Orthoptic Training for the Treatment of Vision or Learning Disabilities

**Policy**
Blue Cross and Blue Shield of Kansas City (Blue KC) will provide coverage for orthoptic training when it is determined to be medically necessary because the criteria shown below are met.

Note: Orthoptic training may be excluded in some contracts. Verify benefits prior to review of Medical Necessity.

**When Policy Topic is covered**
Office-based vergence/accommodative therapy may be considered *medically necessary* for patients with symptomatic convergence insufficiency if, following a minimum of 12-weeks of home-based therapy (e.g., push-up exercises using an accommodative target; push-up exercises with additional base-out prisms; jump to near convergence exercises; stereogram convergence exercises; recession from a target; and maintaining convergence for 30-40 seconds), symptoms have failed to improve.

**When Policy Topic is not covered**
Orthoptic eye exercises are considered *not medically necessary* for the treatment of learning disabilities.

Orthoptic eye exercises are *investigational* for all other conditions, including but not limited to the following:
- Slow reading
- Visual disorders other than convergence insufficiency

**Considerations**
This policy addresses office-based orthoptic training. This policy does not address standard vision therapy with lenses, prisms, filters or occlusion (i.e., for treatment of amblyopia or acquired esotropia prior to surgical intervention).

Up to 12 sessions of office-based vergence/accommodative therapy, typically performed once per week, has been shown to improve symptomatic convergence
insufficiency (CI) in children aged 9 to 17 years. If patients remain symptomatic after 12 sessions of orthoptic training, alternative interventions should be considered.

A diagnosis of convergence insufficiency is based on asthenopic symptoms (sensations of visual or ocular discomfort) at near point combined with difficulty sustaining convergence.

Convergence insufficiency and stereoacuity is documented by:
- Exodeviation at near at least 4 prism diopters greater than at far; **AND**
- Insufficient positive fusional vergence at near (PFV < 15 prism diopters blur or break) on PFV testing using a prism bar; **AND**
- Near point of convergence (NPC) break of > 6 cm; **AND**
- Appreciation by the patient of at least 500 seconds of arc on stereoacuity testing.

**Description of Procedure or Service**

<table>
<thead>
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<th>Populations</th>
<th>Interventions</th>
<th>Comparators</th>
<th>Outcomes</th>
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<tr>
<td>Individuals:</td>
<td>Interventions of interest are:</td>
<td>Comparators of interest are:</td>
<td>Relevant outcomes include:</td>
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<td>With convergence insufficiency</td>
<td>Office-based orthoptic training</td>
<td>Home-based vision exercises</td>
<td>Symptoms</td>
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<td>Functional outcomes</td>
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<td>With learning disabilities</td>
<td>Office-based orthoptic training</td>
<td>Standard therapy without orthoptic training</td>
<td>Functional outcomes</td>
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</table>

Orthoptic training refers to techniques designed to correct accommodative and convergence insufficiency (or convergence dysfunction). Regimens may include push-up exercises using an accommodative target of letters, numbers, or pictures; push-up exercises with additional base-out prisms; jump-to-near convergence exercises; stereogram convergence exercises; and/or recession from a target. In addition to its use to treat convergence insufficiency, orthoptic training has been investigated for treating attention deficient disorders, dyslexia, and dysphasia.

For individuals who have convergence insufficiency who receive office-based orthoptic training, the evidence includes a TEC Assessment, several randomized controlled trials, and nonrandomized comparative studies. Relevant outcomes are symptoms and functional outcomes. The most direct evidence on office-based orthoptic training comes from a 2008 randomized controlled trial that demonstrated office-based vision or orthoptic training improves symptoms of convergence insufficiency in a greater percentage of patients than a home-based vision exercise program consisting of pencil push-ups or home computer vision exercises. Subgroup analyses of this randomized controlled trial demonstrated improvements in accommodative vision, parental perception of academic behavior, and specific convergence insufficiency-related symptoms. However, in this trial, as in others, the home-based regimen did not include the full range of home-based
therapies, which may have biased results in favor of the orthoptic training. The evidence is insufficient to determine the effects of the technology on health outcomes.

