

8.03.13 Sensory Integration Therapy and Auditory Integration Therapy**Original Policy Date:** June 7, 2000 **Effective Date:** May 1, 2021**Section:** 8.0 Therapy **Page:** Page 1 of 13**Policy Statement**

Sensory integration therapy and auditory integration therapy are considered **investigational**.

NOTE: Refer to [Appendix A](#) to see the policy statement changes (if any) from the previous version.

Policy Guidelines**Coding**

CPT code 97533 explicitly identifies sensory integrative therapy:

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

The code above may also be used for auditory integration therapy.

Description

Sensory integration therapy has been proposed as a treatment of developmental disorders in patients with established dysfunction of sensory processing, particularly autism spectrum disorder. Sensory integration therapy may be offered by occupational and physical therapists who are certified in sensory integration therapy. Auditory integration therapy uses gradual exposure to certain types of sounds to improve communication in a variety of developmental disorders, particularly autism.

Related Policies

- N/A

Benefit Application

Benefit determinations should be based in all cases on the applicable contract language. To the extent there are any conflicts between these guidelines and the contract language, the contract language will control. Please refer to the member's contract benefits in effect at the time of service to determine coverage or non-coverage of these services as it applies to an individual member.

Some state or federal mandates (e.g., Federal Employee Program [FEP]) prohibits plans from denying Food and Drug Administration (FDA)-approved technologies as investigational. In these instances, plans may have to consider the coverage eligibility of FDA-approved technologies on the basis of medical necessity alone.

Regulatory Status

Sensory integration therapy is a procedure and, as such, is not subject to regulation by the U.S. Food and Drug Administration. No devices designed to provide auditory integration therapy have been cleared for marketing by the FDA.

Rationale

Background

The goal of sensory integration therapy is to improve how the brain processes and adapts to sensory information, as opposed to teaching specific skills. Therapy usually involves activities that provide vestibular, proprioceptive, and tactile stimuli, which are selected to match specific sensory processing deficits of the child. For example, swings are commonly used to incorporate vestibular input, while trapeze bars and large foam pillows or mats may be used to stimulate somatosensory pathways of proprioception and deep touch. Tactile reception may be addressed through a variety of activities and surface textures involving light touch.

Auditory integration therapy (also known as auditory integration training, auditory enhancement training, audio-psycho-phonology) involves having individuals listen to music modified to remove frequencies to which they are hypersensitive, with the goal of gradually increasing exposure to sensitive frequencies. Although several methods of auditory integration therapy have been developed, the most widely described is the Berard method, which involves 2 half-hour sessions per day separated by at least 3 hours, over 10 consecutive days, during which patients listen to recordings. Auditory integration therapy has been proposed for individuals with a range of developmental and behavioral disorders, including learning disabilities, autism spectrum disorder, pervasive developmental disorder, and attention-deficit/hyperactivity disorder. Other methods include the Tomatis method, which involves listening to electronically modified music and speech, and Samonas Sound Therapy, which involves listening to filtered music, voices, and nature sounds.¹

Literature Review

This review was informed by a Blue Cross Blue Shield Association Technology Evaluation Center (TEC) Assessment (1999) that evaluated sensory integration therapy.²

Evidence reviews assess the clinical evidence to determine whether the use of a technology improves the net health outcome. Broadly defined, health outcomes are the 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. Randomized controlled trials 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.

Sensory Integration Therapy

Clinical Context and Therapy Purpose

The purpose of sensory integration therapy in patients who have developmental disorders is to provide a treatment option that is an alternative to or an improvement on existing therapies.

The question addressed in this evidence review is: Does the use of sensory integration therapy improve the net health outcome in patients with developmental disorders?

The following PICO was used to select literature to inform this review.

Populations

The relevant population of interest is patients with developmental disorders.

Interventions

The treatment being considered is the use of sensory integration therapy. The treatment sessions are often provided as part of a comprehensive occupational therapy or cognitive rehabilitation therapy and may last for more than 1 year.

