BlueCross BlueShield of Louisiana

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Sensory Integration Therapy

Policy # 00174
Original Effective Date: 08/24/2005
Current Effective Date: 10/16/2013

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Services Are Considered Investigational
Coverage is not available for investigational medical treatments or procedures, drugs, devices or biological products.

Based on review of available data, the Company considers sensory integration therapy to be **investigational.***

Background/Overview

Sensory integration (SI) therapy has been proposed as a treatment of developmental disorders in patients with established dysfunction of sensory processing, e.g., children with autism, attention deficit hyperactivity disorder (ADHD), brain injuries, fetal alcohol syndrome, and neurotransmitter disease. Sensory integration therapy may be offered by occupational and physical therapists who are certified in SI therapy.

The goal of SI therapy is to improve the way 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. A related method, auditory integration therapy, involves 10 hours of listening to electronically modified music over the course of 10 days.

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 SI theory. Two organizations currently offer certification for SI therapy; Sensory Integration International (SII), a non-profit branch of the Ayres Clinic in Torrence, Calif, and Western Psychological Services, a private organization that has a collaborative arrangement with University of Southern California (USC), Los Angeles, to offer SI training through USC's Department of Occupational Science and Therapy. The sessions are often provided as part of a comprehensive occupational therapy or cognitive rehabilitation therapy and may last for more than one year.

Rationale/Source

A 1999 TEC Assessment that compared the outcomes of SI therapy with that of standard occupational/physical therapy among children with autism, mental retardation, or learning disabilities. The literature at that time consisted of 1 study that focused on the use of SI therapy in patients with autism and 3 studies that focused on patients with mental retardation; these 3 studies were inconsistent in their results regarding the superiority of SI. Eleven studies were identified that in total included more than 600 learning disabled children. Studies that used random assignment and blinded assessors suggested that SI therapy was not superior to conventional therapy, and, in many cases, was not even demonstrably superior to any

treatment at all. A 1999 meta-analysis also reported that the most recent studies of SI therapy did not seem to support its effectiveness. Periodic literature searches have primarily identified small case series. Systemic reviews and comparative studies are described here.

Systematic Reviews

Case-Smith and Arbesman reviewed the evidence for SI therapy as part of a systematic review of interventions for autism used in occupational therapy in 2008. The authors identified one level-1 study, which was a systematic review from 2002 that had found only lower quality evidence (levels III and IV, with small sample size and lack of control groups), suggesting that SI intervention was associated with positive changes in social interaction, purposeful play, and decreased sensitivity. It was concluded that "although each of these studies had positive findings, when combined, the evidence remains weak and requires further study."

May-Benson and Koomar published a systematic review of SI therapy in 2010. The review identified 27 research studies (13 level-I randomized trials) that met the inclusion criteria. Most of the studies had been performed in children with learning or reading disabilities; there were 2 case reports/small series on the effect of SI therapy in children with autism. The review concluded that although the SI approach may result in positive outcomes, findings may be limited because of small sample sizes, variable intervention dosage, lack of fidelity to intervention, and selection of outcomes that may not be meaningful or may not change with the treatment provided.

A 2011 Cochrane review evaluated auditory integration training along with other sound therapies for autism spectrum disorders. Included were 6 randomized controlled trials of auditory integration therapy and one of Tomatis therapy, involving a total of 182 subjects aged 3 to 39 years. For most of the studies, the control condition consisted of listening to unmodified music for the same time as the active treatment group. Allocation concealment was inadequate for all studies, and 5 of the trials had fewer than 20 participants. Meta-analysis 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 did not achieve statistical significance. The review found no evidence that auditory integration therapy is an effective treatment for autism spectrum disorders; however, evidence was not sufficient to prove that it is not effective.

Controlled Trials

The Sensory Processing Disorders Scientific Workgroup has 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. In 2007, members of the workgroup also reported results from a single institution randomized pilot study for a proposed multicenter trial. Thirty families (of approximately 140 who met the inclusion/exclusion criteria) agreed to participate over a 3-year period. The children had a clinical diagnosis of sensory modulation disorder following a comprehensive evaluation with standardized and clinical testing (including responses to sensory stimuli, attempts by the child to self-regulate, behavioral disorganization, and somatic responses to the testing situations). The 24 children who began treatment were randomly assigned to 1 of 3 groups consisting of occupational therapy with SI (2 times per week for 10 weeks, n = 7), equivalent activity control

sessions (n = 10), or a waiting-list control group (n = 7). Functional improvements were assessed by 5 validated/standardized parental rating scales. Significant improvements relative to both control groups were obtained for Goal Attainment Scaling (37 vs. 14 vs. 7, consecutively). A number of the other outcome measures (Leitner International Performance Scale, Short Sensory Profile, Internalizing on the Child Behavior Checklist) showed trends for improvement in this small study. Additional study with a larger number of subjects is needed.

Another pilot study, reported in 2011, randomized 37 children with a sensory processing disorder (21 with autism and 16 with pervasive developmental disorder not otherwise specified) to SI interventions or to fine motor interventions (18 treatments over 6 weeks). Fidelity to SI interventions was verified with a fidelity measure developed for research by Parham et al. Blinded evaluation at the conclusion of the intervention found no significant difference between the 2 groups on the Quick Neurological Screening Test (QNST) or sensory processing scores except for Autistic Mannerisms (e.g., stereotyped or self-stimulatory behavior) subscale. The SI group demonstrated greater improvement than the fine motor group on individualized Goal Attainment Scaling. Post-hoc analysis found that more children in the SI group were able to complete parts of the standardized QNST after the intervention. This finding is limited by the post-hoc analysis and the difference in the two groups at baseline.

In a 2003 study of 45 children with Down's syndrome divided into 3 treatment groups (sensory integrative therapy alone, vestibular stimulation combined with sensory integrative therapy, and neurodevelopmental therapy), Uyanik and colleagues reported greater improvements in outcomes in the vestibular stimulation with SI therapy group and in the neurodevelopmental therapy group when compared to the SI therapy alone group. Outcomes assessed were the Ayres Southern California Sensory Integration Test, Pivot Prone Test, Gravitational Insecurity Test, and Pegboard Test along with physical assessment. The authors concluded all methods of treatment should be considered when planning rehabilitation therapies for children with Down's syndrome, even though sensory integrative therapy alone was not shown to be superior to the other therapy groups.

Summary
Overall, the evidence remains insufficient to evaluate the effect of this treatment on health outcomes. As noted by Kratz, "there exists very little research that supports the effectiveness of any intervention for children with chronic or mild disabilities across all disciplines." Due to the individual nature of SI therapy and the large variation in individual therapists and patients, large multicenter randomized controlled trials are needed to evaluate the efficacy of this intervention. Therefore, the technology remains investigational.

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Code Type	Code
CPT	97533
HCPCS	No code
ICD-9 Diagnosis	299.000 thru 299.01, 315.00 thru 315.9, 319
ICD-9 Procedure	No code

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Next Scheduled Review Date: 10/2014

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B. whether the medical treatment, procedure, drug, device, or biological product requires further studies or clinical trials to determine its maximum tolerated dose, toxicity, safety, effectiveness, or effectiveness as compared with the standard means of treatment or diagnosis, must improve health outcomes, according to the consensus of opinion among experts as shown by reliable evidence, including:
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