

# Treatment Intervention Advisory Committee Review and Determination



**Date:** October 26, 2018

**To:** Wisconsin Department of Health Services

**From:** Wisconsin Department of Health Services Treatment Intervention Advisory Committee:  
Shannon Stuart, Ph.D. (chairperson)

**RE:** Determination of Vision Therapy as a proven and effective treatment for children and adults

This is an initial review

This is a re-review. Previously reviewed (rated) on July 26, 2013 (4), April 18, 2014 (4), and April 24, 2015 (4), April 29, 2016 (4).

No new research located; determination from April, 2016 stands (details below)

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## Section One: Overview and Determination

Please find below a statement of our [determination](#) as to whether or not the committee views Vision Therapy as a proven and effective treatment. In subsequent sections you will find documentation of our review process including a [description](#) of the proposed treatment, a [synopsis](#) of review findings, the [treatment review evidence checklist](#), and a listing of the [literature](#) considered. In reviewing treatments presented to us by the Department of Health Services, we implement a review process that carefully and fully considers all available information regarding a proposed treatment. Our determination is limited to a statement regarding how established a treatment is with regards to quality research. The committee does not make decisions regarding funding.

### Description of proposed treatment

Vision Therapy is described by the American Association of Ophthalmology and Strabismus as an attempt to develop or improve visual skills and abilities; improve visual comfort, ease, and efficiency; and change visual processing or interpretation of visual information. An optometric vision therapy program consists of supervised in-office and at home reinforcement exercises performed over weeks to months. In addition to exercises, lenses ("training glasses"), prisms, filters, patches, electronic targets, or balance boards may be used. These techniques are provided by certified practitioners of optometric services, and do not include virtual reality or video game treatments or programs provided without such supervision.

### Synopsis of current review (October, 2018 )

Committee members completing current review of research base: Amy Van Hecke & Jenny Asmus

Please refer to the reference list ([Section Four](#)) which details the reviewed research.

This most recent review sought to consider new research published since the last review. No new (2015-2018) research was found. Given technological advances and the proliferation of virtual reality and video game "therapies," the definition of vision therapy was edited to emphasize that it consists of procedures performed or supervised by certified optometric providers. In sum, it is the decision of the committee that a Level 4 efficacy rating be retained for Vision Therapy as there is insufficient evidence for this treatment.

**Committee's Determination:** After reviewing the research and applying the criteria from the [Treatment Review Evidence Checklist](#), it is the decision of the committee that Vision Therapy receive an efficacy rating of Level 4: Insufficient Evidence (Experimental Treatment)

#### Review history

(April 29, 2016: Tia Schultz and Amy Van Hecke)

This review sought to consider new research published since the last review. No new (2015) research was found. In sum, it is the decision of the committee that a Level 4 efficacy rating be retained for Vision Therapy as there is insufficient evidence for this treatment.

(April 25, 2015 - Julie LaBerge & Tia Schultz)

The committee's conclusions regarding Vision Therapy include:

There is limited empirical research supporting the use of Vision Therapy as an evidence-based treatment for individuals identified with autism spectrum disorders and/or other developmental disabilities.

Recent research pertaining to autism spectrum disorders focuses on the use of alternative methods during Vision Therapy in order to improve the response of individuals. Three articles published in 2014 focused on the use of the Developmental Individual-Differences Relationship Based (DIR) "Floortime model" to enhance the Vision Therapy experience for individuals with Autism Spectrum Disorders. In a review of the literature, Au and Coulter (2014) state, "unfortunately, there is little literature providing evidence for the success of VT for these patients." However, the authors discuss using a combination of DIR "floortime" during vision therapy as a way to improve comprehension.

In a case study article, Coulter, Tea, and Weider (2014) discuss using DIR "Floortime" during vision therapy indicating that such modifications can allow an individual with autism to successfully complete the vision therapy program.

In a descriptive article, Green, Wachs, and Dee (2014) explain that using the DIR "floortime" model with visual-cognitive therapy may allow individuals with autism to engage at a higher level during therapy. However, there are no rigorous studies evaluating vision therapy since the last review that can support it as an evidence-based intervention.

In sum, it is the decision of the committee that Vision Therapy remain at a level 4 as there is insufficient evidence for this treatment.

(April 18, 2014 - Jennifer Asmus & Lana Collet-Klingenberg)

No additional research found.