Treatment sessions are usually delivered in a one-on-one setting by occupational therapists with special training from university curricula, clinical practice, and mentorship in the theory, techniques, and assessment tools unique to sensory integration therapy.

Comparators

The following practices are currently being used to treat developmental disorders : specialized developmentally appropriate interventions for specific developmental disorders, which are administered by developmental specialists in an outpatient setting.

Outcomes

The general outcomes of interest are functional outcomes and quality of life.

Follow-up of at least 6 months would be desirable to assess outcomes.

Schaaf et al (2014) published an overview of current measurement issues in sensory integration.³ They proposed several changes to the outcomes used in sensory integration research, as follows:

- "Additional measures ... to ensure a comprehensive assessment of the sensory and motor factors that may be influencing function and participation";
- "Assessment measures ... to address a wider age range"
- Neurophysiologic studies
- "Fidelity to the core principles of sensory integration therapy"
- "Studies ... to evaluate the dosage of therapy to understand the best candidates for intervention and the appropriate intensity and frequency of intervention";
- "Outcomes that are meaningful to clients and sensitive to the changes observed after intervention."

The Sensory Processing Disorders Scientific Workgroup (2007) has also discussed the methodologic challenges of conducting intervention effectiveness studies of dynamic interactional processes, the lack of scientific evidence to support current practice, and methods for improving the quality of research in this area.^{4,5}

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- a. To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- b. In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies.
- c. To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought.
- d. Studies with duplicative or overlapping populations were excluded.

Review of Evidence

Systematic Reviews

Several systematic reviews have addressed the use of sensory integration therapy in various clinical conditions (Tables 1 and 2). Four of the 5 systematic reviews included in this evidence

review pertain to studies evaluating sensory integration therapy for autism spectrum disorder (ASD),⁶⁻⁹ while 1 included studies in individuals with a broader range of developmental disabilities.¹⁰

Table 1. Comparison of Studies Included in Systematic Reviews of Sensory Integration Therapy

| Study | Weitlauf et al (2017) ⁶ | Case-Smith et al (2015) ⁷ | Brondino et al (2015) ⁸ | Watling and Hauer (2015) ⁹ | May-Benson et al (2010) ¹⁰ |
|----------------------------|------------------------------------|--------------------------------------|------------------------------------|---------------------------------------|---------------------------------------|
| RCTs | | | | | |
| Carte et al (1984) | | | | | ● |
| Fazioğlu et al (2008) | ● | ● | ● | ● | |
| Grimwood et al (1980) | | | | | ● |
| Humphries et al (1990) | | | | | ● |
| Humphries et al (1992) | | | | | ● |
| Humphries et al (1993) | | | | | ● |
| Iwanaga et al (2014) | ● | | | | |
| Miller et al (2007) | | | | | ● |
| Morrison et al (1986) | | | | | ● |
| Schaaf et al (2013) | ● | ● | | ● | |
| Pfeiffer et al (2011) | ● | ● | ● | ● | |
| Piravej et al (2009) | | | | ● | |
| Polatajko et al (1991) | | | | | ● |
| Reilly et al (1983) | | | ● | | |
| Werry et al (1990) | | | | | ● |
| White (1979) | | | | | ● |
| Wilson et al (1992) | | | | | ● |
| Wilson et al (1994) | | | | | ● |
| Woo et al (2013) | | | | ● | |
| Ziviani et al (1982) | | | | | ● |
| Other Study Designs | | | | | |
| Allen et al (1995) | | | | | ● |
| Ayres (1972) | | | | | ● |
| Ayres (1977) | | | | | ● |
| Bagatell et al (2010) | | ● | | ● | |
| Bullock et al (1978) | | | | | ● |
| Bundy et al (2007) | | | | | ● |
| Candler et al (2003) | | | | | ● |
| Case-Smith et al (1999) | | | | | ● |
| Cox et al (2009) | | ● | | ● | |
| Davis et al (2011) | | ● | | | |
| Devlin et al (2009) | | ● | | | |
| Devlin et al (2011) | | ● | | ● | |
| Fertel-Daly (2001) | | ● | | | |
| Hodgetts et al (2010) | | ● | | | |
| Hodgetts et al (2011) | | ● | | ● | |
| Kane et al (2004) | | ● | | | |
| Kinnealey et al (2012) | | | | ● | |
| Leemrijse et al (2000) | | | | | ● |
| Leew et al (2010) | | ● | | ● | |
| Linderman et al (1999) | | | | | ● |
| Miller et al (2007) | | | | | ● |
| Ottenbacher et al (1979) | | | | | ● |

