



CIGNA HEALTHCARE COVERAGE POSITION

**Subject Sensory and Auditory
Integration Therapy -
Facilitated Communication**

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Coverage Position

CIGNA HealthCare does not cover sensory integration therapy (SIT), auditory integration therapy (AIT) or facilitated communication (FC) therapy because they are considered experimental, investigational or unproven.

Note: This Coverage Position does not address sensory desensitization therapy.

General Background

Sensory Integration Therapy (SIT)

Sensory integration therapy (SIT) has been proposed as a method to improve the way the brain processes and organizes external stimuli, such as touch, movement, body awareness, sight and sound. SIT is usually performed by occupational or physical therapists, who provide sensory stimulation in combination with muscle activities, theoretically in order to improve how the brain processes and organizes sensory information. SIT usually requires activities that involve full-body movement using different kinds of equipment, such as scooter boards, swings, ramps and textured mitts. Therapy is given in one to three sessions per week over several months or a few years, with sessions typically lasting 60–90 minutes. SIT was originally developed as a treatment for learning disabilities and subsequently has been proposed as treatment for autism, mental retardation, Down syndrome, and developmental delays. Definitive patient selection criteria have not been established for SIT.

Researchers hypothesize that a sensory integration (SI) disorder can cause academic difficulties that might initially be diagnosed as a learning disability. Learning-disabled children have normal intelligence, as measured by intelligence quotient (IQ) testing. However, their academic skills are considered delayed for their age. In order to be classified as having SI disorders, therapists indicate that learning-disabled children must display such symptoms as problems with motor function or physical coordination. These children are often described as clumsy, but standardized testing must reveal difficulties in the processing of vestibular, proprioceptive, or tactile stimuli. Proponents of SIT believe that SI dysfunctions contribute to learning disabilities, since up to 70% of children with learning disabilities have SI disorders (Hayes, 2004).

The following are classifications of the general areas in which a child is tested to support the diagnosis of SI dysfunction (Hayes, 2004):

- Dysfunction in the vestibular system: This is usually indicated by a decreased duration of nystagmus (i.e., a repetitive eye motion, following spinning of the child).
- Apraxia: This is a disorder in the planning and executing of motor acts, and identification is based on difficulty with imitating the posture of another person.
- Disorders in space perception: This may cause the child to stand too close to another person.
- Auditory or language problems
- Tactile defensiveness: This may be defined as physical or emotional discomfort when touched by an examiner during tests of tactile perception.

Numerous neuropsychological batteries have been developed to evaluate levels of dysfunction with relation to these five categories of SI disorders. These lengthy tests, which comprise multiple subtests, are administered by individuals who are certified by a private organization, SI International (Torrance, CA). These tests include (Hayes, 2004):

- Southern California SI Tests
- Southern California Postrotary Nystagmus Test
- SI and Praxis Tests

Literature Review for Sensory Integration Therapy

Miller et al. (2007) conducted a pilot, randomized controlled trial of the effectiveness of occupational therapy using a sensory integration approach (OT-SI) in children with sensory modulation disorders (SMDs). SMDs are impairments in regulating the degree, intensity and nature of responses to sensory input, resulting in considerable problems with daily roles and routines. The trial included 24 children who were randomly assigned to one of three treatment conditions: OT-SI (n=7), activity protocol (n=10) and no treatment (n=7). Pretest and post-test measurements of behavior, sensory and adaptive functioning, and physiology were performed at baseline and at 10 weeks. As compared to the other groups, the OT-SI group made significant gains on goal attainment scaling (GAS) ($p < 0.001$ compared to no treatment and activity protocol) and on the Attention subtest ($p = 0.03$ compared to no treatment; $p = 0.07$ compared to activity protocol) and the Cognitive/Social composite of the Leiter International Performance Scale-Revised ($p = 0.02$ compared to activity protocol). The OT-SI group showed improvement trends in the hypothesized direction on the Short Sensory Profile, Child Behavior Checklist and electrodermal reactivity. Larger randomized controlled studies are needed to determine whether OT-SI is an effective intervention, for which patients, and what conditions.