Clinical input obtained in 2011 supported the use of office-based orthoptic training when home-based therapy has failed. Therefore, orthoptic training may be considered medically necessary in patients with convergence insufficiency whose symptoms have failed to improve with a home-based treatment trial of at least 12 weeks. Home-based therapy should include push-up exercises using an accommodative target, push-up exercises with additional base-out prisms, jump-to-near convergence exercises, stereogram convergence exercises, recession from a target, and maintaining convergence for 30 to 40 seconds.

For individuals who have learning disabilities who receive office-based orthoptic training, the evidence includes a TEC Assessment as well as nonrandomized comparative and noncomparative studies. Relevant outcomes are functional outcomes. A 1996 TEC Assessment did not find evidence that orthoptic training improved outcomes for individuals with learning disabilities. Since that publication, peer-reviewed studies have not directly demonstrated improvements in reading or learning outcomes with orthoptic training. At least two earlier studies that addressed other types of vision therapies have reported mixed improvements in reading. The evidence is insufficient to determine the effects of the technology on health outcomes.

**Background**

Convergence insufficiency (CI) is a binocular vision disorder in the ability for the eyes to turn inward towards each other (e.g., when looking at near objects). Symptoms of this common condition may include eyestrain, headaches, blurred vision, diplopia, sleepiness, difficulty concentrating, movement of print, and loss of comprehension after short periods of reading or performing close activities. Prism reading glasses, home therapy with pencil push-ups, and office-based vision therapy and orthoptics have been evaluated for the treatment of convergence insufficiency.

Some learning disabilities, particularly those in which reading is impaired, have been associated with deficits in eye movements and/or visual tracking. For example, many dyslexic persons may have unstable binocular vision and report that letters may appear to move around, causing visual confusion.

Orthoptic training refers to techniques designed to correct accommodative and convergence dysfunction/convergence insufficiency, which may include push-up exercises using an accommodative target of letters, numbers, or pictures; push-up exercises with additional base-out prisms; jump-to-near convergence exercises; stereogram convergence exercises; and recession from a target. A related but distinct training technique is behavioral or perceptual vision therapy, in which eye movement and eye-hand coordination training techniques are used to improve learning efficiency by improving visual processing skills.
In addition to its use in the treatment of accommodative and convergence dysfunction, orthoptic training is being investigated for the treatment of attention deficient disorders, dyslexia, dysphasia, and reading disorders.

**Rationale**
This evidence review was created in July 1996 and has been updated regularly with searches of the MEDLINE database. The most recent literature update was performed through January 9, 2019.

This review was informed by a 1996 TEC Assessment, which found that the available evidence did not support the conclusion that orthoptic training improves reading comprehension. Specifically, the study populations in the available published reports were not well-defined, and while the subjects were reported to be “poor readers,” it could not be determined whether they had a verifiable diagnosis of a reading disorder. Also, objective outcomes of reading comprehension were lacking in the published studies.

Evidence reviews assess the clinical evidence to determine whether the use of a technology improves the net health outcome. Broadly defined, health outcomes are length of life, quality of life, and ability to function—including benefits and harms. Every clinical condition has specific outcomes that are important to patients and to managing the course of that condition. Validated outcome measures are necessary to ascertain whether a condition improves or worsens; and whether the magnitude of that change is clinically significant. The net health outcome is a balance of benefits and harms.

To assess whether the evidence is sufficient to draw conclusions about the net health outcome of a technology, 2 domains are examined: the relevance and the quality and credibility. To be relevant, studies must represent one or more intended clinical use of the technology in the intended population and compare an effective and appropriate alternative at a comparable intensity. For some conditions, the alternative will be supportive care or surveillance. The quality and credibility of the evidence depend on study design and conduct, minimizing bias and confounding that can generate incorrect findings. The randomized controlled trial (RCT) is preferred to assess efficacy; however, in some circumstances, nonrandomized studies may be adequate. RCTs are rarely large enough or long enough to capture less common adverse events and long-term effects. Other types of studies can be used for these purposes and to assess generalizability to broader clinical populations and settings of clinical practice. The following is a summary of the key literature to date.