| Study | Weitlauf et al (2017) ⁶ | Case-Smith et al (2015) ⁷ | Brondino et al (2015) ⁸ | Watling and Hauer (2015) ⁹ | May-Benson et al (2010) ¹⁰ |
|--------------------------|------------------------------------|--------------------------------------|------------------------------------|---------------------------------------|---------------------------------------|
| Ottenbacher et al (1982) | | | | | ● |
| Quigley et al (2011) | | | | ● | |
| Reichow et al (2010) | | ● | | ● | |
| Roberts et al (2007) | | | | | ● |
| Schaaf et al (2012) | | ● | | | |
| Schilling et al (2004) | | ● | | | |
| Schroeder et al (1982) | | | | | ● |
| Smith et al (2005) | | ● | | | |
| Thompson et al (2011) | | | ● | ● | |
| Umeda et al (2011) | | | | ● | |
| Van Rie et al (2009) | | ● | | | |
| Watling et al (2007) | | | | ● | |
| Watling et al (2010) | | ● | | | |
| Wuang et al (2010) | | | | ● | |

RCTs: randomized controlled trials

Table 2. Characteristics of Systematic Reviews of Sensory Integration Therapy

| Study | Search Dates | Studies | Populations |
|---------------------------------------|------------------|--------------------------|---|
| Weitlauf et al (2017) ⁶ | 2010-2016 | 3 RCT, 1 other design | ASD |
| Case-Smith et al (2015) ⁷ | 2000-2012 | 2 RCTs, 3 other design | ASD |
| Brondino et al (2015) ⁸ | Through Oct 2014 | 3 RCTs, 1 other design | ASD |
| Watling and Hauer (2015) ⁹ | 2006-2013 | 5 RCTs, 15 other design | ASD |
| May-Benson et al (2010) ¹⁰ | 1972-2007 | 13 RCT, 14 other designs | Children with difficulty processing and integrating sensory information |

ASD: autism spectrum disorder; RCT: randomized controlled trial

In a systematic review conducted for the Agency for Healthcare Research and Quality (AHRQ), Weitlauf et al (2017) evaluated the effectiveness and safety of a variety of interventions targeting sensory challenges in ASD.⁶ The reviewers included 3 RCTs and 1 retrospective cohort study of sensory integration-based approaches, defined as interventions using combinations of sensory and kinetic components, such as materials with different textures, touch/massage, swinging and trampoline exercises, and balance and muscle resistance exercises. One study was rated low risk of bias, 1 moderate, and 2 high risk of bias. Significant heterogeneity across studies in interventions and outcome measures precluded meta-analysis. In 3 of 4 studies, sensory-related measures and motor skills measures improved for children receiving the sensory integration-based intervention, however the strength of this evidence was rated low due to small sample sizes and short study durations. The studies were also limited by a lack of blinding when parent-reported outcome measures were used. The reviewers concluded, "Although some therapies may hold promise and warrant additional study, substantial needs exist for continuing improvements in methodologic rigor in the field."