A review of SI outcomes research in relation to faithfulness of intervention to underlying therapeutic principles or fidelity was performed (Parham, et al., 2007). The review included 34 studies which were analyzed for consistency of intervention descriptions with the following elements: structural (e.g., equipment used, therapist training) and therapeutic process categories. The reviewers made the following findings:

- Most studies described structural elements related to therapeutic equipment and interveners' profession.
- Only one of the 10 process elements, presentation of sensory opportunities, was addressed in all studies. Most studies described fewer than half of the process elements.

- Intervention descriptions in 35% of the studies were inconsistent with one process element, therapist-child collaboration.

The authors note that the validity of SI outcomes studies is affected by weak fidelity in regard to the therapeutic process.

Watling and Dietz (2007) reported on a study of the effect of Ayres's sensory integration-based occupational therapy on the behavior and task engagement of four children with autism spectrum disorders (ASD). The single-subject study used an ABAB design to compare the immediate effect of SI and a play scenario on the undesired behavior and task engagement. The participants each received a different number of study sessions due to absences and different enrollment dates. The sessions ranged from 31 to 34. The results indicated that no clear patterns of change in undesired behavior or task management emerged through objective measurements. The subject data suggested that each child exhibited positive changes during and after intervention.

Smith et al. (2005) conducted a study for the purpose of comparing the effects of occupational therapy, using a sensory integration approach along with a control intervention of tabletop activities, on the frequency of self-stimulating behaviors. The study involved seven children, ranging in age from 8–19, diagnosed with pervasive developmental delay and mental retardation. The study took place over a four-week time period. During the second and fourth weeks, a sensory integration treatment was provided for daily 30-minute sessions, five times a week. During the first and third weeks, a 30-minute controls session was provided, following the same schedule. The study found that the frequency of self-stimulating and self-injurious behaviors declined during the weeks when SIT was provided. Limitations with the study included the small sample size, use of a single clinical site, and the short-term follow-up. It was noted that continued research is needed to examine the long-term effects of more extensive intervention.

Dawson and Watling (2000) conducted a systematic review of the research regarding the effectiveness of interventions for sensory and motor abnormalities in autism. The interventions included SIT and auditory integration training (AIT). Four studies on the effectiveness of sensory integration therapy in autism that utilized objective measures of behavior to assess outcome were found. All but one had sample size of fewer than six subjects. None of the studies had a comparison group. One study that had a larger sample size and better design found no change in vocal behavior following brief participation in sensory activities. Five studies were found regarding the effectiveness of auditory integration training, three of which included a control condition. Two of the studies that included a control condition found improvement in both AIT and control conditions. The third study that included control conditions did find improvement in the AIT condition as compared to the control condition; however, it was noted that there were methodological difficulties with this study. The review concluded that although sensory and motor impairments are commonly found in autism, the interventions developed to address them have not been well validated. In the case of SIT, it was noted, "there exist so few studies that conclusions cannot be drawn" (Dawson and Watling, 2000). In the case of AIT, it is noted that "there is no, or at best equivocal support for this intervention approach based on the available controlled studies" (Dawson and Watling, 2000). There is little known regarding which ages or subgroups of individuals are most likely to benefit from therapies addressing sensory and motor difficulties, and further research is recommended.

A meta-analysis was conducted for the purpose of determining whether existing studies of treatment using sensory integration approaches support the efficacy of this method (Vargas, et al., 1999). Sixteen studies were used to compare SIT with no treatment, and 16 studies were used to compare SIT with alternative treatments. The review noted that there was a significant difference between the average size of effect of the earlier studies compared to the more recent studies. The authors concluded that in the SIT and no treatment studies, the recent studies did not demonstrate an overall positive effect and that the sensory integration methods were found to be as effective as various alternative treatment methods.

