more areas, each 15 minutes; therapeutic exercises to develop strength and endurance, range of motion and flexibility

97112  Neuromuscular reeducation of movement, balance, coordination, kinesthetic sense, posture, and/or proprioception for sitting and/or standing activities

97116  Gait training (includes stair climbing)

97139  Unlisted therapeutic procedure (specify)

97150  Therapeutic procedure(s), group (2 or more individuals)
       (Report 97150 for each member of group)
       (Group therapy procedures involve constant attendance of the physician or therapist, but by definition do not require one-on-one patient contact by the physician or therapist)

97530  Therapeutic activities, direct (one-on-one) patient contact by the provider (use of dynamic activities to improve functional performance), each 15 minutes

97532  Development of cognitive skills to improve attention, memory, problem solving, (includes compensatory training), direct (one-on-one) patient contact by the provider, each 15 minutes

97533  Sensory integrative techniques to enhance sensory processing and promote adaptive responses to environmental demands, direct (one-on-one) patient contact by the provider, each 15 minutes

97535  Self-care/home management training (eg, activities of daily living (ADL) and compensatory training, meal preparation, safety procedures, and instructions in use of assistive technology devices/adaptive equipment) direct one-on-one contact by provider, each 15 minutes

97537  Community/work reintegration training (eg, shopping, transportation, money management, avocational activities and/or work environment/modification analysis, work task analysis, use of assistive technology device/adaptive equipment), direct one-on-one contact by provider, each 15 minutes

97750  Physical performance test or measurement (eg, musculoskeletal, functional capacity), with written report, each 15 minutes
97755 Assistive technology assessment (eg, to restore, augment or compensate for existing function, optimize functional tasks and/or maximize environmental accessibility), direct one-on-one contact by provider, with written report, each 15 minutes

97799 Unlisted physical medicine/rehabilitation service or procedure

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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.

This Policy Statement was formulated by a working group representing the American Academy of Optometry, American Optometric Association, the College of Optometrists in Vision Development, and the Optometric Extension Program Foundation. The following individuals are acknowledged for their contributions:

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"The Efficacy of Optometric Vision Therapy"
Report by the American Optometric Association

The purpose of this paper is to offer supporting documentation for the efficacy and validity of vision therapy for modifying and improving vision functioning. Optometry is an independent primary health care profession. Its scope of practice includes the prevention and remediation of disorders of the vision system through the examination, diagnosis, treatment, and/or management of visual efficiency and eye health as well as the recognition and diagnosis of related systemic manifestations, all of which are designed to preserve and enhance the quality of our lives and environment.

Optometrists examine the eyes and related structures to determine the presence of vision problems, eye disease, and other abnormalities. They gather information on the vision system during the optometric examination, diagnose any conditions discovered, and prescribe individual or combinations of interventions such as corrective lenses, prescription drugs, contact lenses, and vision therapy.

The American Optometric Association considers vision therapy an essential and integral part of the practice of optometry (1). Forty-three states specifically describe vision training, orthoptics, or some synonym in their definitions of the profession of optometry. The Institute of Medicine of the National Academy of Sciences (2), the Dictionary of Occupational Titles of the Employment and Training Administration (3), the U.S. Public Health Service (4), the U.S. Dept. of Labor, Employment and Training Administration (5), the National Center for Health Statistics (6), the Bureau of Labor Statistics (7), The Dept. of Health and Human Services (8) and the Association of Academic Health Centers (9) all include vision therapy in their definitions of the profession of optometry.

The theory and procedures underlying the diagnosis and management of vision disorders are taught in all the schools and colleges of optometry (9). In addition, the National Board of Examiners in Optometry (10) and the majority of the various state licensing agencies examine applicants for their theoretical and clinical knowledge in vision therapy.

What is vision therapy / visual training?

Vision therapy (also called vision training, eye training, and eye exercises) is a clinical approach for correcting and ameliorating the effects of eye movement disorders, nonstrabismic binocular dysfunctions, focusing disorders, strabismus, amblyopia, nystagmus, and certain visual perceptual (information processing) disorders. The practice of vision therapy entails a variety of non-surgical therapeutic procedures designed to modify different aspects of visual function (11). Its purpose is to cure or ameliorate a diagnosed neuromuscular, neurophysiological, or neurosensory visual dysfunction.