Case-Smith et al (2015) updated a systematic review on sensory processing interventions, including sensory integration therapy, which they defined as clinic-based interventions that use sensory-rich, child-directed activities to improve a child's adaptive responses to sensory experiences, and sensory-based interventions (defined as adult-directed sensory modalities applied to the child to improve behaviors associated with modulation disorders), for children with ASD with concurrent sensory processing problems.⁷ This review was designed to focus on interventions that activate the somatosensory and vestibular systems for patients with ASD with co-occurring sensory processing problems. Nineteen studies published since 2000 were included, 5 of which evaluated sensory integration therapy in patients with ASD and sensory processing disorders. Two studies reviewed were RCTs; both were small (n=20 and n=17 in the sensory

integration therapy groups). Reviewers noted the studies showed low or low-to-moderate effects and concluded that “It is premature to draw conclusions as to whether sensory integration therapy for children with ASD, which is designed to support a child’s intrinsic motivation and sense of internal control, is ultimately effective.”

Brondino et al (2015) published a systematic review of complementary and alternative therapies for autism, which included sensory integration therapy and auditory integration therapy.⁸ Regarding sensory integration therapy for ASD treatment, reviewers identified 4 trials, including a 2011 RCT reported by Pfeiffer et al (N=37) and additional studies published in 1983, 2008, and 2011, with sample sizes of 18, 30, and 50, respectively. All 4 studies reported significant improvements in autistic core symptoms, including communication, social reciprocity, and motor activity. However, reviewers noted that 2 studies did not use a standardized form of sensory integration therapy, and 2 did not use standardized outcome measures.

Watling and Hauer (2015) published a systematic review of Ayres Sensory Integration and sensory-based interventions for individuals with ASD.⁹ Reviewers described Ayres Sensory Integration as a play-based method that “uses active engagement in sensory-rich activities to elicit the child’s adaptive responses and improve the child’s ability to successfully perform and meet environmental challenges.” The therapy is individualized by the therapist in response to an initial assessment. Sensory-based interventions are described as “applying adult-directed sensory modalities to the child with the aim of producing a short-term effect on self-regulation, attention, or behavioral organization.” Twenty-three articles met reviewers’ inclusion criteria, 3 of which were systematic reviews and 5 of which were RCTs. Overall, 4 studies evaluated Ayres Sensory Integration and the remaining 18 evaluated sensory-based interventions. Of the 4 studies evaluating Ayres Sensory Integration, 3 were RCTs. Findings from 1 RCT included significant improvement in individualized goals, improved sleep, decreased ASD mannerisms, and reduced caregiver burden. The reviewers concluded that there was moderate strength evidence to support the use of Ayres Sensory Integration and mixed results for sensory-based methods. They recommended additional, higher-level studies with larger sample sizes and standardized definitions of interventions and outcome measures.

May-Benson and Koomar (2010) published a systematic review of sensory integration therapy, identifying 27 research studies (13 randomized trials) that met their inclusion criteria.¹⁰ Most studies had been performed with children who had learning or reading disabilities; there were 2 case reports/small series on the effect of sensory integration therapy in children with ASD. Reviewers concluded that although the sensory integration approach might result in positive outcomes, findings were limited because of small sample sizes, variable intervention dosages, lack of fidelity to interventions, and selection of outcomes that might not be meaningful or might not change with the treatment provided.

Section Summary: Sensory Integration Therapy

The most direct evidence related to outcomes from sensory integration therapy comes from randomized trials and systematic reviews of these trials. Although certain studies demonstrated some improvements on subsets of the outcomes measured, the studies were limited by small sample sizes, heterogeneous patient populations, and variable outcome measures. As a result, the evidence is not sufficiently robust to draw conclusions about the effects of, and the most appropriate patient populations for, sensory integration therapy.

Auditory Integration Therapy

Clinical Context and Therapy Purpose

The purpose of auditory integration therapy in patients who have developmental disorders is to provide a treatment option that is an alternative to or an improvement on existing therapies. The question addressed in this evidence review is: Does the use of auditory integration therapy improve the net health outcome in patients with developmental disorders?