**Orthoptic Training for Convergence Insufficiency**

**Systematic Reviews**
At least 2 systematic reviews have addressed the role of orthoptic training for convergence insufficiency. A 2005 systematic review assessing the applicability and efficacy of eye exercises found that small controlled trials and a large number
of cases supported their use in the treatment of convergence insufficiency. A Cochrane review by Scheiman et al (2011) evaluated the evidence on nonsurgical interventions for convergence insufficiency. Six trials (3 in children, 3 in adults) with a total of 475 participants were included. The 3 trials in children (described next) and one of the trials in adults were conducted by the multicenter Convergence Insufficiency Treatment Trial (CITT) Study Group. Reviewers concluded that current research suggested outpatient vision therapy (orthoptics) was more effective than home-based pencil push-ups or home-based computer vision therapy for children. In the adult population, evidence of the effectiveness of various nonsurgical interventions was less consistent. A number of gaps in current knowledge, including whether different therapy combinations or duration of therapy might be more effective, were identified.

Randomized Controlled Trials
In 2008, the CITT Study Group reported on an RCT of 221 children (age range, 9-17 years) with symptomatic convergence insufficiency. The children were randomized to 1 of 4 treatment conditions: home-based pencil push-ups; home-based computer vergence and accommodative therapy and pencil push-ups; weekly office-based vergence and accommodative therapy with home exercises; or weekly office-based placebo exercises with home reinforcement of the placebo exercises. Symptoms were evaluated by the Convergency Insufficiency Symptom Survey (CISS), a 15-item survey with a final score ranging from 0 (least symptomatic) to 60 (most symptomatic). Scores of less than 16 were considered “asymptomatic,” and a decrease of 10 or more points was considered “improved.” Near point convergency (NPC) and positive fusional vergency (PFV) were used as secondary outcomes. A “normal” NPC was defined as less than 6 cm, and an “improved” NPC was defined as an improvement (decrease) of more than 4 cm from baseline to follow-up. To be classified as having “normal” PFV, a patient had to pass Sheard’s criteria (ie, PFV blur, or if no blur, then a break value at least twice the near phoria magnitude) and have a PFV blur/break of more than 15 prism diopters (∆). Improvement in PFV was defined as an increase of 10Δ or more from baseline to follow-up.

On blinded evaluation after 12 weeks of treatment (99% completion rate), 73% of patients treated with office-based therapy were considered to be successful or improved on the composite outcome of CISS, NPC, and PFV, as defined above, compared with 43%, 33%, and 35% of those treated with home pencil push-ups, home computer exercise, or placebo, respectively. For office-based orthoptic training, the average CISS score improved from 30 at baseline to 15 at the final assessment, which was significantly better than the other 3 groups. The group practicing pencil push-ups at home improved from an average CISS score of 28 to 21 at 12 weeks; similar scores were obtained for the home computer exercise group (from 32 to 25) and the office-based placebo group (from 30 to 22). At the completion of the 12-week treatment programs, patients were classified as either asymptomatic (CISS score <16) or symptomatic (CISS score ≥16). Symptomatic patients were offered alternative treatment at no cost. Asymptomatic patients were assigned to home maintenance therapy for 15 minutes a week for the initial 6 months after treatment. At 1-year follow-up, 88% of the 32 children who
were asymptomatic at the completion of the 12-week office-based treatment program remained successful or improved; 67% of the home-based pencil push-up group remained successful or improved. A limitation of this RCT is that near point exercises generally consisted of multiple therapies, making it difficult to correlate outcomes with specific modalities.

Following the publication of the main results of the CITT trial, a number of reanalyses were performed. The effectiveness of these forms of vision therapy (pencil push-ups, home computer exercises, office-based vision therapy) in improving accommodative amplitude in 164 (74%) of the 221 children who had coexisting accommodative dysfunction with convergence insufficiency was reported by the CITT Study Group in 2011. Of the 164 children with accommodative dysfunction, 63 (29%) had a decreased amplitude of accommodation, 43 (19%) had decreased accommodative facility (latency and speed of the accommodative response), and 58 (26%) had both. After 12 weeks of treatment, increases in amplitude of accommodation were significantly greater in the 3 active groups (range, 5.8–9.9 diopters [D]) compared with office-based placebo therapy (2.2 D). The percentage of children who no longer showed decreased amplitude of accommodation was 91.4% for office-based therapy, 79.3% for home computer therapy, 74.1% for home pencil push-ups, and 35.7% for placebo treatment. Accommodative facility improved by 9.4 cycles per minute (cpm) for office-based therapy, 7.0 cpm for home computer-based therapy, 5.0 cpm for home pencil push-ups, and 5.5 cpm for office-based placebo therapy; only the office-based therapy showed significantly greater improvement than office-based placebo therapy. One year after completion of therapy, recurrence of decreased accommodative amplitude was found in 5 (11%) of 44 children and in 4 (12.5%) of 32 children who did not undergo subsequent treatment.