Vision therapy typically involves a series of treatments during which carefully planned activities are carried out by the patient under professional supervision in order to relieve the visual problem. The specific procedures and instrumentation utilized are determined by the nature and severity of the diagnosed condition. Vision therapy is not instituted to simply strengthen eye muscles, but rather is generally done to treat functional deficiencies in order for the patient to achieve optimal efficiency and comfort.

The treatment may appear to be relatively uncomplicated, such as patching an eye as part of amblyopia therapy. Or, it may require complex infrared sensing devices and computers, which monitor eye position and provide feedback to the patient to reduce the uncontrolled jumping of an eye with nystagmus. Treatment of strabismus, or turned eye, can involve complex optical and electronic
instruments or such simple devices as a penlight or a mirror. The particular procedures and instruments are dependent on the nature of the visual dysfunction and the doctor's clinical judgment.

Who can benefit?
Vision therapy is utilized for conditions, which include oculomotor dysfunctions, non-strabismus binocular coordination problems, accommodative disorders, strabismus, ambylophia, and nystagmus. These disorders and dysfunctions have a prevalence rate second only to refractive conditions, such as myopia and hyperopia, and are far greater than most ocular diseases (12-16). Graham (17) reports overt strabismus in almost 4% of over 4,000 school children. Among clinical cases, Fletcher and Silverman (18) found 8% of 1,100 to be strabismic. Other studies have generally found rates between these two levels (19).

The reported prevalence of amblyopia varies somewhat depending upon the specific criteria used, with low estimates at approximately 2% (20), and ranging up to 8.3% in the Rand HIE report (21), and also in the study by Ross, Murray and Steed (22). The National Society to Prevent Blindness estimates 127,000 new cases of amblyopia per year in the United States (23).

Non-strabismic binocular coordination anomalies have an even higher incidence. Convergence insufficiency is reported in 15% of adults by Duke-Elder (24). Graham (15) reports high heterophorias in over 13%, while Hokoda (25) found fusion or accommodative problems in 21% of a non-presbyopic clinical population. The recently developed New York State Vision Screening Battery probes oculomotor, binocular, accommodative, and visual perceptual function. Testing of 1,634 children with this battery revealed a failure rate of 53% (27).

When "special" populations are considered, the incidence of ocular coordination and visual processing problems becomes very high. Among children who are reading disabled, as many as 80% show deficiency in one or more basic visual skills (26). Grisham (28) has recently reported that children with reading problems showed greater than a 50% prevalence of visual deficiencies in accommodation, fusional vergence or gross convergence, compared to their normally achieving peers. Cerebral palsied patients show an incidence of strabismus as high as 50%. (29,30)

The hearing impaired (31,32), emotionally impaired (33), and developmentally disabled (34,35) also demonstrate unusually high prevalence rates of visual problems. This is of particular importance because almost 11% of the school population has been identified as having one of the above handicapping conditions (36).

Our culture continues to foster higher educational standards and produces work related tasks, which are increasingly visually demanding. This is evident in the difficulties encountered by video display terminal (VDT) operators. A majority of surveys have shown that more than 50% of VDT workers report they experience some type of ocular discomfort or blurring (37,38). The National Academy of Sciences (39) concluded that the oculomotor and binocular vision changes noted at video display terminals are similar to those that occur during standard nearpoint tasks.

What are oculomotor skills and oculomotor dysfunctions? [Tracking and eye movements]
Clear vision occurs when a precisely focused image of the object of regard is centered on the fovea and when accurate eye movements maintain this relationship. The components of the oculomotor or eye movement system include fixations, vestibular and optokinetic movements, saccades, and pursuit movements (40).
Each one of the components has its own distinct and different neuroanatomical substrate and functional neurophysiology (41). There are times when several components interact. An example of this occurs when the pursuit system interacts with other systems to create the ocular stabilization or position maintenance system (42) to hold the eyes steady.

Nystagmus, a to-and-fro involuntary movement of the eyes, is caused by disturbances in the mechanisms that hold images steady (position maintenance) and may be exhibited in over a dozen different clinical patterns of movement (43). This loss of ability to maintain central fixation and eye position with the foveal area is one of the characteristics of pathological nystagmus.

Patients with amblyopia represent another class of individuals with impaired central fixational ability. Lack of ability to steadily fixate with the fovea is accompanied by reduced visual acuity and is commonly observed in anisometropic and especially strabismic amblyopes. Their characteristics have been described extensively (44-46). Abnormal saccadic and pursuit eye movements are exhibited in strabismic amblyopes and appear to be related to dysfunctions in the monocular motor control center for position maintenance (47-49).