The following PICO was used to select literature to inform this review.

Populations

The relevant population of interest is patients with developmental disorders. Although auditory integration therapy has been proposed as a therapy for a number of neurobehavioral disorders, the largest body of evidence, including systematic reviews, relates to its use in ASD.

Interventions

The treatment being considered is the use of auditory integration therapy. Auditory integration therapy involves having individuals listen to music modified to remove frequencies to which they are hypersensitive, with the goal of gradually increasing exposure to sensitive frequencies.

Treatment sessions are usually delivered in a one-on-one setting by therapists with special training.

Comparators

The following practices are currently being used to treat developmental disorders: specialized interventions for specific developmental disorders, which are administered by developmental specialists in an outpatient setting.

Outcomes

The general outcomes of interest are functional outcomes and quality of life.

Follow-up of at least 6 months would be desirable to assess outcomes.

Study Selection Criteria

Methodologically credible studies were selected using the following principles:

- a. To assess efficacy outcomes, comparative controlled prospective trials were sought, with a preference for RCTs;
- b. In the absence of such trials, comparative observational studies were sought, with a preference for prospective studies.
- c. To assess long-term outcomes and adverse events, single-arm studies that capture longer periods of follow-up and/or larger populations were sought.
- d. Studies with duplicative or overlapping populations were excluded.

Review of Evidence**Systematic Reviews**

In their systematic review of sensory interventions conducted for AHRQ, Weitlauf et al (2017) included 4 RCTs of auditory integration therapy.⁶ Two small, short-term RCTs with moderate risk of bias reported no significant differences between auditory integration and control groups in language outcomes assessed on parent, teacher, and clinician observation measures.^{11,12} Two other RCTs, reported in a single publication, reported some parent-rated improvement in hearing sensitivity, spontaneous speech, listening, and behavioral organization, but no difference in other behavioral domains rated.¹³ Overall, the reviewers concluded that there is low strength evidence that auditory integration-based approaches do not improve language outcomes.

A Cochrane review (2011) evaluated auditory integration therapy along with other sound therapies for ASD.¹ Included were 6 RCTs on auditory integration therapy and 1 on Tomatis therapy, comprising a total of 182 subjects (age range, 3-39 years). For most trials, the control condition was listening to unmodified music for the same amount of time as the active treatment group. Allocation concealment was inadequate for all trials, and 5 trials had fewer than 20 participants. Meta-analyses could not be conducted. Three studies did not demonstrate any benefit of auditory integration therapy over control conditions, and 3 studies had outcomes of questionable validity or outcomes that were not statistically significant. Reviewers found no evidence that auditory integration therapy is an effective treatment for ASD; however, evidence was insufficient to prove that it is not effective.

In the systematic review examining complementary and alternative therapies for ASD, Brondino et al (2015; described above) identified the same 6 RCTs of auditory integration therapy included in the 2011 Cochrane review. Like the Cochrane review, Brondino et al (2015) concluded that the largest studies did not report improvements with auditory integration therapy.

Section Summary: Auditory Integration Therapy

The largest body of evidence on the use of auditory integration therapy relates to treatment of ASD. A 2011 Cochrane review found that studies of auditory integration therapy failed to demonstrate meaningful clinical improvements. No subsequent comparative studies of auditory integration therapy were identified.