The effect of successful treatment for convergence insufficiency on parents’ perception of academic behavior in the 218 children who completed this trial was also reported by the CITT group (2012). Participants were classified as successful (n=42), improved (n=60), or nonresponder (n=116) after 12 weeks of treatment. This study used the Academic Behavior Survey (ABS), a 6-item questionnaire (scoring range, 0-24 points) developed by the CITT Study Group to quantify parents’ perceptions of the frequency of adverse behaviors exhibited by children when reading or performing school work (5 questions) and overall parental concern about the child’s academic performance (1 question). Mean ABS score at baseline was 12.85 points, which improved by 4.0, 2.9, and 1.3 points in children classified as successful, improved, and nonresponder, respectively. Improvements in ABS scores correlated with reductions in symptom level (r=0.29), but not changes in measures of convergence. Although the ABS has not been validated outside of this study, the effect sizes in the successful and improved groups were 0.9 and 0.7, representing a clinically meaningful change.

In 2012, the CITT Study Group reported on a post hoc analysis of this RCT evaluating the effect of convergence insufficiency treatment on specific types of symptoms. Outcomes were measures on the CISS, which has 2 subscales: a performance-related subscale consisting of 6 symptoms related to visual efficiency
when reading or performing near work (eg, loss of place with reading) and an eye-related subscale consisting of 9 symptoms specific to visual function or asthenopic-type complaints (eg, eye pain). Each subscale was reported as an average of the items in its category (range, 0-4). Subjects were grouped into those with or without a “treatment response,” defined as an improvement of at least 8 points in their CISS score. At baseline, overall CISS and the performance-related subscale scores were statistically significantly higher for children with parent-reported attention-deficit/hyperactivity disorder (ADHD) than for those without parent-reported ADHD (34.1 vs 29.5 for the overall CISS; 2.8 vs 2.2 for the performance-related subscale). Those with a “treatment response” on the overall CISS score demonstrated improvements in both the performance-related subscale and the eye-related subscale (mean, 1.1 points). Further research is needed to determine whether the treatment-related improvement in performance-related symptoms seen with orthoptics training translates into improvements in reading performance and attention.

Two earlier RCTs from the CITT group addressed various vision therapies, not specifically office-based vergence training, for convergence insufficiency. A 2005 RCT with 72 children compared base-in prism glasses with placebo reading glasses for all reading and near tasks. Base-in prism glasses were found to be no more effective in alleviating symptoms, improving NPC, or improving PFV at near than placebo reading glasses. Another RCT (2005) from the CITT group assessed a 12-week program with 3 arms (N=47): home-based pencil push-ups, office-based vision therapy, and to office-based placebo therapy in 47 children. Pencil push-ups, performed 15 minutes a day, 5 days a week, did not alleviate symptoms or signs associated with convergence insufficiency in this small trial. Office-based vision therapy (sessions once a week for 12 weeks), supplemented by home exercises, was more effective than home-based pencil push-ups or office-based placebo therapy in reducing symptoms and improving signs of convergence insufficiency in children.