The peer-reviewed literature fails to demonstrate that SIT, compared with other treatments or with no treatment, provides clinically relevant, long-term improvements in outcomes in children with learning disabilities, Down syndrome, developmental disorders or SI disorders. Studies of SIT in children with cerebral palsy or autism are also lacking, and therefore the evidence is insufficient to evaluate SIT for these indications as well.

Professional Societies/Organizations for Sensory Integration Therapy

An assessment conducted by the National Academy of Sciences (NAS) concluded that there is insufficient evidence as to the effectiveness of SIT for autism. The NAS report states that there is a paucity of research concerning SIT in autism and that these interventions have not yet been supported by empirical studies (NAS, 2001).

The American Academy of Pediatrics (AAP) Committee on Children with Disabilities has stated that the scientific legitimacy of SIT has not been established for children with motor disabilities (Michaud, et al., 2004).

The Association for Science in Autism Treatment (ASAT) has noted in a viewpoint appearing on their website that the overwhelming scientific evidence indicates that SIT is ineffective and that practitioners of this therapy need to provide reliable evidence of its effectiveness instead of opinions and anecdotal reports (Fox, 2004).

Auditory Integration Therapy (AIT)

Auditory integration therapy or training (AIT) refers to listening to music that has been computer modified to remove frequencies to which an individual demonstrates hypersensitivities and to reduce the predictability of auditory patterns. A special device is used to modify the music for the treatment sessions. The treatment program consists of 20 half-hour sessions during a 10- to 12-day period, with two sessions daily. Auditory thresholds are determined via audiograms. The audiogram is then reviewed for evidence of hyperacusis (i.e., an abnormal sensitivity to sound). A clinical history of sound sensitivities and behavior is also reviewed. Audiograms are repeated midway and at the end of the training session to document progress and to determine whether further treatment sessions are necessary. AIT is usually provided by a speech-pathologist or audiologist. This treatment has been proposed for improving abnormal sound sensitivity in individuals with behavioral disorders, including autism spectrum disorders.

Literature Review for Auditory Integration Therapy

Mudford et al. (2000) performed a crossover study for the purpose of evaluating the benefits of auditory integration training for children with autism. There were 16 children who had been diagnosed with autism involved in the study, with all children receiving both treatments. There were at least four months between treatments. The control treatment was conducted by the auditory integration training providers in an identical room with identical procedures, with the difference being that the headphones used were nonfunctional. The measures included parent and teacher ratings of behavior, direct observational recordings, IQ, language, and social/adaptive tests. It was noted that significant differences tended to show that the control condition was superior on parent-rated measures of hyperactivity and on direct observational measures of ear-occlusion, and no difference was detected on teacher-rated measures. The children's IQ and language comprehension did not increase; however, adaptive/social behavior scores and expressive language quotients decreased. The authors concluded that no children could be identified as benefiting from AIT clinically or educationally to any significant degree.

A Cochrane review was conducted with the objective of determining the effectiveness of AIT or other methods of sound therapy in individuals with autism spectrum disorders (Sinha, et al., 2004). Six randomized controlled trials of AIT were identified, including one crossover trial. Four trials had fewer than 20 patients involved in the study. Seventeen different outcome measures were used. It was noted in the review that due to the high heterogeneity or presentation of data in unusable forms, a meta-analysis was not possible. It was noted that three studies did not demonstrate the benefit of AIT over the control conditions. Three trials reported improvements at three months for the AIT group with the Aberrant Behavior Checklist (ABC), which is of questionable validity. The reviewers concluded, "Further research is needed to determine the effectiveness of sound therapies. In the absence of evidence, the treatment must be considered experimental and care must be taken not to risk hearing loss" (Sinha, et al., 2004). Sinha et al. published a systematic review in 2006. This review incorporated the same studies and findings that were included in the 2004 Cochrane review. There were no additional studies included. The authors concluded that at the present time there is not sufficient evidence to support the use of AIT (Sinha, et al., 2006).

A review of the scientific literature does not support the efficacy of AIT for the treatment of patients with learning disabilities, autism, and other behavioral disorders.