Summary of Evidence

For individuals who have developmental disorders who receive sensory integration therapy, the evidence includes systematic reviews of RCTs and case series. Relevant outcomes are functional outcomes and quality of life. Due to the individualized approach to sensory integration therapy and the large variations in patients' disorders, large multicenter RCTs are needed to evaluate the efficacy of this intervention. The most direct evidence on sensory integration therapy outcomes derives from several RCTs. Although some of these trials demonstrated improvements for subsets of outcomes measured, they had small sample sizes, heterogeneous patient populations, and variable outcome measures. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have developmental disorders who receive auditory integration therapy, the evidence includes systematic reviews of RCTs. Relevant outcomes are functional outcomes and quality of life. For auditory integration therapy, the largest body of literature relates to its use in ASD. Several systematic reviews of auditory integration therapy in the treatment of autism have found limited evidence to support its use. No comparative studies identified evaluated use of auditory integration therapy for other conditions. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Supplemental Information

The purpose of the following information is to provide reference material. Inclusion does not imply endorsement or alignment with the evidence review conclusions.

Practice Guidelines and Position Statements

Guidelines or position statements will be considered for inclusion in 'Supplemental Information' if they were issued by, or jointly by, a US professional society, an international society with US representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

American Academy of Pediatrics

A 2012 policy statement by the American Academy of Pediatrics on sensory integration therapy for children with developmental and behavioral disorders stated that "occupational therapy with the use of sensory-based therapies may be acceptable as one of the components of a comprehensive treatment plan. However, parents should be informed that the amount of research regarding the effectiveness of sensory integration therapy is limited and inconclusive." ¹⁴ The American Academy of Pediatrics indicated that these limitations should be discussed with parents, along with instructions on how to evaluate the effectiveness of a trial period of sensory integration therapy.

American Occupational Therapy Association

The 2015 American Occupational Therapy Association (AOTA) guidelines stated: "American Occupational Therapy Association (AOTA) recognizes sensory integration as one of several theories and methods used by occupational therapists and occupational therapy assistants

working with children in public and private schools...to “enhanc[e] a person’s ability to participate in life through engagement in everyday activities....When children demonstrate sensory, motor, or praxis deficits that interfere with their ability to access the general education curriculum, occupational therapy using a sensory integration approach is appropriate.”¹⁵

In 2011, the American Occupational Therapy Association (AOTA) published evidence-based occupational therapy practice guidelines for children and adolescents with challenges in sensory processing and sensory integration.¹⁶ The AOTA gave a level C recommendation for sensory integration therapy for individual functional goals for children, for parent-centered goals, and for participation in active play in children with sensory processing disorder, and to address play skills and engagement in children with autism. A level C recommendation is based on “...weak evidence that the intervention can improve outcomes, and the balance of the benefits and harms may result either in a recommendation that occupational therapy practitioners routinely provide the intervention ... or in no recommendation because the balance of the benefits and harm is too close to justify a general recommendation.” Specific performance skills evaluated were motor and praxis skills, sensory-perceptual skills, emotional regulation, and communication and social skills. There was insufficient evidence to recommend sensory integration therapy for academic and psychoeducational performance (e.g., math, reading, written performance).

American Speech-Language-Hearing Association

In 2002, the American Speech-Language-Hearing Association Work Group on Auditory Integration Therapy concluded that auditory integration therapy has not met scientific standards for efficacy that would justify its practice by audiologists and speech-language pathologists.¹⁷

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 3.

Table 3. Summary of Key Trials

| NCT/ISRCTN Number | Trial Name | Planned Enrollment | Completion Date |
|--------------------|--|--------------------|-----------------|
| <i>Ongoing</i> | | | |
| NCT04696133 | Therapeutic Outcomes of Sensory Integration Versus Fine Motor Intervention in Children With Autism | 50 | May 2021 |
| <i>Unpublished</i> | | | |
| ISRCTN14716440 | A Trial of Sensory Integration Therapy Versus Usual Care for Sensory Processing Difficulties in Autism Spectrum Disorder in Children | 138 | Sept 2020 |
| NCT02536365 | Sensory Integration Therapy in Autism: Mechanisms and Effectiveness | 180 | Dec 2021 |

ISRCTN: International Standard Randomised Controlled Trial Number; NCT: national clinical trial.