Nonrandomized Comparative Studies
Shin et al (2011) reported on a nonrandomized comparative study of office-based vision therapy. Fifty-seven children with symptomatic convergence insufficiency or combined convergence insufficiency and accommodative insufficiency were divided into a treatment and a sham control group, matched by age and sex. Vision therapy was performed in the school clinic 2 times a week with instructions for home exercises to be performed for 15 to 25 minutes a day during the week. After 12 weeks of office-based vision therapy, the mean College of Optometrists in Vision Development-Quality of Life questionnaire score decreased from 27.07 to 10.40 and NPC improved from 8.67 to 3.20 in the children with convergence insufficiency. Mean PFV improved from 13.93 to 26.80. Sixty-seven percent of the children were considered to have been cured, and 82% were improved. There were no significant changes between baseline and 12-week follow-up for the control group. Of the 20 children in the treatment group who completed a 1-year follow-up, 3 (15%) showed recurrence.
Dusek et al (2011) reported on a nonrandomized comparative study of 134 children with convergence insufficiency who had been referred to a tertiary care center in Austria for reading difficulties. Thirty-two participants refused all treatment offered (control group); the remaining children were given base-in prism reading glasses (n=51) or computerized home vision therapy (n=51) based on preference. Parents were instructed to ensure that their child carried out the procedure correctly; compliance was verified weekly. All participants were examined for total reading time, reading error score, the amplitude of accommodation, and binocular accommodative facility at baseline and after 4 weeks. Prismatic reading glasses were not worn during testing. Significant improvements were found in the prism glasses and computer exercise groups for total reading time, reading error score, the amplitude of accommodation, binocular accommodative facility, and vergence facility. For example, reading speed improved by 21 seconds in the reading glasses group, by 12 seconds in the computer exercise group, and by 4 seconds in the control group. Mean amplitude of accommodation improved by 1.4 D in the reading glasses group, by 1.0 D in the computer exercise group, and by 0.3 D in the control group. The only significant improvement for the control group was vergence facility. Although this nonrandomized study had the potential for selection and performance bias, the results suggested that base-in prism reading glasses might be an effective treatment for convergence insufficiency and associated reading problems in children.

Lee et al (2014) reported on results from a small nonrandomized, controlled trial of vision therapy in children with vergence insufficiency and symptomatic ADHD. Of 1123 children (age range, 8-13 years) who were screened for ADHD, 81 were identified as having symptomatic ADHD; of those, 16 were identified as having accommodative dysfunction on binocular function testing. Eight subjects received vision therapy, and the remainder acted as a control group; eligibility criteria for vision therapy included: high exophoria at near vision (³6Δ), exophoria at near vision at least 4Δ greater than at distant vision, a receded near point of convergence break (³6 cm), or insufficient PFV at near vision, failing Sheard’s criterion (PFV less than twice the near phorias), or a minimum PFV of 15Δ or less base-out blur or break. Vision therapy included progressive home- and office-based convergence and accommodative exercises over 12 weeks. At the 12-week follow-up, intervention group subjects demonstrated improvements in NPC (11.50 to 4.38 cm; p<0.05), breakpoint of near PFV (11.88 to 32.38 cm; p<0.01), recovery point of near PFV (6.38 to 19.75 cm; p<0.01), and near exophoria (12.00 to 7.81 cm; p<0.05). ADHD symptoms, as measured by the parent-reported Korea-ADHD Rating Scale, improved from 23.25 at baseline to 17.13 (p<0.05) after vision therapy. Only within-group comparisons were reported. Control group subjects did not demonstrate improvements in vision metrics or Korea-ADHD Rating Scale scores.

In a small randomized comparative study, Momeni-Moghaddam et al (2015) compared the effectiveness of pencil push-up therapy with office-based vision therapy in 60 individuals who had convergence insufficiency (mean age, 21.3 years). Subjects received either pencil push-up therapy or office-based therapy
without home intervention and underwent reevaluation at 4 and 8 weeks after the start of treatment. With a single exception, the 2 groups did not differ significantly regarding the NPC, phoria, and PFV. After 4 and 8 weeks of follow-up, PFV was significantly more improved in the pencil push-up therapy group (p=0.001). Study authors suggested that pencil push-up therapy and office-based vision therapy were largely comparable for treatment of convergence insufficiency.