When nystagmus or nystagmoid movements are present, the clinical identification of fixation pauses, regressions, and progressions during reading become difficult. The erratic eye movements interfere with efficient visual information processing (50,51).

During reading, the function or behavior of the eye movement system involves more than the physical movement of the eyes alone. This functional component involves the integration of the eye movements with higher cognitive processes including attention, memory, and the utilization of the perceived visual information (52).

Clinical and research evidence strongly suggest that many children and adults who have difficulty with both reading and non-reading visual information processing tasks exhibit abnormal eye movements (53-66).

Numerous studies (67-69) indicate that there is a distinct difference in the oculomotor (eye movement) patterns between children with reflective strategies or styles of processing visual information and those with impulsive styles. There is evidence that children and adults with attentional difficulties and hyperactivity exhibit inefficient eye movement patterns that interfere with visual information processing (70-74).

In summary, there are a variety of dysfunctions in the oculomotor system. Their clinical manifestations are quite often related to problems with functional visual performance and the efficient processing of information.

**Can eye movement skills be modified?**

Improvement in eye movement control and efficiency has been reported in individual case studies following vision therapy (75-77).

Wold et al (78) reported on 100 consecutive optometric vision therapy patients whose eye movement skills were rated on the Heinsen-Schrock Performance Scale (79). This is a 10-point observational scale for scoring saccadic and pursuit eye movement performance. Only 6% of the children passed the eye movement portion prior to therapy. Post-therapy reevaluation revealed that 96% of the children were able to pass.

Heath (80) discussed the influence of ocular-motor proficiency on reading. Sixty third and fourth graders who scored below the 40th percentile on the Metropolitan Reading Test and failed the ocular pursuit subtest of the Purdue Perceptual Motor Survey were divided into control and experimental
groups. Results of the study showed significant improvement in ocular pursuit ability for the experimental compared to the control group. In addition, those children receiving therapy were found to score significantly better on a post-test of the Metropolitan Reading Test.

Fujimoto et al (81) compared the use of various techniques for saccadic fixation training. In this controlled clinical trial, both of the treated groups showed a statistically significant improvement in speed and accuracy of eye movements compared to an untreated control group.

A controlled study of pursuit eye movements was conducted by Busby (82) in an enhancement program for special education students. The subjects were rated on their ability to maintain fixation on a moving target. The rating procedure was shown to have a high interrater reliability. The results showed statistically significant improvement by the experimental group in pursuit eye movement and persistence of the therapeutic effect on retesting at a 3-month interval after conclusion of the therapy.

Punnett and Steinhauer (83) conducted a controlled study investigating the effects of eye movement training with and without feedback and reinforcement. There were clear post-training differences between the eye movement skills of the control and experimental group of reading disabled students. This demonstrated that the use of reinforcement in training oculomotor facility could improve those skills. There was an improvement in reading performance following the oculomotor training as well. Similar results demonstrating the trainability of eye movements have been obtained in studies employing behavior modification and reinforcement (84,85).

Modifying and improving the oculomotor ability to maintain central fixation and eye position in nystagmus patients has been reported over the years in various studies.

The use of after-images (86,87) and Emergent Textual Contour training to provide visual biofeedback regarding eye position and stability has had some success in improving fixational ability. Orthoptics, as well as verbal feedback techniques, have helped some patients in reducing their nystagmus (88-90).

More recently, the application of eye movement auditory biofeedback in the control of nystagmus has shown positive results. Ciufredda et al (91) demonstrated a significant reduction in the amplitude and velocity of eye movements in congenital nystagmus patients. Vision was improved, and positive cosmetic and psychological changes were reported as well. Abadi et al (92) reported reduction in nystagmus and improvement of contrast sensitivity after auditory biofeedback training. In addition to nystagmus, the use of auditory biofeedback has been successfully used in expanding the range of eye movement in gaze limitations (93).

There is evidence (94) that large and unsteady eye movements occur in the eyes of amblyopic patients during attempted monocular fixation. A number of studies report the successful treatment of amblyopia resulting in improved vision and oculomotor control (95-98). Occlusion therapy, a passive procedure, has been a standard and relatively successful approach for many years (99-111). However, there are individuals that either do not or cannot respond to occlusion therapy. There is evidence that occlusion with active vision therapy is more effective than occlusion alone (112). Pleoptics (113,114) is an active vision therapy procedure in which patients receive visual feedback about their position of fixation and direction of gaze. These procedures are designed to correct the positional fixation problem and thereby improve the vision of the patient. Pleoptics has been used successfully in treating eccentric fixation in individuals not responding to regular occlusion therapy (115-118).