References

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2. Blue Cross and Blue Shield Association Technology Evaluation Center (TEC). Sensory integration therapy. *TEC Assessment*. 1999;Volume 14:Tab 22.

3. Schaaf RC, Burke JP, Cohn E, et al. State of measurement in occupational therapy using sensory integration. *Am J Occup Ther.* Sep-Oct 2014; 68(5): e149-53. PMID 25184475
4. Mailloux Z, May-Benson TA, Summers CA, et al. Goal attainment scaling as a measure of meaningful outcomes for children with sensory integration disorders. *Am J Occup Ther.* Mar-Apr 2007; 61(2): 254-9. PMID 17436848
5. Parham LD, Cohn ES, Spitzer S, et al. Fidelity in sensory integration intervention research. *Am J Occup Ther.* Mar-Apr 2007; 61(2): 216-27. PMID 17436844
6. Weitlauf AS, Sathe N, McPheeters ML, et al. Interventions Targeting Sensory Challenges in Autism Spectrum Disorder: A Systematic Review. *Pediatrics.* Jun 2017; 139(6). PMID 28562287
7. Case-Smith J, Weaver LL, Fristad MA. A systematic review of sensory processing interventions for children with autism spectrum disorders. *Autism.* Feb 2015; 19(2): 133-48. PMID 24477447
8. Brondino N, Fusar-Poli L, Rocchetti M, et al. Complementary and Alternative Therapies for Autism Spectrum Disorder. *Evid Based Complement Alternat Med.* 2015; 2015: 258589. PMID 26064157
9. Watling R, Hauer S. Effectiveness of Ayres Sensory Integration(R) and Sensory-Based Interventions for People With Autism Spectrum Disorder: A Systematic Review. *Am J Occup Ther.* Sep-Oct 2015; 69(5): 6905180030p1-12. PMID 26356655
10. May-Benson TA, Koomar JA. Systematic review of the research evidence examining the effectiveness of interventions using a sensory integrative approach for children. *Am J Occup Ther.* May-Jun 2010; 64(3): 403-14. PMID 20608272
11. Corbett BA, Shickman K, Ferrer E. Brief report: the effects of Tomatis sound therapy on language in children with autism. *J Autism Dev Disord.* Mar 2008; 38(3): 562-6. PMID 17610057
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13. Porges SW, Bazhenova OV, Bal E, et al. Reducing auditory hypersensitivities in autistic spectrum disorder: preliminary findings evaluating the listening project protocol. *Front Pediatr.* 2014; 2: 80. PMID 25136545
14. Zimmer M, Desch L, Rosen LD, et al. Sensory integration therapies for children with developmental and behavioral disorders. *Pediatrics.* Jun 2012; 129(6): 1186-9. PMID 22641765
15. Occupational Therapy for Children and Youth Using Sensory Integration Theory and Methods in School-Based Practice. *Am J Occup Ther.* Nov-Dec 2015; 69 Suppl 3: 6913410040p1-6913410040p20. PMID 26713950
16. Watling R, Koenig KP, Davies PL, et al. Occupational therapy practice guidelines for children and adolescents with challenges in sensory processing and sensory integration. Bethesda, MD: American Occupational Therapy Association Press; 2011.
17. American Speech-Language-Hearing Association, Working Group in AIT. Auditory Integration Training [Technical Report:]. 2004; <https://www.asha.org/policy/ps2004-00218/>. Accessed February 23, 2021.
18. Blue Cross Blue Shield Association. Medical Policy Reference Manual, No. 8.03.13 (March 2021).

Documentation for Clinical Review

- No records required

Coding

This Policy relates only to the services or supplies described herein. Benefits may vary according to product design; therefore, contract language should be reviewed before applying the terms of the Policy.