## Committee Decision on Level of Evidence to Suggest the Proposed Treatment is Proven and Effective: Level 4 – Insufficient Evidence (Experimental Treatment)

(July 26, 2013 - Christine Peterson & Jennifer Asmus)

The Barrett (2009) study re-evaluated the evidence on behavioral vision therapies as a study by United Kingdom's College of Optometry had published in 2000 that there was a "lack of controlled clinical trials to support behavioural management strategies" (Jennings, 2000). Barrett (2009) concluded similarly that :

*"There is a continued paucity of controlled trials in the literature to support behavioural optometry approaches. Although there are areas where the available evidence is consistent with claims made by behavioural optometrists (most notably in relation to the treatment of convergence insufficiency, the use of yoked prisms in neurological patients, and in vision rehabilitation after brain disease/injury), a large majority of behavioural management approaches are not evidence-based, and thus cannot be advocated."*

Several articles reviewed did not specify if children with autism were included in the sample while other articles did specify this criteria. We found no evidence that autism symptoms per se were the focus of the intention to utilize behavioral vision therapy, rather that a medical eye condition was the premeditating issue for consideration of this treatment

In sum, there is little empirical research to support the use of Vision Therapy as an evidence-based treatment for Autism and/or developmental disabilities at this time. Research to-date appears to support modest effects in modifying targeted behaviors related to visual deficits, which includes published literature using an Autism population. However results reported address specific visual or perceptual changes, related to an identified visual deficit, or relatively short-term gains only. Currently, there is no identifiable procedural manual, or means for assuring consistency or fidelity of implementation. A comprehensive review by the Association for Science in Autism Treatment found that, "Eye exercises may be useful for treating certain vision problems such as strabismus (difficulty coordinating the movements of the two eyes to work together) convergence insufficiency (difficulty turning eyes inward to focus on a nearby object). However, there is no known association between such problems and autism spectrum disorders. Although one study suggested that vision therapy might be effective for children with autism spectrum disorders (Kaplan, Edelson, & Seip, 1998). This intervention has not been evaluated for individuals with autism spectrum disorders in studies with strong experimental designs (Rawstron, Burley, & Eldeer, 2005)."

According to a joint statement from the American Academy of Pediatrics, American Association for Pediatric Ophthalmology and Strabismus, and American Academy of Ophthalmology (1998), "No scientific evidence exists for the efficacy of eye exercises ("vision therapy") or the use of special tinted lenses in the remediation of ... complex pediatric neurological conditions" such as autism spectrum disorders.

The committee concludes that there is insufficient evidence to support the use of Vision Therapy with ASD/DD populations at this time.

Committee Decision on Level of Evidence to Suggest the Proposed Treatment is Proven and Effective:  
Level 4 – Insufficient Evidence (Experimental Treatment)

## Section Two: Rationale for Focus on Research Specific to Comprehensive Treatment Packages (CTP) or Models

In the professional literature, there are two classifications of interventions for individuals with Autism Spectrum Disorder (National Research Council, 2001; Odom et al., 2003; Rogers & Vismara, 2008):

- (a) **Focused intervention techniques** are individual practices or strategies (such as positive reinforcement) designed to produce a specific behavioral or developmental outcome, and
- (b) **Comprehensive treatment models** are “packages” or programs that consist of a set of practices or multiple techniques designed to achieve a broader learning or developmental impact.

To determine whether a treatment package is proven and effective, the Treatment Intervention Advisory Committee (TIAC) will adopt the following perspective as recommended by Odom et al. (2010):

The individual, focused intervention techniques that make up a comprehensive treatment model may be evidence-based. The research supporting the effectiveness of separate, individual components, however, does *not* constitute an evaluation of the comprehensive treatment model or “package.” The TIAC will consider and review only research that has evaluated the efficacy of implementing the comprehensive treatment *as a package*. Such packages are most often identifiable in the literature by a consistently used name or label.

National Research Council. (2001). *Educating children with autism*. Washington, DC: National Academy Press.

Odom, S. L., Brown, W. H., Frey, T., Karusu, N., Smith-Carter, L., & Strain, P. (2003) Evidence-based practices for young children with autism: Evidence from single-subject research design. *Focus on Autism and Other Developmental Disabilities, 18*, 176-181.

Odom, S. L., Boyd, B. A., Hall, L. J., & Hume, K. (2010). Evaluation of comprehensive treatment models for individuals with Autism Spectrum Disorders. *Journal of Autism and Developmental Disorders, 40*, 425-436.

Rogers, S., & Vismara, L. (2008). Evidence-based comprehensive treatments for early autism. *Journal of Clinical Child and Adolescent Psychology, 37*, 8-38.