Noncomparative Studies
Borsting et al (2016) published the results of a single-arm multicenter study, the Convergence Insufficiency Treatment Trial-Reading Study. Investigators evaluated parent-reported behavioral and emotional problems at baseline among children with symptomatic convergence insufficiency and after 16 weeks of office-based vergence accommodative therapy. The intervention was consistent with that administered in the CITT trial. Parent-reported ADHD symptoms were assessed with the Conners 3 ADHD Index and behavioral and emotional symptoms with the 120-item Child Behavior Checklist. Of the 53 children enrolled, 48 consented to office-based therapy and 44 completed therapy and provided posttreatment data. After completion of therapy, there were significant within-subject improvements in CISS scores and Conners 3 ADHD Index scores (d=0.58, significantly different from zero). Subjects also demonstrated statistically significant improvements in the Child Behavior Checklist competency-related subscale related to school performance but not to social- or activities-related performance. On Child Behavior Checklist’s symptom-related subscales, there were statistically significant improvements in the anxious/depressed, somatic complaints, and internalizing problems subscales. This study provided some evidence that ADHD-like and emotional and behavior problems may improve among children with symptomatic convergence insufficiency after office-based vision therapies. However, the study’s small size and lack of a control group preclude drawing definitive conclusions about the efficacy of this treatment.

Section Summary: Orthoptic Training for Convergence Insufficiency
The most direct evidence on office-based orthoptic training comes from a 2008 RCT that demonstrated office-based vision training improves symptoms of convergence insufficiency in a greater percentage of patients than a home-based vision exercise program. Subgroup analyses of this RCT demonstrated improvements in accommodative vision, parental perception of academic behavior, and specific convergence insufficiency-related symptoms. However, in this trial, as in others, the home-based regimen did not include the full range of home-based therapies, which may have biased results in favor of the orthoptic training.

Orthoptic Training for Learning Disabilities
Two studies focused on the use of tinted lenses and eye patching as a technique to steady binocular vision for dyslexia. Stein et al (2000) reported on results of a randomized trial in which 143 dyslexic children were instructed to wear yellow-tinted glasses with or without the left lens occluded. Children were instructed to wear these glasses when reading or writing. Significantly more children given occluded glasses gained stable binocular vision in the first 3 months (59%) compared with children given unoccluded glasses (36%). Christenson et al (2001),
however, found no difference in reading ability of children with dyslexia and abnormal binocular vision tested with and without occluded, blue-tinted lenses. A 2005 systematic review evaluating the applicability and efficacy of eye exercises found no clear scientific evidence to support the use of eye exercises for other disorders (eg, learning disabilities, dyslexia), except convergence insufficiency. Ramsay et al (2014) reported on results from a non-RCT assessing a computerized vergence training program in 13- to 14-year-old patients with dyslexia. Twelve subjects with dyslexia were treated with the computerized vergence training program, receiving an average of 11.75 sessions over 5 weeks; 12 control students included were not treated. All subjects underwent vision testing and were not diagnosed with convergence insufficiency. The computerized training program involved the generation of a computerized stereogram, which appears in 3 dimensions with convergent vision. For the intervention groups, reading speed improved from 87.83 to 95.58 words read per minute from baseline to follow-up ($p<0.006$); reading speed was unchanged from baseline to follow-up for the control group (85.00 words per minute at baseline to 89.37 words per minute at follow-up; $p<0.123$). Mean improvement in reading speed from baseline to follow-up did not differ significantly between groups ($p<0.123$).

Several studies have reported that poor reading in children with dyslexia or attention deficits may be related to impairments in accommodation or convergence, suggesting the need for an ophthalmologic and orthoptic evaluation.

Section Summary: Orthoptic Training for Learning Disabilities
A 1996 TEC Assessment did not find evidence that orthoptic training improved outcomes for individuals with learning disabilities. Since that publication, peer-reviewed studies have not directly demonstrated improvements in reading or learning outcomes with orthoptic training. At least 2 earlier studies that addressed other types of vision therapies reported mixed improvements in reading.