Vision therapy for amblyopia incorporates a broad spectrum of procedures, including occlusion techniques, pleoptic techniques, and visual-motor spatial localization feedback techniques using after-images and entoptic phenomena (45,79) with a high success rate (119-124).
The question of age and its influence on the efficacy of amblyopia therapy has been addressed in a number of studies and reviews. These indicate that a significant improvement in oculomotor and vision function can be achieved even in adulthood (125). It is clear from the evidence that amblyopia and its oculomotor components can be successfully treated with occlusion and active vision therapy for a wide range of patients of all ages.

Studies have demonstrated that it is possible to change and improve inefficient and inadequate visual information processing strategies and visual attention patterns. Many of these changes have been accompanied by enhanced eye movements (126-138).

A number of techniques used to improve these poor visual scanning and attention problems in children and adults, e.g., tachistoscopic procedures, pursuit and fixation activities, and eye-hand coordination techniques have been described and utilized professionally for many years (79,139-143).

What are accommodative dysfunctions and their remediation? [Focusing]

Accommodative (focusing) dysfunctions have been described in detail (144-146) in numerous sources and are clinically classified as accommodative spasm, accommodative infacility, accommodative insufficiency, and ill-sustained accommodation. There are also clearly defined syndromes associated with accommodative dysfunctions (147-155).

The literature discusses many symptoms common to accommodative dysfunctions as a group. These have been described as reduced nearpoint acuity, a general inability to sustain nearpoint activity, asthenopia, excessive rubbing of the eyes, headaches, periodic blurring of distance vision after prolonged near activities, periodic double vision at near, and excessive fatigue at the end of the day (152,154,156-160).

The efficacy of applying vision therapy procedures in improving accommodative functioning has considerable basic science and clinical research support. Studies have shown that accommodative findings, although under autonomic nervous system control, can respond to voluntary command (161-163) and can be conditioned (164). These studies demonstrate that voluntary control of accommodation can be controlled, trained, and transferred.

Once pathological or iatrogenic causes have been eliminated, the treatment of accommodative deficiencies includes plus lenses for near work and vision therapy aimed at improving the functioning of the accommodative mechanism (165-168). Levine et al (156) established baseline statistics for diagnostic accommodation findings which differentiate symptomatic from asymptomatic patients. Their findings were in close agreement with a similar study by Zellers and Rouse (152). The significant element of these studies is the relationship between symptoms and inadequate accommodative facility.

Wold (78) reported on 100 children who had undergone accommodative vision therapy procedures. These clinically selected cases showed an 80% rate of improvement in accommodative amplitude and 76% in accommodative facility using a pre- and post-treatment ordinal criterion referenced scaling method. These results are similar to those reported by Hoffman and Cohen (168) a in which 70 patients were successfully treated for accommodative insufficiency and infacility based on clinical findings.

Liu et al (169) investigated accommodative facility disorders by objective laboratory methods using a dynamic optometer with an infrared photomultiplier. They objectively identified the dynamic aspects of the accommodative response that were improved by vision therapy. Young adults with symptoms related to focusing difficulties were treated by procedures commonly used in orthoptic or vision
therapy practice. Significant improvement in their focus flexibility occurred and these changes correlated with marked reduction or elimination of symptoms. Standard clinical measures of accommodative facility were found to correlate well with the more objective measures.

Bobier and Sivak (170) replicated the work of Liu et al (169) using a greater degree of recording precision with a dynamic photorefractor (television camera and monitor with light-emitting diodes). They found no evidence of regression in improved focusing flexibility during an 18-week interval after cessation of training. The subjects' symptoms also abated as accommodative function normalized. Hung et al (171) demonstrated the efficacy of accommodation, vergence, and accommodative vergence orthoptic therapy using a dynamic binocular simulator. This experiment objectively validated optometric vision therapy procedures through use of photoelectric eye movement recording systems and an optometer.

There is a higher prevalence of accommodative insufficiencies and infacilities in persons with cerebral palsy (172). Duckman demonstrated that accommodative abilities can be modified and improved in a cerebral palsy population using vision therapy techniques (173,174).