### Section Three: TIAC Treatment Review Evidence Checklist

Name of Treatment: treatment modality to be reviewed

#### Level 1- Well Established or Strong Evidence (DHS 107 - Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, National Professional Development Center) have approved of or rated the treatment package as having a strong evidence base; authorities are in agreement about the level of evidence.
- There exist ample high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
  - Minimum of two group studies or five single subject studies or a combination of the two.
  - Studies were conducted across at least two independent research groups.
  - Studies were published in peer reviewed journals.
- There is a published procedures manual for the treatment, or treatment implementation is clearly defined (i.e., replicable) within the studies.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:* At this level, include ages of participants and disabilities identified in body of research

#### Level 2 – Established or Moderate Evidence (DHS 107 - Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have approved of or rated the treatment package as having at least a minimal evidence base; authorities may not be in agreement about the level of evidence.
- There exist at least two high quality studies that demonstrate experimental control and favorable outcomes of treatment package.
  - Minimum of one group study or two single subject studies or a combination of the two.
  - Studies were conducted by someone other than the creator/provider of the treatment.
  - Studies were published in peer reviewed journals.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:* at this level, include ages of participants and disabilities identified in body of research

Level 3 – Emerging Evidence (DHS 107 – Promising as a Proven & Effective Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have recognized the treatment package as having an emerging evidence base; authorities may not be in agreement about the level of evidence.
- There exists at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
  - May be one group study or single subject study.
  - Study was conducted by someone other than the creator/provider of the treatment.
  - Study was published in peer reviewed journal.
- Participants (i.e., N) are clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:* At this level, include ages of participants and disabilities identified in body of research

Level 4 – Insufficient Evidence (Experimental Treatment)

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- There is not at least one high quality study that demonstrates experimental control and favorable outcomes of treatment package.
  - Study was conducted by the creator/provider of the treatment.
  - Study was not published in a peer reviewed journal.
- Participants (i.e., N) are not clearly identified as individuals with autism spectrum disorders or developmental disabilities.

*Notes:*

Level 5 – Untested (Experimental Treatment) &/or Potentially Harmful

- Other authoritative bodies that have conducted extensive literature reviews of related treatments (e.g., National Standards Project, NPDC) have not recognized the treatment package as having an emerging evidence base; authorities are in agreement about the level of evidence.
- There are no published studies supporting the proposed treatment package.
- There exists evidence that the treatment package is potentially harmful.**
  - Authoritative bodies have expressed concern regarding safety/outcomes.
  - Professional bodies (i.e., organizations or certifying bodies) have created statements regarding safety/outcomes.

*Notes:* At this level, please specify if the treatment is reported to be potentially harmful, providing documentation

### **References Supporting Identification of Evidence Levels:**

- Chambless, D.L., Hollon, S.D. (1998). Defining empirically supported therapies. *Journal of Consulting and Clinical Psychology, 66(1)* 7-18.
- Chorpita, B.F. (2003). The frontier of evidence---based practice. In A.E. Kazdin & J.R. Weisz (Eds.). *Evidence-based psychotherapies for children and adolescents* (pp. 42---59). New York: The Guilford Press.
- Odom, S. L., Collet-Klingenberg, L., Rogers, S. J., & Hatton, D. (2010). Evidence-based practices in interventions for children and youth with autism spectrum disorders. *Preventing School Failure, 54(4)*, 275-282.

## **Section Four: Literature Review**

### Literature reviewed for current determination:

No new literature identified.

### Literature reviewed for previous determinations:

Barrett, B. (2009). A critical evaluation of the evidence supporting the practice of behavioural vision therapy. *Ophthalmic and Physiological Optics*, 29, 4-25.

Kaplan, M., Carmody, D.P., Gaydos, A. (1996). Postural orientation in autism in response to ambient lenses. *Child Psychiatry and Human Development*, 27, 81-91

Kaplan, M., Edelson, S., Seip, J.L. (1998). Behavioral changes in autistic individuals as a result of wearing ambient transitional prism lenses. *Child Psychiatry and Human Development*, 29, 65-76.

Schieman, M., Mitchell, L., Cotter, S., Kulp, M., Rouse, M., Hertle, R., & Tamkins, S. (2008) The convergence insufficiency treatment trial: Design, methods, an baseline data. *Ophthalmic Epidemiology*, 15, 24-36.

Schieman, M., Mitchell, L., Cotter, S., Cooper, J., Kulp, M., Rouse, M., Borsting, E., London, R., & Wensveen, J. (2005) A randomized clinical trial of treatments for convergence insufficiency in children. *Archives of Ophthalmology*, 123, 14-24.

### The following articles were considered, but did not meet screening criteria for rigorous research studies:

Au, M., & Coulter, R. (2014). Vision therapy for the autistic patient: A literature review and case report. *Optometry & Visual Performance*, 2, 244-250. (literature review)

Coulter, R. A., Tea, Y.C., & Wieder, S. (2014). Thinking goes back to school: Providing better vision therapy to patients with autism spectrum disorder. *Optometry & Visual Performance*, 2, 211-219. (case studies)

Green, M.D., Wachs, H., & Dee, M. (2014). Successful optometric vision therapy with patients on the autistic spectrum: Engaging patients with visual-cognitive therapy. *Optometry & Visual Performance*, 2, 235-239. (descriptive article).