Summary of Evidence
For individuals who have convergence insufficiency who receive office-based orthoptic training, the evidence includes a TEC Assessment, several randomized controlled trials, and nonrandomized comparative studies. Relevant outcomes are symptoms and functional outcomes. The most direct evidence on office-based orthoptic training comes from a 2008 randomized controlled trial that demonstrated office-based vision or orthoptic training improves symptoms of convergence insufficiency in a greater percentage of patients than a home-based vision exercise program consisting of pencil push-ups or home computer vision exercises. Subgroup analyses of this randomized controlled trial demonstrated improvements in accommodative vision, parental perception of academic behavior, and specific convergence insufficiency-related symptoms. However, in this trial, as in others, the home-based regimen did not include the full range of home-based therapies, which may have biased results in favor of the orthoptic training. The
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SUPPLEMENTAL INFORMATION

Clinical Input From Physician Specialty Societies and Academic Medical Centers
While the various physician specialty societies and academic medical centers may collaborate with and make recommendations during this process, through the provision of appropriate reviewers, input received does not represent an endorsement or position statement by the physician specialty societies or academic medical centers, unless otherwise noted.

In response to requests, input was received from 4 physician specialty societies (5 reviewers) and 3 academic medical centers while this policy was under review in 2011. Although input supported the use of office-based orthoptic training when home-based therapy had failed, some reviewers indicated that home-based therapy would typically include more exercises than pencil push-ups. Recommended were push-up exercises using an accommodative target, push-up exercises with additional base-out prisms, jump-to-near convergence exercises, stereogram convergence exercises, recession from a target, and maintaining convergence for 30 to 40 seconds.

Practice Guidelines and Position Statements

American Academy of Pediatrics et al
In 2009, the American Academy of Pediatrics, American Academy of Ophthalmology, American Association for Pediatric Ophthalmology and Strabismus, and the American Association of Certified Orthoptists issued a joint policy statement on pediatric learning disabilities, dyslexia, and vision. For vision therapy, the statement concluded:

"Currently, there is no adequate scientific evidence to support the view that subtle eye or visual problems cause learning disabilities. Furthermore, the evidence does not support the concept that vision therapy or tinted lenses or filters are effective, directly or indirectly, in the treatment of learning disabilities. Thus, the claim that vision therapy improves visual efficiency cannot be substantiated. Diagnostic and
treatment approaches that lack scientific evidence of efficacy are not endorsed or recommended.”

In 2011, these same 4 associations also published a joint technical report on learning disabilities, dyslexia, and vision.19. This report concluded: “There is inadequate scientific evidence to support the view that subtle eye or visual problems cause or increase the severity of learning disabilities. Scientific evidence does not support the claims that visual training, muscle exercises, ocular pursuit-and-tracking exercises, behavioral/perceptual vision therapy, ‘training’ glasses, prisms, and colored lenses and filters are effective direct or indirect treatments for learning disabilities.”

**U.S. Preventive Services Task Force Recommendations**
Not applicable.

**Medicare National Coverage**
There is no national coverage determination. In the absence of a national coverage determination, coverage decisions are left to the discretion of local Medicare carriers.

**Ongoing and Unpublished Clinical Trials**
Some currently unpublished trials that might influence this review are listed in Table 1.

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<td>Convergence Insufficiency Treatment Trial - Attention and Reading Trial (CITT-ART)</td>
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<td>Effectiveness of Home-Based Therapy for Symptomatic Convergence Insufficiency</td>
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NCT: national clinical trial.

**REFERENCES**

Billing Coding/Physician Documentation Information

92065 Orthoptic and/or pleoptic training, with continuing medical direction and evaluation

ICD10 Codes:
H51.11 Convergence insufficiency and excess code range
H51.12
F81.0 Specific reading disorder

Additional Policy Key Words
N/A

Policy Implementation/Update Information
12/1/11 New policy; may be considered medically necessary.
3/1/12 No policy statement changes.
3/1/13 No policy statement changes.
3/1/14 No policy statement changes.
3/1/15 No policy statement changes.
3/1/16 No policy statement changes.
3/1/17 No policy statement changes.
3/1/18 No policy statement changes.
3/1/19 No policy statement changes.
3/1/20 No policy statement changes.

State and Federal mandates and health plan contract language, including specific provisions/exclusions, take precedence over Medical Policy and must be considered first in determining eligibility for coverage. The medical policies contained herein are for informational purposes. The medical policies do not constitute medical advice or medical care. Treating health care providers are independent contractors and are neither employees nor agents Blue KC and are solely responsible for diagnosis, treatment and medical advice. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, photocopying, or otherwise, without permission from Blue KC.