Since accommodative changes take place when looking from near to far and back to near, Haynes and McWilliams (175) investigated the effects of training this near-far response on school age and college students. Their results indicate that this near-far response ability is trainable and can be improved with vision therapy.

Weisz (176) has shown that improvement in accommodative ability transfers to improvement in near point task performance. In a double blind clinical study following vision therapy, her experimental group was found to improve significantly in accuracy of performance on a Landolt-C resolution task as compared with the controls.

Hoffman (160) investigated the impact of accommodative deficiencies on visual information processing tasks. He compared the results of vision therapy for the accommodative problems in an experimental and control group of school age children. This study indicated that by improving accommodative skills, there was a concomitant improvement in his subject's visual perceptual skills.

Recently, in a detailed series of analyses involving retrospective studies, Daum (177-180) investigated the full range of accommodative disorders. He used a stepwise discriminant analysis of regression variables in patient care records, to establish a model to determine the length of treatment necessary, and to predict the success of treatment for accommodative disorders.

In conclusion, these studies demonstrate that accommodative disorders can cause significant discomfort, inefficiency or avoidance of nearpoint tasks. They further demonstrate that when diagnosed and treated appropriately, these dysfunctions may be ameliorated or eliminated through vision therapy.

What are binocular vision disorders and their remediation? [Eye coordination and alignment]

Normal and efficient binocular vision is based on the presence of motor alignment and coordination of the two eyes and sensory fusion. The range of binocular disorders extends from constant strabismus with no binocular vision present to non-strabismic binocular dysfunctions, e.g., convergence insufficiency (146).

The first category is non-strabismic binocular disorders. Standard techniques and diagnostic criteria in the assessment of the vergence system and binocular sensory fusion ability have been described in detail elsewhere (181-185).
Patients exhibiting non-strabismic anomalies of binocular vision quite often report feeling ocular discomfort and asthenopia (186). Some of the patient complaints include eyestrain, soreness of the eyes, frontal and occipital headaches, and ocular fatigue which result in an aversion to reading and studying (187,187a).

Vision therapy has long been advocated as a primary intervention technique for the amelioration of non-strabismic anomalies of binocular vision (188-194). Suchoff and Petito (l46) have concluded that vision therapy for these conditions is directed toward several therapeutic goals: First, to increase the efficiency of the accommodative system so as to facilitate a more effective interaction between this system and the vergence system. Second, to maximize the functioning of the fusional vergence system (i.e., divergence and convergence) and the binocular sensory system. Since the training of accommodation has been covered in the previous section, the remainder of this section will be devoted to the evidence of the modifiability of the vergence system.

Clinical vision therapy procedures are intended to improve the patient's ability to compensate for fusional stress which may result in asthenopia, headache, and/or diplopia. A number of studies will be reviewed showing that improvements can be made in fusional vergence skills by vision therapy procedures.

The clinical assumption that fusional vergences can be trained is not a new one. Over 50 years ago, Berens et al advocated the use of this aspect of orthoptics for all non-strabismic anomalies of binocular vision (195). Within the past several years a number of investigators have sought to determine experimentally whether the clinical assumption of the trainability of the vergence system was a valid one.

Daum (l96) prospectively studied a group of 35 young adults. The results of daily vision therapy showed statistically significant improvement in convergence ranges. The gains persisted on post-testing 24 weeks after completion of the therapy program. The conclusion was that relatively short periods of training can provide long-lasting increases in vergence ability.

Daum (l97) conducted a retrospective study of 110 patients who received treatment for convergence insufficiency. The patients were classified according to the effectiveness of the treatment program into total success, partial success or no success categories. Post training diagnostic findings and changes in patient symptomatology were used to define the classification categories. A comparison of pre- and post-training findings revealed statistically significant improvement. In a companion report, (198) a portion of the above data (l97) was used to investigate and identify which of 14 common diagnostic measures best predicted the success of the vision training program. These measures were 75% accurate in predicting efficacy of the vision therapy program.

Another study (l99) utilized tonic and phasic vergence training and demonstrated impressive changes in convergence and divergence abilities. The 34 subjects were randomly assigned in a double crossover design, wherein subjects served as their own controls, and learning effects were controlled.