The following codes are included below for informational purposes. Inclusion or exclusion of a code(s) does not constitute or imply member coverage or provider reimbursement policy. Policy Statements are intended to provide member coverage information and may include the use of some codes for clarity. The Policy Guidelines section may also provide additional information for how to interpret the Policy Statements and to provide coding guidance in some cases.

| Type | Code | Description |
|-------|-------|--|
| CPT® | 97533 | Sensory integrative techniques to enhance sensory processing and promote adaptive responses to environmental demands, direct (one-on-one) patient contact, each 15 minutes |
| HCPCS | None | |

Policy History

This section provides a chronological history of the activities, updates and changes that have occurred with this Medical Policy.

| Effective Date | Action |
|----------------|---|
| 06/07/2000 | BCBSA Medical Policy adoption |
| 04/01/2001 | Policy revision without position change |
| 01/11/2008 | Policy reviewed, updated with BCBSA; no change in position |
| 10/01/2010 | Policy revision without position change |
| 08/23/2013 | Policy revision without position change. Policy placed on No Further Routine Literature Review and Update status. |
| 06/30/2015 | Coding update |
| 05/01/2016 | Policy title change from Sensory Integration Therapy Policy revision without position change |
| 05/01/2017 | Policy revision without position change |
| 05/01/2018 | Policy revision without position change |
| 05/01/2019 | Policy revision without position change |
| 05/01/2020 | Annual review. No change to policy statement. Literature review updated. |
| 05/01/2021 | Annual review. No change to policy statement. Policy guidelines and literature updated. |

Definitions of Decision Determinations

Medically Necessary: Services that are Medically Necessary include only those which have been established as safe and effective, are furnished under generally accepted professional standards to treat illness, injury or medical condition, and which, as determined by Blue Shield, are: (a) consistent with Blue Shield medical policy; (b) consistent with the symptoms or diagnosis; (c) not furnished primarily for the convenience of the patient, the attending Physician or other provider; (d) furnished at the most appropriate level which can be provided safely and effectively to the patient; and (e) not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of the Member's illness, injury, or disease.

Investigational/Experimental: A treatment, procedure, or drug is investigational when it has not been recognized as safe and effective for use in treating the particular condition in accordance with generally accepted professional medical standards. This includes services where approval by the federal or state governmental is required prior to use, but has not yet been granted.

Split Evaluation: Blue Shield of California/Blue Shield of California Life & Health Insurance Company (Blue Shield) policy review can result in a split evaluation, where a treatment,

procedure, or drug will be considered to be investigational for certain indications or conditions, but will be deemed safe and effective for other indications or conditions, and therefore potentially medically necessary in those instances.

Prior Authorization Requirements (as applicable to your plan)

Within five days before the actual date of service, the provider must confirm with Blue Shield that the member's health plan coverage is still in effect. Blue Shield reserves the right to revoke an authorization prior to services being rendered based on cancellation of the member's eligibility. Final determination of benefits will be made after review of the claim for limitations or exclusions.

Questions regarding the applicability of this policy should be directed to the Prior Authorization Department at (800) 541-6652, or the Transplant Case Management Department at (800) 637-2066 ext. 3507708 or visit the provider portal at www.blueshieldca.com/provider.

Disclaimer: This medical policy is a guide in evaluating the medical necessity of a particular service or treatment. Blue Shield of California may consider published peer-reviewed scientific literature, national guidelines, and local standards of practice in developing its medical policy. Federal and state law, as well as contract language, including definitions and specific contract provisions/exclusions, take precedence over medical policy and must be considered first in determining covered services. Member contracts may differ in their benefits. Blue Shield reserves the right to review and update policies as appropriate.

Appendix A

| POLICY STATEMENT (No changes) | |
|---|---|
| BEFORE | AFTER |
| Sensory Integration Therapy and Auditory Integration Therapy 8.03.13 Policy Statement: Sensory integration therapy and auditory integration therapy are considered investigational . | Sensory Integration Therapy and Auditory Integration Therapy 8.03.13 Policy Statement: Sensory integration therapy and auditory integration therapy are considered investigational . |