Professional Societies/Organizations for Auditory Integration Therapy

The American Speech-Language-Hearing Association (ASHA) prepared an evidenced-based technical report regarding AIT (ASHA, 2004). They noted that, despite approximately one decade of practice, this method has not met scientific standards for efficacy and safety that would justify its inclusion as a mainstream treatment for a variety of communication, behavioral, emotional and learning disorders.

An assessment conducted by the National Academy of Sciences (NAS) concluded that there is insufficient evidence of the effectiveness of AIT for autism. The NAS report states that there is a paucity of research concerning AIT in autism and that these interventions have not yet been supported by empirical studies (NAS, 2001).

The American Academy of Audiology (AAA) has published a position statement regarding AIT (AAA, 1993). The statement notes that “that there are no published results of peer-reviewed studies using controlled populations and using scientific methods that demonstrated whether this auditory training program provides significant improvement in any dimension for any population.” It is also noted that the organization believes this training to be entirely investigational, and further research is needed to demonstrate the efficacy.

The Educational Audiology Association (EAA) issued a position statement regarding AIT (EAA, 1997). They stated that “Auditory integration therapy has not been proven to be a viable treatment for any disability. Only inconsistent, uncontrolled, anecdotal evidence has been provided to support claims of changes in auditory performance.” In addition, the position statement noted that without controls to protect against excessively loud auditory stimuli, AIT may cause harm to the auditory system.

The AAP has published a statement regarding two treatments proposed for autism (i.e., AIT and facilitated communication) (AAP, 1998). They have noted that, as yet, there are no good controlled studies to support the use of AIT for children with autism. It is also noted that, until further information is available, the use of these treatments does not appear warranted at this time, except within research protocols.

Facilitated Communication (FC)

Facilitated Communication (FC) is a method of providing assistance to a nonverbal person by typing out words using a typewriter, computer keyboard, or other communication device. FC involves supporting the individual's hand to make it easier for him or her to indicate the letters that are chosen sequentially to develop the communicative statement. Proponents claim that this manual prompting by a trained facilitator provides expressive language abilities to a wide range of individuals, including those with severe intellectual disabilities or autism. FC has been at the center of a growing controversy, because several scientific studies have suggested that facilitators may unintentionally influence the communication, perhaps to the extent of actually selecting the words themselves. A review of the scientific literature has shown many controlled studies with consistently negative findings, indicating that the technique is neither reliably replicable nor valid. Methods used have included single- and double-blind procedures, repeated measures and self-controls, and passing messages about which the facilitator had no prior information.

Professional Societies/Organizations for Facilitated Communication

The AAP has published a statement regarding two treatments proposed for autism: AIT and facilitated communication. According to the AAP, there is good scientific data showing FC to be ineffective; therefore, its use does not appear warranted at this time (AAP, 1998).

The American Academy of Child & Adolescent Psychiatry (AACAP) published a policy statement regarding facilitated communication that states, “Studies have repeatedly demonstrated that FC is not a scientifically valid technique for individuals with autism or mental retardation. In particular, information obtained via FC should not be used to confirm or deny allegations of abuse or to make diagnostic or treatment decisions” (AACAP, 1993).

The American Psychological Association (APA) has adopted the position that facilitated communication is a controversial and unproven communicative procedure with no scientifically demonstrated support for its efficacy (APA, 1994).

Summary

A review of the scientific literature does not support the efficacy of sensory integration therapy (SIT), auditory integration therapy (AIT) or facilitated communication (FC) for autism, mental retardation, developmental delays, behavioral disorders, or other medical conditions. In addition, these treatments are not accepted by the professional organizations that are involved in the care of these conditions. These interventions are considered investigational and unproven.

Coding/Billing Information

Note: This list of codes may not be all-inclusive.

Experimental/Investigational/Unproven/Not Covered:

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

HCPCS Codes	Description
	No specific codes

ICD-9-CM Diagnosis Codes	Description
	All codes

*Current Procedural Terminology (CPT®) © 2007 American Medical Association: Chicago, IL.

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