In another study, Veagan used a motor-driven prism stereoscope (ophthalmic ergograph) to train divergence and convergence (200). Forty-seven adults were divided into convergence and divergence experimental and control groups. The findings led Veagan to conclude that sustained divergence and convergence training showed large and significant immediate and stable improvement in the trained vergence ranges of the experimental groups.

Veagan and McMonnies (201) utilized a recording device that measured eye movements during vergence activity. They were able to objectively demonstrate that convergence training with prism-induced changes resulted in sustained improvement of convergence ability. In a companion study, Veagan (202) demonstrated substantial long-lasting gains in convergence and divergence ability from both tonic and phasic vergence training.
Pantano (203) studied over 200 subjects with convergence insufficiency who underwent vision therapy and evaluated them 2 years later. The majority remained asymptomatic with normal clinical findings. Those subjects who had learned to control convergence and accommodation together had the best success.

Grisham (204, 205) used vergence latencies, velocity, and step vergence tracking rate by measuring them objectively with infra-red eye monitor recordings; He reported improved step vergence tracking after vision therapy of 4 to 8 weeks.

Cooper and Duckman, in their extensive review of convergence insufficiency, stated that 95% of the patients reported in these studies responded favorably to vision therapy for this binocular disorder (206).

Cooper and Feldman (207) investigated the role and clinical use of operant conditioning in vision therapy based on random dot stereograms (RDS). They demonstrated that response-contingent positive reinforcement, immediate feedback, and preprogrammed systematic changes during discrimination learning improves convergence ability. Control and experimental groups were formed with subjects matched in baseline convergence ability and randomly assigned to each group. The convergence ranges of the experimental group improved significantly while there were little or no increases for the control group.

Cooper et al (208) conducted a controlled study of vision therapy and its relationship to symptomatology for a group of patients with convergence insufficiency. A vision therapy program of fusional vergence activities was administered in a matched-subjects control group crossover design to reduce placebo effects. They used a written assessment scale for rating asthenopia in terms of discomfort and/or fatigue, and conclusively demonstrated that the symptoms were eliminated or relieved. Clinical findings also improved, corroborating the subjective assessments.

Dalziel (209) reported on 100 convergence insufficiency patients who did not meet Sheard's criterion, and were given a program of vision therapy. After vision therapy, clinical findings were again assessed and 84% of the patients successfully met Sheard's criterion. Eighty-three percent of the patients reported they had symptoms of discomfort or loss of efficiency prior to treatment. Only 7% reported these symptoms after therapy. The post-training group who failed to meet Sheard's criterion correlated well with those still reporting subjective symptoms.

Wold (78) reported on the results of 100 patients who underwent vision therapy. Based on standard clinical tests, only 25% of the children had adequate binocular sensory fusion prior to vision therapy and 9% had adequate binocular fusional vergence. Post-training evaluation showed 96% had achieved appropriate sensory fusion findings and 75% demonstrated adequate fusional vergence ranges.

Wittenberg et al (210), along with Saladin and Rick (211), used slightly different techniques and demonstrated that stereopsis thresholds could be improved in normal subjects. In Dalziel's (212) study there was a statistically significant improvement in stereopsis after vision therapy.

**Strabismus**

Another category of binocular vision disorders is strabismus. Strabismus may be described as a misalignment of the eyes (referred to as crossed-eyes, eye turn, weak eye muscle, etc.). Many forms and variations of strabismus exist, depending upon direction and amount of the eye turn, the number of affected nerves or muscles, and the degree to which it is associated with reduced vision. The clinical characteristics and diagnostic criteria have been described in detail (212-215).
Numerous comprehensive reviews and studies relating to the success of vision therapy for strabismus exist. Flom (216) reviewed studies and used detailed multifactorial analysis. This revealed an overall functional cure rate for strabismics receiving vision therapy of 50%, with esotropia less responsive than exotropia. Ludlam (217) evaluated a sample of 149 unselected strabismics who received vision therapy and determined a 73% overall success rate utilizing the rigorous criteria established by Flom.

In a longitudinal follow-up study of this population, Ludlam and Kleinman (218) found 89% of these patients had retained their functional cure (binocular vision present). The long-term overall success rate of vision therapy was calculated at 65%. If one adopts a less stringent definition of "success," such as the cosmetic criterion of "straight-looking eyes" employed in some less precise studies, the success rate increases to 96% of the re-analyzed population, or a 71% long-term success rate.

Flax and Duckman, (219) in their literature review of treatment for strabismus, found strong support for the efficacy of vision therapy for strabismus. They gathered data from numerous studies, each of which met rigorous criteria for success, and reported an overall success rate of 86%.

In a controlled study of 100 cases (220) Gillan reported that 76% of strabismic patients attained a cosmetic cure with orthoptics. None of those in the control group, treated with glasses alone, showed a spontaneous cure.

In a series of controlled studies conducted by Guibor (221-223), 50% of the experimental group achieved alignment of the eyes with glasses and vision therapy (orthoptics) as compared with only 12.5% of the control group who received glasses without vision therapy.

More recently, Ziegler et al (224) conducted a literature review of the efficacy of vision therapy for strabismus. An important contribution is their comparative analysis of published papers using the functional cure criteria defined by Flom. They noted the study conducted by Etting (225) in which he reported a 65% overall success rate in patients with constant strabismus (57% of esotropes and 82% of exotropes), 89% success rate with intermittent strabismus (100% of esotropes and 85% of exotropes), and a 91% success rate when retinal correspondence was normal.

In a study designed to investigate the effectiveness of vision therapy utilizing computer generated stereo graphics for subjects with strabismus, Kertesz and Kertesz (226) reported a 74% success rate in 57 strabismics. They combined traditional vision therapy techniques with computer generated stimuli as successfully applied by CooperO7 to the remediation of non-strabismic binocular vision anomalies. The functional cures obtained persisted on long-term follow-up visits for a period of up to 5 years.

Sanfilippo and Clahane (227) designed a prospective study of the results of orthoptic therapy for divergent strabismus (exotropia). Of the patients who completed the study, 64.5% attained a functional cure upon completion, and 51.7% retained this status on an average follow-up interval of 5 years and 4 months.

In two studies on the effectiveness of orthoptics (vision therapy) for intermittent and constant exotropes, Altizer (228) and Chryssanthou (229) found the majority of their patients had significant improvement in clinical findings as well as relief of symptoms.

Goldrich (230) reviewed records of patients completing a vision therapy program for exotropia of the divergence excess type. Of the patients reviewed, 71.4% attained a functional cure following approximately 5 months of standardized sequential therapy procedures used in-office as well as at home.
Several studies have applied biofeedback in vision therapy to assist in training patients to align their eyes (231-236). The use of biofeedback to enhance traditional vision therapy, provide reinforcement, and increase motivation was supported in these studies.

Strabismic patients exhibiting esotropia with anomalous correspondence tend to be the most difficult to successfully treat. The use of more aggressive and sophisticated techniques for vision therapy has been reported with a better success rate for anomalous correspondence and esotropia than earlier studies (237,238). In general, the treatment period tends to be longer for anomalous correspondence and esotropia than other types of strabismus.

Summary and conclusion

Vision is not simply the ability to read a certain size letter at a distance of 20 feet. Vision is a complex and adaptable information gathering and processing system which collects, groups, analyzes, accumulates, equates, and remembers information.

In this review, some of the essential components of the visual system and their disorders which can be physiologically and clinically identified. i.e., the oculomotor, the accommodative, and the fusional vergence systems have been discussed. Any dysfunctions in these systems, can lessen the quality and quantity of the initial input of information into the visual system.

Deficiencies in one or more of these visual subsystems have been shown to result in symptoms, such as blurred or uncomfortable vision or headaches, or behavioral signs such as rubbing of the eyes, eyes turning inward or outward, reduced job efficiency or reading performance, or simply the avoidance of near point tasks. In addition, these signs/symptoms may contribute to reducing a person's attention and interest in near tasks. The goal of vision therapy is to eliminate visual problems, thereby reducing the frequency and severity of the patient's signs and symptoms. Vision therapy should only be expected to be of clinical benefit to patients who have detectable visual deficiencies.

In response to the question, "How effective is vision therapy in remediating visual deficiencies?," it is evident from the research presented that there is sufficient scientific support for the efficacy of vision therapy in modifying and improving oculomotor, accommodative, and binocular system disorders, as measured by standardized clinical and laboratory testing methods, in the majority of patients of all ages for whom it is properly undertaken and employed.

The American Optometric Association reaffirms its long-standing position that vision therapy is an effective therapeutic modality in the treatment of many physiological and information processing dysfunctions of the vision system. It continues to support quality optometric care, education, and research and will cooperate with all professions dedicated to providing the highest quality of life in which vision plays such an important role (1).

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